



AGENDA  
CITY OF GLENWOOD SPRINGS  
REGULAR CITY COUNCIL MEETING  
SEPTEMBER 2, 2021  
101 W. 8<sup>TH</sup> STREET  
6:15 PM

The agenda is subject to *change, including the addition of items 24 hours in advance or the deletion of items at any time.*  
*The order and times of agenda items listed are approximate and intended as a guideline for the City Council.*

**ZOOM INSTRUCTIONS**

1. You are invited to a Zoom webinar.

When: Sep 2, 2021 06:15 PM Mountain Time (US and Canada)

Topic: 2021/08/02 Regular Council Meeting

Please click the link below to join the webinar:

<https://us02web.zoom.us/j/86319164942>

Or One tap mobile :

US: +13462487799,,86319164942# or +16699006833,,86319164942#

Or Telephone:

Dial(for higher quality, dial a number based on your current location):

US: +1 346 248 7799 or +1 669 900 6833 or +1 253 215 8782 or +1 312 626 6799 or +1 929 205 6099 or +1 301 715 8592

Webinar ID: 863 1916 4942

International numbers available: <https://us02web.zoom.us/j/kcwFQPNLXU>

**WORK SESSION**

- |      |                                                                                                                                  |                        |
|------|----------------------------------------------------------------------------------------------------------------------------------|------------------------|
| 3:30 | 2. <u>2022 Work Session on Public Works Budgets:</u><br>-Street Tax<br>-Water/Wastewater<br>-Broadband<br>-Electric<br>-Landfill | Information/Discussion |
|------|----------------------------------------------------------------------------------------------------------------------------------|------------------------|

**REGULAR SESSION**

- |      |                                                                          |
|------|--------------------------------------------------------------------------|
| 6:15 | 3. Roll Call<br>4. Pledge of Allegiance<br>5. Agenda Changes & Conflicts |
|------|--------------------------------------------------------------------------|

6. Citizens Appearing Before Council (for items not on the Agenda-comments limited to 3 minutes)
7. Council Comments
8. Consent Agenda

*All matters under consent are considered to be routine and will be enacted by one motion and vote. The titles will not be read aloud. There will be no separate discussion on these items unless a Councilmember or Audience Member so requests.*

- A. Adventure Paragliding Lease Renewal
- B. August 5, 2021 City Council Minutes
- C. August 19, 2021 City Council Minutes

#### **ACTIONS AND/OR PRESENTATIONS**

9. Resolution 2021-20: A resolution of the City of Glenwood Springs calling an election on November 2, 2021 and certifying a ballot issue to authorize an excise tax on admissions; setting the ballot title and content for the ballot issue; and providing other matters relating to the election. Discussion and/or Action
10. Resolution 2021-21: A resolution of the City of Glenwood Springs calling an election on November 2, 2021 and certifying a ballot issue to authorize an excise tax on accommodations; setting the ballot title and content for the ballot issue; and providing other matters relating to the election. Discussion and/or Action
11. Resolution 2021-22: A resolution of the City of Glenwood Springs calling an election on November 2, 2021 and certifying a ballot issue to authorize a mill levy to provide the operational and capital costs of providing, maintaining and expanding the municipal airport; setting the ballot title and content for the ballot issue; and providing other matters relating to the election. Discussion and/or Action
12. Ordinance #12 - Series of 2021 Enabling ballot measures and setting forth authorized uses of tax proceeds. Discussion and/or Action
13. Resolution 2021-23: A Resolution of the City of Glenwood Springs calling an election on November 2, 2021 and certifying a ballot issue to amend the Glenwood Springs City Charter Section 13.2. Discussion and/or Action
14. VALE Board Appointments Discussion and/or Action
15. Ordinance 2021-15 Updating Boards and Commissions Discussion and/or Action
16. Planning File 58-20-Consideration of a Major Site Architectural Plan review for the construction of a 36-unit multifamily building. Discussion and/or Action
17. Ordinance 11, Series 2021 amending sections 090.040.070, 090.040.080 and 100.070.030 related to Snow Removal, Leaves in the Right of Way, and Snow Plowing and Street Sweeping Discussion and/or Action
18. Report from City Administration
  - A. City Manager
  - B. City Attorney
  - C. Correspondence Incoming/Outgoing
19. Adjournment







**City Council**  
**STAFF REPORT**  
**City of Glenwood Springs**  
**September 2, 2021**

**Agenda Item:** 2022 Work Session on Public Works Budgets:  
-Street Tax  
-Water/Wastewater  
-Broadband  
-Electric  
-Landfill

**Action Requested:** Guidance on Budgets

**Department:** City Administration

**Presented By:** Steve Boyd, COO  
Debra Figueroa, City Manager  
Yvette Gustad, Finance Director  
Matthew Langhorst, Public Works Director

**Background Info:** NA

**Issues:** NA

**Staff Recommendation:** NA



**City Council**  
**STAFF REPORT**  
**City of Glenwood Springs**  
**September 2, 2021**

**Agenda Item:** Adventure Paragliding Lease Renewal

**Action Requested:** Extension of the Agreement for Lease of Property between the City of Glenwood Springs and Adventure Paragliding, LLC

**Department:** Parks & Recreation

**Presented By:** Brian Smith, Recreation Director

**Background Info:** Adventure Paragliding LLC leases area in the "Lone Pine" City owned property, generally located South of the 14th Street Pedestrian Bridge, as a landing zone for their paragliding business operations. The agreement also allows the operation to launch from Lookout Mountain and from Red Mountain with a maximum number of flights per day limited to ten(10) from Lookout Mtn. and Thirty (30) from Red Mtn.

**Issues:** Parks and Recreation is exploring improvements to the adjacent O'Leary Dog Park as well as opportunities for expanded public use of the "Lone Pine" property. Additionally, RFTA is exploring options for a Bus Rapid Transit System along the Rio Grande Trail alignment that would relocate the existing trail toward the Roaring Fork River. A One-Year extension letter will allow both the City and RFTA to better identify potential uses of the property that may impact the current landing zone. A new lease agreement may be drafted next year stipulating changes in conditions and use of areas.

**Staff Recommendation:** Approve the One-Year extension to the lease agreement will all other terms and conditions of the lease remaining the same.

## AGREEMENT FOR LEASE OF PROPERTY TO BE EFFECTIVE JUNE 13, 2011

This AGREEMENT FOR LEASE OF PROPERTY TO BE EFFECTIVE JUNE 13, 2011 is made this 2 day of DECEMBER, 2010, between the CITY OF GLENWOOD SPRINGS, a Colorado home rule municipality ("Lessor") and ADVENTURE PARAGLIDING, LLC, a Colorado limited liability company ("Lessee").

### WITNESSETH:

**WHEREAS**, Lessee desires to lease Lessor's property at the following locations to conduct a paragliding business:

Sec. 9 in Lot 4 containing 1.2 acres more or less lying west of the DRGWR east of the Roaring Fork River as indicated on **Exhibit A** attached hereto and incorporated herein ("Landing Zone"); and

The NW1/4 SW1/4 of Section 11, Township 6 South, Range 89 West of the 6<sup>th</sup> Principal Meridian, containing 40 acres, more or less ("Lookout Mountain Launch"),

hereinafter collectively referred to as the "Properties".

**WHEREAS**, Lessor and Lessee are parties to an agreement for lease of this property through June 12, 2011; and

**WHEREAS**, Lessee desires to continue to lease the Properties from Lessor and Lessor desires to continue to lease the Properties to Lessee on the terms and conditions contained herein.

**NOW, THEREFORE**, in consideration of the mutual covenants and agreements herein contained, the parties hereto agree as follows:

1. Scope of Agreement. Lessor and Lessee are parties to an agreement dated June 13, 2006 which agreement terminates June 12, 2011, for use of the Properties. Lessee agrees to continue to use the Properties as part of Lessee's paragliding business operation.
2. Consideration. Lessee agrees to pay Three Dollars (\$3.00) per commercial tandem using Lessee's services and utilizing the Properties, excluding instructors, payable in monthly installments, due and payable on or before the first day of each month.
3. Term. This Agreement shall be effective as of June 13, 2011 and shall be for a period of five (5) years.
4. Conditions, Launch Sites, Landing Zone and Access.
  - 4.1 Lessee has inspected and accepts the Properties as is.
  - 4.2 Lessee may launch from Lookout Mountain until dusk on a given day.

- 4.3 There shall be a maximum of ten (10) commercial tandem flights per day from Lookout Mountain.
- 4.4 Lessee may launch from Red Mountain until 12:00 p.m. on a given day.
- 4.5 There shall be a maximum of thirty (30) commercial tandem flights per day from Red Mountain.
- 4.6 Lessee may use Lessor's roads to access the Red Mountain Launch.
- 4.7 There may be a maximum of five (5) vehicle trips per day on Red Mountain Road. Lessee agrees to maintain a safe vehicular speed while traveling on Red Mountain Road.
- 4.8 Travel on Red Mountain Road shall be obtained by an easement granted by KMTS Radio.
- 4.9 There may be no winter access to the Red Mountain launch site.
- 4.10 There shall be no vehicular access to the Landing Zone.
- 4.11 Lessor shall provide Lessee with thirty (30) days notice regarding the scheduling of special events which may occur on or near the Landing Zone or the Properties. All reasonable efforts shall be made to ensure that Lessee may utilize a portion of the Landing Zone during a special event. Lessee shall cooperate with Lessor regarding the scheduling of special events.
- 4.12 Additional site rules are attached hereto and incorporated herein as **Exhibit B.**

5. Trash. Lessee shall be responsible for trash removal from the Properties and the trash shall be disposed of off-site and in a legal manner. Lessee shall maintain the Properties trash and litter free at all times during the term of this Agreement.

6. Maintenance; Improvements, Additions and Alterations; Ownership; Removal; Surrender and Restoration..

6.1 Maintenance. Lessee shall maintain the Properties for safety, including but not limited to, installing wind flags and clearing out unwanted brush. Lessee expressly waives the benefit of any statute or case law now or hereafter in effect which would give Lessee the right to make repairs at Lessor's expense or to terminate this Agreement because of Lessor's failure to keep the Properties in good order and condition.

6.2 Improvements, Additions and Alterations. Lessee shall not make any improvements, additions or alterations in, on or about the Landing Zone other than those previously made by Lessee.

6.3 Ownership; Removal; Surrender/Restoration.

(a) Ownership. Any alteration, addition or improvement to the Landing Zone previously made by Lessee shall be the property of and owned by Lessee, but considered a part of the Landing Zone. Unless otherwise provided herein, all Lessee made alterations, additions or improvements at the Landing Zone shall, at the expiration or earlier termination of this Agreement, become the property of Lessor and remain upon

and be surrendered by Lessee with the Properties. Lessee's personal property shall remain the property of Lessee and may be removed by Lessee.

(b) Removal. Lessee, at its option, may remove such alterations, improvements or additions made by it in, on or about the Landing Zone. Any personal property, alterations, improvements or additions not removed by Lessee within thirty (30) days after the end of the term of this Agreement shall automatically become the property of Lessor. Lessee shall repair any material damage to the Properties caused by Lessee's removal of its personal property, alterations, improvements, or additions, but Lessee shall have no obligation to remove such items from the Landing Zone at any time.

(c) Surrender/Restoration. Lessee shall surrender the Properties by the end of the last day of the Agreement term or any earlier termination date, with all of the Properties in good condition, ordinary wear and tear excepted. "Ordinary wear and tear" shall not include any damage or deterioration that would have been prevented by reasonable maintenance practice or by Lessee performing all of its obligations under this Agreement.

7. Lessor's Access; Repairs. Lessor and Lessor's agents shall have the right to enter the Landing Zone at any time, in the case of an emergency, and otherwise at reasonable times for the purpose of showing the same to prospective purchasers, lenders, or tenants, and making such alterations, repairs, improvements or additions to the Landing Zone, or conducting activities as Lessor may reasonably deem necessary, provided such activities shall not interfere with Lessee's operations. All such activities of Lessor shall be without abatement of rent or liability under this Agreement.

8. Signs. Lessee may erect signs on the Properties, as Lessee may deem desirable if the signs do not violate the laws, rules or regulations of the local government.

9. Quiet Possession. Lessor covenants and agrees that so long as Lessee observes and performs all of the agreements and covenants required of it hereunder, Lessee shall peaceably and quietly have, hold and enjoy the Properties for the term without any encumbrance, interference or hindrance by Lessor, unless notice is provided under Section 4.11 above. If Lessee's use of the Properties is limited or denied through rezoning, environmental impact edict, or other action of any public or quasi-public agency or governmental authority, this Agreement, at the sole option of Lessee, shall terminate as of the effective date of such action and the rent applying to the unexpired portion of the term will abate.

10. Indemnity. To the extent permitted by law, each party to this Agreement shall hold harmless, indemnify and defend the other party, including the other party's employees, officers, agents and assigns, from any claim, lawsuit, or award of damages, to the extent such claims, lawsuit, or award of damages arise from the action or inaction of that party's own officers, employees and agents.

11. Insurance. Lessee has provided proof of general liability insurance to the City upon execution of this Agreement, which names Lessor as an "additional insured" thereunder,

with appropriate endorsements and with single limit liability coverage of at least Five Hundred Thousand Dollars (\$500,000.00). Lessee agrees to maintain this insurance during the term of this Agreement.

12. Governmental Immunity. Nothing herein shall be interpreted as a waiver of governmental immunity, to which Lessor would otherwise be entitled under Section 24-10-101, et seq., C.R.S., as amended.

13. Termination. Lessor or Lessee may terminate this Agreement for a material breach, default by the other party, or for any reason with thirty (30) days prior written notification.

14. Agreement Administration and Notice. Any notices required to be given pursuant to this Agreement shall be delivered as follows:

To the Lessor:                      City Manager and City Attorney  
City of Glenwood Springs  
101 West 8<sup>th</sup> Street  
Glenwood Springs, Colorado 81601

To the Lessee:                      Adventure Paragliding, LLC  
Pine Pienaar, President  
P.O. Box 1992  
Glenwood Springs, CO 81602  
970/274-1619

15. Responsibilities. Lessee shall be responsible for all damages to persons or property caused by the Lessee, its agents, employees or subcontractors, which may result from its negligent acts, errors and omissions hereunder, and shall indemnify and hold harmless Lessor from any claims or actions brought against Lessee by reason thereof. Lessor shall not be responsible for any loss or damages suffered by Lessee from Lessee's use of the Properties.

16. Default; Breach; Remedies.

16.1 Default. The occurrence of any of the following events constitutes a material default of this Agreement by Lessee:

(a) The failure by Lessee to make any payment of rent or any other payment required to be made by Lessee hereunder, as and when due, where the failure continues for a period of twenty (20) days after Lessee receives notice thereof from Lessor.

(b) The failure by Lessee to observe or perform any of the covenants, conditions or provisions of this Agreement to be observed or performed by Lessee, other than those described in subparagraph (a) above, where the failure continues for a period of thirty (30) days after Lessee receives notice thereof from

Lessor; provided, however, that if the nature of Lessee's default is such that more than thirty (30) days are reasonably required for its cure, then Lessee shall not be deemed to be in default if Lessee commences such cure within the thirty (30) day period and thereafter diligently completes the cure.

(c) The making by Lessee of any general assignment or general arrangement for the benefit of creditors; the filing by Lessee of a petition to have Lessee adjudged a bankrupt, or the judicial declaration of Lessee as bankrupt.

(d) The appointment of a trustee or receiver to take possession of substantially all of Lessee's assets located at the Properties or of Lessee's interest in this Agreement, if possession is not restored to Lessee within thirty (30) days.

(e) The attachment, execution or other judicial seizure of substantially all of Lessee's assets located at the Properties or of Lessee's interest in this Agreement, if the seizure is not discharged within thirty (30) days.

16.2 Remedies upon Lessee's Default. In the event of any such material default by Lessee, Lessor may, after giving notice as provided above, enter onto the Landing Zone, remove Lessee's property and take and hold possession of the Land Zone, and expel Lessee and pursue those remedies available to Lessor under the laws of the State of Colorado.

16.3 Default by Lessor. Lessor shall not be in default unless Lessor fails to perform any covenants, terms, provisions, agreements or obligations required of it within a reasonable time, but in no event later than thirty (30) days after notice by Lessee to Lessor; provided that if the nature of Lessor's obligation is such that more than thirty (30) days are reasonably required for performance, then Lessor shall not be in default if Lessor commences performance within the thirty (30) day period and thereafter diligently completes performance.

16.4 Remedies upon Lessor's Default. If Lessor defaults in the performance of any of the obligations or conditions required to be performed by Lessor under this Agreement, Lessor may, after giving notice as provided above, either cure the default and deduct the cost thereof from rent subsequently becoming due hereunder, or elect to terminate this Agreement upon giving thirty (30) days notice to Lessor of its intention to do so. In that event, this Agreement shall terminate upon the date specified in the notice, unless Lessor has meanwhile cured the default to the satisfaction of Lessee. In the event that any representations and warranties set forth in this Agreement shall cease to be the case, and if Lessor shall have failed to commence to cure within sixty (60) days after notice from Lessee and thereafter diligently completes the cure of the same, then, except as specifically provided elsewhere in this Agreement, Lessee shall have the right to terminate this Agreement upon notice to Lessor. Lessee may also pursue those remedies available to it under the laws of the State of Colorado.



17. Entire Agreement. This Agreement constitutes the entire agreement between the parties. The parties shall not be bound by any other agreements, either written or oral, except as set forth in this Agreement.

18. Governing Law. The laws of the State of Colorado shall govern the validity, performance and enforcement of this Agreement. Venue for any action instituted pursuant to this Agreement shall lie in Garfield County, Colorado.

19. Authority. Each person signing this Agreement represents and warrants that said person is fully authorized to enter into and execute this Agreement and to bind the party it represents to the terms and conditions hereof.

20. Attorneys' Fees. Should this Agreement become the subject of litigation between Lessor and Lessee, the prevailing party shall be entitled to recovery of all actual costs in connection therewith, including but not limited to attorneys' fees and expert witness fees. All rights concerning remedies and/or attorneys' fees shall survive any termination of this Agreement.

21. Assignment. Lessee may not have the right of assignment without Lessor's prior written consent to assign this Agreement to a business with which Lessee may merge or consolidate, to any subsidiary of Lessee, to any corporation under common control with Lessee, or to a purchaser of substantially all of Lessee's assets. Lessee shall not sublease all or any part of the Properties, or assign this Agreement in whole or in part, without Lessor's consent, such consent not to be unreasonably withheld or delayed.

22. Counterparts. This Agreement may be executed in counterparts, including any facsimile copies, each of which shall be deemed an original and all of which together shall constitute one and the same instrument.

IN WITNESS WHEREOF, the parties hereto have hereunto set their hands this 2<sup>ND</sup> day of DECEMBER, 2010.

CITY OF GLENWOOD SPRINGS

By: Jeff Hecksel  
Jeff Hecksel, City Manager

ATTEST:

Robin S. Unsworth  
Robin S. Unsworth, City Clerk

APPROVED AS TO FORM:

By: Janette H. Shute  
Janette H. Shute, City Attorney

ADVENTURE PARAGLIDING, LLC

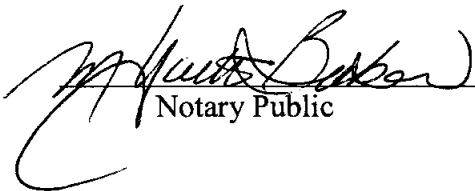
By:   
Shannon Francis-Pienaar

STATE OF COLORADO    )  
                                  ) ss.  
COUNTY OF GARFIELD    )

The foregoing AGREEMENT FOR LEASE OF PROPERTY TO BE EFFECTIVE JUNE 13, 2011 was acknowledged before me this 2<sup>nd</sup> day of December 2010, by Shannon Francis-Pienaar.

Witness my hand and official seal.

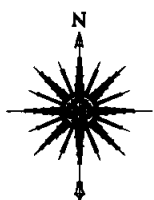
My commission expires: My Commission Expires  
04/13/2013

  
Notary Public



ROARING FORK RIVER

1.2 ACRES



SCALE: 1" = 100'

"EXHIBIT A "

ADVENTURE PARAGLING, LLC  
LEASE-2010

## **EXHIBIT B**

### **Glenwood Springs Colorado Flying Site Rules**

Use of the Cross site is PRIVILEGE-NOT OUR RIGHT. Use of this site is heavily restricted due to road access issue, use of private land and proximity to the city of Glenwood Springs. Failure to follow the site rules will result in loss of flight privilege.

1. Use of cross site without the express permission of adventure paragliding will be treated a trespassing.
2. All users must be current member of the United States Hang Gliding Association (USHGA).
3. All pilots must possess a Colorado search and rescue card.
4. All pilots must possess a minimum USHGA P-2 rating with a sign off from Adventure Paragliding.
5. All Pilots must be current member in good standing with the Glenwood Soaring Society.
6. Landing within the city limits of Glenwood Springs is restricted to the designated LZ.
7. Helmet, radio, reserve, and hook knife are required.
8. Acrobatics are forbidden without express consent from Adventure Paragliding.
9. All F.A.A. regulations apply.
10. All USHGA rules apply.
11. Access to the Cross site by motor vehicles is forbidden except by Adventure Paragliding.
12. By using the site you are representing the entire paragliding community, you must behave accordingly.

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Steve Boyd, Chief Operating Officer  
(970) 384-6400 (o)



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101 West 8<sup>th</sup> Street  
Glenwood Springs, CO 81601

September 2, 2021

Pine Pienaar  
Adventure Paragliding, LLC  
P.O. Box 1992  
Glenwood Springs, CO 81602

Re: Agreement for Lease of Property between the City of Glenwood Springs and Adventure Paragliding, LLC

Dear Mr. Pienaar:

The above-referenced lease agreement was scheduled to terminate June 13, 2021. The City of Glenwood Springs is interested in extending this lease agreement for a one-year term, until September 2, 2022. All other terms and conditions of the lease remain the same.

We call your attention to the planning of a Bus Rapid Transit System by RFTA and development of potential parkland in the "Lone Pine" property near your landing zone that may impact your use of that area in the future.

Thank you.

Sincerely,

Steve Boyd  
Chief Operating Officer

c: Brian Smith

via email: [pinepienaar@yahoo.com](mailto:pinepienaar@yahoo.com)



**City Council**  
**STAFF REPORT**  
**City of Glenwood Springs**  
**September 2, 2021**

**Agenda Item:** August 5, 2021 City Council Minutes

**Action Requested:** Minutes from August 5, 2021.

**Department:** City Clerk

**Presented By:**

**Background Info:**

**Issues:**

**Staff Recommendation:**



MINUTES  
CITY OF GLENWOOD SPRINGS  
REGULAR CITY COUNCIL MEETING  
AUGUST 5, 2021  
101 W. 8<sup>TH</sup> STREET  
6:15 PM

Note: Official meeting minutes are located on the City website via YouTube video at the following link: <https://www.youtube.com/user/GlenwoodSprings1885/videos>. The times in agenda items indicate approximately where the item can be found on the YouTube video timeline.

## REGULAR SESSION

### :02 Roll Call

Present: Mayor Godes, Mayor Pro-Tem Willman, Councilor Kaup, Councilor Stepp, Councilor Hershey, Councilor Davis, and Councilor Wussow. Also present were Debra Figueroa, City Manager; Steve Boyd, Chief Operating Officer; Jenn Ooton, Assistant City Manager, Matt Langhorst, Director of Public Works, Gretchen Ricehill, Assistant Director for Economic and Community Development, and Karl Hanlon, City Attorney.

### :03 Pledge of Allegiance

Mayor Godes led the Pledge.

### :04 Agenda Changes and Conflicts

Councilor Stepp requested items C and E be removed from the consent agenda.

Mayor Godes requested items D and J be removed from the consent agenda.

Mayor Godes reminded the public that the annexation item has been continued until next meeting.

### :05 Citizens Appearing Before Council

Tori Harbottle, Maddie Corber, and Zoey Reece, employees of the government, advocated for a City run daycare.

Craig Amichaux, local business owner, stated that the City needs to change the messaging for our town to let people know that there are routes to the City by means other than the Canyon. When individuals use mapping systems it gives them the wrong directions to Glenwood.

City Manager, Debra Figueroa, said the City has been working with CDOT since Monday to remedy the situation and asked Mr. Amichaux to call the Chamber of Commerce CEO.

## :13 Council Comments

Mayor Pro-Tem Willman commented that the Tourism Board is working on messaging to cities to the west for them to know that Glenwood is open for business.

Councilor Hershey commented that daycare needs to be addressed.

Councilor Stepp commented that there should be a Council discussion on temporary accommodations for employees who live on the east side of Glenwood Canyon. She also reminded the public that Riverfest is this Saturday.

Mayor Godes thanked the citizens for their comments during the July 29<sup>th</sup> Special Meeting.

## :19 Motion for Consent

***:19 Mayor Pro-Tem Willman moved, seconded by Councilor Wussow, to approve the Consent Agenda without items C, D, E, and J, and approving the minutes with a future change.***

***Passed unanimously.***

## ACTIONS AND/OR PRESENTATIONS

### :20 Swearing in of New Deputy Fire Chief

Chief Tillotson introduced Douglas Gerald, a member of the Glenwood Fire Department for 13 years.

Mayor Godes swore in Douglas Gerald as the Deputy Fire Chief.

### :24 Items C and E from the Consent Agenda

Councilor Stepp removed herself.

***:25 Councilor Kaup moved, seconded by Mayor Pro-Tem Willman, to approve Consent Agenda items C and E.***

***Motion passed 6-0.***

### :25 Items D and J from the Consent Agenda

Councilor Stepp rejoined the quorum.

Mayor Godes asked City Attorney Hanlon for further information on item D, License to Encroach 51579 Hwy 6 & 24, and item J, RFSD 27<sup>th</sup> St Trail Easement, if a potential ballot initiative were to pass.



Hanlon explained that there would be little impact on the encroachment. He stated that the easement would be problematic because this initiative would create a much bigger hurdle that would cost a significant amount of money for the City and the opposing entity to embark upon for a small but necessary amount of land. This would make it unlikely for such an agreement to take place and the only way for such an easement to happen would be by a public vote.

***:31 Mayor Godes moved, seconded by Councilor Kaup, to approve Consent Agenda items C and E.***

***Passed unanimously.***

### **:31 ESG Homeless Assistance Funding**

Debbie Wilde and Carolyn Hardin presented. There are four components to the grant. The first to individuals who are not sheltered. The second is emergency services. The third is case management. The fourth is street outreach.

City Manager Debra Figueroa stated the City will act as a fiscal sponsor and the City received these funds due to COVID.

***:41 Mayor Pro-Tem Willman moved, seconded by Councilor Kaup, to approve the sub-recipient agreement with West Mountain Regional Alliance.***

***Ayes: Kaup, Wussow, Davis, Step, Willman, Godes***

***Nays: Hershey***

***Motion passed 6-1.***

**:42 Ordinance No 2021-10; An Ordinance of the City Council of the City of Glenwood Springs, Colorado, Amending the 2021 Appropriation Ordinance to Reflect Carryovers from the 2020 Budget, Reallocation of Funds, and Expenditures Approved after Submission of the 2021 Budget (ONE READING)**

***:42 Mayor Godes moved, seconded by Mayor Pro-Tem Willman, to approve the Ordinance No. 2021-10.***

***Passed unanimously.***

**:43 Continuation of Annexation- To be Continued to August 19th, 2021. No discussion of this item will take place at this meeting.**

***:44 Councilor Hershey moved, seconded by Councilor Kaup, to continue item 12 A, B, and C to August 19<sup>th</sup>.***

***Passed unanimously.***

## :45 Report from City Administration

### A. City Manager

Debra Figueroa thanked staff.

### B. City Attorney

Karl Hanlon commented that today was his daughter's 21<sup>st</sup> birthday.

### C. Correspondence Incoming/Outgoing

Mayor Godes commented that the Governor requested a letter or support for an emergency declaration for the Glenwood Canyon. Council gave Mayor Godes their support to compose such letter.

## :48 Executive Session

Mayor Godes stated that pursuant to §24-6-402(4)(f) (I), C.R.S., to discuss personnel matters not specific to any individual employee who has requested the matter to be in open session, more specifically concerning the City Managers annual review, Council will now go into executive session. No more regular business will be discussed, and the meeting will be adjourned at the end of the session.

***:49 Mayor Pro-Tem Willman moved, seconded by Councilor Hershey, to enter into the Executive Session.***

***Passed unanimously.***

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**City Council**  
**STAFF REPORT**  
**City of Glenwood Springs**  
**September 2, 2021**

**Agenda Item:** August 19, 2021 City Council Minutes

**Action Requested:** August 19, 2021 City Council Minutes

**Department:** City Clerk

**Presented By:**

**Background Info:**

**Issues:**

**Staff Recommendation:**



MINUTES  
CITY OF GLENWOOD SPRINGS  
REGULAR CITY COUNCIL MEETING  
AUGUST 19, 2021  
101 W. 8<sup>TH</sup> STREET  
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## REGULAR SESSION

### :07 Roll Call

Present: Mayor Godes, Mayor Pro-Tem Willman, Councilor Hershey, Councilor Kaup, Councilor Davis, Councilor Wussow, Councilor Stepp. Also present were Jenn Ooton, Assistant City Manager, Steve Boyd, Chief Operating Officer, Matt Langhorst, Director of Public Works, Brian Smith, Director of Parks and Recreation and Karl Hanlon, City Attorney.

### :07 Pledge of Allegiance

Mayor Godes led the Pledge.

### :08 Agenda Changes and Conflicts

No conflicts offered.

### :08 Citizens Appearing Before Council

Sumner commented that the City needs workforce, affordable, low-income and owner-occupied housing and the requirement for ongoing revenue and funding options dedicated to housing partnerships and projects.

### :08 Council Comments

Councilor Hershey complimented the City of Aspen's Ordinance on trees and asked for it to be added to an agenda.

Mayor Pro-Tem Willman said that the Rocky Mountaineer Train event was well supported by local citizens.

Councilor Kaup voiced her support for the tree issue to be placed on the agenda. Karl Hanlon, City Attorney, will check to see if the tree item should be a regular session or a work session .

Councilor Stepp commented that Riverfest was a great success and that hazard waste collection weekend appointments filled up rapidly and council should consider this on a quarterly basis.

Councilor Davis commented that the hazardous waste should be addressed more often as appointments filled up too quickly which does not serve the community well.

Mayor Godes commented on a 1950's letter he received as a gift for the City from Rose Carlson, IL, which he will pass to the Historical Society. He also agreed with Sumner that housing is vital and requested a special session for Tuesday August 24 to discuss an attraction tax and lodging tax to raise revenue, with Karl Halon drafting the language for the taxes. Godes also wanted to discuss at that special session, placing a joint question with a citizens group, on the ballot for permanent funding options for the airport. Karl Hanlon advised that the ballot language would need to be sent to the County for September 3<sup>rd</sup>. Mayor Pro Tem Willman requested an executive session at the start of the special session for some legal items

:22 Motion for Consent

***:22 Mayor Pro-Tem Willman moved, seconded by Councilor Hershey, to approve the consent agenda.***

***Motion passed unanimously.***

Councilor Wussow thanked Matt Armintrout for becoming a Parks and Recreation Commissioner.

:23 Proclamation Thanking CDOT

Mayor Godes reads a proclamation thanking CDOT and its employees for the work carried out in the Glenwood Springs Canyon clearing mudslides and debris flow over the last few weeks.

:25 CONTINUATION OF ANNEXATION

:28 Mayor Godes opened the item to continued public comment.

Public comment was taken.

1:30 Mayor Godes closed the item to continued public comment.

1:32 Recess

1:45 CONTINUATION OF ANNEXATION

Chad Lee, Balcombe and Green and Haley Carmer, Garfield and Hecht, presented and responded to the public comments for the Developer.

Councilor Hershey agreed with comments from the public and asked about public safety issues. The Developer responded that plans include a new Fire Department, additional water capacity from the ditch, a new additional exit through the mall and that their assistance in the development of an evacuation plan, would help address public concern.

Councilor Kaup asked about the implications of annexation and zoning and the issue of water rights, the ADA and senior living allocations, the prohibition of adult and childcare and asked Staff about parkland designation calculation.

Karl Hanlon explained that annexation is the City's legal ability to bring land under the control of the City and zoning is the type of use granted for that land.

Hanlon also replied that the current water rights are for irrigation of the property but far less water than currently used would be required once developed.

The Developer responded that by code a certain amount of the housing must be designated as ADA accessible.

The Developer stated there is a section of land not included in the development that has been designated by the landowner for possible childcare purposes.

Trent Hyatt, Community Development, stated there will most likely, as allowed by code, be a payment in lieu of required parkland, based upon the value of the land and the resident occupying each unit. He estimated this will be around 1.5 million dollars.

Mayor Pro-Tem Willman asked Hanlon if the annexation and zoning could be voted upon at different meetings. Hanlon replied that there is a period of sixty days in which the entire subject must be determined.

Councilor Stepp asked if there would be income to offset future infrastructure costs to the City, what happens to the storm water waste, and if the City has right equipment to fight a fire in a four-story building. Councilor Stepp wanted clarification on phase one and phase two, and to ensure there are open public areas.

Karl Hanlon replied that there is very little income generated from residential development as there is no property tax given to the City. To benefit from a development such as this, negotiations must be made up front. Examples from this development would include a new Fire Station, workforce housing and the redevelopment of West Glenwood Mall.

Hanlon also clarified that the phases should be combined for development.

Yancy Nicol, Sopris Engineering, answered that they will install a storm drain and will work to address issues on Highway 6.

The Developer replied that twenty percent of the development is already open space and there are additional spots on the property which can be opened once the issues of risk and liability have been addressed.

Gary Tillotson, Chief of the Glenwood Springs Fire Department, replied that the Fire Department has the necessary equipment to fight a fire in a four story building but with this proposal, it would take longer to get to the destination due to distance and proposed traffic.

Councilor Wussow asked where the egress to the mall would be, the status on the plan for the mall redevelopment, energy usage, expressed concerns for water usage in the units, and requested clarification of what they thought each unit's water consumption would be.

Yancy Nicol replied that there was an easement around the mall for emergency vehicle access, the comparison is point six water consumption in an apartment, rental, or townhome versus a single-family home and that the current ditch supply could be used for irrigation instead of using water on the potable system, potentially saving millions and millions of gallons of water.

The Developer replied the mall is under contact and is in the early phase of redevelopment. Electrical heating would be for the residential units and are exploring HVAC units that run on solar power. The Developer replied there has been no consideration for potable water usage but could encourage water control devices. Karl Hanlon added that the annexation agreement would call for resource conservation.

Councilor Stepp asked about zero-scaping compared to the tree canopy the City currently has.

Karl Hanlon replied that grass is the largest use of water as trees and shrubs are by design low water users and the development planning has not yet been seen. Yancy Nichol added that zero-scape consists of native plants, shrubs and trees that use fifty percent less irrigation.

Councilor Davis asked about the use by right and special use permit issued by Garfield County.

Chad Lee replied that the developers could apply for building permits right now through the County.

Mayor Pro-Tem Willman asked the meaning of a traffic incident management plan and what the cost will be, if the annexation is approved, would a plan for the proposal and the mall be ready in sixty days, the cost to the City for providing additional services for the development, if senior housing was feasible in the development, and if the Developer would designate part of the development to a public park.

Trent Hyatt replied it is the management and circulation of traffic during emergency evacuation situations and the involvement of many entities to understand how to address the issue and the cost is unknown. Terry Partch, City Engineer, explained that staff have a plan for access breaks at several locations and the cost is usually minimal.

Karl Hanlon pointed out several conditions that must be met prior to a CO being issued on the first property in the development.

Hyatt replied that due to application timeline it is unlikely that the Developer could have all the plans ready in that time, but the PUD would set out the dimensional, use and intensities moving forward. With annexation the Developer would move forward with the development plan for the parcel and the mall. Hanlon clarified that the PUD is just zoning and not site plan, but a master site plan will include the parcel and the mall development.

Hyatt replied the cost was unknown, but Fire and Police Department would be most cost affected. Chief Deras was unable to provide any analysis of cost to the Police Department but would advise Council later.

The Developer replied that senior housing is a separate housing type so he was not able to answer. He replied that a park would decrease the number of units or cause some other expense to the development.

Councilor Stepp asked the benefit of using mixed used zoning or could a different zoning be used.

Karl Hanlon replied that PUD zoning allowed for flexibility with a PUD, if there is something in different type of zoning regulation that the Councilor wanted to impose, they could through amendment to the PUD.

Councilor Wussow wanted clarification that the PUD would run in perpetuity with the property and provided checks and balances.

Karl Hanlon replied that it does although a PUD can be modified.

Mayor Godes asked if there was a site plan that showed the dedication of the Fire Station, how would eliminating a clubhouse and pool affect the unit count, and what benefit would those facilities be to the public.

Karl Hanlon replied that Council is not approving a site plan, so the fire station is not shown and explained in the proposal but the City would receive an acre of land for the Fire Station.

The Developer stated that eliminating the clubhouse or pool would not necessarily affect the unit count, but he wanted to demonstrate that unit numbers could be affected by the overall changes. He stated that the clubhouse and pool would not be open to the public because of liability issues.

Mayor Godes requested the Developer consider that housing should be sixty percent resident occupied, 100% of the townhomes should be affordable housing, all proposed amenities should be open to the public, creating soccer fields and open spaces, commercial buildings should be moved to the edge of the development for community use and there should be a two percent real estate assessment fee on a second transfer.

Councilor Kaup requested the Developer consider park space in lieu of a pool and clubhouse. She is concerned about the exit onto Mel Ray Rd after reviewing the traffic study and would like to see the property of the mall become an entrance and exit as well. She requested that twenty percent of residential units be restricted at 100% AMI, and only drop to eighteen percent at 90% AMI.

Mayor Pro-Tem Willman is concerned about the conveyance to City issues as it may not be a dedicated road and requested further information.

***3:33 Mayor Pro-Tem Willman moved, seconded by Mayor Godes, to continue the Annexation item to a Special Meeting on September 7, 2021, at 6:00 pm***

***Motion passed unanimously.***

3:34 Adjournment

***3:34 Mayor Godes moved, seconded by Councilor Hershey, to adjourn.***

***Motion passed unanimously.***





**City Council**  
**STAFF REPORT**  
**City of Glenwood Springs**  
**September 2, 2021**

|                              |                                                                                                                                                                                                                                                                                                                                                                                               |
|------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Agenda Item:</b>          | Resolution 2021-20: A resolution of the City of Glenwood Springs calling an election on November 2, 2021 and certifying a ballot issue to authorize an excise tax on admissions; setting the ballot title and content for the ballot issue; and providing other matters relating to the election.                                                                                             |
| <b>Action Requested:</b>     | Determine whether to authorize an excise tax on admissions.                                                                                                                                                                                                                                                                                                                                   |
| <b>Department:</b>           | Attorney                                                                                                                                                                                                                                                                                                                                                                                      |
| <b>Presented By:</b>         | Glenwood Springs Legal, Legal                                                                                                                                                                                                                                                                                                                                                                 |
| <b>Background Info:</b>      | At the Special Work Session on August 24, 2021 City Council requested that this potential tax question be brought to City Council for consideration at the September 2 Council Meeting.                                                                                                                                                                                                       |
| <b>Issues:</b>               | <p>Revenues from a tax on admissions would be used to address community-wide impacts of tourism activities and could generate up to \$1,000,000 for each 1% of admissions tax.</p> <p>Staff has estimated the Attractions Tax at a higher rate than we anticipate actually receiving in revenue since staff has no way to accurately estimate the revenue an Admissions Tax would create.</p> |
| <b>Staff Recommendation:</b> | Staff defers to Council.                                                                                                                                                                                                                                                                                                                                                                      |



**GLENWOOD HOT SPRINGS  
RESORT**

September 1, 2021

Dear City Council:

We believe Glenwood Springs success derives, in part, from a sense of community and a willingness to work together in a thoughtful manner that is fair to all.

If we have things correct:

- Council wants to create language to put a tax question on the ballot...
- Council has a short deadline to get this done despite lacking a comprehensive process...
- Council does NOT have a plan (just an idea)...
- Council does NOT know for sure who you want to tax...
- Council is unsure if this will fix the problem nor if the outcomes match your goal...
- Council can't guarantee it won't benefit those who want to live in Glenwood Springs but continue to drive to work in Aspen as example (meaning a regional problem)...
- Council could look at other regions of the country that have addressed this issue and apply solutions that are long term with a total commitment by the majority of the community...
- Council seems to be applying different standards for private development to your own "affordable" housing development in Glenwood Springs...
- Council could look at other important considerations...
- Council has a concept void of thoroughness and void of the public's ability to analyze...

With this stated, we respectfully ask you to do your homework, "slowdown in town" and refrain from taking hasty action.

Very truly yours,

Kevin Flohr  
Director of Operations

P.O. Box 308 Glenwood Springs, CO 81602  
970.947.2954  
[www.hotspringspool.com](http://www.hotspringspool.com)

**Proposed Ad Hoc Study Committee for potential accommodations tax increase and attractions tax proposals:**

**Makeup of Committee – total 11 (plus other ?)**

Council members (Chair) – two

Chamber Director – one

DDA Director – one

Tourism Director – one

Lodging – three – one each

Large Hotels – Colorado, Denver, Hot Springs

Large Commercial – Residence, Courtyard, West US 6 – Best Western, Holiday Inn, Hampton, La Quinta etc

Smaller Hotels – Caravan, Cedar Lodge, Starlight, etc

Attractions – three from

Hot Springs Pools

Glenwood Caverns

Rafting

Biking

Vaudeville

Other - ?

**Schedule**

Start by October 1<sup>st</sup>

Report/Recommendation to Council by 2<sup>nd</sup> meeting in January

**Format**

Fact finding and data compilation and Report/Recommendation in series of meetings (2 to 3 per month) 7 – 10 meetings

Goal is to keep staff time to minimum

## **Proposed Ad Hoc Study Committee for tourist revenue to support affordable workforce housing**

### **Goals**

- Clarify the specific community gaps and barriers in housing the employees of Glenwood Springs businesses
- Determine best practices of a community workforce housing plan
- Make recommendations on priorities, opportunities and implementation strategies for the recently passed Accommodations/Attractions tax

### **Guidance Document**

- Greater Roaring Fork Regional Housing Study

### **Makeup of Committee**

- Organized and lead by our Housing Commission, supported by City Staff

#### **One representative each from the following areas**

##### Organizations that have expertise in affordable workforce housing

- School District superintendent/board member
- Garfield County Housing Authority Director
- Habitat for Humanity
- APCA

##### Businesses, workers and community members that are impacted by the housing crisis

- School District teacher/staff
- Valley View nurse/staff
- Mountain Family staff
- Retail staff
- Restaurant industry staff

##### Organization/people that are subject matter experts

- Debbie Wilde (homeless expert)
- Faith community (Catholic Charities?)
- Voces Unidas/Mountain Voices
- Kathryn Grosscup of CHFA

##### Businesses that are impacted by the recently passed tax

- Lodging
- Attractions

### **Schedule**

- Start by November 5<sup>th</sup>
- Recommendation to Council by 2<sup>nd</sup> meeting in April
- Expected commitment of 1-2 meetings a month

Dear Council Members,

My name is Dana Wood and I have lived in this valley since 2011. I'm 37, well-educated, work full-time, and hold second jobs on and off to continue to live in this amazing community. I consider myself a community leader and have worked in public service (a low paying job) for the last 8 years, serving the folks that live in our county. I've seen lots of people come and go due to the high cost of living and low paying or lack of jobs in our area. I truly love this place and all it has to offer. I support our local businesses, use our trails/rivers/paths/parks, and eat at our restaurants.

It is becoming extremely difficult and expensive to live in this community. I never thought I would still be renting a home and working multiple jobs just to get by at the age of 37. Yes, I qualify for a home, but not nearly enough for me to continue to live here, let alone anywhere in Garfield County. If I want to continue to rent and not have roommates, I would be paying an extraordinary amount, up to \$2500/month in rent alone; much more than a mortgage. A lot of my life goals and dreams can never become a reality if I continue to live here. I won't be able to own a home, save for retirement, pay off debt, or even consider having a family. The same goes for many of those my age who have similar stories and love living here.

Without making significant and drastic changes to the housing landscape in Glenwood Springs, you will not only lose quality people, you will lose your sense of community and place. Glenwood will become just another California town filled with second homeowners who show up a few times a year. Businesses will close because of the lack of workforce due to expensive or no housing.

I urge you to please address the issue of affordable housing now. Don't wait for the perfect scenario or time; there will never be one. The time is now. Take a risk to keep Glenwood's hardworking people in this community by voting to raise the attractions and lodging taxes.

Thank you for your time and consideration.

Sincerely,

Dana Wood, MBA  
she/her/hers  
3800 Old Lodge Road, Apt 7A  
Glenwood Springs, CO 81601

## RESOLUTION NO. 2021 - 20

### **A RESOLUTION OF THE CITY OF GLENWOOD SPRINGS CALLING AN ELECTION ON NOVEMBER 2, 2021 AND CERTIFYING A BALLOT ISSUE TO AUTHORIZE AN EXCISE TAX ON ADMISSIONS; SETTING THE BALLOT TITLE AND CONTENT FOR THE BALLOT ISSUE; AND PROVIDING OTHER MATTERS RELATING TO THE ELECTION.**

**WHEREAS**, the City of Glenwood Springs (“Glenwood Springs” or the “City”) is a home-rule municipality organized pursuant to Article XX of the Colorado Constitution and with the authority of the Glenwood Springs Home Rule Charter; and

**WHEREAS**, Article X, Section 20 of the Colorado Constitution (“TABOR Amendment”) limits the ability of the City to enact new taxes, and permits the City’s eligible electors to approve the adoption of new taxes and authorize the expenditure of new revenues therefrom; and

**WHEREAS**, the City Council finds and believes that it is appropriate to propose to the qualified electors of the City at the November 2, 2021 election a ballot issue concerning whether to impose an excise tax on the price paid for admission to any place or event open to the public with revenues from the tax used to address the community wide impacts from tourism; and

**WHEREAS**, the election shall be conducted as a coordinated election in Garfield County in accordance with articles 1 to 13 of title 1, Colorado Revised Statutes, as amended (the “Uniform Election Code”); and

**WHEREAS**, the Clerk and Recorder of Garfield County (the “County Clerk”) is the coordinated election official for the election pursuant to the Uniform Election Code, and is responsible for mailing the notice of election required by Article X, Section 20(3)(b) of the Colorado Constitution (the “TABOR Notice”); and

**WHEREAS**, the City will assist the County Clerk in providing necessary information and notices for the conduct of the election.

NOW THEREFORE, BE IT RESOLVED BY THE CITY COUNCIL OF THE CITY OF GLENWOOD SPRINGS, COLORADO:

**Section 1.** An election shall be held on Tuesday, November 2, 2021 (the “Election Date”) at which there shall be submitted to the eligible electors of the City a ballot issue which shall be in substantially the form attached hereto in **Exhibit A**.

**Section 2.** For purposes of Section 1-11-203.5, C.R.S., this Resolution shall serve to set the ballot title and content for the ballot issue set forth in the exhibit hereto. **Exhibit A** is hereby incorporated into this Resolution as if set forth in full herein. The ballot title for the ballot issue attached hereto as **Exhibit A** shall be the text of such ballot issue.

**Section 3.** If a majority of the votes cast on the ballot issue attached hereto as **Exhibit A** submitted at the election shall be in favor of any such ballot issue, the City acting through the City Council shall be authorized to proceed with the necessary action to continue the mill levy rate in accordance with the approved ballot issue.

**Section 4.** The City Clerk, as the designated election official of the City, is hereby authorized and directed to take all action necessary or appropriate to hold an election on the Election Date and to effectuate the provisions of this Resolution.

**Section 5.** All actions not inconsistent with the provisions of this Resolution heretofore taken by the members of the City Council and the officers and employees of the City and directed toward holding the election for the purposes stated herein, including without limitation the execution of an intergovernmental agreement with the County Clerk in connection with the conduct of the election, are hereby ratified, approved and confirmed.

**Section 6.** All prior acts, orders or resolutions, or parts thereof, by the City in conflict with this Resolution are hereby repealed, except that this repealer shall not be construed to revive any act, order or resolution, or part thereof, heretofore repealed.

**Section 7.** If any section, paragraph, clause or provision of this Resolution shall be adjudged to be invalid or unenforceable, the invalidity or unenforceability of such section, paragraph, clause or provision shall not affect any of the remaining sections, paragraphs, clauses or provisions of this Resolution, it being the intention that the various parts hereof are severable.

**Section 8.** This Resolution shall take effect immediately upon its passage.

ADOPTED AND APPROVED this \_\_\_\_ day of September 2021.

By \_\_\_\_\_  
Jonathan Godes, Mayor

ATTEST:

By \_\_\_\_\_  
Ryan Muse, City Clerk

**EXHIBIT A  
FORM OF THE BALLOT ISSUE**

**Ballot Issue \_\_\_\_ Tax on Admissions**

SHALL THE CITY OF GLENWOOD SPRINGS TAXES BE INCREASED BY UP TO \$3,700,000 ANNUALLY (WHICH AMOUNT REPRESENTS ESTIMATED REVENUES IN 2022, THE FIRST FULL FISCAL YEAR OF COLLECTION) AND BY WHATEVER AMOUNT IS GENERATED THEREAFTER THROUGH THE IMPOSITION OF A NEW EXCISE TAX OF 3.7% ON THE PRICE PAID TO GAIN ADMISSION TO ANY PLACE OR EVENT OPEN TO THE PUBLIC TO BE USED TO ADDRESS COMMUNITY WIDE IMPACTS FROM TOURISM INCLUDING BUT NOT LIMITED TO:

- OPERATIONAL COSTS TO CLEANING AND MAINTAINING PUBLIC FACILITIES AND TRAILS
- OPERATION, MAINTENANCE AND PERSONNEL COST OF PRIVATE ENTITIES TO PROVIDE AN ALTERNATE ENERGY TOURIST CIRCULATOR SERVING THE GREATER DOWNTOWN AREA
- PROVIDING ADDITIONAL ADVERTISING DURING SHOULDER AND OFF-PEAK SEASONS AND EMERGENCIES
- PROVIDE FOR A WORKFORCE HOUSING PROGRAM FOR THE GLENWOOD SPRINGS WORKFORCE INCLUDING BUT NOT LIMITED TO ACQUISITION, CONSTRUCTION MANAGEMENT AND OPERATION OF WORKFORCE HOUSING DEVELOPMENTS, PARTNERING WITH PRIVATE ENTITIES AND OTHER GOVERNMENTS AND PROVIDING FOR MATCHING FUNDS FOR GRANTS

AND OTHER RELATED CITY EXPENSES AS FOLLOWS, AND THAT THE CITY MAY COLLECT, RETAIN AND EXPEND ALL OF THE REVENUES OF



SUCH TAXES AND THE EARNINGS THEREON, NOTWITHSTANDING  
THE LIMITATION OF ARTICLE X, SECTION 20 OF THE COLORADO  
CONSTITUTION OR ANY OTHER LAW?



**City Council**  
**STAFF REPORT**  
**City of Glenwood Springs**  
**September 2, 2021**

|                              |                                                                                                                                                                                                                                                                                                       |
|------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Agenda Item:</b>          | Resolution 2021-21: A resolution of the City of Glenwood Springs calling an election on November 2, 2021 and certifying a ballot issue to authorize an excise tax on accommodations; setting the ballot title and content for the ballot issue; and providing other matters relating to the election. |
| <b>Action Requested:</b>     | Determine whether to authorize an excise tax on accommodations.                                                                                                                                                                                                                                       |
| <b>Department:</b>           | Attorney                                                                                                                                                                                                                                                                                              |
| <b>Presented By:</b>         | Glenwood Springs Legal, Legal                                                                                                                                                                                                                                                                         |
| <b>Background Info:</b>      | At the Special Work Session on August 24, 2021 City Council requested that this potential tax question be brought to City Council for consideration at the September 2 Council Meeting.                                                                                                               |
| <b>Issues:</b>               | Proceeds from an Accommodations Excise Tax would fund workforce housing for Glenwood Springs workers and could generate up to \$800,000 for each 1% of excise tax.                                                                                                                                    |
| <b>Staff Recommendation:</b> | Staff defers to Council.                                                                                                                                                                                                                                                                              |



## **POLL RESULTS:**

### **City of Glenwood Springs Residents**

**July 2021**

**Prepared for:**

**City of Glenwood Springs**

## SURVEY METHODOLOGY & SAMPLE DEMOGRAPHICS

- **Sample Size:** n=309 Glenwood City residents\*
- **Interview Method:** n=191 Cell-Text Invite  
n=118 Phone
- **Interview Dates:** June 29-July 11 , 2021
- **Margin of Error:** 5.6%

\* *Contacts drawn from current list of registered voters, with a screen for "resident of city."*

### Sample Demographics: n=309

#### Gender

|        |     |
|--------|-----|
| Male   | 48% |
| Female | 52% |

#### Length of Residence

|                     |     |
|---------------------|-----|
| 0-5 years           | 23% |
| 6-30 years          | 48% |
| 31+ years/Born here | 29% |

#### Age

|       |     |
|-------|-----|
| 18-39 | 29% |
| 40-54 | 29% |
| 55-64 | 17% |
| 65-Up | 24% |

#### Party

|                   |     |
|-------------------|-----|
| Democrat          | 34% |
| Republican        | 16% |
| Independent/Other | 50% |

# FINDINGS

1. The city of Glenwood Springs gains a solid majority rating for providing services: 63% positive, 18% negative.
2. But, when rating eight different aspects of life in Glenwood Springs, only four are rated more positive than negative...
  - Having enough recreational trails --77 positive, 4% negative.
  - Having enough sidewalks so it is safe to walk everywhere -- 68% positive, 11% negative.
  - Having enough bike lanes -- 53% positive, 18% negative.
  - The condition of the city's water and sewer system -- 54% positive, 22% negative.

Those rated net negative are:

- Level of traffic congestion -- 66% negative.
  - Having enough workforce housing -- 64% negative.
  - Having affordable housing -- 63% negative.
  - Condition of streets and roads -- 52% negative.
3. When asked to pick from five choices as to the most important issue facing the city, "provide workforce housing to those local workers in low or moderate paying jobs" (37%) comes in slightly ahead of "fix streets and roads" (30%) as the #1 choice, but when two choices are combined, those two issues -- workforce housing (63%) and streets (57%) -- are joined by "replace aging pipes in water and sewer systems" (57%) as top tier priorities.

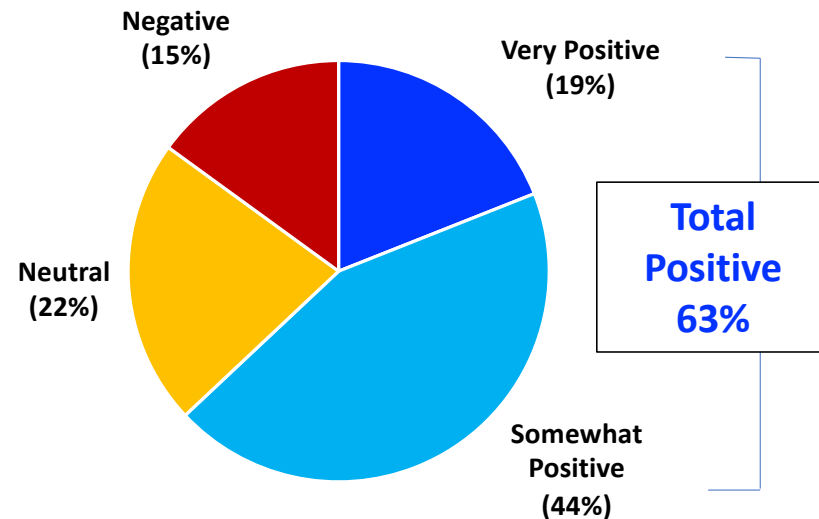
With two choices combined, "promoting growth" (14%) and "more trails" (10%) lag far behind.

# FINDINGS

4. In a follow-up open-end question about streets and roads, the dominant issue is “potholes” with several comments about specific roads or streets in need of repair. Some also mention traffic congestion, pedestrian crossings, snow removal or the low priority for neighborhood vs. downtown street maintenance.
5. The city gets a fairly strong 52% positive, 21% negative (27% neutral) rating for its implementation of the 2016 infrastructure tax money. In fact, some open-ended comments credit the city for its work to address road surface problems.
6. Two of the three ideas tested for paying for "one or more of the city's priority actions" are popular; but a sales tax increase – of unspecified size -- is not.
  - "A tax on tickets to Glenwood Springs tourist attractions": 67% support , 30% oppose.
  - "A fee on developers bringing new growth to the city": 71% support, 26% oppose.
  - "A sales tax increase": 27% support, 71% oppose.
7. When it comes to the airport, opinion is mixed with no majority opinion on a three-way choice.
  - 43% would keep the airport open and spend \$8 to \$10 million on a tunnel with a new South Bridge
  - 33% would close the airport and hold forums to determine community preference for property use while pursuing building a new South Bridge
  - 22% would keep the status quo -- open airport with no new bridge.

# OVERALL JOB RATING OF CITY SERVICES

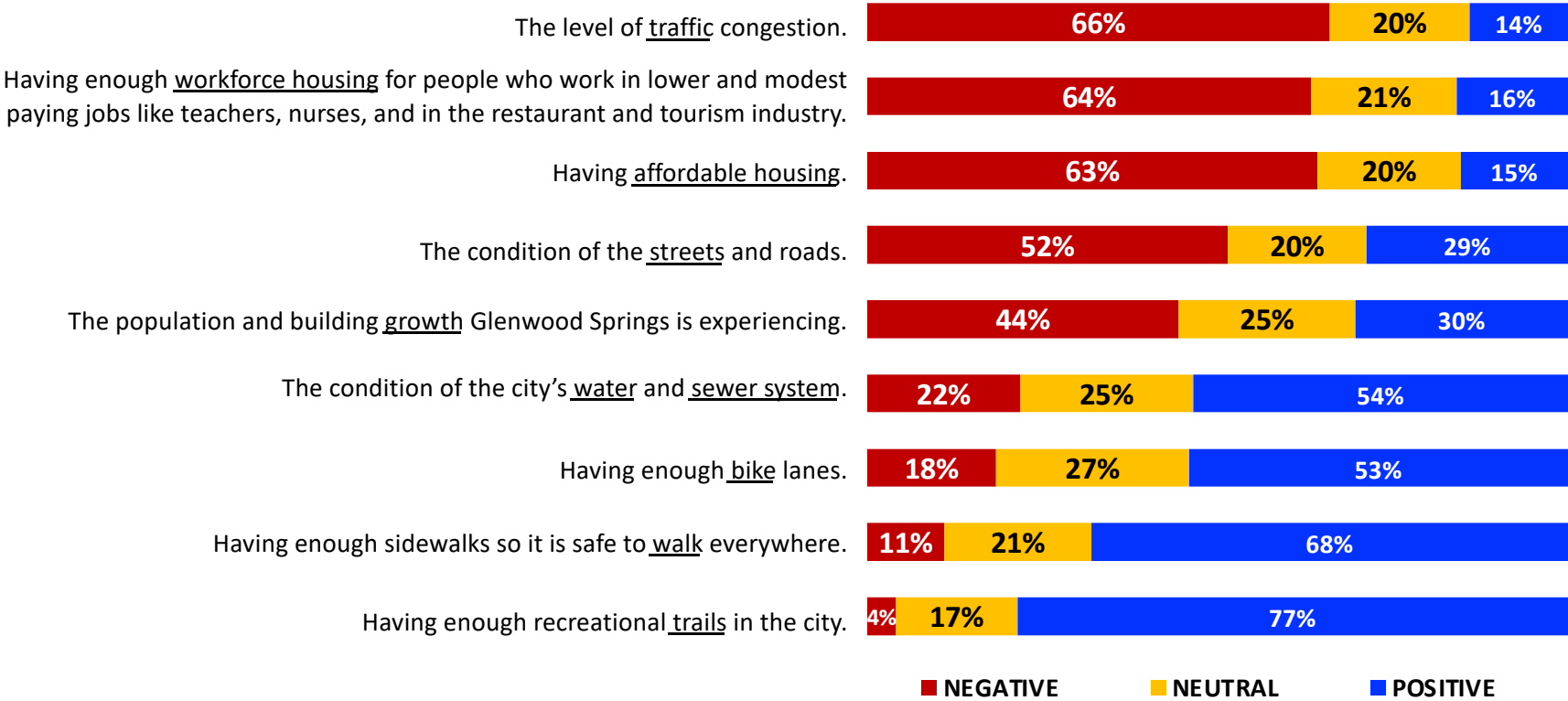
*In general, how would you rate the job the City of Glenwood Springs does providing services and keeping the city in good condition – very positive, somewhat positive, neutral or negative?*



|                 | -Gender: By Age- |               |               |               | --Years in Glenwood Springs-- |      |               |
|-----------------|------------------|---------------|---------------|---------------|-------------------------------|------|---------------|
|                 | -18-54-          |               | -55-Up-       |               | 0-6                           | 6-30 | 30+/Born Here |
|                 | <u>M</u><br>%    | <u>W</u><br>% | <u>M</u><br>% | <u>W</u><br>% | %                             | %    | %             |
| <b>Positive</b> | 72               | 62            | 48            | 70            | 73                            | 64   | 53            |
| <b>Negative</b> | 8                | 11            | 29            | 17            | 4                             | 15   | 25            |

# RATING OF SPECIFIC ASPECTS OF LIFE IN GLENWOOD SPRINGS

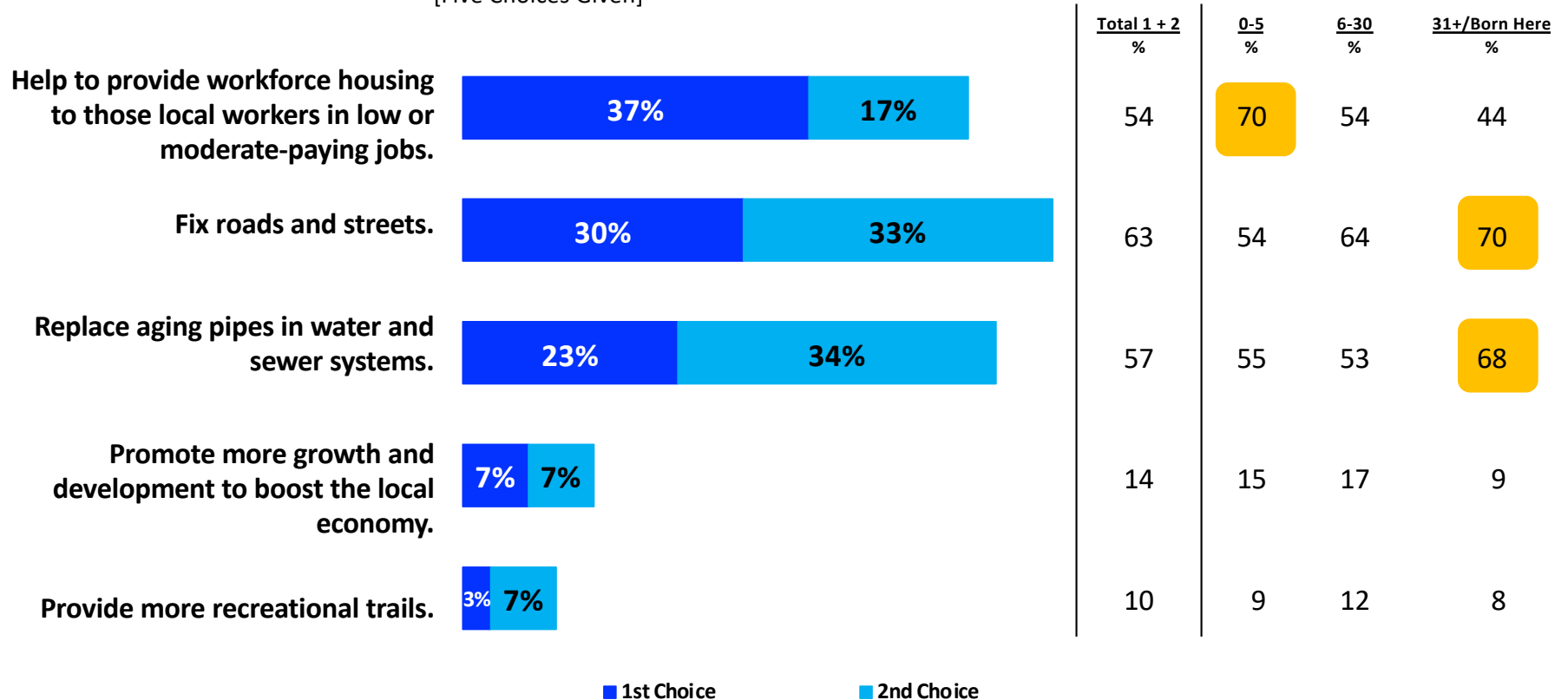
*Next, rate each of the following aspects of Glenwood Springs as either very positive, somewhat positive, neutral, or negative.*





# MOST IMPORTANT ISSUE OR PROBLEM IN GLENWOOD SPRINGS

Which of the following do you feel is the most important one for the Glenwood City Council to take action on first?  
[Five Choices Given]



# BIGGEST ISSUE/PROBLEM

Going back to one of these – the condition of streets and roads – what is the biggest issue or problem that needs to be addressed?

terrible bumps condition road repair money fix maintenance Streets bad people cracks congestion good traffic city Glenwood drive areas bridge

# need Potholes

All the roads and streets need repairs badly and the streets need repairs badly to many potholes and cracks and pieces missing from the road and streets.

Blake Avenue and Midland.

Potholes, really bad potholes, they mess up your car.

As a pedestrian, it would greatly help to have crosswalks repainted.

Drainage and potholes.

City only seems concerned with areas prone to heavy tourism. Neglects roads used mostly by local population.

Finding roads built in Roman times built on better conditions. Potholes and speed bumps. I broke an axel. My friend destroyed a tire in pothole.

Many of the side streets downtown, especially near the hospital are rutted out and have potholes.

Potholes all over the place. Many roads need repainting. Some side streets are almost undrivable unless you're in a pickup because of how bad the damage is.

Just start with driving on them!!! If you find a road that's in decent condition it's only because it's a dead-end street.

The city spends the most money where tourists go, and it's the local roads, where folks drive who actually live here, that get neglected

Potholes!!!! The worst street in town is Blake Ave between 23rd and 27th. It has been the worst for DECADES. Fix the damn road instead of continuously "repairing" it. Band aids only work for so long.

Poor condition bumps and potholes. Terrible.

Traffic congestion and condition of side roads are in pretty bad condition.

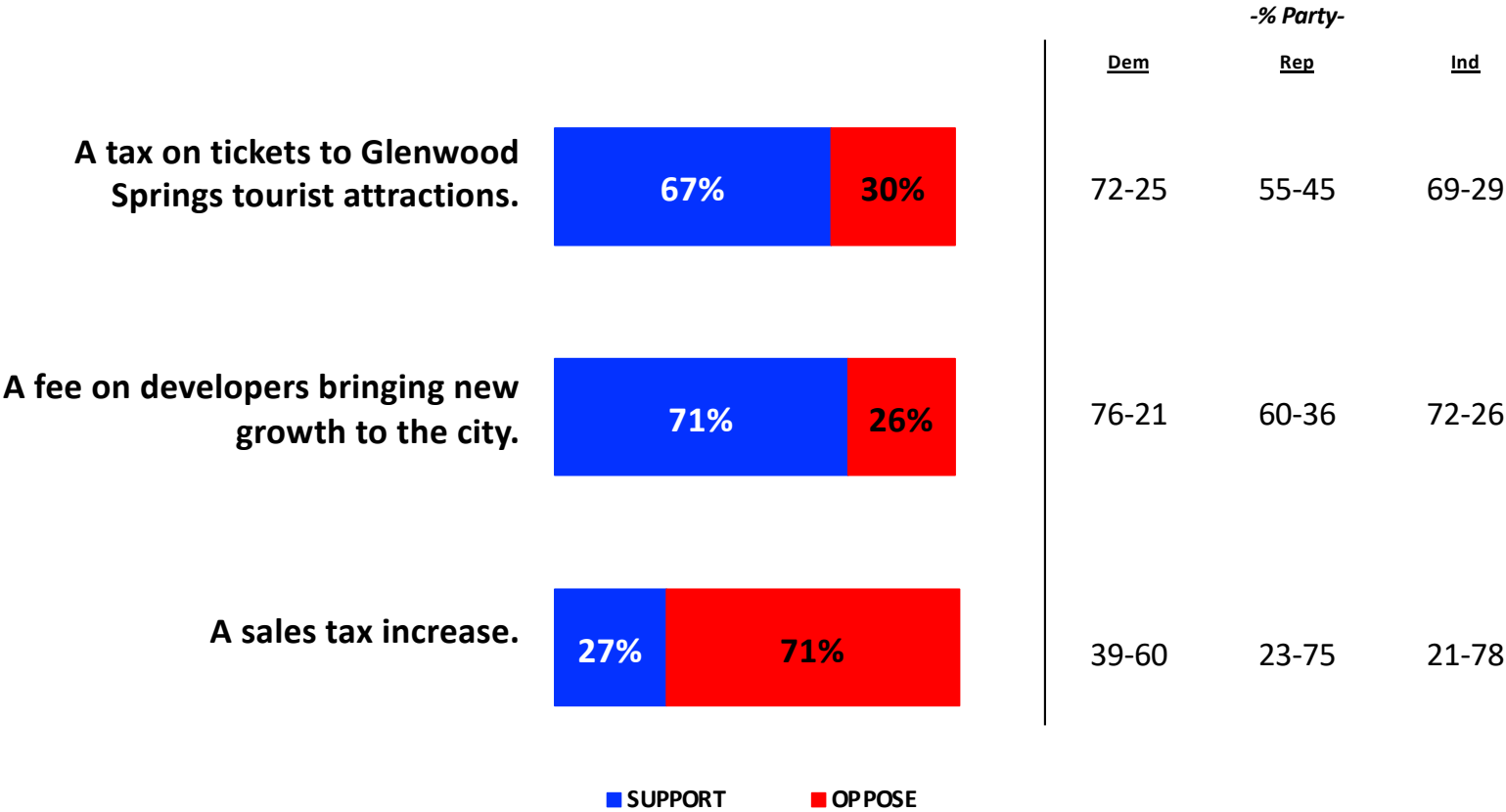
Streets are in bad shape and potholes are ignored for long periods of time.

So many side streets that need repairs such as our street. Last year they tore up our street in west Glenwood for the water lines. They told us they would replace our street and all they have done is some ridiculous patchwork.

There are a lot of potholes near my home and other areas throughout Glenwood. They have caused a lot of damage to one of my vehicles.

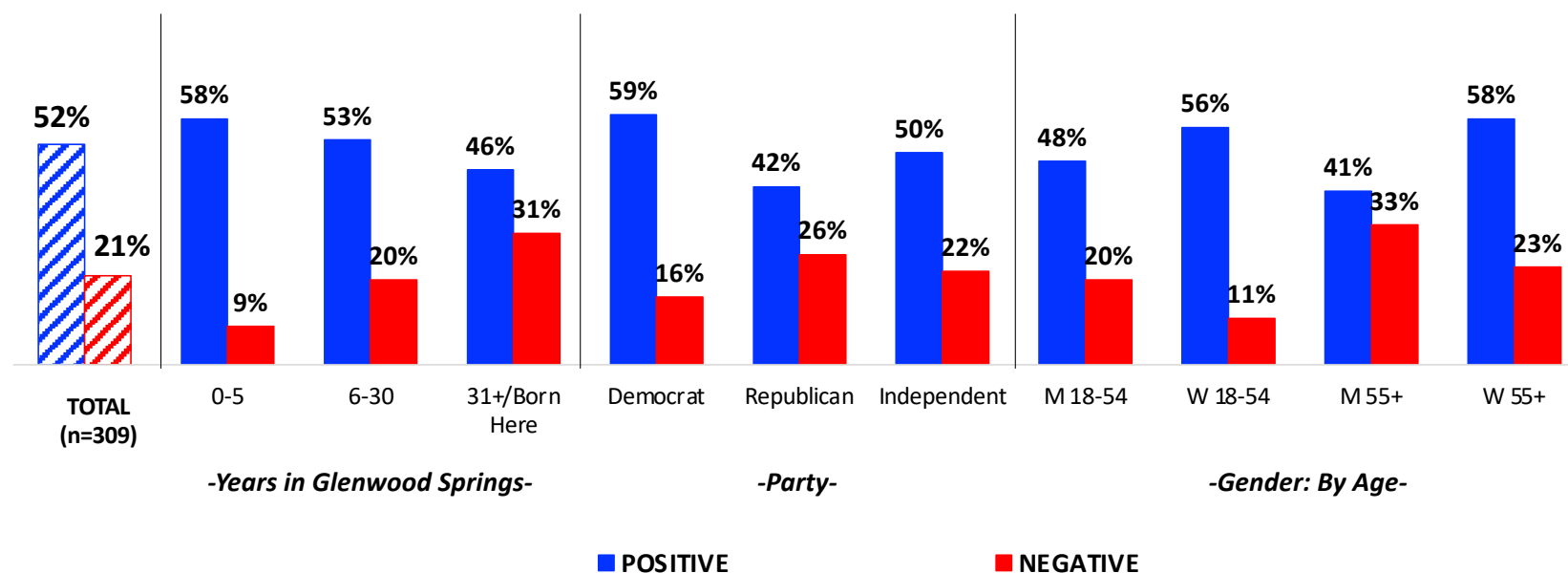
# SUPPORT FOR NEW REVENUE: BY SOURCE TO ADDRESS CITY PROBLEMS

Next, do you support or oppose each of the following as a way to pay for one or more of the city’s priority actions.



# RATING OF CITY PERFORMANCE ON 2016 BALLOT ISSUE

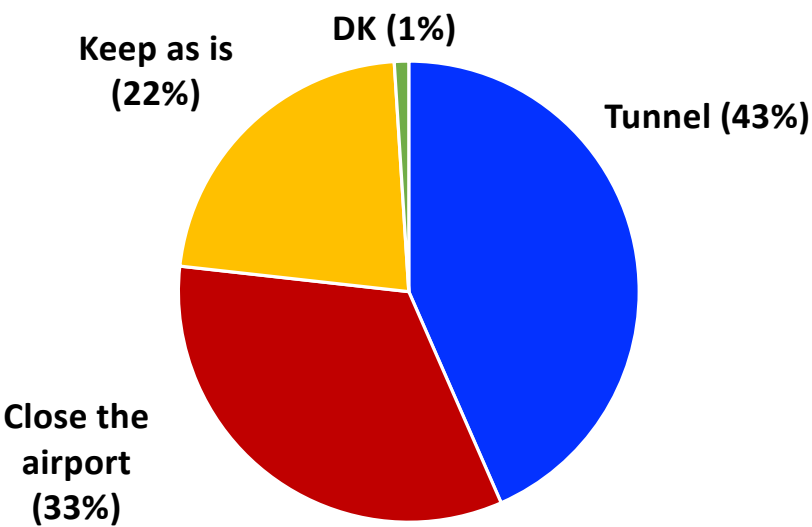
*As you may know, Glenwood Springs voters in 2016 – 5 years ago -- approved a tax increase to build or fix city bridges, roads and other infrastructure projects. How would you rate the job the city has done on these projects – very positive, somewhat positive, neutral or negative?*



# PREFERRED ACTION ON AIRPORT AND SOUTH BRIDGE

Lastly, which of the following three options for the local Glenwood Springs Airport property do you prefer?

- Keep the airport open and spend \$8 to \$10 million in city tax money to build a tunnel under the runway with a new South Bridge for emergency access across the Roaring Fork River.
  - Close the airport and hold a community-wide forum to determine the best alternative use for the property while pursuing building the new South Bridge.
- OR--
- Keep the airport open in its current condition and do not build a new South Bridge.



|                  | -Gender: By Age- |        |         |        | -Party-  |          |          |
|------------------|------------------|--------|---------|--------|----------|----------|----------|
|                  | -18-54-          |        | -55-Up- |        | Dem<br>% | Rep<br>% | Ind<br>% |
|                  | M<br>%           | W<br>% | M<br>%  | W<br>% |          |          |          |
| Tunnel           | 42               | 47     | 40      | 41     | 42       | 38       | 46       |
| Close<br>Airport | 44               | 27     | 30      | 28     | 33       | 30       | 34       |
| Keep As Is       | 13               | 22     | 29      | 30     | 25       | 30       | 18       |



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# Poll Results – Glenwood Springs, CO

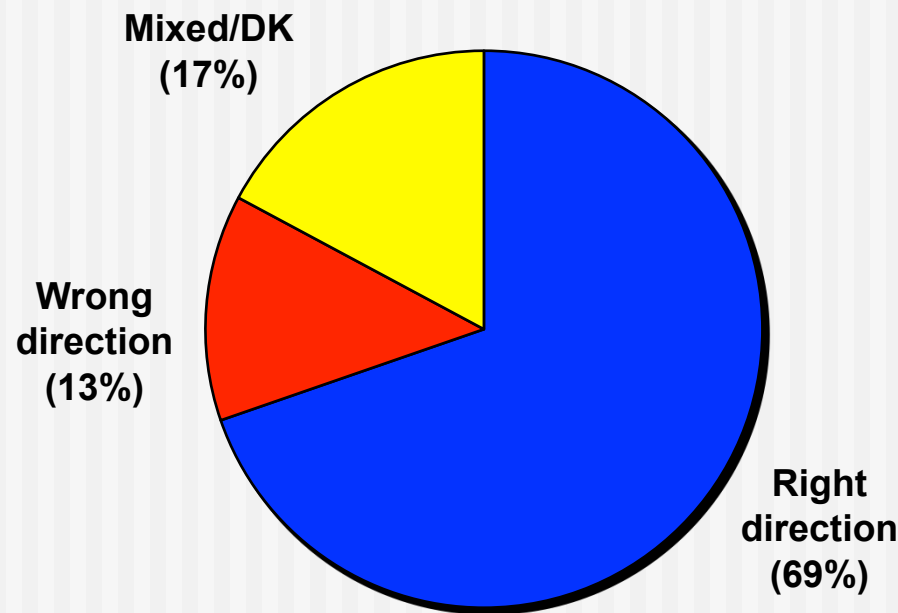
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June 2016

- Sample Size: n=300
- Eligibility: City Voters
- Interview Method: Telephone: 36% landline; 64% cell
- Margin of Error: 5.6%
- Interview Dates: June 13-29, 2016
- Prepared for: City of Glenwood Springs

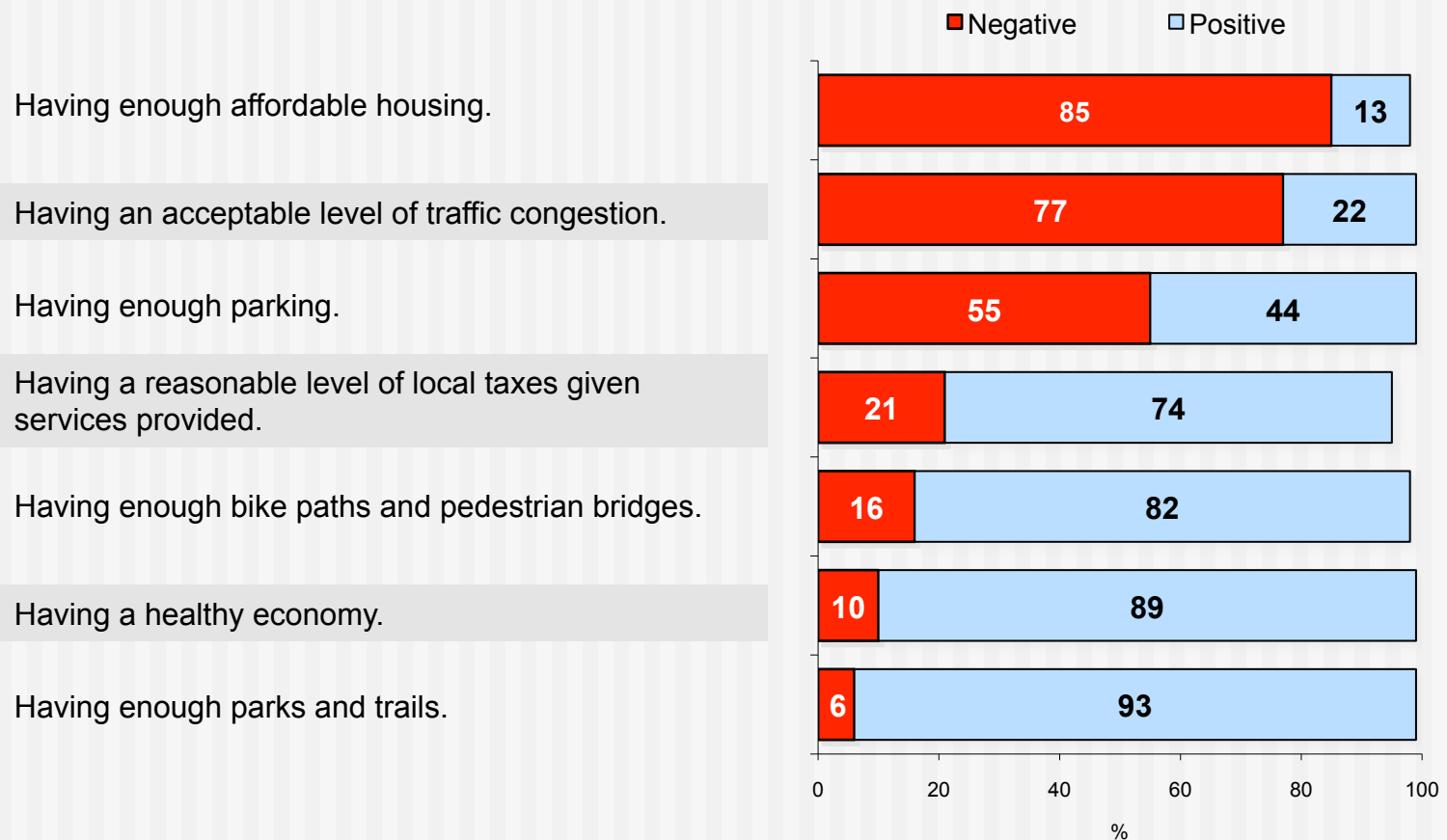
**T1: Voter Mood: City Direction** – Glenwood Springs voters are generally happy with the city’s overall direction – 69% “right direction.” However, there are differing amounts of satisfaction by age and gender – men under 40 are happiest (91% “right”) while those over 65 are just 55% “right” with women 65+ the lowest at 51%. Newest residents (under 10 years) are also higher than average in being happy with the area’s direction (76%).

*In general, do you think that things in the City of Glenwood Springs are going in the right direction or the wrong direction?*





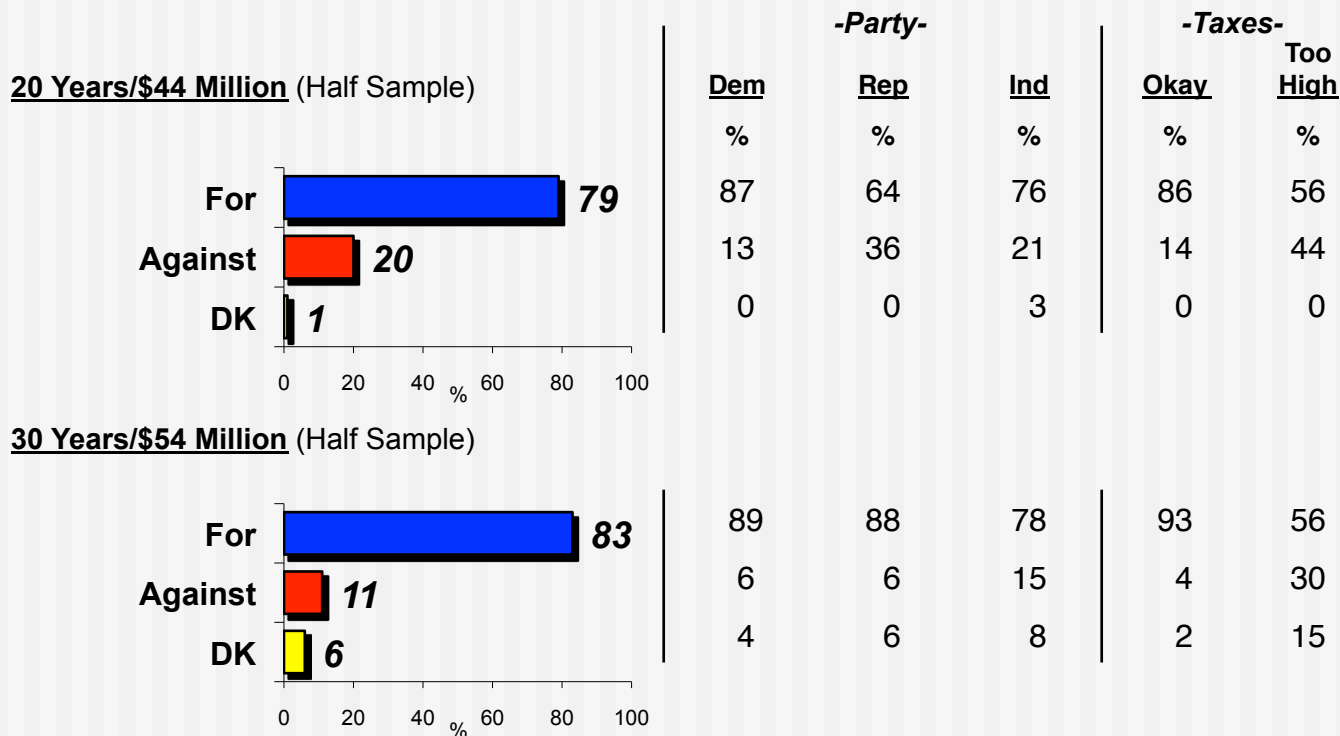
**T2: Voter Mood: Rating of City Factors** – “Affordable housing” (85% negative) and “traffic congestion” (77%) are the most negatively rated of seven issue/attributes tested. Lack of “parking” is a negative to 55% but rated positive by 44%; “parking” is most positive with voters under 40 (56% positive). City voters are highly positive on: “level of local taxes” (74% positive – including 73% of Republicans); a “healthy economy” (89% positive); “bike path/pedestrian bridge” (82%); and “parks and trails” (93%). Having a 69% “right direction” along with even higher positives on “reasonable taxes” and “healthy economy” leads voters to be in a pro-status quo... continue not change-oriented mood. Good for tax removal ballot vote.





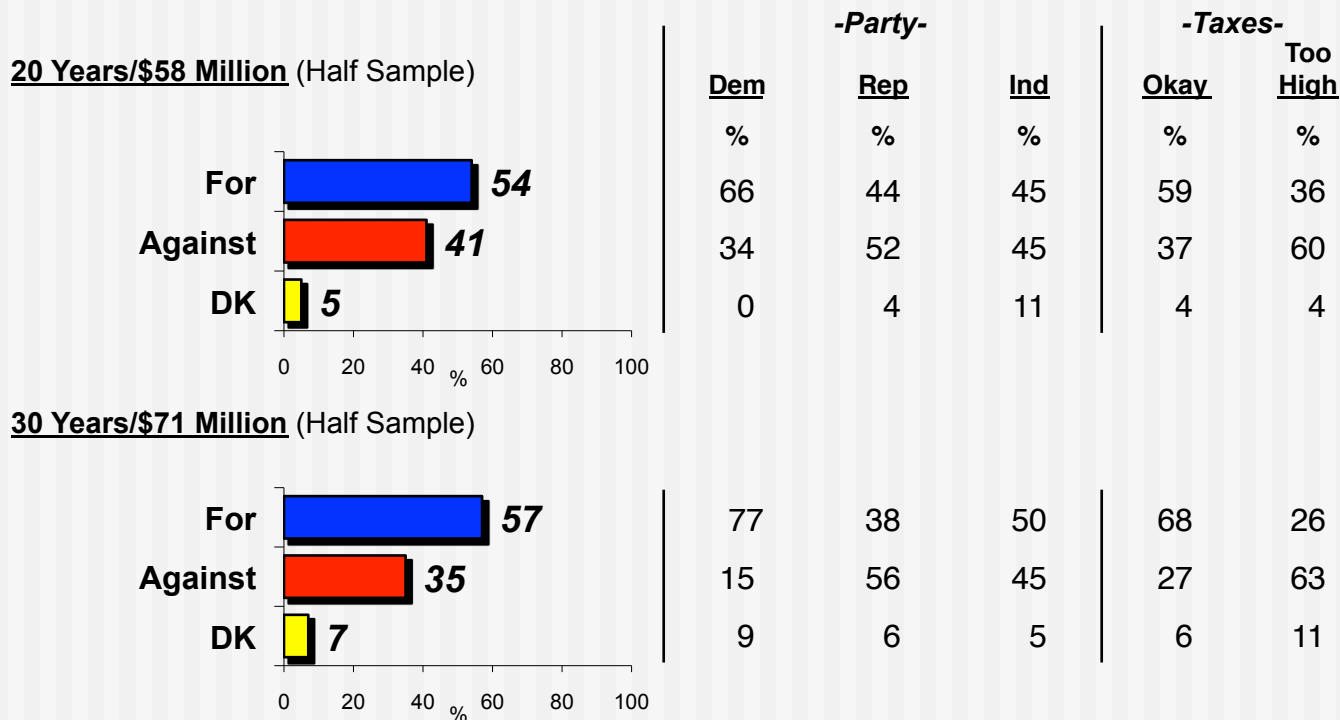
**T4: Ballot Vote: Sales Tax Renewal** – Four out of five Glenwood Springs voters (81%) support the one percent sales tax renewal. Length of renewal period does not seem to matter – 79% support 20 years/\$44 million raised while 83% support 30 years/\$54 million raised. Combined, 81% support renewal. This high level of potential ballot support is consistent with the high (74%) opinion that the current level of taxation is reasonable. Even 73% of Republicans support sales tax renewal and a 56% majority who say taxes are too high.

*As you may or may not know, a one percent sales tax that costs one cent for every dollar purchased was approved by Glenwood Springs voters 20 years ago is set to expire. This November, would you vote FOR or AGAINST keeping this one percent sales tax in place for another 20 years/30 years and using it to back \$44 million/\$54 million of Bonds to pay for projects to improve and expand roads, bridges, street beautification, parks and arts and culture?*

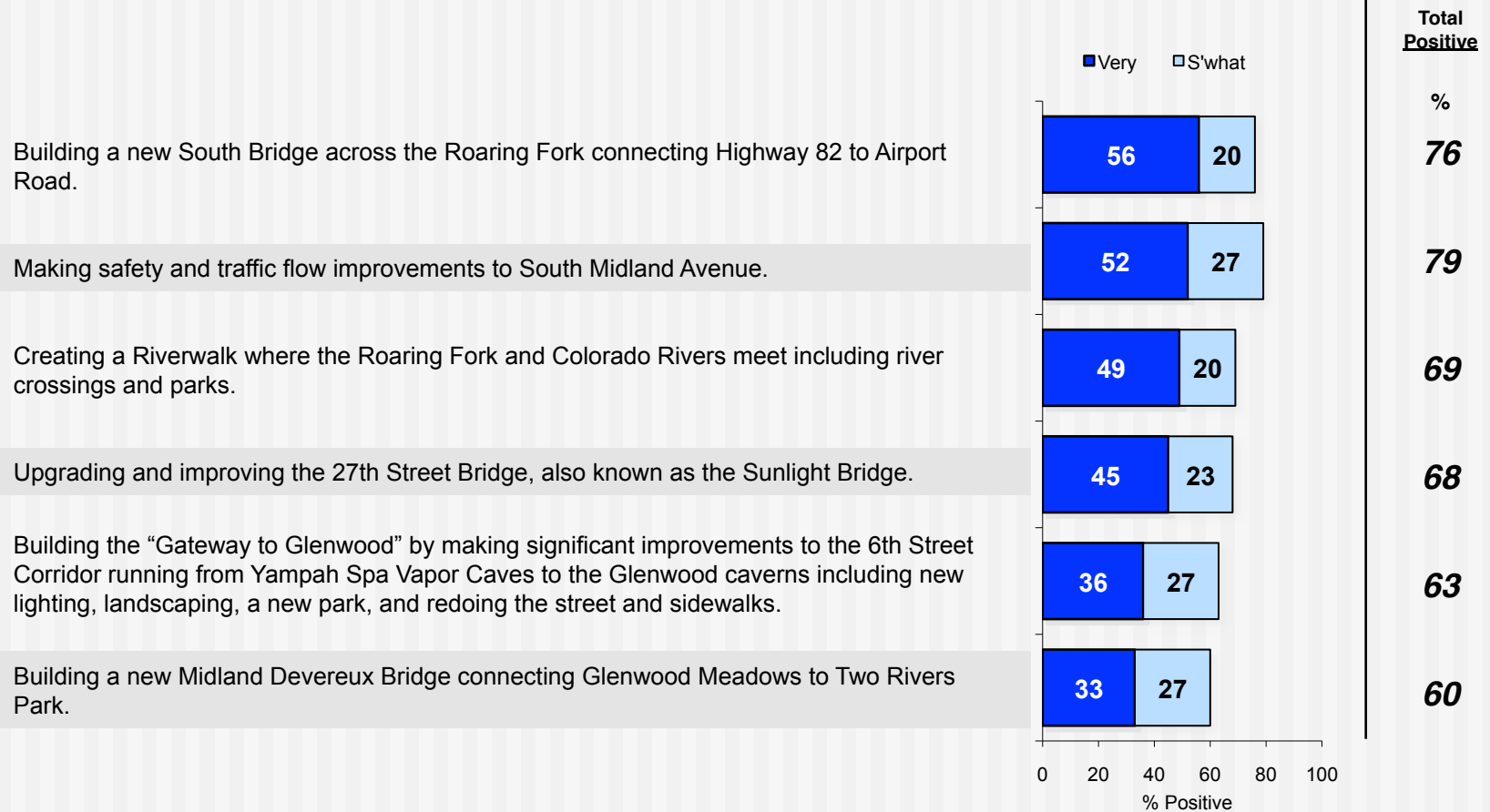


**T5: Ballot Vote: 1.5% Sales Tax** – Support for adding an additional half percent along with one percent sales tax renewal – total of 1.5% sales tax – is significantly lower (56% For, 28% Against) than the 81% who are FOR a simple one percent renewal. Again, duration of tax does not matter – 54% FOR 20 years/\$58 million raised; 57% FOR 30 years/\$71 million. However, for this new additional tax ballot – only Democratic voters, newest residents, and voters under 40 support it. Dynamics like this – tax increase ballots opposed by older, long-term, less liberal voters – tend to produce election day results lower than poll support. The “AGAINST” vote is always more motivated to show up and work to defeat a tax increase ballot than those who support it.

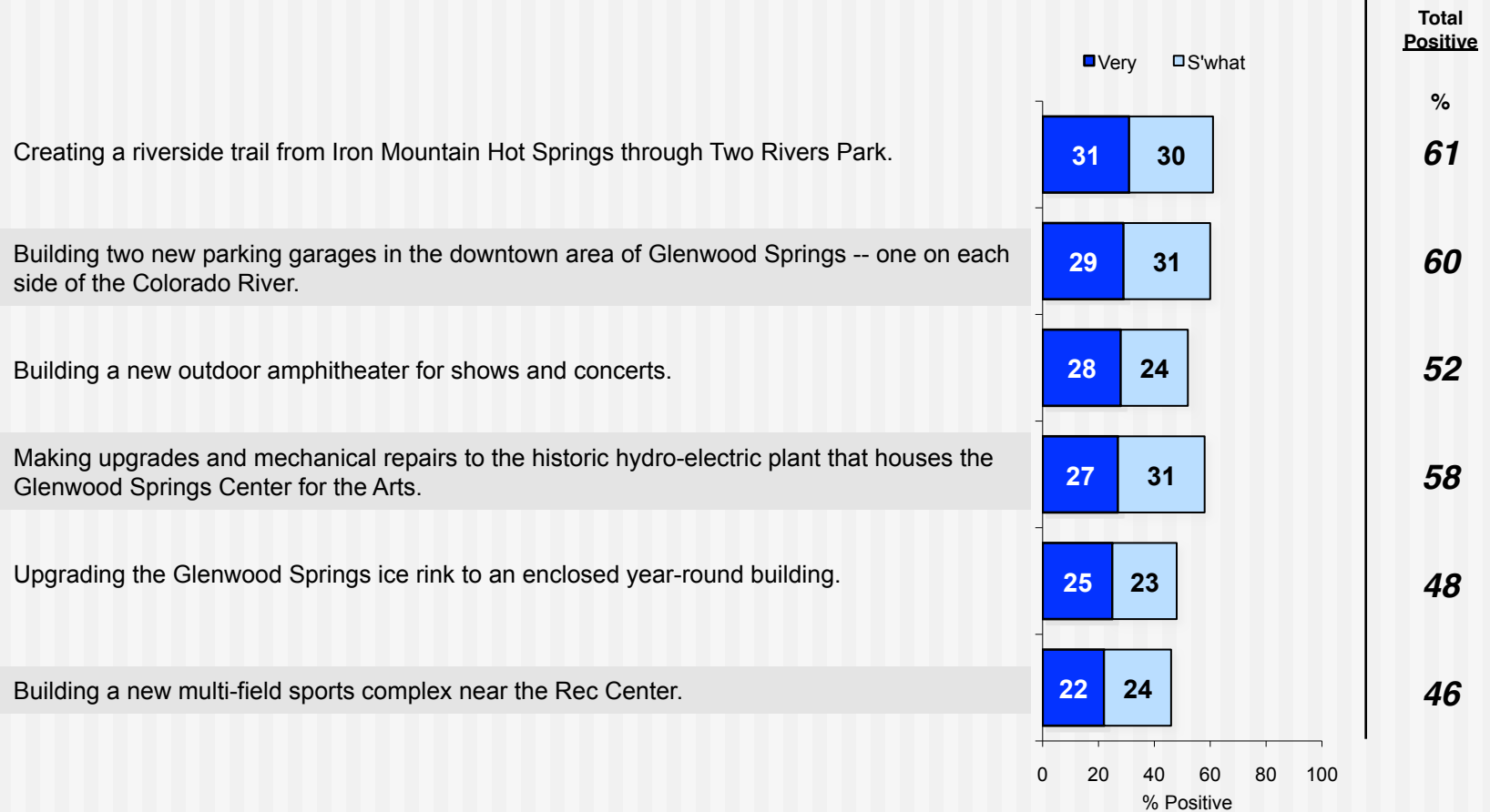
*Knowing that more money raised means the ability to build more projects, if the proposal on the November ballot was to KEEP the current one-cent sales tax in place for another 20 years/30 years and ADD to it a NEW sales tax INCREASE of ONE HALF CENT for a total Bond value of \$58 million/\$71 million to pay for projects to improve and expand roads, bridges, street beautification, parks and arts and culture, would you vote FOR or AGAINST this one and a half cent sales tax for Glenwood Springs?*



**T6: Evaluation of Potential Projects. (1/2)** – From a list of 12 potential projects/improvements to be funded, the most popular are: South Midland Avenue improvements (79% positive); new South Bridge (76% positive); and a Riverwalk where the rivers meet (70% positive). All three are “very positive” to half the city’s voters. Lowest on the priority list are two parks and rec projects – ice rink upgrade (48%) and new sports fields (46%).



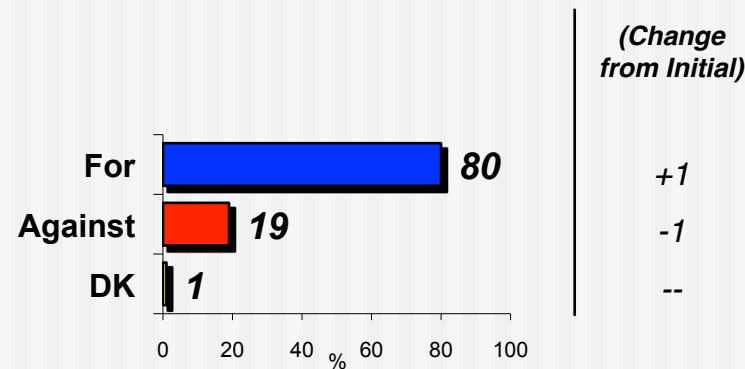
## T6: Evaluation of Potential Projects. (2/2)



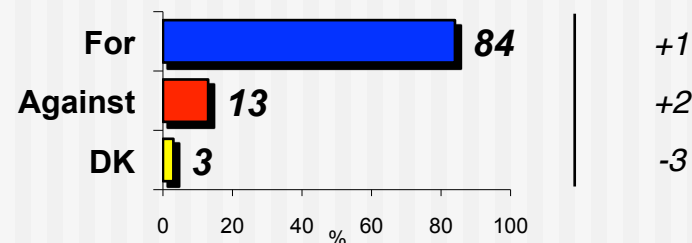
**T7: Post-Project Informed Re-Vote: Sales Tax Renewal** – Exposure to potential projects has little impact (+1 gain) on vote support for the sales tax renewal (82% FOR combined total sample) in large part because the renewal is initially supported by over 80% of voters. The most popular projects, however, do reinforce the goodwill and good feelings about continuing to invest in addressing the city’s traffic congestion problems as maintain the popular network of trails and pedestrian bridges.

*Now that you have heard all of these possible projects... Would you vote FOR or AGAINST keeping this one percent sales tax in place for another 20 years/ 30 years and using it to back \$44 million/\$54 million of Bonds to pay for projects to improve and expand roads, bridges, street beautification, parks and arts and culture?*

**20 Years/\$44 Million** (Half Sample)



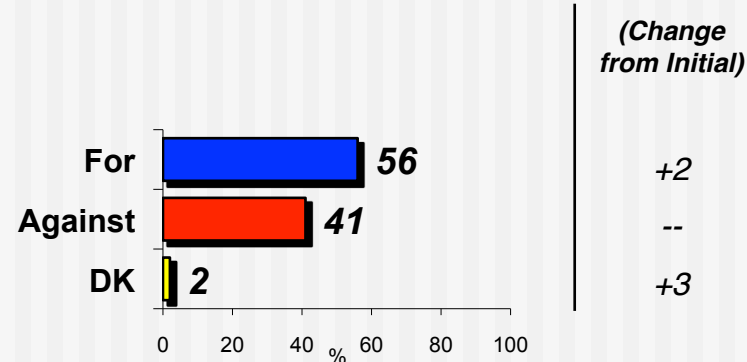
**30 Years/\$54 Million** (Half Sample)



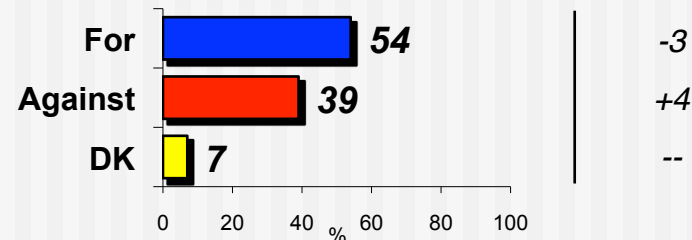
**T8: Post-Project Informed Re-Vote: 1.5% Sales Tax – Combined** (total sample) support for increasing the sales tax by one half percent ends up at 55% FOR after exposure to the projects... this compares to 56% FOR in the initial ballot test. Thus, exposure to the dozen potential projects does not increase appetite for a tax increase. And, at the longest (30 years) level, support actually drops three points.

*Would you vote FOR or AGAINST this one and a half cent sales tax for Glenwood Springs... Knowing that more money means the ability to build more of these projects such as the new bridges and parking garages, if the proposal on the November ballot was to KEEP the current one-cent sales tax in place for another 20 years/30 years and ADD to it a NEW sales tax INCREASE of ONE HALF CENT for a total Bond value of \$58 million/\$71 million, would you vote FOR or AGAINST this one and a half cent sales tax for Glenwood Springs?*

**20 Years/\$58 Million** (Half Sample)



**30 Years/\$71 Million** (Half Sample)



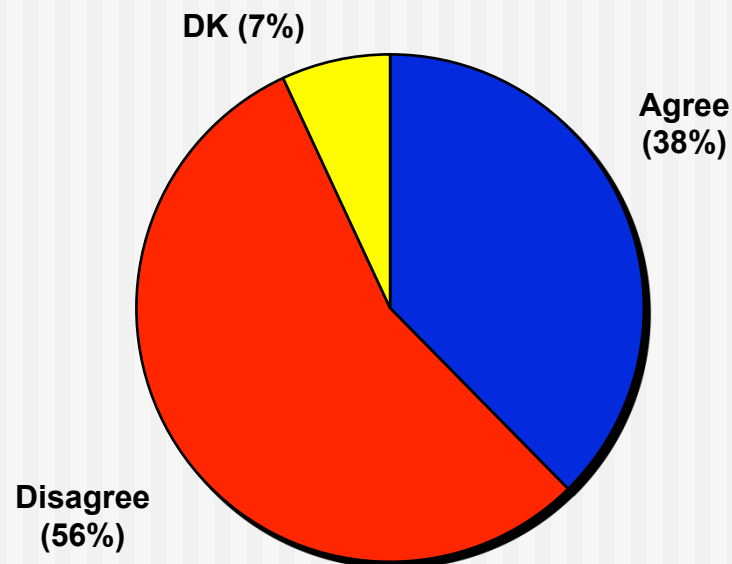


**T9: Anti-Tax Message Test** – A 56% majority of city voters DISAGREE with an anti-ballot “enough tax money already” message; just 38% agree. This reaffirming response in rejecting a tax-ballot opponent message is consistent with other poll measures including the strong level of satisfaction with the city’s current direction; the overwhelming support for renewal of the one percent sales tax and the community’s recognition that traffic problems need to be addressed.

*Next, tell me if you agree or disagree with this statement that those OPPOSED to a sales tax ballot might make...*

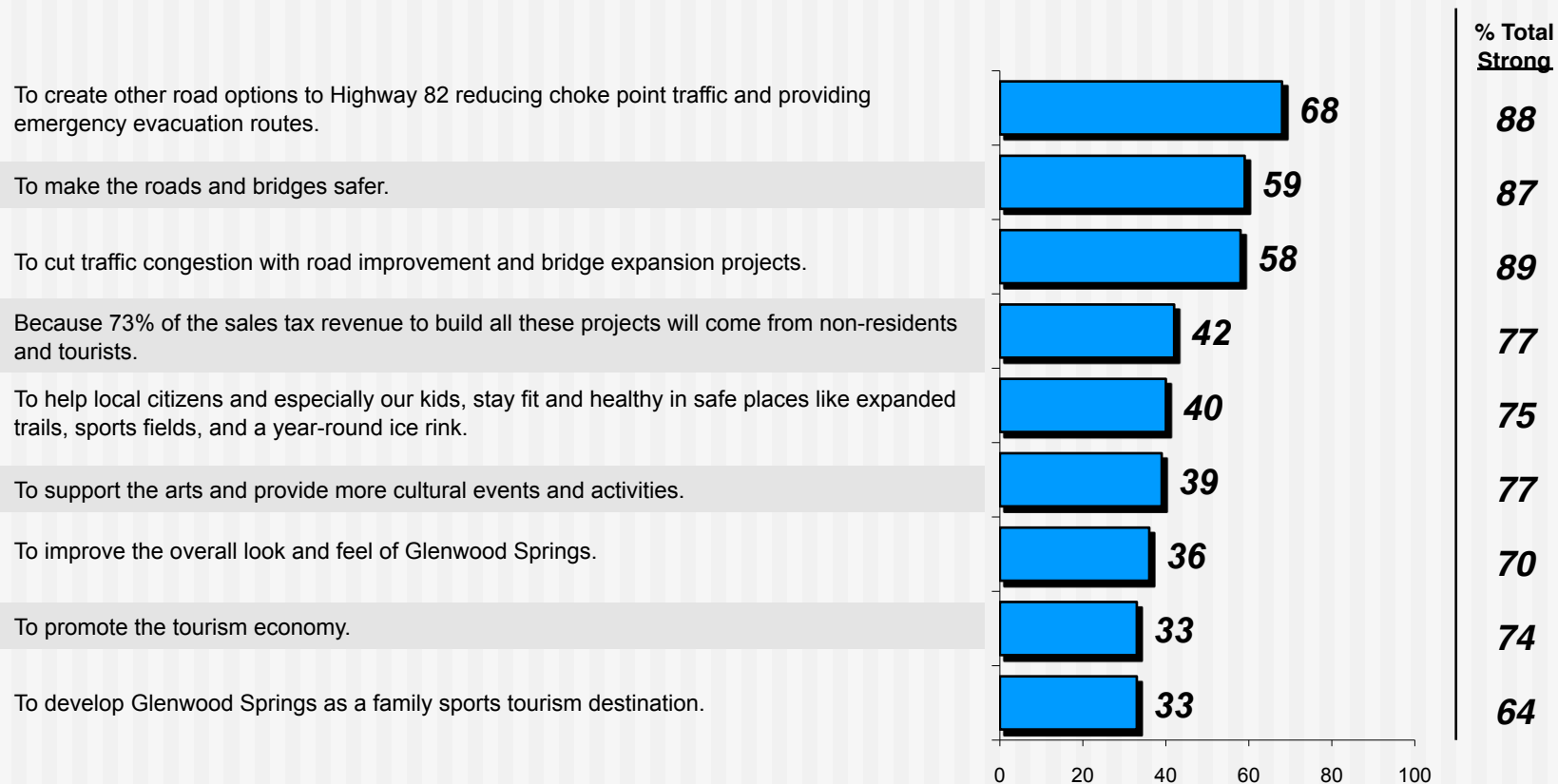
*“They say with new growth, tourism and rising property values, Glenwood Springs already has enough money to make improvements to streets, bridges, and recreation facilities and that hurtful higher taxes just aren’t needed.”*

*Do you agree or disagree with this statement?*



**T10: Pro-Tax “Community Investment” Message Test** – Glenwood Spring voters respond very positively to a series of messages about the value of community investment with the highest scoring motivations being “cut traffic congestion” (89%); “emergency evacuation routes” (88%); “safer roads and bridges” (87%). In other words, the objectives of the TRANSPORTATION projects score highest as “very” or “somewhat” strong reasons to invest and build projects. However, about three-fourths also are motivated by other value propositions including “healthier kids,” “tourism economy,” “more arts and culture,” and the reassurance that tourists will contribute most of the sales tax revenue.

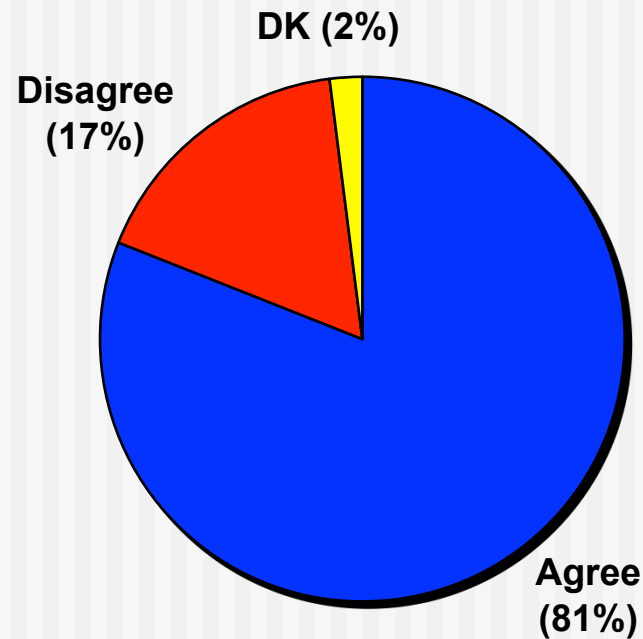
*Regardless of how you would vote on the sales tax ballot, tell me if you think each of the following is a very strong reason, a somewhat strong reason, or a weak reason for investing and building these projects.*



**T11: Sales Tax Renewal Final Summary Judgment** – In keeping with their broad support for renewal of the one percent sales tax, after hearing all the messaging (including one anti-ballot statement) and potential project descriptions, a consistent 81% agree that continuing the current tax in place makes sense. For Glenwood voters, the status quo is a happy and good place to stay.

*Lastly, do you agree or disagree the following statement:*

*“No matter what, it makes sense to renew the current one percent sales tax because it means no new taxes while keeping the ability to build a better Glenwood Springs.”*



1. In general, do you think that things in the City of Glenwood Springs are going in the right direction or the wrong direction?

|                 |     |
|-----------------|-----|
| Right direction | 69% |
| Mixed           | 12% |
| Wrong direction | 13% |
| DK/Refused      | 5%  |

---

Next, rate each of the following specific aspects of life in Glenwood Springs as either excellent, good, not so good, or poor. Here is the first one.

3. Having a healthy economy.

|                |     |
|----------------|-----|
| Excellent      | 18% |
| Good           | 71% |
| Not so good    | 7%  |
| Poor           | 2%  |
| DK/Refused     | 1%  |
| Total Positive | 89% |
| Total Negative | 10% |

---

4. Having an acceptable level of traffic congestion.

|                |     |
|----------------|-----|
| Excellent      | 1%  |
| Good           | 21% |
| Not so good    | 38% |
| Poor           | 38% |
| DK/Refused     | 1%  |
| Total Positive | 22% |
| Total Negative | 77% |

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5. Having a reasonable level of local taxes given services provided.

|                |     |
|----------------|-----|
| Excellent      | 11% |
| Good           | 64% |
| Not so good    | 14% |
| Poor           | 7%  |
| DK/Refused     | 4%  |
| Total Positive | 74% |
| Total Negative | 21% |

---

6. Having enough parks and trails.

|                |     |
|----------------|-----|
| Excellent      | 36% |
| Good           | 58% |
| Not so good    | 5%  |
| Poor           | 1%  |
| DK/Refused     | 1%  |
| Total Positive | 93% |
| Total Negative | 6%  |

---

7. Having enough affordable housing.

|                |     |
|----------------|-----|
| Excellent      | 3%  |
| Good           | 11% |
| Not so good    | 38% |
| Poor           | 47% |
| DK/Refused     | 1%  |
| Total Positive | 13% |
| Total Negative | 85% |

---

8. Having enough parking.

|                |     |
|----------------|-----|
| Excellent      | 4%  |
| Good           | 40% |
| Not so good    | 33% |
| Poor           | 22% |
| DK/Refused     | 1%  |
| Total Positive | 44% |
| Total Negative | 55% |

---

9. Having enough bike paths and pedestrian bridges.

|                |     |
|----------------|-----|
| Excellent      | 30% |
| Good           | 52% |
| Not so good    | 10% |
| Poor           | 6%  |
| DK/Refused     | 2%  |
| Total Positive | 82% |
| Total Negative | 16% |

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10. **FORM A -- HALF SAMPLE:** As you may or may not know, a one percent sales tax that costs one cent for every dollar purchased was approved by Glenwood Springs voters 20 years ago is set to expire. This November, would you vote FOR or AGAINST keeping this one percent sales tax in place for another 20 years and using it to back \$44 million of Bonds to pay for projects to improve and expand roads, bridges, street beautification, parks and arts and culture?

|            |     |
|------------|-----|
| For        | 79% |
| Against    | 20% |
| DK/Refused | 1%  |

---

10. **FORM B -- HALF SAMPLE:** As you may or may not know, a one percent sales tax that costs one cent for every dollar purchased was approved by Glenwood Springs voters 20 years ago is set to expire. This November, would you vote FOR or AGAINST keeping this one percent sales tax in place for another 30 years and using it to back \$54 million of Bonds to pay for projects to improve and expand roads, bridges, street beautification, parks and arts and culture?

|            |     |
|------------|-----|
| For        | 83% |
| Against    | 11% |
| DK/Refused | 6%  |

---

10. **TOTAL COMBINED:** As you may or may not know, a one percent sales tax that costs one cent for every dollar purchased was approved by Glenwood Springs voters 20 years ago is set to expire. This November, would you vote FOR or AGAINST keeping this one percent sales tax in place for another 20 years/30 years and using it to back \$44 million/\$54 million of Bonds to pay for projects to improve and expand roads, bridges, street beautification, parks and arts and culture?

|            |     |
|------------|-----|
| For        | 81% |
| Against    | 16% |
| DK/Refused | 3%  |

---

- 
11. **FORM A -- HALF SAMPLE:** Knowing that more money raised means the ability to build more projects, if the proposal on the November ballot was to KEEP the current one-cent sales tax in place for another 20 years and ADD to it a NEW sales tax INCREASE of ONE HALF CENT for a total Bond value of \$58 million to pay for projects to improve and expand roads, bridges, street beautification, parks and arts and culture, would you vote FOR or AGAINST this one and a half cent sales tax for Glenwood Springs?

|            |     |
|------------|-----|
| For        | 54% |
| Against    | 41% |
| DK/Refused | 5%  |

- 
11. **FORM B -- HALF SAMPLE:** Knowing that more money raised means the ability to build more projects, if the proposal on the November ballot was to KEEP the current one-cent sales tax in place for another 30 years and ADD to it a NEW sales tax INCREASE of ONE HALF CENT for a total Bond value of \$71 million to pay for projects to improve and expand roads, bridges, street beautification, parks and arts and culture, would you vote FOR or AGAINST this one and a half cent sales tax for Glenwood Springs?

|            |     |
|------------|-----|
| For        | 57% |
| Against    | 35% |
| DK/Refused | 7%  |

- 
11. **TOTAL COMBINED:** Knowing that more money raised means the ability to build more projects, if the proposal on the November ballot was to KEEP the current one-cent sales tax in place for another 20 years/30 years and ADD to it a NEW sales tax INCREASE of ONE HALF CENT for a total Bond value of \$58 million/\$71 million to pay for projects to improve and expand roads, bridges, street beautification, parks and arts and culture, would you vote FOR or AGAINST this one and a half cent sales tax for Glenwood Springs?

|            |     |
|------------|-----|
| For        | 56% |
| Against    | 38% |
| DK/Refused | 6%  |

---



Next I will read you a list of projects that might be funded by the sales tax renewal or expansion. Tell me if your reaction to having Glenwood Springs use money from the Bonds on each project is very positive, somewhat positive, neutral, or negative. Here is the first one.

12. Upgrading and improving the 27th Street Bridge, also known as the Sunlight Bridge.

|                   |     |
|-------------------|-----|
| Very positive     | 45% |
| Somewhat positive | 23% |
| Neutral           | 19% |
| Negative          | 12% |
| DK/Refused        | 1%  |
| Total Positive    | 68% |

---

13. Creating a riverside trail from Iron Mountain Hot Springs through Two Rivers Park.

|                   |     |
|-------------------|-----|
| Very positive     | 31% |
| Somewhat positive | 30% |
| Neutral           | 17% |
| Negative          | 21% |
| DK/Refused        | 1%  |
| Total Positive    | 61% |

---

14. Creating a Riverwalk where the Roaring Fork and Colorado Rivers meet including river crossings and parks.

|                   |     |
|-------------------|-----|
| Very positive     | 49% |
| Somewhat positive | 20% |
| Neutral           | 14% |
| Negative          | 16% |
| DK/Refused        | 0%  |
| Total Positive    | 70% |

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15. Upgrading the Glenwood Springs ice rink to an enclosed year-round building.

|                   |     |
|-------------------|-----|
| Very positive     | 25% |
| Somewhat positive | 23% |
| Neutral           | 26% |
| Negative          | 24% |
| DK/Refused        | 2%  |
| Total Positive    | 49% |

---

16. Making safety and traffic flow improvements to South Midland Avenue.

|                   |     |
|-------------------|-----|
| Very positive     | 52% |
| Somewhat positive | 27% |
| Neutral           | 13% |
| Negative          | 7%  |
| DK/Refused        | 1%  |
| Total Positive    | 79% |

---

17. Building a new South Bridge across the Roaring Fork connecting Highway 82 to Airport Road.

|                   |     |
|-------------------|-----|
| Very positive     | 56% |
| Somewhat positive | 20% |
| Neutral           | 13% |
| Negative          | 11% |
| DK/Refused        | 1%  |
| Total Positive    | 76% |

---

18. Making upgrades and mechanical repairs to the historic hydro-electric plant that houses the Glenwood Springs Center for the Arts.

|                   |     |
|-------------------|-----|
| Very positive     | 27% |
| Somewhat positive | 31% |
| Neutral           | 26% |
| Negative          | 15% |
| DK/Refused        | 2%  |
| Total Positive    | 58% |

---

- 
19. Building two new parking garages in the downtown area of Glenwood Springs -- one on each side of the Colorado River.

|                   |     |
|-------------------|-----|
| Very positive     | 29% |
| Somewhat positive | 31% |
| Neutral           | 16% |
| Negative          | 24% |
| DK/Refused        | 0%  |
| Total Positive    | 60% |

- 
20. Building a new Midland Devereux Bridge connecting Glenwood Meadows to Two Rivers Park.

|                   |     |
|-------------------|-----|
| Very positive     | 33% |
| Somewhat positive | 27% |
| Neutral           | 17% |
| Negative          | 20% |
| DK/Refused        | 3%  |
| Total Positive    | 60% |

- 
21. Building a new multi-field sports complex near the Rec Center.

|                   |     |
|-------------------|-----|
| Very positive     | 22% |
| Somewhat positive | 24% |
| Neutral           | 25% |
| Negative          | 27% |
| DK/Refused        | 2%  |
| Total Positive    | 47% |

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- 
22. Building the Gateway to Glenwood by making significant improvements to the 6th Street Corridor running from Yampah Spa Vapor Caves to the Glenwood caverns including new lighting, landscaping, a new park, and redoing the street and sidewalks.

|                   |     |
|-------------------|-----|
| Very positive     | 36% |
| Somewhat positive | 27% |
| Neutral           | 20% |
| Negative          | 16% |
| DK/Refused        | 0%  |
| Total Positive    | 64% |

- 
23. Building a new outdoor amphitheater for shows and concerts.

|                   |     |
|-------------------|-----|
| Very positive     | 28% |
| Somewhat positive | 24% |
| Neutral           | 19% |
| Negative          | 29% |
| DK/Refused        | 0%  |
| Total Positive    | 52% |

---

Now that you have heard all of these possible projects, some follow-up questions.

24. **FORM A -- HALF SAMPLE:** Would you vote FOR or AGAINST keeping this one percent sales tax in place for another 20 years and using it to back \$44 million of Bonds to pay for projects to improve and expand roads, bridges, street beautification, parks and arts and culture?

|            |     |
|------------|-----|
| For        | 80% |
| Against    | 19% |
| DK/Refused | 1%  |

---

24. **FORM B -- HALF SAMPLE:** Would you vote FOR or AGAINST keeping this one percent sales tax in place for another 30 years and using it to back \$54 million of Bonds to pay for projects to improve and expand roads, bridges, street beautification, parks and arts and culture?

|            |     |
|------------|-----|
| For        | 84% |
| Against    | 13% |
| DK/Refused | 3%  |

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24. **TOTAL COMBINED:** Would you vote FOR or AGAINST keeping this one percent sales tax in place for another 20 years/30 years and using it to back \$44 million/\$54 million of Bonds to pay for projects to improve and expand roads, bridges, street beautification, parks and arts and culture?

|            |     |
|------------|-----|
| For        | 82% |
| Against    | 16% |
| DK/Refused | 2%  |

---

25. **FORM A -- HALF SAMPLE:** Knowing that more money means the ability to build more of these projects such as the new bridges and parking garages, if the proposal on the November ballot was to KEEP the current one-cent sales tax in place for another 20 years and ADD to it a NEW sales tax INCREASE of ONE HALF CENT for a total Bond value of \$58 million, would you vote FOR or AGAINST this one and a half cent sales tax for Glenwood Springs?

|            |     |
|------------|-----|
| For        | 56% |
| Against    | 41% |
| DK/Refused | 2%  |

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25. **FORM B -- HALF SAMPLE:** Knowing that more money means the ability to build more of these projects such as the new bridges and parking garages, if the proposal on the November ballot was to KEEP the current one-cent sales tax in place for another 30 years and ADD to it a NEW sales tax INCREASE of ONE HALF CENT for a total Bond value of \$71 million, would you vote FOR or AGAINST this one and a half cent sales tax for Glenwood Springs?

|            |     |
|------------|-----|
| For        | 54% |
| Against    | 39% |
| DK/Refused | 7%  |

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25. **TOTAL COMBINED:** Knowing that more money means the ability to build more of these projects such as the new bridges and parking garages, if the proposal on the November ballot was to KEEP the current one-cent sales tax in place for another 20 years/30 years and ADD to it a NEW sales tax INCREASE of ONE HALF CENT for a total Bond value of \$58 million/\$71 million, would you vote FOR or AGAINST this one and a half cent sales tax for Glenwood Springs?

|            |     |
|------------|-----|
| For        | 55% |
| Against    | 40% |
| DK/Refused | 5%  |

---

- 
26. Next, tell me if you agree or disagree with this statement that those OPPOSED to a sales tax ballot might make: They say with new growth, tourism and rising property values, Glenwood Springs already has enough money to make improvements to streets, bridges, and recreation facilities and that hurtful higher taxes just are not needed.

|            |     |
|------------|-----|
| Agree      | 38% |
| Disagree   | 56% |
| DK/Refused | 7%  |

---

Regardless of how you would vote on the sales tax ballot, tell me if you think each of the following is a very strong reason, a somewhat strong reason, or a weak reason for investing and building these projects. Here is the first one.

27. To cut traffic congestion with road improvement and bridge expansion projects.

|                        |     |
|------------------------|-----|
| Very strong reason     | 58% |
| Somewhat strong reason | 31% |
| Weak reason            | 11% |
| DK/Refused             | 0%  |
| Total Strong Reason    | 88% |

- 
28. To help local citizens and especially our kids, stay fit and healthy in safe places like expanded trails, sports fields, and a year-round ice rink.

|                        |     |
|------------------------|-----|
| Very strong reason     | 40% |
| Somewhat strong reason | 35% |
| Weak reason            | 23% |
| DK/Refused             | 2%  |
| Total Strong Reason    | 75% |

---

- 
29. To create other road options to Highway 82 reducing choke point traffic and providing emergency evacuation routes.

|                        |     |
|------------------------|-----|
| Very strong reason     | 68% |
| Somewhat strong reason | 20% |
| Weak reason            | 11% |
| DK/Refused             | 1%  |

|                     |     |
|---------------------|-----|
| Total Strong Reason | 87% |
|---------------------|-----|

---

30. To promote the tourism economy.

|                        |     |
|------------------------|-----|
| Very strong reason     | 33% |
| Somewhat strong reason | 41% |
| Weak reason            | 24% |
| DK/Refused             | 2%  |

|                     |     |
|---------------------|-----|
| Total Strong Reason | 74% |
|---------------------|-----|

---

31. To improve the overall look and feel of Glenwood Springs.

|                        |     |
|------------------------|-----|
| Very strong reason     | 36% |
| Somewhat strong reason | 34% |
| Weak reason            | 28% |
| DK/Refused             | 2%  |

|                     |     |
|---------------------|-----|
| Total Strong Reason | 71% |
|---------------------|-----|

---

32. To develop Glenwood Springs as a family sports tourism destination.

|                        |     |
|------------------------|-----|
| Very strong reason     | 33% |
| Somewhat strong reason | 31% |
| Weak reason            | 31% |
| DK/Refused             | 5%  |

|                     |     |
|---------------------|-----|
| Total Strong Reason | 64% |
|---------------------|-----|

---



- 
33. Because 73% of the sales tax revenue to build all these projects will come from non-residents and tourists.

|                        |     |
|------------------------|-----|
| Very strong reason     | 42% |
| Somewhat strong reason | 35% |
| Weak reason            | 20% |
| DK/Refused             | 4%  |

|                     |     |
|---------------------|-----|
| Total Strong Reason | 76% |
|---------------------|-----|

---

34. To make the roads and bridges safer.

|                        |     |
|------------------------|-----|
| Very strong reason     | 59% |
| Somewhat strong reason | 28% |
| Weak reason            | 12% |
| DK/Refused             | 1%  |

|                     |     |
|---------------------|-----|
| Total Strong Reason | 87% |
|---------------------|-----|

---

35. To support the arts and provide more cultural events and activities.

|                        |     |
|------------------------|-----|
| Very strong reason     | 39% |
| Somewhat strong reason | 38% |
| Weak reason            | 22% |
| DK/Refused             | 1%  |

|                     |     |
|---------------------|-----|
| Total Strong Reason | 78% |
|---------------------|-----|

---

36. Lastly, do you agree or disagree with this statement: No matter what, it makes sense to renew the current one percent sales tax because it means no new taxes while keeping the ability to build a better Glenwood Springs.

|            |     |
|------------|-----|
| Agree      | 81% |
| Disagree   | 17% |
| DK/Refused | 2%  |

---

---

D1. Gender.

|        |     |
|--------|-----|
| Male   | 42% |
| Female | 58% |

---

D2. Age.

|         |     |
|---------|-----|
| 18-29   | 13% |
| 30-39   | 16% |
| 40-49   | 17% |
| 50-59   | 19% |
| 60-64   | 10% |
| 65-Up   | 24% |
| Refused | 0%  |

---

D3. Do you currently have a child under the age of 18 living at home?

|            |     |
|------------|-----|
| Yes        | 21% |
| No         | 79% |
| DK/Refused | 0%  |

---

D4. Party ID.

|                  |     |
|------------------|-----|
| Democrat         | 38% |
| Republican       | 17% |
| Independent      | 32% |
| Other/DK/Refused | 13% |

---

D5. Length of Residence.

|                    |     |
|--------------------|-----|
| Born here          | 5%  |
| Less than 3 years  | 8%  |
| 3-5 years          | 10% |
| 6-10 years         | 18% |
| 11-20 years        | 20% |
| 21-30 years        | 20% |
| More than 30 years | 18% |
| DK/Refused         | 1%  |

---

**Toplines  
Glenwood Springs, CO**

**June 2016  
Job 2786**

**16**

---

Phone

Landline  
Cell

36%  
64%

---

## Final Report

# Greater Roaring Fork Regional Housing Study

*The Economics of Land Use*



Prepared for:  
Greater Roaring Fork Region  
Municipal and Organizational Partnership

Prepared by:  
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April 1, 2019



# Acknowledgements

This project is the product of a regional collaboration of counties, municipalities, housing authorities, and community leaders. The project consultant team would like to thank each of the individuals for their financial support, collective vision, and time.

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## Table of Contents

|    |                                                               |     |
|----|---------------------------------------------------------------|-----|
| 1. | Executive Summary .....                                       | 1   |
|    | What are the key takeaways from this study?.....              | 1   |
|    | Summary of Findings.....                                      | 5   |
| 2. | Economic and Demographic Analysis .....                       | 21  |
|    | Housing Gaps .....                                            | 21  |
|    | Demand-Side Trends .....                                      | 30  |
|    | Supply Trends .....                                           | 49  |
|    | Housing Affordability Trends.....                             | 54  |
|    | Commuting Patterns.....                                       | 62  |
| 3. | Household Survey .....                                        | 72  |
|    | Introduction .....                                            | 72  |
|    | Respondent Characteristics .....                              | 74  |
|    | Satisfaction .....                                            | 82  |
|    | Retirement Issues .....                                       | 92  |
|    | Live/Work Patterns.....                                       | 95  |
|    | Down Payments and Household Incomes .....                     | 109 |
| 4. | Employer Survey Results .....                                 | 115 |
|    | Introduction and Methodology .....                            | 115 |
|    | Employer Demographics .....                                   | 116 |
|    | Employment Patterns .....                                     | 120 |
|    | Employer Actions .....                                        | 129 |
|    | Open-ended Comments and Suggestions .....                     | 133 |
|    | Appendix: Household Survey with Glenwood Springs Breakout.... | 136 |

## List of Tables

|           |                                                                             |    |
|-----------|-----------------------------------------------------------------------------|----|
| Table 1.  | Housing Units Needed by AMI, 2017 & 2027 .....                              | 1  |
| Table 2.  | Study Area Geography Definitions.....                                       | 2  |
| Table 3.  | Regional Housing Units Needed by AMI, 2017 & 2027.....                      | 23 |
| Table 4.  | Eagle to Gypsum Area Housing Units Needed by AMI, 2017 & 2027 .....         | 24 |
| Table 5.  | New Castle to Parachute Area Housing Units Needed by AMI, 2017 & 2027 ..... | 25 |
| Table 6.  | Glenwood Springs Area Housing Units Needed by AMI, 2017 & 2027 .....        | 26 |
| Table 7.  | Carbondale Area Housing Units Needed by AMI, 2017 & 2027 .....              | 27 |
| Table 8.  | Basalt Area Housing Units Needed by AMI, 2017 & 2027.....                   | 28 |
| Table 9.  | Aspen to Snowmass Area Housing Units Needed by AMI, 2017 & 2027 .....       | 29 |
| Table 10. | GRFR Wage & Salary Employment by Industry .....                             | 34 |
| Table 11. | Aspen to Snowmass Wage & Salary Employment by Industry .....                | 35 |
| Table 12. | Basalt Wage & Salary Employment by Industry .....                           | 35 |
| Table 13. | Carbondale Wage & Salary Employment by Industry .....                       | 36 |
| Table 14. | Glenwood Springs Wage & Salary Employment by Industry .....                 | 36 |
| Table 15. | New Castle to Parachute Wage & Salary Employment by Industry.....           | 37 |
| Table 16. | Eagle to Gypsum Wage & Salary Employment by Industry .....                  | 37 |
| Table 17. | Regional Population Trends, 2001-2017.....                                  | 40 |
| Table 18. | Regional Population Change by Age, Under 16 Years .....                     | 41 |
| Table 19. | Regional Population Change by Age, 16 to 64 Years .....                     | 42 |
| Table 20. | Regional Population Change by Age, 65 Years and Over.....                   | 43 |
| Table 21. | Regional Population Projection, Under 16 Years .....                        | 44 |
| Table 22. | Regional Population Projection, 16 to 64 Years .....                        | 45 |
| Table 23. | Regional Population Projection, 65 to Years.....                            | 46 |
| Table 24. | Owner Household Mortgage Status.....                                        | 48 |
| Table 25. | Housing Unit Trends, 2001-2017 .....                                        | 49 |
| Table 26. | Vacant Unit Trends, 2001-2017 .....                                         | 50 |
| Table 27. | Non-Local Ownership Trends, 2005-2017.....                                  | 51 |
| Table 28. | Regional Short-Term Rentals.....                                            | 52 |
| Table 29. | HUD Income Definitions.....                                                 | 59 |



|           |                                                          |    |
|-----------|----------------------------------------------------------|----|
| Table 30. | Affordable Purchase Prices .....                         | 60 |
| Table 31. | Affordability Gaps .....                                 | 61 |
| Table 32. | Aspen to Snowmass Out-Commuting Patterns .....           | 62 |
| Table 33. | Basalt Area Out-Commuting Patterns .....                 | 63 |
| Table 34. | Carbondale Area Out-Commuting Patterns .....             | 64 |
| Table 35. | Glenwood Springs Area Out-Commuting Patterns.....        | 65 |
| Table 36. | New Castle to Parachute Area Out-Commuting Patterns..... | 66 |
| Table 37. | Eagle to Gypsum Area Out-Commuting Patterns .....        | 67 |
| Table 38. | Jobs to Population.....                                  | 68 |
| Table 39. | Cost-Burdened Households in GRFR by Area, 2017 .....     | 70 |
| Table 40. | Economic Impact of Overspending, 2017 .....              | 71 |

## List of Figures

|            |                                                                            |    |
|------------|----------------------------------------------------------------------------|----|
| Figure 1.  | Greater Roaring Fork Region Study Areas .....                              | 2  |
| Figure 2.  | Overall GRFR Housing Gaps by AMI, 2017.....                                | 5  |
| Figure 3.  | Regional Housing Gaps by AMI, 2017 .....                                   | 23 |
| Figure 4.  | Eagle to Gypsum Overall Housing Gaps by AMI, 2017.....                     | 24 |
| Figure 5.  | New Castle to Parachute Overall Housing Gaps by AMI, 2017 .....            | 25 |
| Figure 6.  | Glenwood Springs Overall Housing Gaps by AMI, 2017 .....                   | 26 |
| Figure 7.  | Carbondale Area Housing Gaps by AMI, 2017 .....                            | 27 |
| Figure 8.  | Basalt Area Housing Gaps by AMI, 2017 .....                                | 28 |
| Figure 9.  | Aspen to Snowmass Overall Housing Gaps by AMI, 2017 .....                  | 29 |
| Figure 10. | Total GRFR Wage & Salary Employment & Seasonality.....                     | 31 |
| Figure 11. | Total Aspen to Snowmass Wage & Salary Employment & Seasonality .....       | 31 |
| Figure 12. | Total Basalt Wage & Salary Employment & Seasonality .....                  | 32 |
| Figure 13. | Total Carbondale Wage & Salary Employment & Seasonality .....              | 32 |
| Figure 14. | Total Glenwood Springs Wage & Salary Employment & Seasonality .....        | 33 |
| Figure 15. | Total New Castle to Parachute Wage & Salary Employment & Seasonality ..... | 33 |
| Figure 16. | Total Eagle to Gypsum Wage & Salary Employment & Seasonality .....         | 34 |
| Figure 17. | Seasonal Employment as Percent of Total Employment.....                    | 39 |
| Figure 18. | Change in Population Under 16 Years .....                                  | 41 |
| Figure 19. | Change in Population 16 to 64 Years .....                                  | 42 |
| Figure 20. | Change in Population 65 Years and Over.....                                | 43 |
| Figure 21. | Population Projection Under 16 Years .....                                 | 44 |
| Figure 22. | Population Projection 16 to 65 Years .....                                 | 45 |
| Figure 23. | Population Projection 65 Years and Over.....                               | 46 |
| Figure 24. | Interest on 30-Year Fixed Rate Mortgage, 2001-2017.....                    | 47 |
| Figure 25. | Residential Construction Costs.....                                        | 53 |
| Figure 26. | GRFR Overall Average Housing Sales Prices .....                            | 54 |
| Figure 27. | Aspen to Snowmass Overall Average Housing Sales Prices .....               | 55 |
| Figure 28. | Basalt Overall Average Housing Sales Prices.....                           | 56 |
| Figure 29. | Carbondale Overall Average Housing Sales Prices .....                      | 56 |

|                                                                                   |    |
|-----------------------------------------------------------------------------------|----|
| Figure 30. Glenwood Springs Overall Average Housing Sales Prices .....            | 57 |
| Figure 31. New Castle to Parachute Overall Average Housing Sales Prices .....     | 57 |
| Figure 32. Eagle to Gypsum Overall Average Housing Sales Prices .....             | 58 |
| Figure 33. Aspen to Snowmass Out-Commuting Patterns .....                         | 62 |
| Figure 34. Basalt Area Out-Commuting Patterns .....                               | 63 |
| Figure 35. Carbondale Area Out-Commuting Patterns .....                           | 64 |
| Figure 36. Glenwood Springs Out-Commuting Patterns .....                          | 65 |
| Figure 37. New Castle to Parachute Area Out-Commuting Patterns.....               | 66 |
| Figure 38. Eagle to Gypsum Area Out-Commuting Patterns .....                      | 67 |
| Figure 39. Population, Employed Population, and Locally-Employed Population ..... | 68 |
| Figure 40. Cost-Burdened Households in GRFR, 2017 .....                           | 69 |

# 1. Executive Summary

This is a housing needs analysis for a region that covers the Roaring Fork Valley and the Colorado River Valley; from Aspen and Snowmass Village to Glenwood Springs, and from Parachute to Edwards. It encompasses up- and down-valley locations, and is characterized by innumerable cross-commuting patterns. Although no formal designation exists for this large region, the team of municipalities and counties that led this effort call it the Greater Roaring Fork Region (GRFR) for the purpose of analysis.

Study after study has documented unaffordable housing prices, inventory shortages, and an ever-expanding commute shed for workers. Moreover, decades of implementing best practices in most of the region's communities has helped many, but left still many more needs unmet. This study provides an understanding of the dynamics, interdependencies, and the "face" (with a regional workforce, resident, and employer survey) of *regional* housing needs. The purpose is to create a common language with uniformly-collected information and analysis from which *regional* solutions can finally address *regional* problems.

## What are the key takeaways from this study?

- The region has a 2,100-unit shortfall in housing for households at 60 percent of area median income (AMI) and less, and a 1,900-unit shortfall for households between 100 and 160 percent AMI, the "missing middle" (**Table 1**).
- Market imbalances throughout the region mean that shortfalls by affordability level are much worse in certain areas.
- Overspending costs the region \$54 million per year.
- More than 26,000 workers (out of 47,000 employed residents) cross paths in their daily commute versus just 19,000 employed residents who live where they work.

**Table 1. Housing Units Needed by AMI, 2017 & 2027**

| Income Category       | Units<br>Needed in<br>2017 | Units<br>Needed in<br>2027 |
|-----------------------|----------------------------|----------------------------|
| Less than 60% AMI     | 2,118                      | 2,383                      |
| 61% to 80% AMI        | ---                        | 2,748                      |
| 81% to 100% AMI       | ---                        | 590                        |
| 101% to 120% AMI      | 703                        | ---                        |
| 121% to 140% AMI      | 195                        | ---                        |
| 141% to 160% AMI      | 968                        | 1,105                      |
| Greater than 160% AMI | ---                        | ---                        |

Source: Economic & Planning Systems  
Y:\Projects\DEN\173102-Roaring Fork Valley Regional Housing Needs\Data\173102-Housing Gaps-Version  
2.xlsx\Units Needed Table for Report

- This cross-commuting impacts roads, quality of life, and the environment.
- Year-round business has grown, which can increase the region's resilience to another down-turn.
- The population is aging and retiring; over the next 10 years, it is projected that the population over 65 will increase 60 percent (7,800 people).
- Non-local property ownership and STRs put undue pressure on the housing market's prices, which impacts the local workforce and the permanent resident population.

### What is the study area geography?

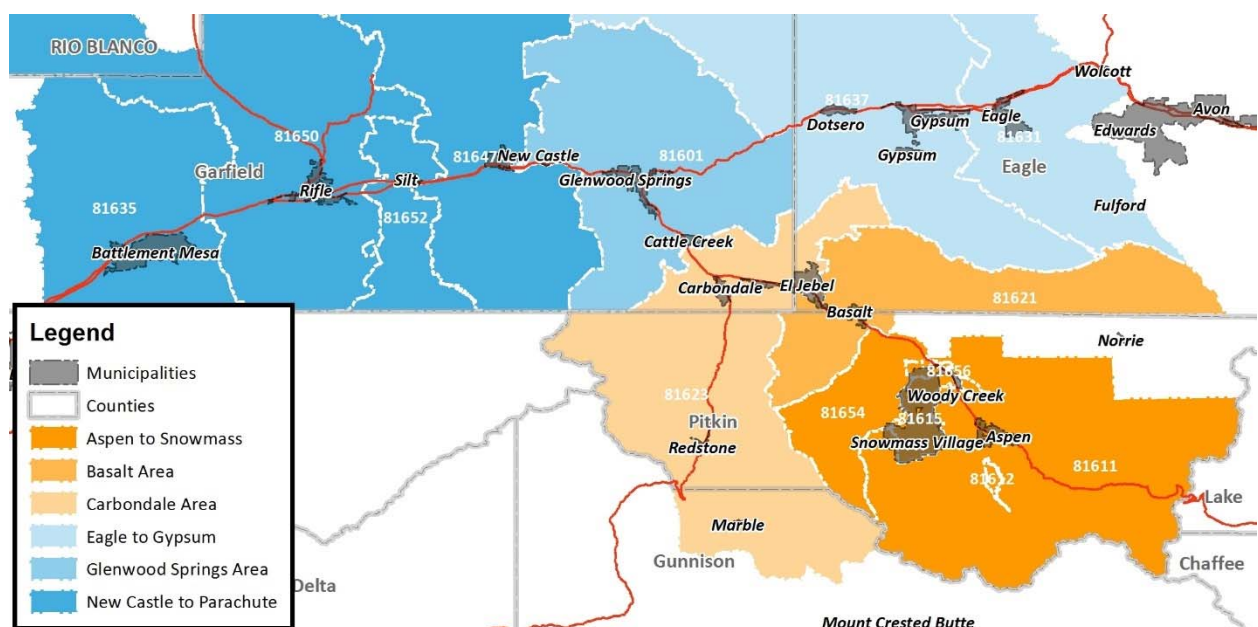
The study area geography was built on the boundaries of zip codes throughout the Greater Roaring Fork Region and is divided into six distinct areas, illustrated in **Table 2** and **Figure 1**.

**Table 2. Study Area Geography Definitions**

| Area                      | Municipality     | Zip Code     |
|---------------------------|------------------|--------------|
| Aspen to Snowmass Village | Aspen            | 81611, 81612 |
|                           | Snowmass         | 81615, 81654 |
|                           | Woody Creek      | 81656        |
| Basalt Area               | Basalt           | 81621        |
| Carbondale Area           | Carbondale       | 81623        |
| Glenwood Springs Area     | Glenwood Springs | 81601, 81602 |
| New Castle to Parachute   | Battlement Mesa  | 81635        |
|                           | Parachute        | 81635        |
|                           | New Castle       | 81647        |
|                           | Rifle            | 81650        |
|                           | Silt             | 81652        |
| Eagle to Gypsum           | Eagle            | 81631        |
|                           | Dotsero          | 81637        |
|                           | Gypsum           | 81637        |

Source: Economic & Planning Systems  
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**Figure 1. Greater Roaring Fork Region Study Areas**



## How are housing needs and gaps defined?

A mismatch between the distribution of supply and the distribution of demand is called a “gap.” In this housing analysis, two kinds of gaps are identified.

- **Overall gaps** – Does each local area have sufficient supply (in sheer numbers) to meet locally-generated demand?
- **Gaps by income** – Is that supply appropriately distributed to meet the needs of households by income level?

## What types of findings are there in this analysis?

The findings indicate two types of conditions:

- **Oversupply** – when the number of housing units (regardless of affordability level) exceeds local housing demand; areas are referred to as being “net suppliers” or have a “net surplus” or “excess” of housing.
- **Undersupply** – when local housing demand exceeds the local supply of units (regardless of affordability level); areas are referred to as having a “net deficit” or “shortfall” of housing.

## Housing is Integral to the Economy

Nationwide, housing accounts for nearly 50 percent of all capital and represents the largest portion of most households' net worth. As a result, supply shortages and affordability challenges manifest as quality of life challenges. For example, rising housing costs and stagnating incomes lead households to spend more of their income on housing.

When households spending more of their income on housing, their discretionary spending drops, which leads to lower local spending on goods and services. When households try to avoid cost burden, many try to find affordable housing farther away from their jobs, schools, etc. Under both scenarios, household spending on housing and/or transportation increases, and discretionary spending decreases.

While the causality of these shifts is debatable (because households do make trade-offs), both scenarios lead to a diminished quality of life and negatively impact the economy. That is why an optimally located housing supply supports resident and workforce mobility, productivity, and contributes to a higher quality of life.

Source: Economic & Planning Systems

Y:\Projects\DEN\173102-Roaring Fork Valley Regional Housing Needs\Data\173102-Text Boxes.xlsx\Housing is Integral

## How should the findings be interpreted?

The housing analysis was completed with layers of uniformly available data at the regional and sub-regional levels. The following are notable limitations of these data:

- **Geographic boundaries** – Zip code boundaries allowed for seamless regional analysis of supply and demand factors without omitting the impacts of unincorporated areas. As a result, findings at the sub-regional level are not exclusively the municipalities. For example, the Carbondale Area includes El Jebel and other unincorporated parts of Pitkin, Garfield, and Eagle counties.

- **Recency of estimates and orders of magnitude** – Data in this analysis are representative of a similar vintage (2017); however, it is important to note that employment measures are an average of 12 months of employment in 2017 whereas housing inventory measures reflect the middle of the year. If specific beginning, middle, or end of year measures were used, the analysis would be skewed by seasonality. As such, estimates of housing supply (e.g. totals, occupied, and vacant), as well as gaps should be interpreted as orders of magnitude. Furthermore, because the geographies are larger than the municipalities after which the areas are named, the estimates of housing supply are also generally larger than actual estimates for individual municipalities.

## Projection of Gaps

Additional to the 2001 and 2017 housing gaps, a forward-looking analysis of what the gaps might look like 10 years out has also been completed. The analysis utilizes the same demand components as outlined above, making reasonable assumptions about the continuation or shift in underlying conditions. (See the discussion of Housing Gaps on page 21.)

### Definitions

|                                 |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
|---------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Affordable housing</b>       | For decades, the federal government has defined "affordable" by the rule that no household should spend more than 30 percent of its income on housing, implying high-income earners, hourly-wage workers, young professionals, the elderly on fixed incomes, and everyone in between. Affordable housing means a place to live that is "affordable" so that when the rent or mortgage is paid, money is left over for basic necessities like food, transportation, healthcare, and all that contributes to one's socioeconomic mobility and quality of life. |
| <b>Area Median Income (AMI)</b> | This metric identifies the midpoint of an area's household income distribution, in which 50 percent of households earn more and 50 percent earn less. Percentages of AMI are used to isolate different levels of affordability need, such as 60, 80, 100, and 120 percent AMI. In analysis like this, information and data are broken down by AMI to determine needs and preferences, and in policy, AMI metrics are used to qualify a household's eligibility to purchase or rent a home at different levels of affordability.                              |
| <b>Cost Burden</b>              | Based on the definition above, as identified by the federal government and the housing industry, owner and renter households that spend more than 30 percent of their income on housing are considered cost-burdened. At this level of housing cost expenditure, households are likely to be experiencing a level of financial stress on other quality of life expenditures.                                                                                                                                                                                 |
| <b>Overspending</b>             | Referring specifically to the amount that households spend on housing costs, "overspending" is the amount spent above the cost-burden threshold of 30 percent of income. For example, if a household's spending threshold is \$1,000 per month but they spent \$1,400 per month, their overspending is \$400.                                                                                                                                                                                                                                                |

Source: Economic & Planning Systems  
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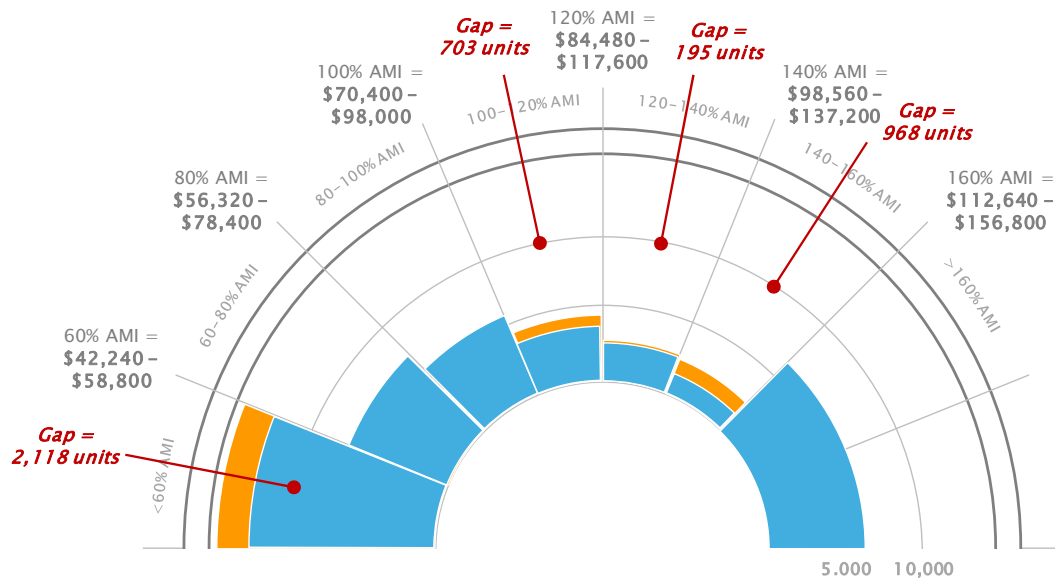
## Summary of Findings

This summary highlights the major findings of the research, analysis, and process that address the questions at the heart of the region's relevant housing questions. The findings are also delineated by demand-side trends, supply-side trends, considerations of stated preferences, and case studies.

### 1. The region generates more demand for housing than it has.

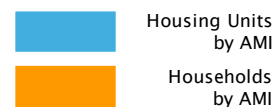
In 2017, the region had a 2,000-unit shortfall for households at 60 percent AMI and below, a 700-unit shortfall for those at 100 to 120 percent AMI, and a 1,200-unit shortfall for the “missing middle”—households between 120 and 160 percent AMI. By 2027, it is projected that the shortfall of units affordable to households at or below 100 percent AMI will balloon to 5,700 units, and the shortfall for the missing middle will remain the same.

Figure 2. Overall GRFR Housing Gaps by AMI, 2017



Total Households (demand) and  
Total Housing Inventory (supply), 2017

Source: U.S. Census ACS 5-year estimates,  
B19019, B25063, B25118; Economic & Planning Systems





**2. *Housing in the Eagle to Gypsum area is meeting housing demands from other parts of the region.***

This area contains 1,300 housing units that essentially meet housing demands emanating from other parts of the region. On the basis of affordability, however, the area has a small (200-unit) shortfall for households at 60 percent AMI and a 160-unit shortfall at 140 to 160 percent AMI. Those conditions, however, are likely to change over the next 10 years,<sup>1</sup> when a 1,100-unit shortfall at 60 percent AMI and a 150 unit shortfall at 80 to 100 percent AMI are projected to emerge.

*"Government officials in the area need to look at the long-term big picture and decide if they want to attract young professionals who will stay to raise families or just cater to the wealthy..."*

Source: Resident / Workforce Survey 2018  
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**3. *Housing in the New Castle to Parachute area is also meeting housing demands from other parts of the region.***

This area contains 2,600 units that meet housing demands emanating from other parts of the region. On the basis of affordability level, the local supply amply meets demands being generated locally.

**4. *Demand for housing in the Glenwood Springs area exceeds its supply.***

The area has an overall 2,000-unit shortfall, which is projected to remain relatively the same over the next 10 years. That shortfall is also spread across nearly every income level, but the shortfall for the missing middle category (120 to 160 percent AMI) is projected to double by 2027 (from 500 to 1,000 units).

**5. *The Carbondale area's inventory is also meeting non-local demand.***

The area's housing supply has a net 1,200 units meeting non-local housing demand, which is projected to remain relatively constant through 2027. On the basis of affordability level, the current 600-unit shortfall at 60 percent AMI is projected to stay the same, and shortfalls at every level between 80 to 140 percent AMI are anticipated to emerge.

**6. *The Basalt area's housing market is fairly balanced.***

In 2017, it is estimated that the area had a 500-unit excess of units (though this falls within a margin of error<sup>2</sup>). On the basis of income, however, current 1,000-unit shortfalls (under 80 percent AMI) are projected to expand and widen to approximately 1,600 at 120 percent AMI or below.

<sup>1</sup> It should be noted that for this and other areas of the GRFR, the same projection assumptions were used.

<sup>2</sup> The U.S. Census ACS 2017 5-year estimate for the Town of Basalt is approximately 2,200 housing units with a nearly 300-unit margin of error (MOE), +/- 14 percent. Given that this analysis uses the zip code 81621, a MOE of 14 percent could suggest that the balance of local demand and supply is closer to zero (0).

**7. Demand for housing in the Aspen to Snowmass area exceeds supply.**

The Aspen to Snowmass area currently has a 3,000-unit shortfall, which is projected to increase to 3,400 units by 2027. As expected in such a high-priced market, the shortfall is spread across the entire affordability spectrum (except for above 160 percent AMI, which contains an excess of 1,000 units). Collectively, the area has a 4,000-unit shortfall for households under 160 percent AMI, and by 2027, that shortfall is projected to increase to 5,200 units.

*"Aspen may be beautiful and offer some great things, but if you are financially stressed 24-7 and living paycheck to paycheck even with good jobs, the quality of life actually [stinks]."*

Source: Resident / Workforce Survey 2018  
Y:\Projects\DEN\173102-Roaring Fork Valley Regional Housing Needs\Data\173102-Text Boxes.xlsx\Sheet1

**Where is this demand coming from?**

Jobs and people generate demand for housing. Business and employment growth translate to housing demand, and households choose where to live based on a variety of factors. At different life stages, people and households have different preferences for what they want in a house, their neighborhood, and a community.

**8. Year-round business growth means more need for resident housing.**

Job growth is a sign of the economic health, and between 2001 and 2017, the GRFR added more than 10,000 jobs to its year-round business sectors. Relative to the state, the region accounts for 2 percent of Colorado's jobs, but captured more than 2.5 percent of the state's growth during this time.

**9. Seasonal housing needs are relatively the same as they were more than a decade ago.**

The magnitude of seasonal jobs has remained relatively constant in actual numbers but declined as a portion of overall employment.<sup>3</sup> During the recession, many of the seasonal workforce needs were met by international workers.

**10. Proprietorships are a mainstay of the regional economy.**

Proprietorships will continue to be a ubiquitous phenomenon of the labor force and business activity in the GRFR as long as there is seasonality in the larger economy. An analysis shows that the GRFR had approximately 33,000 sole proprietors in 2017, up from 22,000 in 2001.<sup>4</sup>

<sup>3</sup> See the discussion of

Seasonality On page 31.

<sup>4</sup> See the discussion of Proprietorships on page 32.

**11. The regional population grew by young and old, but mostly old.**

The GRFR grew by 28,000 residents (approximately 10,000 households) between 2001 and 2017, more than 1,700 persons per year. Just over 20 percent of the growth was in population between 35 and 64; more than 40 was under 35; and nearly 60 percent was over 65. Over the next 10 years, the regional population is projected to grow by 24,000 people—33 percent under 35; 30 percent 35 to 64; and 30 percent over 65.

**12. An aging population requires different housing solutions, care, and services.**

Although longer life expectancies can be attributable to advances in medical treatment and healthier lifestyle, living longer means these medical services and treatments need to be available. It also means that different housing solutions need to be addressed. Elderly households frequently express an interest in downsizing and lower maintenance living arrangements, but also express frustration that there are so few, if any, opportunities in the region. Not only does the lack of appropriate housing impact their quality of life, it negatively impacts the region and municipal sales tax revenue collections.<sup>5</sup>

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*"The only way I will be able to remain in this area when I retire is if I am able to obtain an apartment in one of the senior housing complexes in the area. There is so little housing available in this area that someone on a fixed income can afford."*

Source: Resident / Workforce Survey 2018  
Y:\Projects\DEN\173102-Roaring Fork Valley Regional Housing Needs\Data\173102-Text Boxes.xlsx Sheet 1

**13. Lower mortgage interest rates were supposed to work in people's favor.**

Although approximately 3,500 households paid off their mortgages between 2000 and 2017, they were not replaced by a proportional number of new owner households. As a result, the percentage of owner households with a mortgage dropped from 79 percent to 73 percent over this time. Ironically, historically low borrowing conditions were supposed to incent more households into homeownership, but they exacerbated the unsustainable increase in housing sales prices and instead ushered in a period of ownership disinvestment.

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<sup>5</sup> Analysis of Bureau of Labor Statistics Consumer Expenditure Survey data shows that older households spend less on typical taxable retail items and more on "experiential" purchases, such as travel. While elderly households typically spend less than households of working age (35 to 64), a bulk of their purchases (i.e. travel) do not generate local sales taxes.

## **Housing supply matters by type, price, and location**

Housing supply constraints, land availability, and a variety of factors (adequate infrastructure, roads, sewer, utilities, and public services) impact where a household chooses to live. Considering substantial rates of second homeownership and inventory used for short-term rentals, this set of circumstances becomes a major market challenge.

### **14. The overall housing inventory grew proportionally to jobs.**

The region added 11,900 housing units (nearly 750 units per year) between 2000 and 2017—almost identical to the net increase in wage and salary jobs. Unfortunately, much of that construction (60 percent) took place in primarily out-commuting locations—i.e. the New Castle to Parachute and Eagle to Gypsum areas (36 and 25 percent, respectively). Moreover, 16 percent of the new inventory is estimated to have been built for the second homeowner market—defined as “vacant, for seasonal use.”

### **15. Non-local ownership increased its toehold in the region.**

While the portion of residential properties (single family and multifamily) in local ownership decreased from 73 to 72 percent, nearly 60 percent of new residential property valuation added between 2005 and 2017 was in the hands of non-locals.<sup>6</sup>

### **16. Short term rentals (STR) are a constraint on housing for residents.<sup>7</sup>**

A current snapshot of STRs in the GRFR reveals more than 1,600 listings—more than 3 percent of the region’s entire housing stock (i.e. total housing inventory). As expected, a majority of STRs are located in the Aspen to Snowmass area, with smaller proportions in the other areas of the region, ranging from less than 1 percent of total inventory in New Castle to Parachute to approximately 3 percent of the Carbondale area’s inventory.<sup>8</sup>

### **17. The cost to build housing has increased.**

Rising home prices are not just the product of market demand factors; they are the result of costs and/or shortages of labor and materials.<sup>9</sup> Since 2001, materials costs have appreciated 56 percent, and the cost of labor has risen by 70 percent. Confounding this trend was the net loss (and lack of recovery) of more than 1,300 construction jobs after 2008.

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<sup>6</sup> Local ownership was defined as when the property owner zip code was among the 19 zip codes used to define the GRFR. Non-local ownership was designated when the property owner zip code was anything other than one of the zip codes defined as the GRFR.

<sup>7</sup> The term short-term rental (STR) or vacation rental refers to the rental of a furnished home, apartment, or condominium for a “short-term stay.” Definitions of “short-term” vary from 5 days or fewer to up to 60 days. STRs can be managed independently by owners or third-party representatives and/or advertised via online platforms such as [www.airbnb.com](http://www.airbnb.com), [www.vrbo.com](http://www.vrbo.com), or others.

<sup>8</sup> Although this study does not delve into a measurement of the impact that STRs have, their impact can be generally understood as a constraint on supply, which under any circumstances (holding all other demand drivers constant) will cause an increase in the price of housing.

<sup>9</sup> Typically, the cost of constructing a house accounts for 55 to 60 percent of the sales price of a home. Of that, approximately half is the cost of materials and half is the cost of labor.

## How unaffordable are housing prices?

The type of demand and supply constraints the region experiences inevitably lead to affordability challenges. Rates of commuting increase, ownership and investment declines, and the community and environment suffer. Most concerning is that this impacts the community, its heritage, and the people's quality of life.

### **18. A second homeowner-driven market has driven its workforce away from their jobs.**

The region's workers have struggled for decades with the price of housing, and that is one of the main reasons why the region has become so large; workers have sought more affordable and available housing farther and farther away from their jobs. In 2017 and 2018, the (weighted) average price of housing in the GRFR fluctuated between \$700,000 and \$1,000,000—from just under \$400,000 in the New Castle to Parachute area to the out-of-reach high in the Aspen to Snowmass area of \$2.4 million.

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*"I am appalled at the housing condition! I will continue to fight to find a place for my family and to attend meetings in the area to ensure others in my situation have an option, but I am losing hope in this valley caring about the housing and life quality of its non-wealthy, non-retired locals and workers."*

Source: Resident / Workforce Survey 2018  
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### **19. An investor-driven market exposes its workforce to the risk of equity loss.**

In years following the Great Recession<sup>10</sup>, nearly every one of the areas (including those whose housing markets are oriented more to the workforce) of the region experienced serious housing price drops and protracted volatility. While forecasting another market contraction was not a part of this study, continued expansion of the second homeowner market does illuminate the risk that another downturn may have similarly detrimental impacts on the region's resident population and workforce.

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<sup>10</sup> The National Bureau of Economic Research (NBER) defines an economic recession as: "a significant decline in economic activity spread across the economy, lasting more than a few months, normally visible in real GDP, real income, employment, industrial production, and wholesale-retail sales." The Great Recession refers to the period of economic contraction beginning in December 2007 and ending in June 2009.

**20. The gap between what a household can afford and the median price of a home will widen further.**

The affordability gap has widened in each area of the region—from \$116,000 in the Eagle to Gypsum area to \$290,000 in the Carbondale area and \$1.4 million in the Aspen to Snowmass area.<sup>11,12</sup> Given the upward trajectory of the Federal Reserve’s overnight borrowing rate, it is easy to imagine mortgage rates rising higher over the next decade. Although forecasting is filled with uncertainty, affordability gaps could widen by another 100 to 400 percent (depending on area) over the next 10 years.

**21. Cross-commuting patterns are the “market” solution to affordability challenges.**

The Aspen to Snowmass area imports an average of 7,500 workers per day, and Glenwood Springs is a net importer of 2,400 workers. The other areas generally export workers. From a policy perspective, these cross-commuting patterns are what happens when the “market is left to its own devices.” That is, the market may be “taking care of itself”, but it is not taking care of workers’ quality-of-life—for those who would rather not commute as far.

*"No one is asking for palaces on top of Red Mountain. We just want 'starter homes', like the rich people all around us had in the 1950s."*

Source: Resident / Workforce Survey 2018  
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Needs\Data\173102-Text Boxes.xlsx Sheet1

**22. Cost burden costs the region \$54 million a year.**

Although some households are making quality of life trade-offs when they choose to spend more than 30 percent of their incomes on housing, the economic impact of “overspending” cannot be overlooked. It is estimated that overspending amounted to approximately \$54 million in 2017, averaging \$320 per month for each of the region’s 14,100 cost-burdened households. The impact is that \$320 per month spent regionally would recirculate locally in very different ways (creating jobs) in the hands of households rather than the hands of non-local landlords or residential mortgage bond-holders (e.g. Wall Street).

<sup>11</sup> This analysis uses regional median household incomes from the Department of Housing and Urban Development as well as current underwriting conditions. The affordability gap is the difference between the median price of a home sold and what a household (4 persons) earning the median income.

<sup>12</sup> The analysis utilizes historic 30-year fixed rate mortgage information from the Federal Reserve Bank of St. Louis, an average property tax mill levy of 52 mills, factors for insurance and utilities, as well as a 10 percent down payment.

## Findings and Conclusions: Household and Employer Surveys

The survey-based component of the study was conducted during late winter and spring 2018. An extensive survey-based effort targeted both local residents/employees and employers. Full results of the surveys are presented in a report that discusses key findings. In addition, the survey results have been portrayed in a series of Appendices that are provided under separate cover. Below, selected highlights of the survey research are summarized.

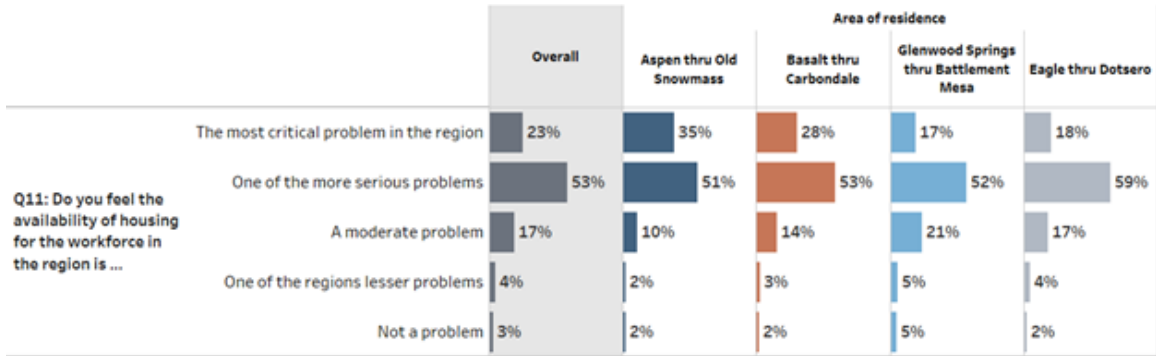
### What are workers and residents saying?

Feedback from the surveys support an overall conclusion: residents and employers throughout the region are experiencing housing problems and the similarities between survey results from both groups are striking. To a large extent, housing issues are being felt throughout the area and the problems generally don't respect city or county boundaries.

Among residents, dissatisfaction with current residence was probed in a variety of ways. Overall, about 1 in 10 residents report they are “somewhat” or “very” dissatisfied with their current residence. Similarly, about 9% report dissatisfaction with the community where they live. Responses to this question are similar across the region although average satisfaction ratings with residence are somewhat lower (more dissatisfaction) in the Aspen/Snowmass area (3.8) compared to Glenwood Springs through Battlement Mesa (4.0), and Eagle through Dotsero (4.2). Survey results show that renters are more than twice as likely to be dissatisfied (19% compared to 7% owners).

Further exploration of dissatisfaction shows that couples with children, single parents with children and unrelated roommates are relatively more likely to rate satisfaction with their residence to be a low. Although the majority of respondents did not report dissatisfaction with their residence, the problems experienced by those that are dissatisfied are challenging and the complaints aired in open-ended comments reinforce these findings. Targeting the dissatisfied segment of residents should be a focus of local programs.

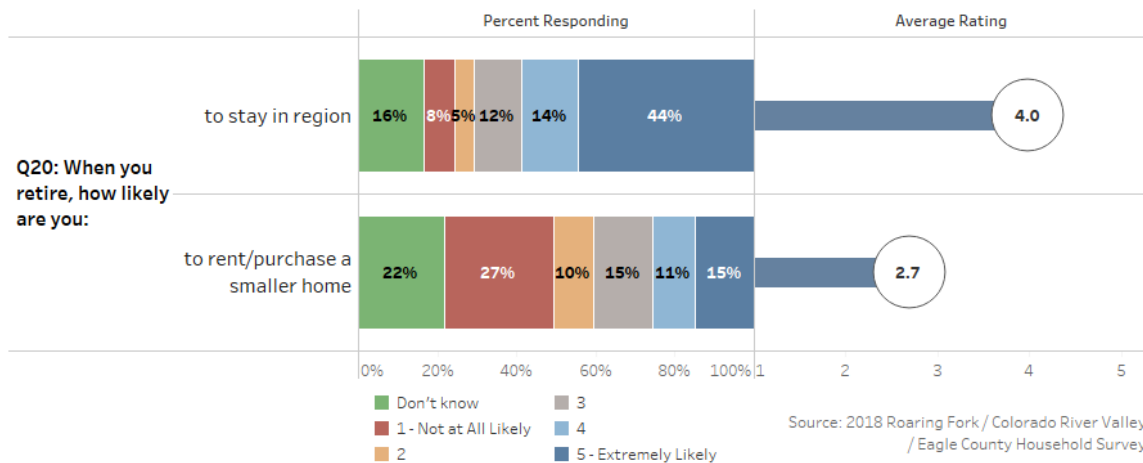
The relatively low level of dissatisfaction of residents is in seeming contrast to the widely held belief by residents and employers alike that housing is a “serious” or “critical” problem. While many are not dissatisfied with their homes, they recognize the housing problems are widespread and that housing issues create other impacts including traffic and commuter-related congestion and service quality issues as explained in open-ended comments obtained through the survey. The fact that this opinion is shared by most residents living throughout the region (76%), is illustrated by the graph below. Similarly, employers called it a problem at the same level, 76%. Consensus between residents and employers that availability of housing represents a major problem provides an environment where public and private sector cooperative efforts become more viable.



Source: 2018 Roaring Fork / Colorado River Valley / Eagle County Household Survey

Retiring workers are a time bomb - problems exist today but they will only get worse. The currently housed work force will be getting smaller because of increasing percentages of retirees in the next few years, and a significant number of retiring workers now live in deed restricted units exacerbating the challenges. The survey finding that many older households want to stay in their community and in their current residence worsens the problems. The survey data can be analyzed further as policy discussions on retirement-related issues move.

Survey respondents were asked how they expect to use their home in the future. This figure varies from 82% in Aspen/Snowmass to 64% in Glenwood to Parachute. While few respondents expect to sell and move outside the area (8% overall), this expectation was relatively higher in the down valley areas (12%) and very low in Aspen (4%). Overall, the results show general similarities across the region; in other words, all communities can expect a significant number of residents to want to stay in their community and in place into the future. The survey results also suggest that there is a segment of the community that will be interested in renting or purchasing a smaller home upon retirement—about 26% say they are “extremely” or “very” likely. Encouraging the development of some new smaller homes for retiring workers should be considered as a part of local housing plans.





Live/Work Patterns. The relationship between where households live and where they work in the region is central to understanding current housing demand patterns and to planning for future housing and transportation policies. Analyzing these patterns is complex because households typically have more than one worker and for most, the decision where to live is based on a calculus that includes a variety of considerations. Commuting patterns and demand are closely tied to housing problems. The fact that significant percentages of employees are commuting long distances has a variety of implications. The data can support analysis of policy options and the relationship between commuting and housing tradeoffs.

Commuting. With the exception of Aspen, most households in the region have one or more workers working outside their community. Another way of looking at these data is to consider the pull of Aspen as an employment center. Survey results show that in communities between Snowmass and El Jebel, between 62% and 97% of respondents have one or more household member working in Aspen. Among Carbondale residents the figure drops to 49%, and it then falls off even more sharply among Glenwood Springs (16%) and Rifle (8%) residents. Nonetheless, a still significant 18-20% of New Castle and Silt households report one or more persons working in Aspen. The survey clearly shows widespread commuting that provides the demand that is served in part by RFTA and by other efforts including employer transportation assistance or subsidies.

The survey also explored where current residents “would like to live if you could afford the cost of housing.” Results show 91% of Aspen respondents prefer Aspen, 67% of Snowmass residents prefer Snowmass, and 56% of Basalt residents prefer Basalt. Significant majorities living in Carbondale (75%) and Glenwood Springs (64%) also prefer their communities. Among towns further west the figure dips to between 40 and 50%. For residents in Eagle it is a high 78%, and in Gypsum it is 63%. These data are important, with many implications. For example, they suggest that while Aspen may be the location of employment for many, it is not necessarily everyone’s preferred place to live. Additionally, the data provide a measure of current living conditions in the region; this metric could be used to measure change over time as individual communities work on policies and infrastructure to enhance their livability and attractiveness.

Employers Subsidizing Transportation Costs. Assistance with the costs of commuting are quite widely provided in the Aspen/Snowmass area (31%) and in the Basalt/Carbondale area (38%). Transportation subsidies are less common in Glenwood Springs and for residents further to the west (18%), and in Eagle County (12%).

Preferences – Important Factors in Looking for a Place to Live. Cost of housing to buy/rent was most identified (receiving an average score of 4.6 on a five-point scale). Of interest, while there are some differences by community (for example, Aspen residents choosing “proximity to place of employment” and “proximity to bus/shuttle”) the overall averages are fairly similar across the geographic areas.

Examples include “community character” and “energy efficiency” which were rated of relatively high importance and received similar ratings from all geographic areas.

Interest in Considering a Deed-Restricted Unit? There was an overall willingness to consider purchasing units with deed restrictions among about two-thirds of survey respondents. However, this figure varies geographically with 83% willingness in Aspen/Snowmass, to more like 50 to 70% in other areas. The open-ended responses to this question help to explain the thinking of residents. Those that are not interested sometimes cite the loss of resale value, a “poor investment” and “not worth it,” and inability to qualify, and concerns/dislike for the program as reasons for saying “no, they would not consider it.”

Open-Ended Comments. The Household Survey contained a large number of “open-ended” questions that permitted respondents to comment or expand upon a quantitative response. Taken together, these comments represent over 300 pages of input. In an effort to make these results readily available the consultant team has provided several different summaries of the results. Various “themes” emerge from written comments and they are categorized into various sub-categories. Additionally, a listing of verbatim comments from several of the key open-ended questions is presented as an Appendix to the full report.

A Comments Tool. Provided to assist in reviewing comments, the tool is a means for self-exploration of the comments using an Excel based feature. A reader can investigate comments by community and can also get a feel for the range of suggestions and the total number of individual responses received in response to each survey question. The tool has been provided under separate cover and it can be shared with interested individuals upon request

## What are employers saying?

The primary purpose of the Employer Survey was to understand local housing and employment issues from the perspective of employers. The survey collected a variety of data on employment patterns, the impact of housing availability on retaining/recruiting employees and business operations, employer opinions, and activities regarding local workforce housing, and related issues. A total of 300 employer surveys were received. The responding employers represent a diverse range of sizes, locations, and industry sectors. The responding employers account for 14,485 total peak-season employees (taking the maximum of winter employment and summer employment for each employer), an appreciable share of total employment in the region.

Employer Demographics. The survey contained a series of questions designed to characterize employers on the basis of location, industry sector, square footage, and other functional characteristics. Employer location - Responses were obtained from employers throughout the region, with the greatest representation in the employment centers of Aspen (43%) and Glenwood Springs (20%). Industry sector - Survey respondents were distributed across a broad variety of industry sectors, led by construction (10% of respondents), retail trade (10%), professional/scientific/technical services (8%), and bar/restaurant (7%). Square footage - Employers occupied a diverse range of spaces, with 22% occupying less than 1,000 square feet, 32% occupying 1,000 – 2,499 square feet, 15% occupying 2,500 – 4,999 square feet, 11% occupying 5,000 – 9,999 square feet, and 20% occupying 10,000+ square feet. The median space occupied was 2,200 square feet, and the average (pulled up by very large employers) was 19,251 square feet. The broad representation of employers in the sample provides a data base that could be used to further explore policy options in the future (i.e. employer opinions and support for housing initiatives, fees or subsidies, etc.).

Employees by job status. Employers were asked to report their total number of year-round full-time, year-round part-time, seasonal full-time, and seasonal part-time employees, in both the summer and winter seasons. Findings included:

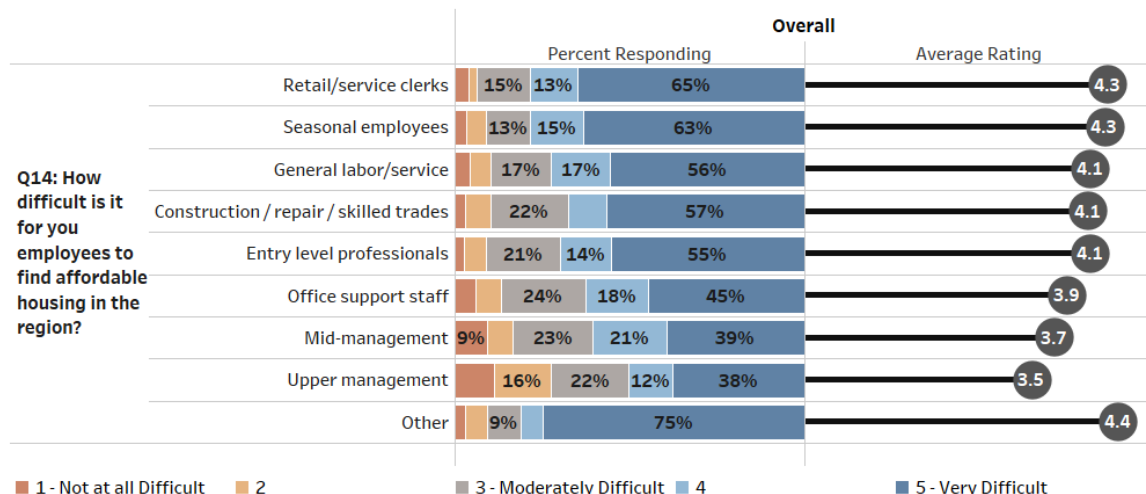
- Year-round vs. seasonal job status: Most jobs with responding employers are held by year-round employees in both summer (80% of employees) and to a lesser degree winter (69%). A significant share of employees are seasonal in summer (20%) and to a higher degree in winter (31%).
- Full-time/part-time job status: Most persons employed by responding employers are full-time workers (32 or more hours per week), while a minority are part-time (under 32 hours/week).

Unfilled jobs at the present time. Fully 45% of responding employers said they had unfilled jobs at the present time, including 37% with unfilled full-time jobs and 19% with unfilled part-time jobs. This past winter (2017/18 season), 32% of responding employers had jobs they were unable to fill. The share of employers with unfilled jobs varied from 18% for employers with 1 to 4 workers to 60% for employers with 50+ workers. Employers—including respondents both fully staffed and understaffed—were on average understaffed by 2.8% this past winter.

Persons unable to accept a job or who left employment because they lacked affordable housing. In the past 12 months, 47% of responding employers had workers decline a job or leave their employment due to a lack of affordable housing. Employers had an average of 3.2 job candidates or employees in this situation, which is equivalent to 6.3% of their peak season employment.

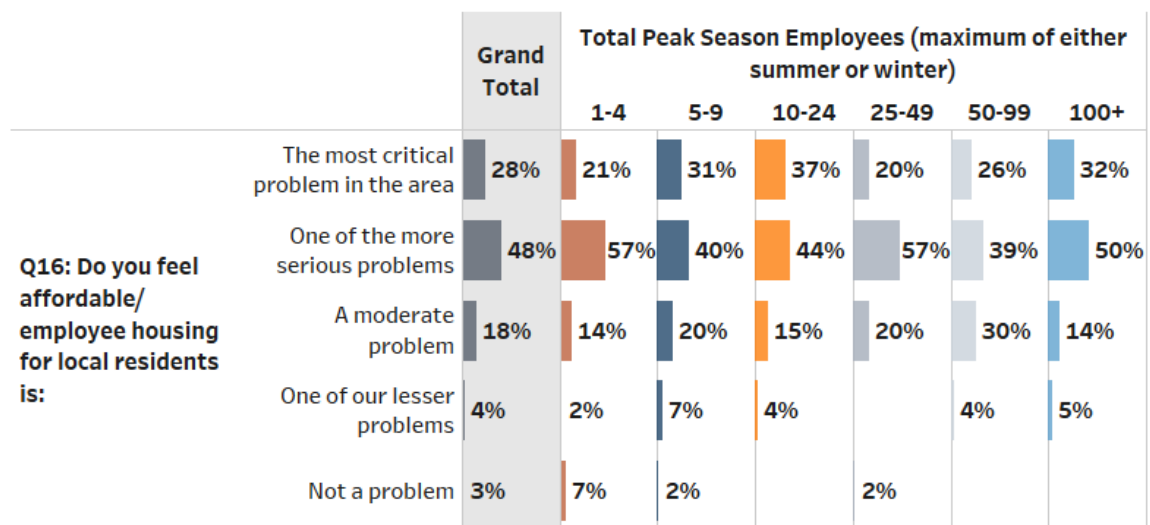
Ease of finding and retaining qualified employees, and challenges in recruiting. Most employers (57%) say it has gotten harder to find and retain qualified employees over the past three years, while 28% say it has stayed about the same, and just 1% say it has gotten easier (13% don't know). Fully 86% of responding employers say they have challenges in recruiting and retaining employees, including 74% of the smallest employers and 100% of the largest. The biggest challenge by far is a lack of affordable housing, cited by 66% of employers.

How difficult is it for your employees to find affordable housing? Employers were asked to rate how difficult it is for various employee groups to find affordable housing. A majority of employers believe it is “5-very difficult” for: retail/service clerks (65%), seasonal employees (63%), general labor/service (56%), construction/repair/skilled trades (57%), and entry level professionals (55%). A significant but smaller share of employers say that finding affordable housing is very difficult for office support staff (45%), mid-management (39%), and upper management (38%).



Impact of housing availability on work performance of employees. Almost three-quarters of employers (73%) feel that the availability of affordable housing has impacted the work performance of their employees, rising from 61% of the smallest employers to 81% of the largest. Impacts include displeasure with wage rates due to high housing costs (48%), high turnover (29%), tardiness from long commutes (29%), high absentee rates (8%), and other issues (7%, e.g. fatigue from long commutes, inability to expand business, etc.).

Seriousness of the issue of affordable/employee housing for local residents. In a key finding from the research, there is broad agreement among employers of all sizes that affordable housing is a problem for residents. This opinion is shared by residents. Most employers feel that affordable/employee housing is a serious issue, with 28% rating it as “the most critical problem in the area,” and 48% rating it as “one of the more serious problems.”

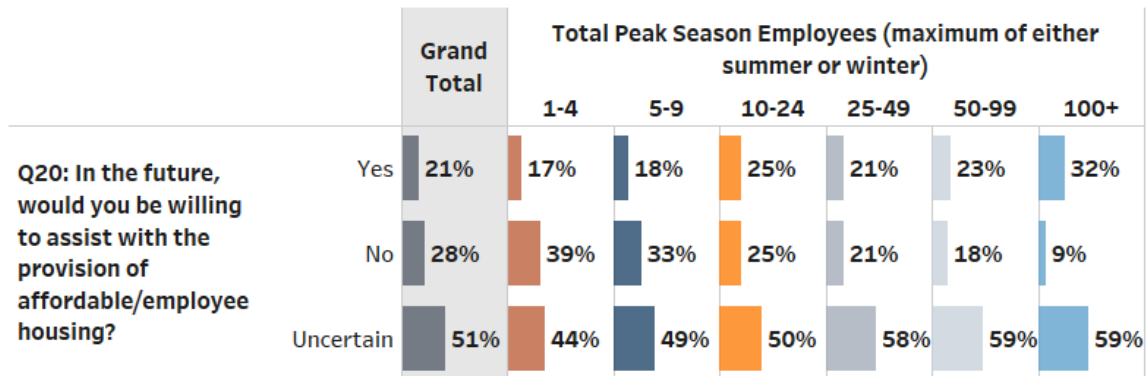


Source: 2018 Roaring Fork / Colorado River Valley / Eagle County Employer Survey

**Employer Actions.** The survey probed specific actions currently being undertaken by employers to address housing needs, as well as their potential willingness to assist in the future. Provision of housing and housing assistance to employees was evaluated. A significant share of employers—the largest employers in particular—provide some type of housing assistance to their employees. Specifically, 17% of respondents provide housing (including 10% of the smallest employers, increasing to 41% of the largest). Additionally, 10% of employers provide other types of housing assistance, including 2-13% of small to medium employers and 36% of the largest. Responding employers provide housing to 1,030 employees in summer and 1,055 employees in winter—roughly equivalent to 9% of their summer employees and 8% of their winter employees. Slightly over half of the employees housed are seasonal employees (53% of employees housed in summer, 54% in winter), while 46-47% of those housed are year-round employees.

Additionally, responding employers provide other types of housing assistance to 275 employees in summer and 260 employees in ski season—roughly equivalent to 2% of their summer and winter employees.

Willingness to assist with provision of affordable housing in the future. About one in five employers (21%) stated they would be willing to assist with the provision of affordable housing in the future, while 28% are unwilling, and fully half (51%) are uncertain. The high level of uncertainty may imply a potential openness to assisting, subject to the details of what that might entail.



Source: 2018 Roaring Fork / Colorado River Valley / Eagle County Employer Survey

(If willing to assist) Preferred type(s) of assistance. Among employers who expressed a willingness to assist, the most preferred types of assistance are leasing housing for employees (57%) and constructing units for employees (46%). Lesser shares cite subsidizing rents (24%), providing down payments (17%), contributing to damage deposits (13%), and other approaches.

(If willing to assist) Type(s) of employees you would assist. Among employers who expressed a willingness to assist, a strong preference is apparent for assisting year-round employees (95% of employers would assist), with much lower shares willing to assist ski season employees (18%) or summer season employees (18%). Survey results indicate that there is broad interest in assisting with housing by employers (25% overall, with over 50% “uncertain”) the preferred types of assistance are narrow: leasing and constructing, and assisting year-round employees, not seasonal. This finding provides direction for future policy discussions, cooperative measures between employers and households, and any potential regulatory efforts.

Open-ended Comments. The Employer Survey included several opportunities for open-ended comments. A complete listing of these comments is presented under separate cover. The comment feedback obtained from the following question included responses that have been grouped into the various topics:

Q24: Do you have any other comments or suggestions regarding affordable housing for employees in the region?

- Affordable Housing Concerns.
- Support vs. Opposition to Employee Housing.
- The Role of Government in Affordable Housing.
- Other Themes and Comments.

## 2. Economic and Demographic Analysis

Details underlying the findings in the Executive Summary are presented in this chapter. This provides a more detailed illustration of the findings, the methodologies, and assumptions.

### Housing Gaps

This regional housing needs assessment offered an opportunity to augment the standard approach to estimating housing gaps by income. The intent was to use data sources representative of the complexity of the economic, demographic, and market dynamics in the region. Recognizing the various influences of housing demand, the following data layers were used to create a linear relationship between employment and housing:

- Wage and salary employment
- Proprietors
- Out-commuters
- In-commuters (netted out)
- Multiple job holdings
- Non-working residents
- Ratio of population to occupied housing (i.e. household size)

As a result, the housing gaps that can be estimated reveal the notion of “undersupply” or “oversupply” of housing. The results also speak to the dynamics between the different areas of the region, pointing to where some area housing inventories have a shortfall of units (relying on other areas to supply housing and workers), while others contain an excess of units (serving as the residence of choice for workers employed regionally).



## Assumptions for Housing Gaps Projection

|                                     |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
|-------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Wage &amp; Salary Employment</b> | It was assumed that wage and salary employment would grow at 1.0 percent annually for the next 10 years (compared to the historic 1.2 percent) and that growth by sector would continue along their varying rates of growth relative. Likewise, the incomes of each sector were projected using their relative rates of appreciation relative to an overall 1.5 percent wage level growth (compared to approximately 3.0 percent for the GRFR).                                                                                                                                                                                                                                                                                                                                                                                                                         |
| <b>Proprietors</b>                  | It was assumed that the number of proprietors would continue to grow in proportion with the scale of wage and salary employment. Their income levels were also escalated in proportion to the wage and salary employment levels, aligned by sector.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
| <b>In- and Out-Commuters</b>        | Commuting patterns were projected out 10 years based on their current trajectories. Their income levels were projected out using an alignment of income levels by wage and salary sector with the commuting patterns.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
| <b>Non-Working Population</b>       | The projection of non-working populations was taken from DOLA's county level forecasts of population by age and calibrated to the GRFR geographies using the apportionments developed in this analysis. The forecast of income levels for this cohort were developed through a projection of the shifts in population by age by income from the U.S. Census.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
| <b>Housing Inventory</b>            | The overall results of the gaps analysis projection were most sensitive to growth assumptions in housing supply. The analysis compared rates of growth for 2001 to 2017 as well as 2007 to 2017. It was determined that the rates of housing production before 2007 were unrepresentative of development patterns during any of the past 10 years and would not be appropriate for projection. The volume of production for the 2007-17 period equaled approximately 75 percent of the volume of production during the entire 2001-17 period. As such, the analysis factors growth in the housing supply at 75 percent of the 2001-17 inventory growth. To accommodate shifts in housing supply by affordability level, the relative shifts in housing supply by price and rent levels were projected out and recalibrated by AMI according to projected income levels. |
| <b>Income Levels</b>                | Underlying a number of the projection layers is the forecast of income levels using HUD AMI definitions. An overall forecast rate of 1.0 percent was used for each of the areas within the GRFR.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
| <b>Mortgage Interest Rates</b>      | The average interest rate on a 30-year FRM loan has been at historical lows during the past decade. Given the recent increases in the Federal Reserve borrowing rate, mortgage lending rates have already begun to rise. It is estimated that by 2027, the average interest rate may be closer to the averages seen in 2001 and 2002.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |

Source: Economic & Planning Systems  
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## Regional Housing Gaps

The boundaries of the region's economy and population are fluid—intermingled with the markets of Vail and Grand Junction. Some people live and work in the region, others live elsewhere and work here, while others live here but work elsewhere. Though the region covers a very large geography, it has too few housing units for the economic activity it creates (regardless of affordability level). The region is currently estimated to be short approximately 300 units, a deficit that is projected to get larger over the next 10 years. While that does not appear to be an insurmountable challenge, the real problem lies in the mismatched distribution of inventory by affordability levels.

In 2017, the region had a 2,100-unit shortfall for households at 60 percent AMI and below, a 700-unit shortfall for those at 100 to 120 percent AMI, and a 1,200-unit shortfall for the “missing middle”—households between 120 and 160 percent AMI. By 2027, it is projected that the shortfall of units affordable to households at or below 100 percent AMI will balloon to 5,700 units, and the shortfall for the missing middle will remain the same.

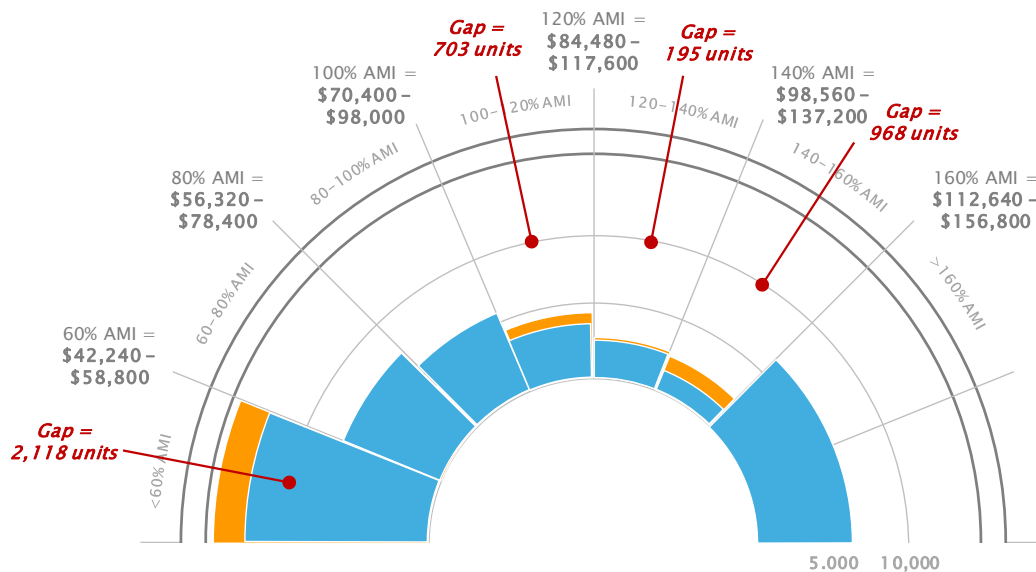
**Table 3. Regional Housing Units Needed by AMI, 2017 & 2027**

| Regional Gaps         | 2017  | 2027  |
|-----------------------|-------|-------|
| Less than 60% AMI     | 2,118 | 2,383 |
| 61% to 80% AMI        | ---   | 2,748 |
| 81% to 100% AMI       | ---   | 590   |
| 101% to 120% AMI      | 703   | ---   |
| 121% to 140% AMI      | 195   | ---   |
| 141% to 160% AMI      | 968   | 1,105 |
| Greater than 160% AMI | ---   | ---   |

Source: Economic & Planning Systems

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**Figure 3. Regional Housing Gaps by AMI, 2017**



Total Households (demand) and  
Total Housing Inventory (supply), 2017

Source: U.S. Census ACS 5-year estimates,  
B19019, B25063, B25118; Economic & Planning Systems

Housing Units  
by AMI

Households  
by AMI

## Eagle to Gypsum Area

As will be illustrated later in the chapter, the average sales price for housing in the Eagle to Gypsum Area was a little more than \$515,000 in the 3<sup>rd</sup> quarter of 2018—nearly 80 percent lower than the average price of housing in the Aspen to Snowmass Area, 34 percent lower than the Basalt area, 28 percent lower than the Carbondale Area, and marginally lower than the Glenwood Springs Area. As a result, housing demand emanating from other parts of the region (and even beyond in which housing prices are higher) have resulted in a local housing inventory that contains 1,300 housing units effectively meeting non-local housing demands.

**Table 4. Eagle to Gypsum Area Housing Units Needed by AMI, 2017 & 2027**

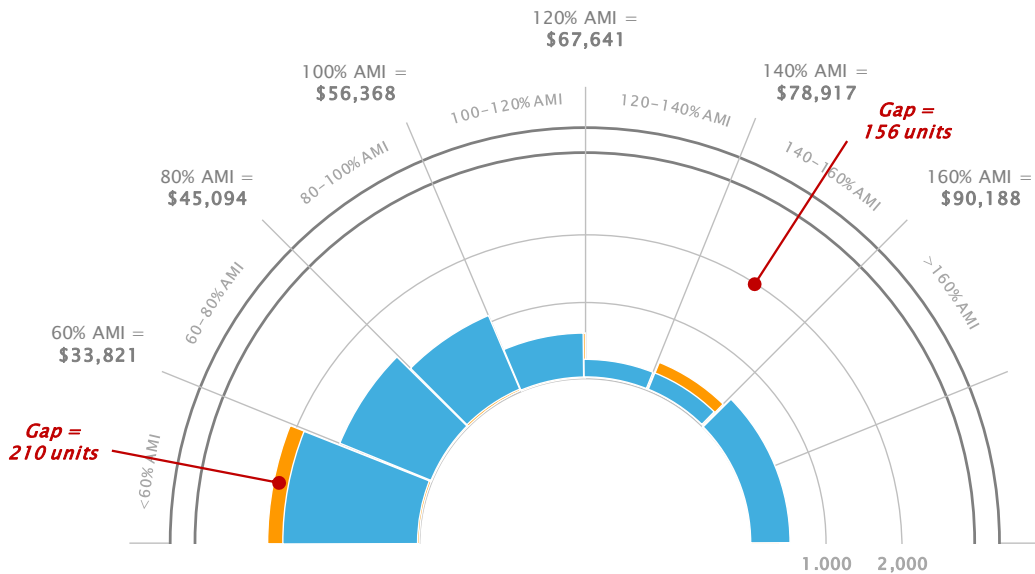
| Eagle to Gypsum Area  | 2017 | 2027  |
|-----------------------|------|-------|
| Less than 60% AMI     | 210  | 1,110 |
| 61% to 80% AMI        | ---  | ---   |
| 81% to 100% AMI       | ---  | 150   |
| 101% to 120% AMI      | ---  | ---   |
| 121% to 140% AMI      | ---  | ---   |
| 141% to 160% AMI      | 156  | 164   |
| Greater than 160% AMI | ---  | ---   |

Source: Economic & Planning Systems

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Considering the income levels of local-generated demand, however, the inventory was fairly well aligned in 2017 except for a small (200-unit) shortfall for households at 60 percent AMI and a 160-unit shortfall at 140 to 160 percent AMI. Problematic for the area and region is that those conditions are likely to change in the next 10 years, with a projected 1,100-unit shortfall at 60 percent AMI and an emerging gap (150 units) at 80 to 100 percent AMI.

**Figure 4. Eagle to Gypsum Overall Housing Gaps by AMI, 2017**



Total Households (demand) and Total Housing Inventory (supply), 2017

Source: U.S. Census ACS 5-year estimates, B19019, B25063, B25118; Economic & Planning Systems

Housing Units by AMI  
Households by AMI

## New Castle to Parachute Area

The New Castle to Parachute Area is currently the most affordable part of the region with average housing prices at approximately \$310,000 in the 3<sup>rd</sup> quarter of 2018—nearly 90 percent lower than the Aspen to Snowmass Area, more than 60 percent lower than the Basalt Area, more than 40 percent lower than the Glenwood Springs Area, and nearly 60 percent lower than the average in the Carbondale Area.

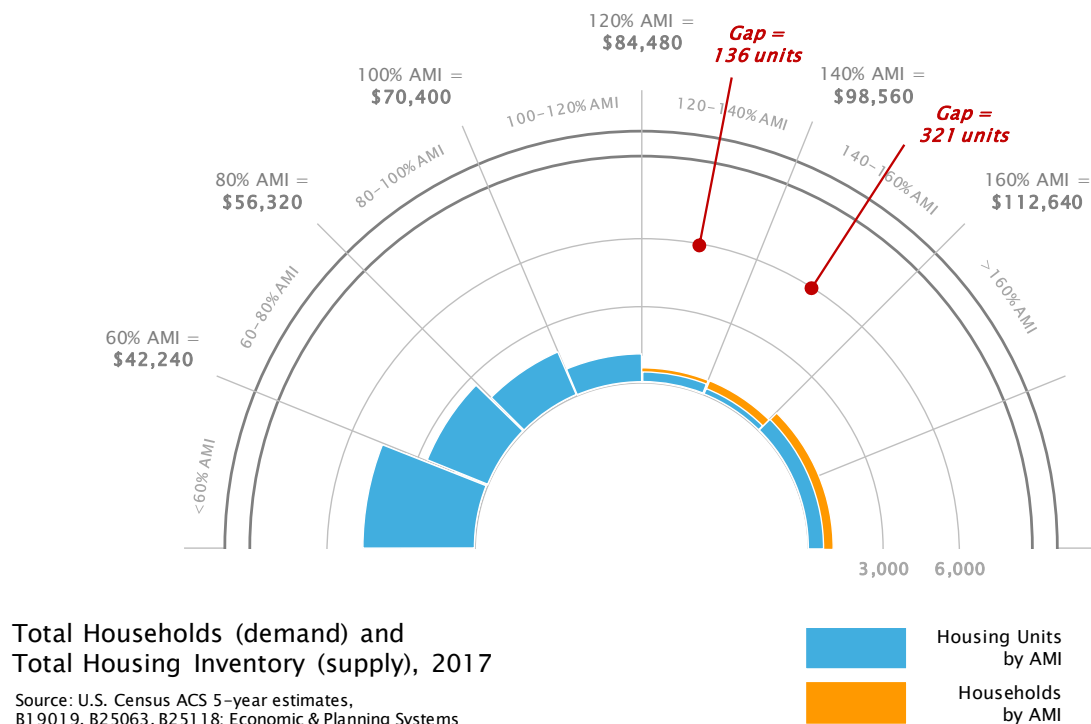
As a result, demand pressures from the entire region have created a market in which there are currently an estimated 2,600 housing units meeting non-local demands. Over the next 10 years, this supply surplus is projected to remain relatively constant. On the basis of affordability level, the market has only minor shortfalls, but for the missing middle spectrum.

**Table 5. New Castle to Parachute Area Housing Units Needed by AMI, 2017 & 2027**

| New Castle to Parachute | 2017 | 2027 |
|-------------------------|------|------|
| Less than 60% AMI       | ---  | ---  |
| 61% to 80% AMI          | ---  | ---  |
| 81% to 100% AMI         | ---  | ---  |
| 101% to 120% AMI        | ---  | ---  |
| 121% to 140% AMI        | 136  | ---  |
| 141% to 160% AMI        | 321  | 457  |
| Greater than 160% AMI   | 334  | 65   |

Source: Economic & Planning Systems  
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**Figure 5. New Castle to Parachute Overall Housing Gaps by AMI, 2017**



## Glenwood Springs Area

The average housing price in the Glenwood Springs Area was approximately \$530,000 in the 3<sup>rd</sup> quarter of 2018. Although this was approximately 30 percent lower than the Basalt Area, 25 percent lower than the Carbondale Area, and nearly 80 percent lower than the Aspen to Snowmass Area, this part of the region generates more housing demand than it supplies.

Overall, the area has a 2,000-unit shortfall, which is projected to remain relatively the same over the next 10 years. That shortfall is also spread across every income level, and is projected to expand in the missing middle category (120 to 160 percent AMI) by 2027.

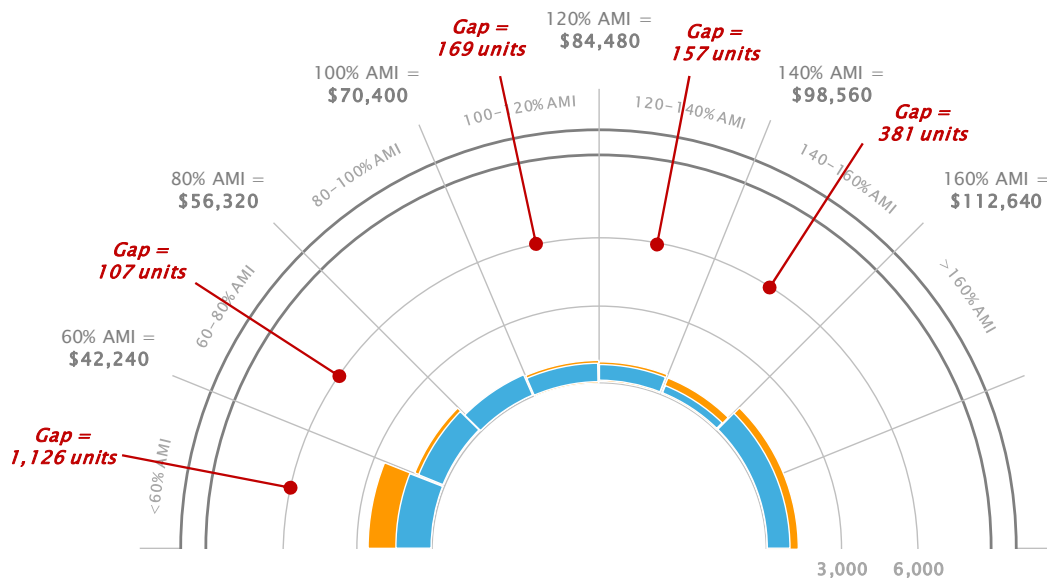
**Table 6. Glenwood Springs Area Housing Units Needed by AMI, 2017 & 2027**

| Glenwood Springs      | 2017  | 2027 |
|-----------------------|-------|------|
| Less than 60% AMI     | 1,126 | 483  |
| 61% to 80% AMI        | 107   | 688  |
| 81% to 100% AMI       | ---   | 403  |
| 101% to 120% AMI      | 169   | ---  |
| 121% to 140% AMI      | 157   | 597  |
| 141% to 160% AMI      | 381   | 436  |
| Greater than 160% AMI | 301   | ---  |

Source: Economic & Planning Systems

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**Figure 6. Glenwood Springs Overall Housing Gaps by AMI, 2017**



Total Households (demand) and  
Total Housing Inventory (supply), 2017

Source: U.S. Census ACS 5-year estimates,  
B19019, B25063, B25118; Economic & Planning Systems

Housing Units  
by AMI  
Households  
by AMI

## Carbondale Area

The average price of housing in the Carbondale Area was approximately \$720,000 in the 3<sup>rd</sup> quarter of 2018—nearly 10 percent lower than the average price of housing in the Basalt Area, and approximately 70 percent lower than the Aspen to Snowmass Area.

The area's housing supply has a net of 1,200 units meeting non-local housing demand, which is projected to remain relatively constant through 2027. On the basis of affordability level, the current 600-unit shortfall at 60 percent AMI is projected to stay the same, and shortfalls at nearly every level between 60 to 140 percent AMI are anticipated to emerge.

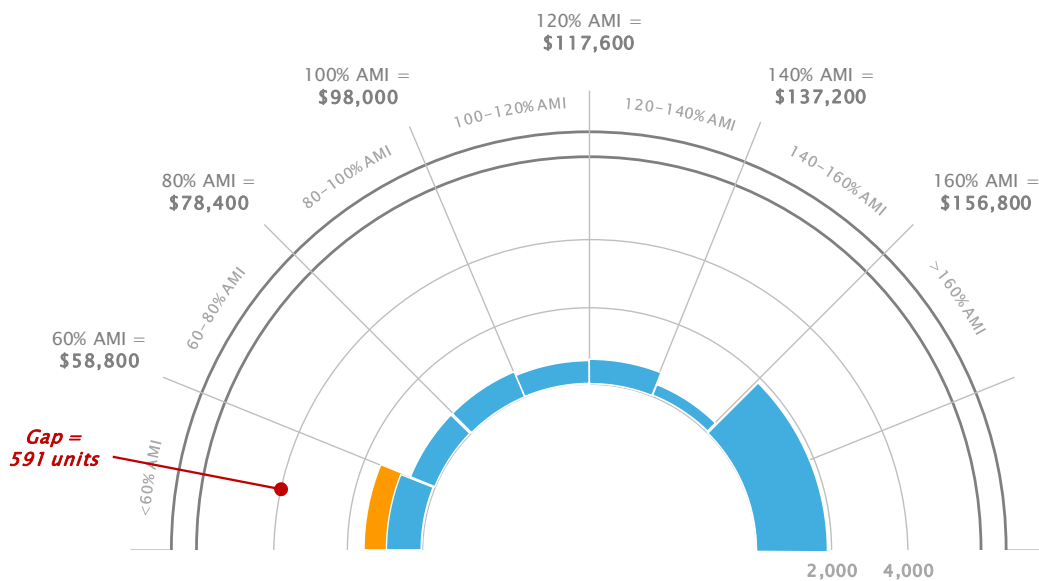
**Table 7. Carbondale Area Housing Units Needed by AMI, 2017 & 2027**

| Carbondale Area       | 2017 | 2027 |
|-----------------------|------|------|
| Less than 60% AMI     | 591  | 615  |
| 61% to 80% AMI        | ---  | 128  |
| 81% to 100% AMI       | ---  | ---  |
| 101% to 120% AMI      | ---  | 52   |
| 121% to 140% AMI      | ---  | 264  |
| 141% to 160% AMI      | ---  | ---  |
| Greater than 160% AMI | ---  | ---  |

Source: Economic & Planning Systems

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**Figure 7. Carbondale Area Housing Gaps by AMI, 2017**



Total Households (demand) and  
Total Housing Inventory (supply), 2017

Source: U.S. Census ACS 5-year estimates,  
B19019, B25063, B25118; Economic & Planning Systems

Housing Units  
by AMI

Households  
by AMI

## Basalt Area

The average price of housing in the Basalt Area was approximately \$780,000 in the 3<sup>rd</sup> quarter of 2018, and though higher than other down-valley locations, its average cost of housing is still 70 percent lower than the Aspen to Snowmass Area.

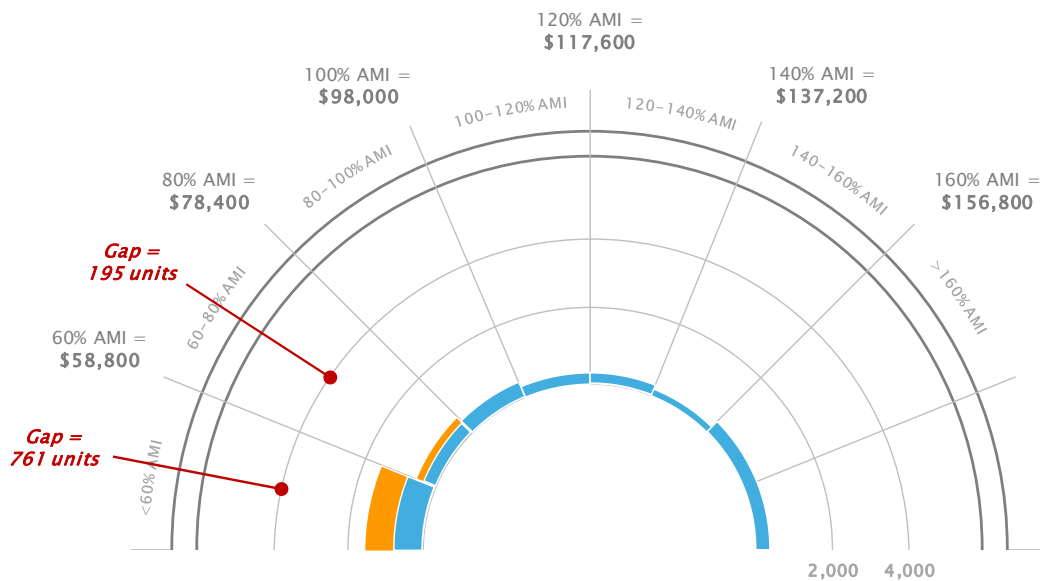
In 2017, it is estimated that the area had a 500-unit excess of units (falling within a margin of error<sup>13</sup>), generally a balance of local housing supply that is largely meeting the locally-generated housing demand. On the basis of income, however, current 1,000-unit shortfalls (under 80 percent AMI) is projected to expand and widen to approximately 1,600 at 120 percent AMI or below.

**Table 8. Basalt Area Housing Units Needed by AMI, 2017 & 2027**

| Basalt Area           | 2017 | 2027  |
|-----------------------|------|-------|
| Less than 60% AMI     | 761  | 1,070 |
| 61% to 80% AMI        | 195  | 358   |
| 81% to 100% AMI       | ---  | 43    |
| 101% to 120% AMI      | ---  | 143   |
| 121% to 140% AMI      | ---  | ---   |
| 141% to 160% AMI      | ---  | ---   |
| Greater than 160% AMI | ---  | ---   |

Source: Economic & Planning Systems  
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**Figure 8. Basalt Area Housing Gaps by AMI, 2017**



Total Households (demand) and Total Housing Inventory (supply), 2017

Source: U.S. Census ACS 5-year estimates, B19019, B25063, B25118; Economic & Planning Systems

Housing Units by AMI  
Households by AMI

<sup>13</sup> The U.S. Census ACS 2017 5-year estimate for the Town of Basalt is approximately 2,200 housing units with a nearly 300-unit margin of error (MOE), +/- 14 percent. Given that this analysis uses the zip code 81621, a MOE of 14 percent could suggest that the balance of local demand and supply is closer to zero (0).

### Aspen to Snowmass Area

It is a statement of the obvious that the Aspen to Snowmass Area is the highest-priced market in the Greater Roaring Fork Region with an average sales price of approximately \$2.4 million in the 3<sup>rd</sup> quarter of 2018. It is also no surprise that the local housing supply does not meet the locally-generated housing demands.

In 2017, the area had a 3,000-unit shortfall, which is projected to increase to 3,400 units by 2027. As expected in such a high-priced market, the shortfall is spread across the entire affordability spectrum (except for above 160 percent AMI, which contains an excess of 1,000 units). Collectively, the area has a 4,000-unit shortfall for households under 160 percent AMI, and by 2027, that shortfall is projected to increase to 5,200 units.

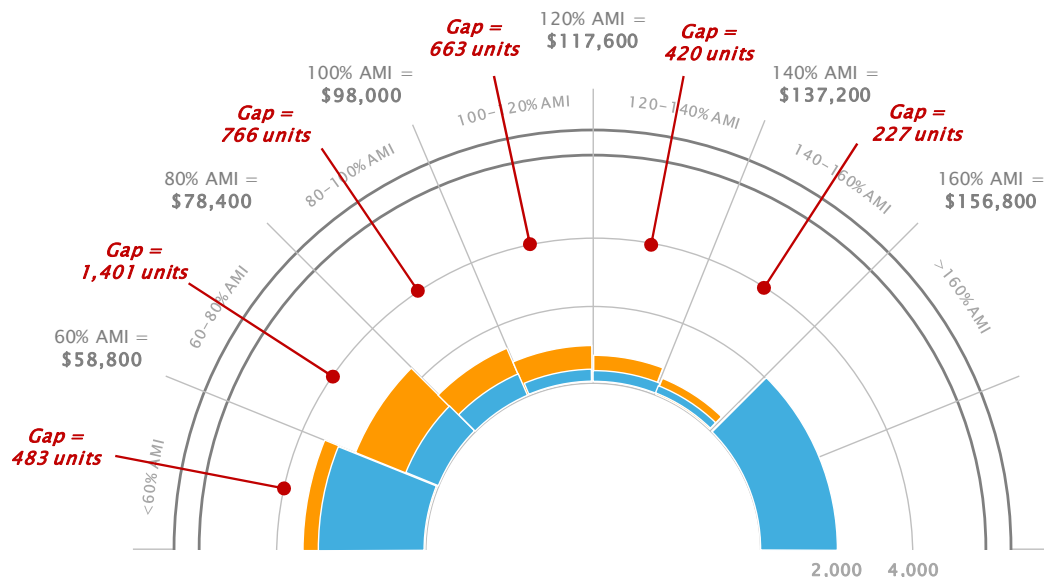
**Table 9. Aspen to Snowmass Area Housing Units Needed by AMI, 2017 & 2027**

| Aspen to Snowmass Area | 2017  | 2027  |
|------------------------|-------|-------|
| Less than 60% AMI      | 483   | 481   |
| 61% to 80% AMI         | 1,401 | 2,101 |
| 81% to 100% AMI        | 766   | 1,204 |
| 101% to 120% AMI       | 663   | 861   |
| 121% to 140% AMI       | 420   | 245   |
| 141% to 160% AMI       | 227   | 327   |
| Greater than 160% AMI  | ---   | ---   |

Source: Economic & Planning Systems

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**Figure 9. Aspen to Snowmass Overall Housing Gaps by AMI, 2017**



Total Households (demand) and Total Housing Inventory (supply), 2017

Source: U.S. Census ACS 5-year estimates, B19019, B25063, B25118; Economic & Planning Systems

Housing Units by AMI  
Households by AMI



## Demand-Side Trends

Demand for housing is driven by economic and demographic growth. At the core, economic growth is the primary demand driver, measured in jobs. But jobs, in- and out-commuting patterns, and other socioeconomic and demographic factors collectively represent a composite metric for housing demand. In a region where economic strength comes from tourism, recreation, and a service sector that caters to second homeowners, the demographic component of housing demand is also rooted in non-residents. As such, this series of findings shed light on the various elements of demand that characterize the Greater Roaring Fork Region housing market.

### Employment

Employment growth is a sign of the region's economic health, which is good for businesses, the workforce, residents, and the communities. Service-oriented businesses (e.g. retailers) benefit by having a growing demand base from business-to-business transactions and from the households of new job-holders. Residents also benefit because it means there is tax revenue from daytime population expenditure (and visitation) to pay for essential public goods and services (e.g. police, fire, schools, parks, etc.).

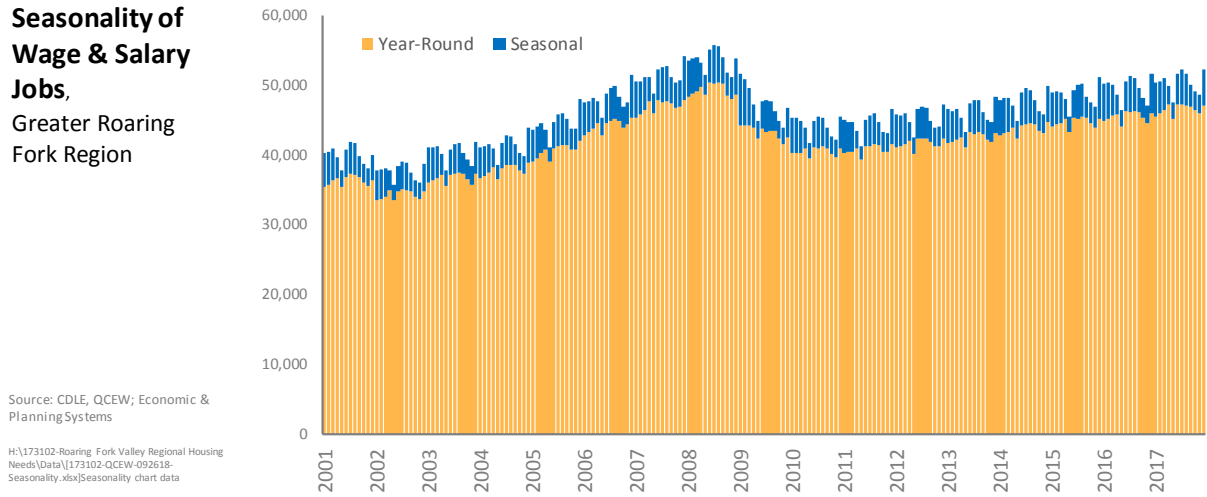
Total employment levels in the GRFR grew from 40,000 jobs to approximately 50,400—an average of 1.3 percent growth per year between 2001 and 2017, as illustrated in **Figure 10**.<sup>14</sup> By comparison to general wage and salary employment levels at the state, the GRFR contains approximately 2 percent of Colorado's total wage and salary jobs, yet captured more than 2.5 percent of the state's overall employment gains between 2001 and 2017.

The following **Figure 11** through **Figure 16** illustrate the total employment trends and portion of seasonality over time for each section of the GRFR.

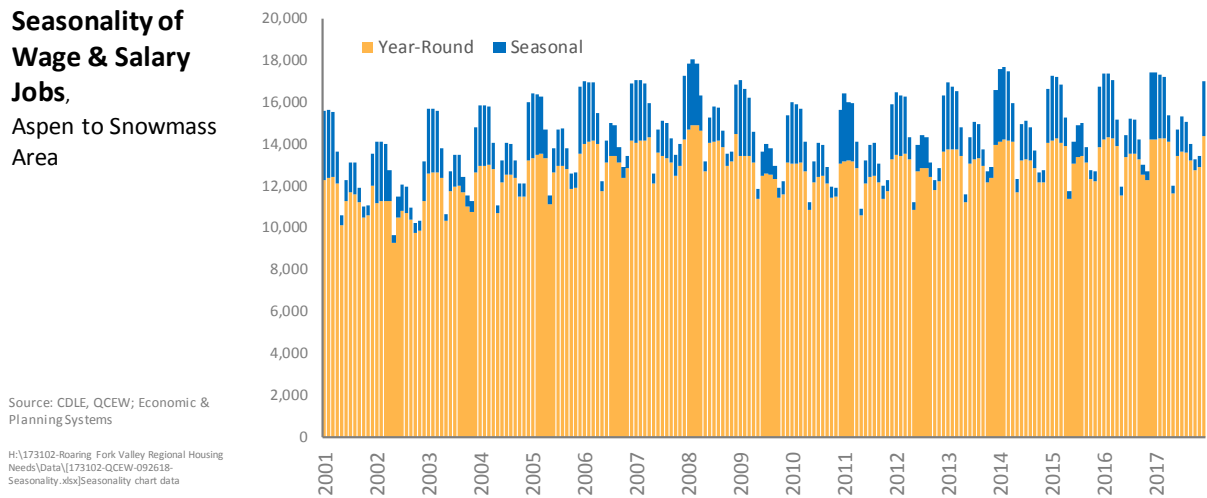
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<sup>14</sup> Employment reached its peak, however, in the GRFR in the 3<sup>rd</sup> quarter of 2008 at more than 55,000 jobs. Employment subsequently declined by approximately 20 percent regionwide by 2010 and has steadily increased since then, albeit not to pre-recession levels. The region's largest industry losses were felt in the Mining (60 percent loss), Construction (40 percent loss), and Information (35 percent) sectors, collectively amounting to approximately 5,500 jobs.

**Figure 10. Total GRFR Wage & Salary Employment & Seasonality**



**Figure 11. Total Aspen to Snowmass Wage & Salary Employment & Seasonality**

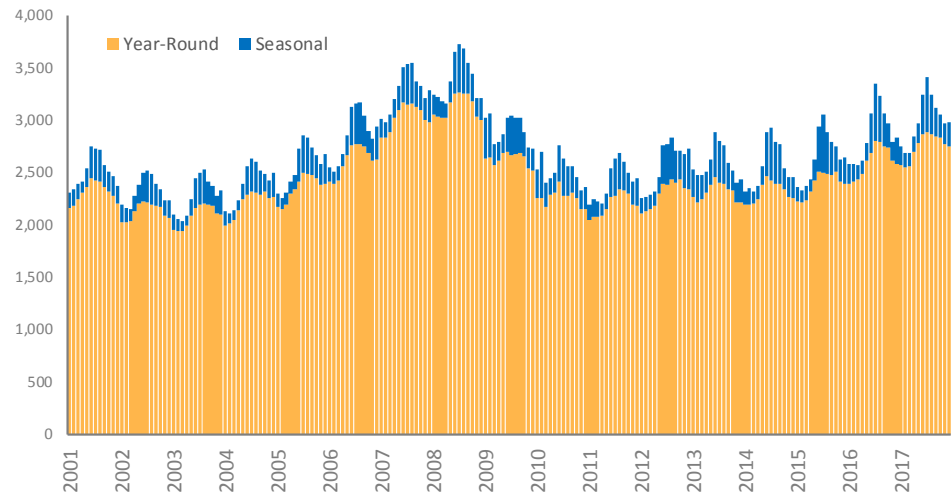


**Figure 12. Total Basalt Wage & Salary Employment & Seasonality**

**Seasonality of  
Wage & Salary  
Jobs,  
Basalt Area**

Source: CDLE, QCEW; Economic & Planning Systems

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Seasonality.xlsx\Seasonality chart data

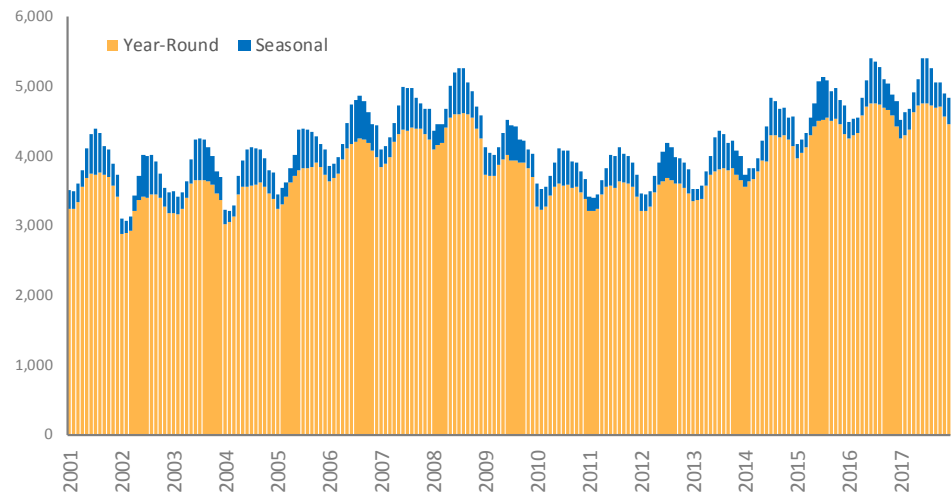


**Figure 13. Total Carbondale Wage & Salary Employment & Seasonality**

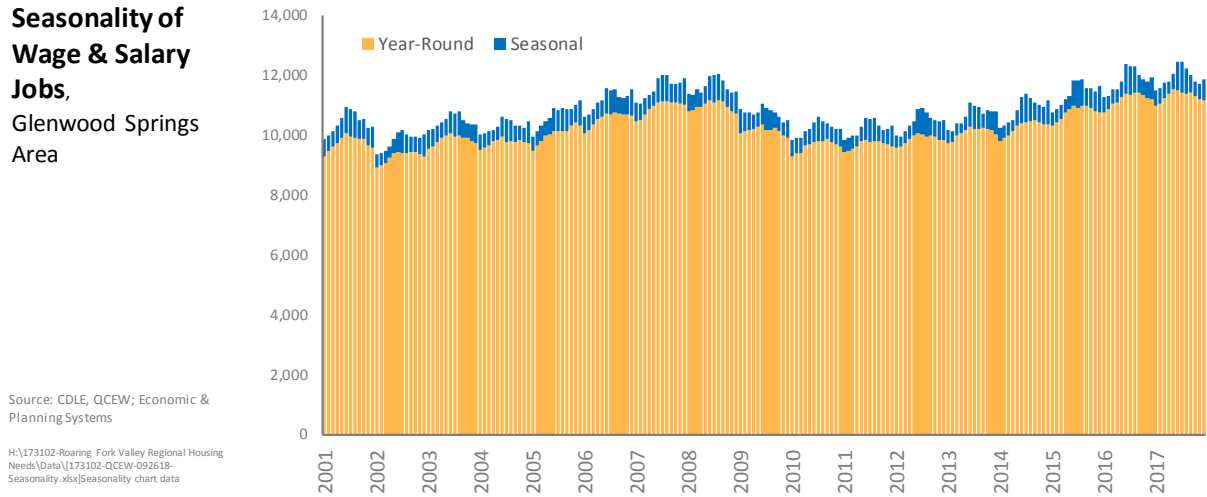
**Seasonality of  
Wage & Salary  
Jobs,  
Carbondale Area**

Source: CDLE, QCEW; Economic & Planning Systems

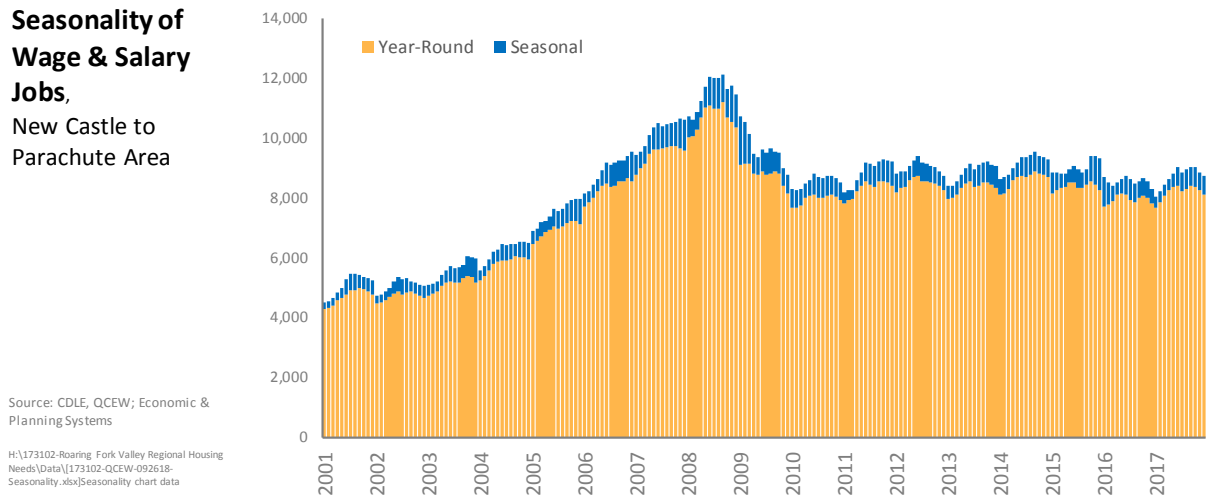
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Seasonality.xlsx\Seasonality chart data



**Figure 14. Total Glenwood Springs Wage & Salary Employment & Seasonality**

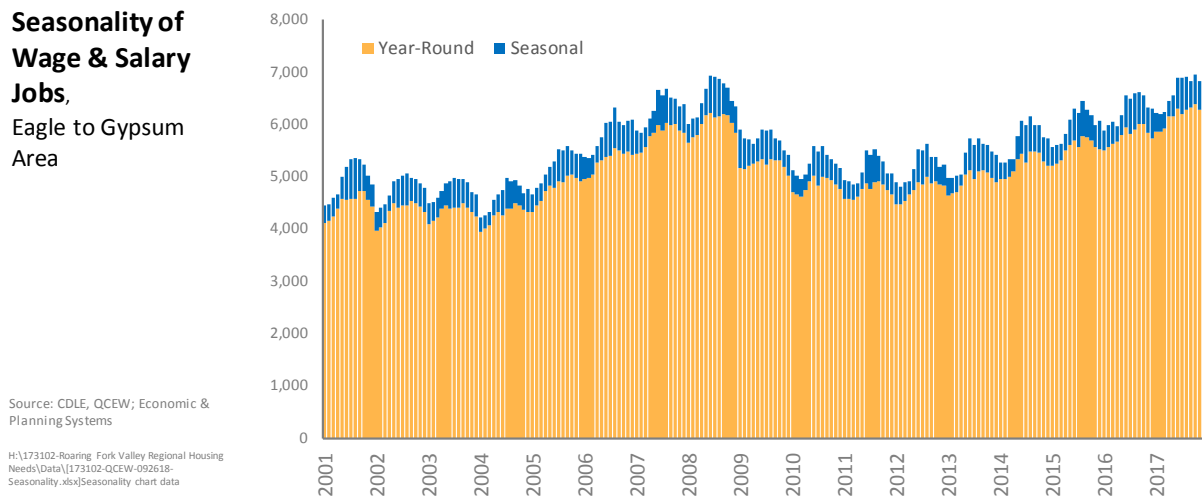


**Figure 15. Total New Castle to Parachute Wage & Salary Employment & Seasonality**



**Figure 16. Total Eagle to Gypsum Wage & Salary Employment & Seasonality**

**Seasonality of  
Wage & Salary  
Jobs,  
Eagle to Gypsum  
Area**



A collection of seven visitation- and nonvisitation-oriented sectors accounted for more than 80 percent of the overall growth in the region: Retail (5 percent); Transportation & Warehousing (5 percent); Real Estate (9 percent); Educational Services (12 percent); Health Care (22 percent); Arts, Entertainment & Recreation (8 percent); and Accommodation & Food Services (20 percent).

**Table 10. GRFR Wage & Salary Employment by Industry**

| By Industry, GRFR                                | 2001          | 2008          | 2017          | 2008-17       |             | 2001-17       |            |              |
|--------------------------------------------------|---------------|---------------|---------------|---------------|-------------|---------------|------------|--------------|
|                                                  |               |               |               | Total Δ       | % of Δ      | Total Δ       | Ann. Δ     | Ann. %       |
| Agriculture, forestry, fishing, and hunting      | 279           | 241           | 363           | 122           | -4%         | 84            | 5          | 1.66%        |
| Mining                                           | 314           | 2,110         | 823           | -1,286        | 41%         | 510           | 32         | 6.22%        |
| Utilities*                                       | 257           | 345           | 456           | 110           | -4%         | 198           | 12         | 3.63%        |
| Construction                                     | 6,885         | 8,664         | 5,588         | -3,076        | 98%         | -1,297        | -81        | -1.30%       |
| Manufacturing                                    | 857           | 775           | 783           | 8             | 0%          | -74           | -5         | -0.56%       |
| Wholesale trade                                  | 862           | 1,126         | 997           | -130          | 4%          | 135           | 8          | 0.91%        |
| Retail trade                                     | 5,076         | 6,065         | 5,556         | -509          | 16%         | 480           | 30         | 0.57%        |
| Transportation and warehousing*                  | 705           | 1,552         | 1,263         | -289          | 9%          | 557           | 35         | 3.71%        |
| Information                                      | 672           | 766           | 516           | -250          | 8%          | -156          | -10        | -1.64%       |
| Finance and insurance                            | 888           | 1,097         | 896           | -201          | 6%          | 8             | 0          | 0.05%        |
| Real estate and rental and leasing               | 1,425         | 2,424         | 2,323         | -101          | 3%          | 898           | 56         | 3.10%        |
| Professional, scientific, and technical services | 1,739         | 2,565         | 2,311         | -254          | 8%          | 573           | 36         | 1.80%        |
| Management of companies and enterprises          | 271           | 221           | 247           | 26            | -1%         | -24           | -2         | -0.58%       |
| Administrative and waste management services     | 2,161         | 3,669         | 2,792         | -877          | 28%         | 631           | 39         | 1.61%        |
| Educational services                             | 3,122         | 3,843         | 4,430         | 587           | -19%        | 1,308         | 82         | 2.21%        |
| Health care and social assistance                | 2,260         | 3,217         | 4,515         | 1,298         | -41%        | 2,255         | 141        | 4.42%        |
| Arts, entertainment, and recreation              | 2,290         | 2,501         | 3,112         | 611           | -19%        | 822           | 51         | 1.94%        |
| Accommodation and Food Services                  | 6,206         | 7,558         | 8,276         | 719           | -23%        | 2,070         | 129        | 1.82%        |
| Other Services                                   | 1,417         | 1,855         | 1,742         | -113          | 4%          | 325           | 20         | 1.30%        |
| Public Administration                            | 2,321         | 2,984         | 3,445         | 460           | -15%        | 1,124         | 70         | 2.50%        |
| <b>Total</b>                                     | <b>40,007</b> | <b>53,578</b> | <b>50,432</b> | <b>-3,145</b> | <b>100%</b> | <b>10,425</b> | <b>652</b> | <b>1.46%</b> |

Source: Economic & Planning Systems  
Y:\Projects\DEN\173102-Roaring Fork Valley Regional Housing Needs\Data\173102-QCEW-083018-Version 2-032618.xlsx\TABLE 7.1- GRFR jobs

**Table 11. Aspen to Snowmass Wage & Salary Employment by Industry**

| By Industry, Aspen to Snowmass                   | 2001          | 2008          | 2017          | 2008-17     |             | 2001-17      |            |              |
|--------------------------------------------------|---------------|---------------|---------------|-------------|-------------|--------------|------------|--------------|
|                                                  |               |               |               | Total Δ     | % of Δ      | Total Δ      | Ann. Δ     | Ann. %       |
| Agriculture, forestry, fishing, and hunting      | 22            | 33            | 87            | 54          | -10%        | 65           | 4          | 8.91%        |
| Mining                                           | 0             | 10            | 0             | -10         | 2%          | 0            | 0          | 0.00%        |
| Utilities*                                       | 61            | 63            | 54            | -9          | 2%          | -7           | 0          | -0.72%       |
| Construction                                     | 821           | 787           | 419           | -368        | 69%         | -402         | -25        | -4.11%       |
| Manufacturing                                    | 89            | 46            | 62            | 16          | -3%         | -27          | -2         | -2.21%       |
| Wholesale trade                                  | 72            | 63            | 68            | 5           | -1%         | -4           | 0          | -0.40%       |
| Retail trade                                     | 1,502         | 1,555         | 1,390         | -165        | 31%         | -112         | -7         | -0.48%       |
| Transportation and warehousing*                  | 223           | 256           | 264           | 8           | -2%         | 42           | 3          | 1.08%        |
| Information                                      | 244           | 209           | 126           | -83         | 15%         | -118         | -7         | -4.06%       |
| Finance and insurance                            | 265           | 308           | 235           | -73         | 14%         | -31          | -2         | -0.77%       |
| Real estate and rental and leasing               | 839           | 1,309         | 1,302         | -7          | 1%          | 463          | 29         | 2.78%        |
| Professional, scientific, and technical services | 577           | 838           | 665           | -173        | 32%         | 89           | 6          | 0.90%        |
| Management of companies and enterprises          | 32            | 29            | 75            | 46          | -9%         | 43           | 3          | 5.38%        |
| Administrative and waste management services     | 889           | 1,854         | 786           | -1,068      | 199%        | -103         | -6         | -0.76%       |
| Educational services                             | 500           | 639           | 632           | -7          | 1%          | 132          | 8          | 1.48%        |
| Health care and social assistance                | 591           | 562           | 799           | 237         | -44%        | 208          | 13         | 1.91%        |
| Arts, entertainment, and recreation              | 1,539         | 1,781         | 2,192         | 412         | -77%        | 653          | 41         | 2.24%        |
| Accommodation and Food Services                  | 3,433         | 3,644         | 4,024         | 379         | -71%        | 591          | 37         | 1.00%        |
| Other Services                                   | 495           | 668           | 685           | 18          | -3%         | 191          | 12         | 2.06%        |
| Public Administration                            | 886           | 1,060         | 1,313         | 253         | -47%        | 427          | 27         | 2.49%        |
| <b>Total</b>                                     | <b>13,080</b> | <b>15,713</b> | <b>15,177</b> | <b>-535</b> | <b>100%</b> | <b>2,098</b> | <b>131</b> | <b>0.93%</b> |

Source: Economic & Planning Systems  
Y:\Projects\DEM\73302-Roaring Fork Valley Regional Housing Needs\Data\73302-QCEW-08303B-Version 2-03263B.xlsx\TABLE 11- A5 jobs

**Table 12. Basalt Wage & Salary Employment by Industry**

| By Industry, Basalt Area                         | 2001         | 2008         | 2017         | 2008-17     |             | 2001-17    |           |              |
|--------------------------------------------------|--------------|--------------|--------------|-------------|-------------|------------|-----------|--------------|
|                                                  |              |              |              | Total Δ     | % of Δ      | Total Δ    | Ann. Δ    | Ann. %       |
| Agriculture, forestry, fishing, and hunting      | 10           | 18           | 26           | 9           | -2%         | 17         | 1         | 6.49%        |
| Mining                                           | 0            | 5            | 5            | 0           | 0%          | 5          | 0         | 0.00%        |
| Utilities*                                       | 8            | 15           | 21           | 7           | -2%         | 14         | 1         | 6.78%        |
| Construction                                     | 752          | 1,002        | 605          | -396        | 101%        | -147       | -9        | -1.35%       |
| Manufacturing                                    | 156          | 130          | 109          | -21         | 5%          | -47        | -3        | -2.22%       |
| Wholesale trade                                  | 70           | 81           | 60           | -22         | 6%          | -11        | -1        | -1.01%       |
| Retail trade                                     | 268          | 287          | 401          | 113         | -29%        | 132        | 8         | 2.54%        |
| Transportation and warehousing*                  | 75           | 76           | 68           | -8          | 2%          | -7         | 0         | -0.64%       |
| Information                                      | 60           | 52           | 46           | -6          | 2%          | -15        | -1        | -1.71%       |
| Finance and insurance                            | 62           | 64           | 55           | -9          | 2%          | -7         | 0         | -0.71%       |
| Real estate and rental and leasing               | 72           | 115          | 125          | 10          | -3%         | 53         | 3         | 3.47%        |
| Professional, scientific, and technical services | 183          | 205          | 204          | 0           | 0%          | 22         | 1         | 0.71%        |
| Management of companies and enterprises          | 10           | 9            | 14           | 6           | -1%         | 4          | 0         | 2.22%        |
| Administrative and waste management services     | 136          | 366          | 337          | -30         | 8%          | 201        | 13        | 5.85%        |
| Educational services                             | 12           | 0            | 48           | 47          | -12%        | 36         | 2         | 9.24%        |
| Health care and social assistance                | 119          | 162          | 186          | 24          | -6%         | 67         | 4         | 2.82%        |
| Arts, entertainment, and recreation              | 142          | 151          | 82           | -69         | 18%         | -61        | -4        | -3.42%       |
| Accommodation and Food Services                  | 206          | 328          | 446          | 118         | -30%        | 240        | 15        | 4.95%        |
| Other Services                                   | 113          | 272          | 114          | -158        | 40%         | 0          | 0         | 0.03%        |
| Public Administration                            | 53           | 49           | 43           | -6          | 2%          | -11        | -1        | -1.39%       |
| <b>Total</b>                                     | <b>2,507</b> | <b>3,386</b> | <b>2,994</b> | <b>-393</b> | <b>100%</b> | <b>487</b> | <b>30</b> | <b>1.12%</b> |

Source: Economic & Planning Systems  
Y:\Projects\DEM\73302-Roaring Fork Valley Regional Housing Needs\Data\73302-QCEW-08303B-Version 2-03263B.xlsx\TABLE 2.1- B5 jobs

**Table 13. Carbondale Wage & Salary Employment by Industry**

| By Industry, Carbondale Area                     | 2001         | 2008         | 2017         | 2008-17    |             | 2001-17      |           |              |
|--------------------------------------------------|--------------|--------------|--------------|------------|-------------|--------------|-----------|--------------|
|                                                  |              |              |              | Total Δ    | % of Δ      | Total Δ      | Ann. Δ    | Ann. %       |
| Agriculture, forestry, fishing, and hunting      | 88           | 48           | 77           | 29         | 19%         | -11          | -1        | -0.84%       |
| Mining                                           | 64           | 31           | 26           | -5         | -3%         | -38          | -2        | -5.45%       |
| Utilities*                                       | 1            | 8            | 90           | 82         | 53%         | 89           | 6         | 32.51%       |
| Construction                                     | 1,226        | 1,306        | 855          | -450       | -291%       | -371         | -23       | -2.23%       |
| Manufacturing                                    | 194          | 166          | 108          | -59        | -38%        | -86          | -5        | -3.61%       |
| Wholesale trade                                  | 59           | 80           | 88           | 8          | 5%          | 29           | 2         | 2.49%        |
| Retail trade                                     | 450          | 532          | 477          | -56        | -36%        | 26           | 2         | 0.35%        |
| Transportation and warehousing*                  | 18           | 90           | 103          | 13         | 9%          | 86           | 5         | 11.74%       |
| Information                                      | 63           | 69           | 65           | -4         | -3%         | 2            | 0         | 0.24%        |
| Finance and insurance                            | 95           | 111          | 98           | -13        | -9%         | 3            | 0         | 0.16%        |
| Real estate and rental and leasing               | 120          | 181          | 191          | 10         | 6%          | 71           | 4         | 2.96%        |
| Professional, scientific, and technical services | 152          | 293          | 365          | 71         | 46%         | 213          | 13        | 5.62%        |
| Management of companies and enterprises          | 3            | 11           | 18           | 7          | 5%          | 15           | 1         | 12.14%       |
| Administrative and waste management services     | 336          | 353          | 606          | 252        | 163%        | 270          | 17        | 3.75%        |
| Educational services                             | 144          | 206          | 275          | 68         | 44%         | 131          | 8         | 4.13%        |
| Health care and social assistance                | 182          | 316          | 384          | 68         | 44%         | 202          | 13        | 4.78%        |
| Arts, entertainment, and recreation              | 136          | 117          | 136          | 19         | 13%         | 0            | 0         | 0.01%        |
| Accommodation and Food Services                  | 398          | 637          | 686          | 49         | 31%         | 288          | 18        | 3.45%        |
| Other Services                                   | 132          | 133          | 197          | 65         | 42%         | 65           | 4         | 2.54%        |
| Public Administration                            | 88           | 131          | 130          | -1         | -1%         | 42           | 3         | 2.44%        |
| <b>Total</b>                                     | <b>3,948</b> | <b>4,819</b> | <b>4,974</b> | <b>155</b> | <b>100%</b> | <b>1,025</b> | <b>64</b> | <b>1.45%</b> |

Source: Economic & Planning Systems  
Y:\Projects\DEN\173102-Roaring Fork Valley Regional Housing Needs\173102-QCEW-0830-B-V\Version 2-0326-B.xls\TABLE 3.1- C jobs

**Table 14. Glenwood Springs Wage & Salary Employment by Industry**

| By Industry, Glenwood Springs                    | 2001          | 2008          | 2017          | 2008-17    |             | 2001-17      |           |              |
|--------------------------------------------------|---------------|---------------|---------------|------------|-------------|--------------|-----------|--------------|
|                                                  |               |               |               | Total Δ    | % of Δ      | Total Δ      | Ann. Δ    | Ann. %       |
| Agriculture, forestry, fishing, and hunting      | 28            | 34            | 17            | -17        | -6%         | -11          | -1        | -3.09%       |
| Mining                                           | 35            | 4             | 10            | 6          | 2%          | -25          | -2        | -7.57%       |
| Utilities*                                       | 132           | 157           | 166           | 9          | 3%          | 34           | 2         | 1.45%        |
| Construction                                     | 1,569         | 1,442         | 1,146         | -296       | -100%       | -423         | -26       | -1.94%       |
| Manufacturing                                    | 104           | 94            | 94            | 1          | 0%          | -9           | -1        | -0.60%       |
| Wholesale trade                                  | 333           | 286           | 187           | -98        | -33%        | -145         | -9        | -3.53%       |
| Retail trade                                     | 1,847         | 2,069         | 1,697         | -371       | -125%       | -150         | -9        | -0.53%       |
| Transportation and warehousing*                  | 99            | 237           | 150           | -87        | -29%        | 51           | 3         | 2.62%        |
| Information                                      | 217           | 144           | 64            | -80        | -27%        | -154         | -10       | -7.39%       |
| Finance and insurance                            | 284           | 338           | 301           | -37        | -12%        | 17           | 1         | 0.36%        |
| Real estate and rental and leasing               | 117           | 238           | 219           | -19        | -6%         | 102          | 6         | 4.02%        |
| Professional, scientific, and technical services | 589           | 738           | 630           | -108       | -36%        | 41           | 3         | 0.43%        |
| Management of companies and enterprises          | 8             | 20            | 25            | 5          | 2%          | 17           | 1         | 7.13%        |
| Administrative and waste management services     | 279           | 274           | 305           | 31         | 10%         | 26           | 2         | 0.57%        |
| Educational services                             | 1,114         | 1,136         | 1,351         | 215        | 72%         | 237          | 15        | 1.21%        |
| Health care and social assistance                | 1,067         | 1,519         | 2,099         | 579        | 195%        | 1,031        | 64        | 4.32%        |
| Arts, entertainment, and recreation              | 166           | 139           | 387           | 247        | 83%         | 220          | 14        | 5.41%        |
| Accommodation and Food Services                  | 1,455         | 1,608         | 1,830         | 222        | 75%         | 376          | 23        | 1.45%        |
| Other Services                                   | 338           | 338           | 340           | 3          | 1%          | 3            | 0         | 0.05%        |
| Public Administration                            | 647           | 819           | 912           | 92         | 31%         | 265          | 17        | 2.17%        |
| <b>Total</b>                                     | <b>10,426</b> | <b>11,632</b> | <b>11,929</b> | <b>297</b> | <b>100%</b> | <b>1,503</b> | <b>94</b> | <b>0.85%</b> |

Source: Economic & Planning Systems  
Y:\Projects\DEN\173102-Roaring Fork Valley Regional Housing Needs\173102-QCEW-0830-B-V\Version 2-0326-B.xls\TABLE 4.1- GW jobs

**Table 15. New Castle to Parachute Wage & Salary Employment by Industry**

| By Industry, New Castle to Parachute                                                                                                                                      | 2001         | 2008          | 2017         | 2008-17       |             | 2001-17      |            |              |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------|---------------|--------------|---------------|-------------|--------------|------------|--------------|
|                                                                                                                                                                           |              |               |              | Total Δ       | % of Δ      | Total Δ      | Ann. Δ     | Ann. %       |
| Agriculture, forestry, fishing, and hunting                                                                                                                               | 108          | 89            | 122          | 33            | -1%         | 14           | 1          | 0.76%        |
| Mining                                                                                                                                                                    | 215          | 2,059         | 781          | -1,278        | 46%         | 566          | 35         | 8.41%        |
| Utilities*                                                                                                                                                                | 48           | 92            | 99           | 7             | 0%          | 51           | 3          | 4.58%        |
| Construction                                                                                                                                                              | 1,111        | 2,480         | 1,224        | -1,256        | 45%         | 113          | 7          | 0.61%        |
| Manufacturing                                                                                                                                                             | 122          | 138           | 228          | 91            | -3%         | 106          | 7          | 3.98%        |
| Wholesale trade                                                                                                                                                           | 227          | 407           | 383          | -25           | 1%          | 156          | 10         | 3.32%        |
| Retail trade                                                                                                                                                              | 667          | 1,056         | 959          | -97           | 3%          | 292          | 18         | 2.30%        |
| Transportation and warehousing*                                                                                                                                           | 103          | 653           | 352          | -300          | 11%         | 249          | 16         | 7.97%        |
| Information                                                                                                                                                               | 16           | 70            | 87           | 17            | -1%         | 71           | 4          | 11.09%       |
| Finance and insurance                                                                                                                                                     | 104          | 162           | 125          | -37           | 1%          | 21           | 1          | 1.17%        |
| Real estate and rental and leasing                                                                                                                                        | 155          | 402           | 301          | -100          | 4%          | 147          | 9          | 4.25%        |
| Professional, scientific, and technical services                                                                                                                          | 95           | 276           | 191          | -85           | 3%          | 97           | 6          | 4.49%        |
| Management of companies and enterprises                                                                                                                                   | 126          | 127           | 100          | -27           | 1%          | -26          | -2         | -1.41%       |
| Administrative and waste management services                                                                                                                              | 259          | 393           | 418          | 25            | -1%         | 159          | 10         | 3.04%        |
| Educational services                                                                                                                                                      | 662          | 994           | 1,109        | 115           | -4%         | 447          | 28         | 3.27%        |
| Health care and social assistance                                                                                                                                         | 221          | 503           | 805          | 302           | -11%        | 584          | 37         | 8.42%        |
| Arts, entertainment, and recreation                                                                                                                                       | 117          | 102           | 54           | -48           | 2%          | -63          | -4         | -4.72%       |
| Accommodation and Food Services                                                                                                                                           | 334          | 847           | 777          | -71           | 3%          | 443          | 28         | 5.42%        |
| Other Services                                                                                                                                                            | 199          | 297           | 176          | -122          | 4%          | -23          | -1         | -0.76%       |
| Public Administration                                                                                                                                                     | 208          | 362           | 429          | 67            | -2%         | 221          | 14         | 4.62%        |
| <b>Total</b>                                                                                                                                                              | <b>5,095</b> | <b>11,508</b> | <b>8,720</b> | <b>-2,788</b> | <b>100%</b> | <b>3,625</b> | <b>227</b> | <b>3.42%</b> |
| Source: Economic & Planning Systems<br>Y:\Projects\DEN\173102-Roaring Fork Valley Regional Housing Needs\Data\173102-QCEW-0830-B-Version 2-0326-B.xls\TABLE 5.1- NCP jobs |              |               |              |               |             |              |            |              |

**Table 16. Eagle to Gypsum Wage & Salary Employment by Industry**

| By Industry, Eagle to Gypsum                                                                                                                                             | 2001         | 2008         | 2017         | 2008-17    |             | 2001-17      |            |              |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------|--------------|--------------|------------|-------------|--------------|------------|--------------|
|                                                                                                                                                                          |              |              |              | Total Δ    | % of Δ      | Total Δ      | Ann. Δ     | Ann. %       |
| Agriculture, forestry, fishing, and hunting                                                                                                                              | 23           | 21           | 35           | 14         | 12%         | 12           | 1          | 2.57%        |
| Mining                                                                                                                                                                   | 0            | 1            | 2            | 1          | 0%          | 2            | 0          | 0.00%        |
| Utilities*                                                                                                                                                               | 8            | 10           | 25           | 15         | 13%         | 17           | 1          | 7.29%        |
| Construction                                                                                                                                                             | 1,406        | 1,648        | 1,338        | -310       | -262%       | -68          | -4         | -0.31%       |
| Manufacturing                                                                                                                                                            | 192          | 201          | 182          | -19        | -16%        | -11          | -1         | -0.35%       |
| Wholesale trade                                                                                                                                                          | 100          | 210          | 211          | 1          | 1%          | 111          | 7          | 4.78%        |
| Retail trade                                                                                                                                                             | 341          | 565          | 632          | 67         | 57%         | 291          | 18         | 3.93%        |
| Transportation and warehousing*                                                                                                                                          | 188          | 240          | 325          | 85         | 72%         | 137          | 9          | 3.49%        |
| Information                                                                                                                                                              | 72           | 222          | 129          | -94        | -79%        | 56           | 4          | 3.66%        |
| Finance and insurance                                                                                                                                                    | 78           | 115          | 83           | -32        | -27%        | 5            | 0          | 0.38%        |
| Real estate and rental and leasing                                                                                                                                       | 123          | 179          | 185          | 5          | 5%          | 62           | 4          | 2.59%        |
| Professional, scientific, and technical services                                                                                                                         | 144          | 215          | 256          | 41         | 35%         | 112          | 7          | 3.64%        |
| Management of companies and enterprises                                                                                                                                  | 93           | 26           | 15           | -11        | -9%         | -77          | -5         | -10.62%      |
| Administrative and waste management services                                                                                                                             | 263          | 429          | 340          | -88        | -75%        | 78           | 5          | 1.63%        |
| Educational services                                                                                                                                                     | 691          | 867          | 1,015        | 148        | 125%        | 325          | 20         | 2.44%        |
| Health care and social assistance                                                                                                                                        | 80           | 155          | 242          | 87         | 74%         | 163          | 10         | 7.19%        |
| Arts, entertainment, and recreation                                                                                                                                      | 189          | 212          | 261          | 49         | 41%         | 72           | 5          | 2.05%        |
| Accommodation and Food Services                                                                                                                                          | 381          | 493          | 514          | 21         | 18%         | 133          | 8          | 1.89%        |
| Other Services                                                                                                                                                           | 140          | 148          | 229          | 81         | 69%         | 89           | 6          | 3.11%        |
| Public Administration                                                                                                                                                    | 438          | 563          | 619          | 56         | 48%         | 181          | 11         | 2.18%        |
| <b>Total</b>                                                                                                                                                             | <b>4,951</b> | <b>6,520</b> | <b>6,638</b> | <b>118</b> | <b>100%</b> | <b>1,687</b> | <b>105</b> | <b>1.85%</b> |
| Source: Economic & Planning Systems<br>Y:\Projects\DEN\173102-Roaring Fork Valley Regional Housing Needs\Data\173102-QCEW-0830-B-Version 2-0326-B.xls\TABLE 6.1- EG jobs |              |              |              |            |             |              |            |              |



## Seasonality

Greater year-round business activity bodes well for the overall economy, whereas seasonal employment places strain on the economy in the form of temporary housing and overcrowding conditions.<sup>15</sup> In 2017, seasonal employment accounted for an average of 8 percent of total wage and salary jobs in the GRFR. Both the 1<sup>st</sup> and 3<sup>rd</sup> quarters represent peak seasons (for different parts of the region), accounting for 10 or 11 percent of the entire workforce. Seasonal employment during peak season is as high as 12 percent (Aspen to Snowmass) or as low as 6 percent (Glenwood Springs).

Four sectors account for two-thirds of all seasonal employment: Construction (8 percent); Real Estate (7 percent); Arts, Entertainment, & Recreation (30 percent); and Accommodations & Food Services (22 percent).

As GRFR communities have become more aware of the economic volatility created by seasonality, the proportion of seasonal workforce has dropped. Overall growth in employment levels has actually been the product of year-round business sector expansion. Although the magnitude of seasonal jobs has remained relatively constant (in actual number of jobs), its proportion has dropped by 1.5 percent regionwide.<sup>16</sup>

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<sup>15</sup> Seasonality was very meticulously defined for this analysis using data from the Colorado Department of Labor & Employment's Quarterly Census of Employment & Wages establishment level data series. The granularity of data was leveraged to identify when a particular establishment's employment level for any particular month (usually during peak season) reached the overall geography's (e.g. Aspen to Snowmass, Basalt, etc.) seasonal peak for a respective year. To accomplish this, quarterly employment trends were created, from which annual employment levels were identified, and from which quarterly metrics were calculated as the percent above/under the annual employment levels. The analysis then utilized the more than 500,000 records of establishment level data to identify the annual average employment levels for all establishments in the GRFR for each so to calculate the monthly employment level as a percent above or below the respective establishment's annual average. Those percentages were then compared to the seasonal peaks for each geography for each year to determine whether that particular establishment was behaving as a part of the "seasonal" industry.

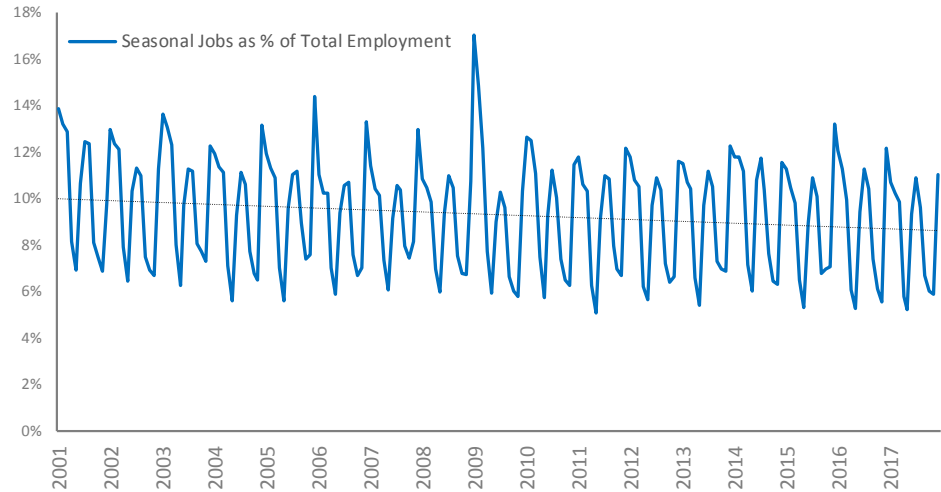
<sup>16</sup> Seasonal jobs, for example, during peak season in Aspen to Snowmass accounted for 13 percent in 2001, whereas they accounted for under 12 percent in 2017. Seasonal jobs in Carbondale dropped from 11 percent to less than 9 percent; in Glenwood Springs from 7 to 5.5 percent; in New Castle to Parachute from 10 percent to 7 percent; and in Eagle to Gypsum from 9 percent to 7 percent. Basalt has remained relatively constant at 9 percent.

**Figure 17. Seasonal Employment as Percent of Total Employment**

**Seasonal Jobs as  
% of Total Wage  
& Salary Jobs,  
Greater Roaring  
Fork Region**

Source: CDLE, QCEW; Economic & Planning Systems

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Seasonality.xlsx\Seasonality chart data



## Proprietorships

According to an analysis of secondary sources (Bureau of Economic Analysis and the U.S. Census Nonemployer Statistics), the GRFR had approximately 33,000 sole proprietors in 2017—up from 22,000 in 2001.<sup>17</sup> It should be noted, however, that individuals who identify as sole proprietors can also be wage and salary workers engaged in separate business activities, and some may file multiple Schedule Cs.<sup>18</sup>

<sup>17</sup> Sole proprietors are a designation given to individuals who file an IRS Schedule C. The Internal Revenue Service requires individuals to report their income from a business or a profession practiced as a sole proprietor. An activity qualifies as a business if: a) the primary purpose for engaging in the activity is for income or profit, and b) the activity is engaged with continuity and regularity.

<sup>18</sup> Although independent sources of information confirmed the same magnitude of sole proprietorships in the GRFR, the overall estimate of 33,000 proprietorships likely does not translate to individuals. Using information from the 2018 GRFR Resident Survey, average multiple job-holdings was 1.4 across the region. This would translate to approximately 23,600 individuals.

## Population

The population of the GRFR grew by approximately 28,000 people between 2001 and 2017, from 75,000 to more than 103,000 (**Table 17**). Overall, the region gained approximately 1,700 people per year.

Nearly 40 percent of the region's population growth occurred in the New Castle to Parachute Area, and nearly 30 percent of the region's growth occurred in the Eagle to Gypsum Area.

**Table 17. Regional Population Trends, 2001-2017**

| Population                   | 2001          | 2017           | Growth        | Ann. %      |
|------------------------------|---------------|----------------|---------------|-------------|
| Aspen to Snowmass Area       | 13,547        | 14,866         | 1,319         | 0.6%        |
| Basalt Area                  | 4,490         | 6,440          | 1,950         | 2.3%        |
| Carbondale Area              | 13,046        | 16,182         | 3,136         | 1.4%        |
| Glenwood Springs Area        | 13,132        | 16,026         | 2,895         | 1.3%        |
| New Castle to Parachute Area | 21,814        | 32,391         | 10,576        | 2.5%        |
| Eagle to Gypsum Area         | 9,430         | 17,235         | 7,805         | 3.8%        |
| <b>Total</b>                 | <b>75,457</b> | <b>103,139</b> | <b>27,682</b> | <b>2.0%</b> |

Source: Economic & Planning Systems

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## Population by Age

### Under 16 Years

Regionwide, slightly more than 20 percent of the new population growth was aged 16 years or under. By area, the portions of total population change ranged between 10 and 30 percent.

Among the more family-oriented areas of the region, the under 16s accounted for nearly 30 percent of total population growth in the New Castle to Parachute Area, and more than 20 percent in the Eagle to Gypsum Area. They also accounted for 20 percent and nearly 20 percent of total population growth in the Carbondale and Glenwood Springs Areas, respectively.

This age group, however, accounted for just over 10 percent of total population growth for both the Aspen to Snowmass and Basalt Areas.

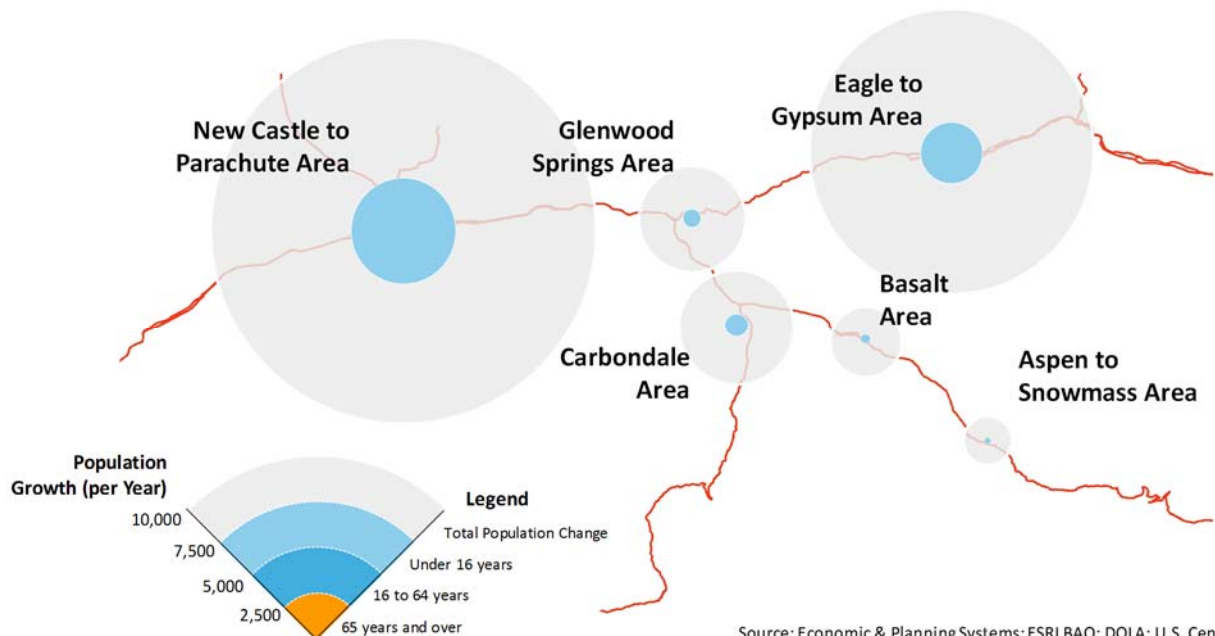
**Table 18. Regional Population Change by Age, Under 16 Years**

| Population Change (00-17)    | Total         | Under 16     | as %       |
|------------------------------|---------------|--------------|------------|
| Aspen to Snowmass Area       | 1,319         | 156          | 12%        |
| Basalt Area                  | 1,950         | 234          | 12%        |
| Carbondale Area              | 3,136         | 627          | 20%        |
| Glenwood Springs Area        | 2,895         | 506          | 17%        |
| New Castle to Parachute Area | 10,576        | 2,867        | 27%        |
| Eagle to Gypsum Area         | 7,805         | 1,687        | 22%        |
| <b>Total</b>                 | <b>27,682</b> | <b>6,078</b> | <b>22%</b> |

Source: Economic & Planning Systems

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**Figure 18. Change in Population Under 16 Years**



### 35 to 64 Years

Regionwide, the age cohort between 16 and 64 years (working age population) accounted for nearly 60 percent of total population growth between 2000 and 2017. For the most part, the growth of this age cohort was generally consistent throughout the different areas of the region.

In the Glenwood Springs, New Castle to Parachute, Eagle to Gypsum, and the Basalt Areas the population of working age accounted for a little over 60 percent of the total population growth between 2000 and 2017.

In the Carbondale Area, this age group accounted for less than half of total population growth. In the Aspen to Snowmass Area, however, there was a net loss of more than 200 persons this age.

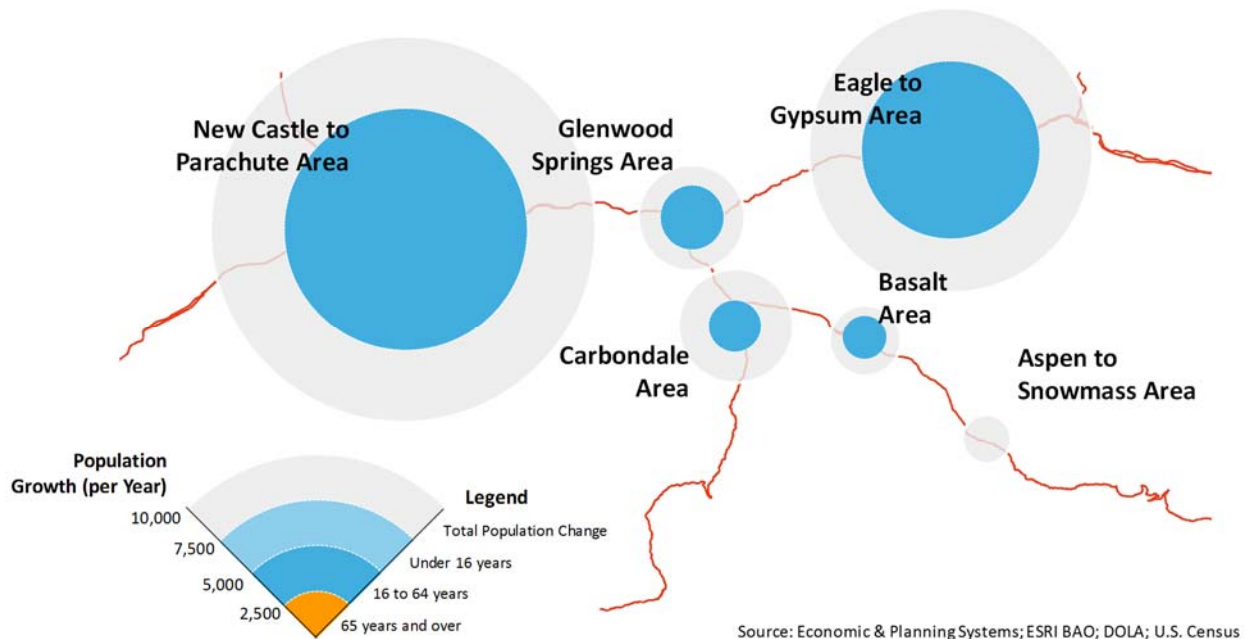
**Table 19. Regional Population Change by Age, 16 to 64 Years**

| Population Change (00-17)    | Total 16 to 64 | as %              |
|------------------------------|----------------|-------------------|
| Aspen to Snowmass Area       | 1,319          | -226 -17%         |
| Basalt Area                  | 1,950          | 1,207 62%         |
| Carbondale Area              | 3,136          | 1,436 46%         |
| Glenwood Springs Area        | 2,895          | 1,765 61%         |
| New Castle to Parachute Area | 10,576         | 6,658 63%         |
| Eagle to Gypsum Area         | 7,805          | 4,895 63%         |
| <b>Total</b>                 | <b>27,682</b>  | <b>15,736 57%</b> |

Source: Economic & Planning Systems

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**Figure 19. Change in Population 16 to 64 Years**



### 65 Years and Over

Regionwide, the age group of 65 years and older accounted for more than one-fifth of total population change between 2000 and 2017.

As with the other age groups, the proportions of population change varied widely by area. In the New Castle to Parachute and Eagle to Gypsum Areas, this age group accounted for 10 and 16 percent of total population change, respectively.

In the Glenwood Springs and Basalt Areas, this age group accounted for 22 and 26 percent of total population change. In the Carbondale Area, this group accounted for more than one-third of the shift, and in the Aspen to Snowmass Area, the growth in this age group accounted for over 100 percent of the population shift.

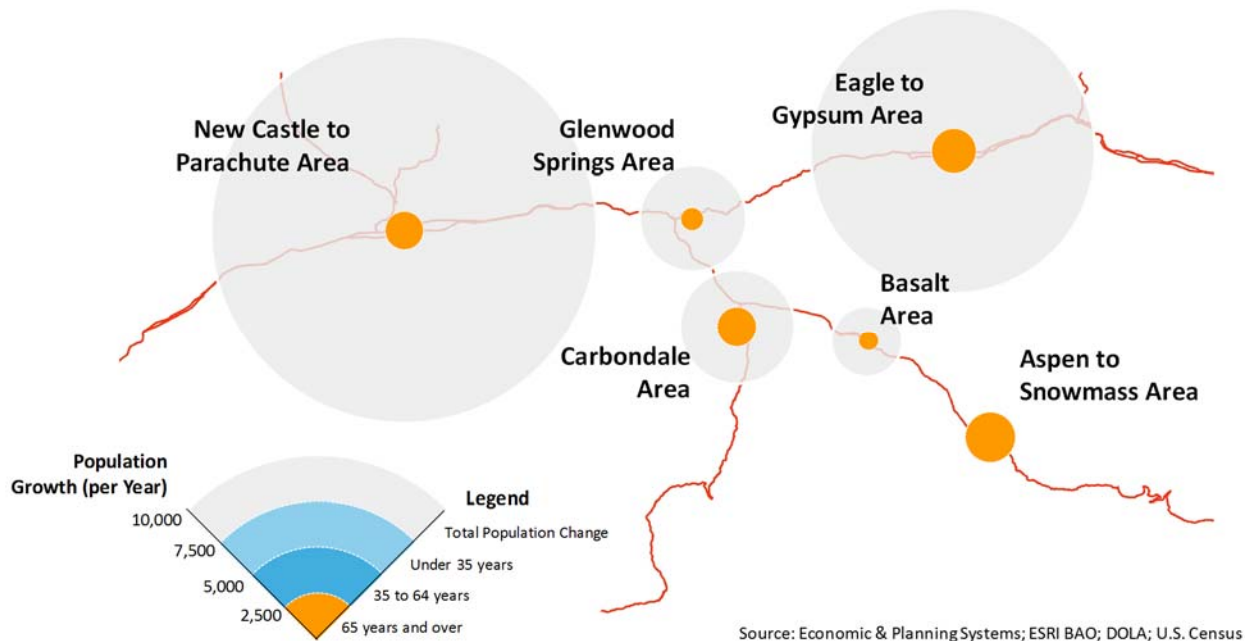
**Table 20. Regional Population Change by Age, 65 Years and Over**

| Population Change (00-17)    | Total         | 65 and Over  | as %       |
|------------------------------|---------------|--------------|------------|
| Aspen to Snowmass Area       | 1,319         | 1,389        | 105%       |
| Basalt Area                  | 1,950         | 510          | 26%        |
| Carbondale Area              | 3,136         | 1,073        | 34%        |
| Glenwood Springs Area        | 2,895         | 623          | 22%        |
| New Castle to Parachute Area | 10,576        | 1,051        | 10%        |
| Eagle to Gypsum Area         | 7,805         | 1,222        | 16%        |
| <b>Total</b>                 | <b>27,682</b> | <b>5,868</b> | <b>21%</b> |

Source: Economic & Planning Systems

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**Figure 20. Change in Population 65 Years and Over**



## Population Projection by Age

An analysis of the State Demographer data by age shows that over the next 10 years, population in the region will increase by a little more than 25,000 people, comprising of only 5 percent population under 16, and more than 60 percent population aged 16 to 64, and more than 30 percent for the population over 65.

### Under 16 Years

A sign of declining birth rates, the population under the age of 16 regionwide is projected only to increase by 5 percent over the next 10 years.

The New Castle to Parachute, Eagle to Gypsum, and Basalt Areas are the only areas projected to see an increase in this age cohort, while this age group is projected to lose only an insubstantial number in the Carbondale Area.

On the other hand, both the Glenwood Springs and Aspen to Snowmass Areas are projected to see a net loss in this age group.

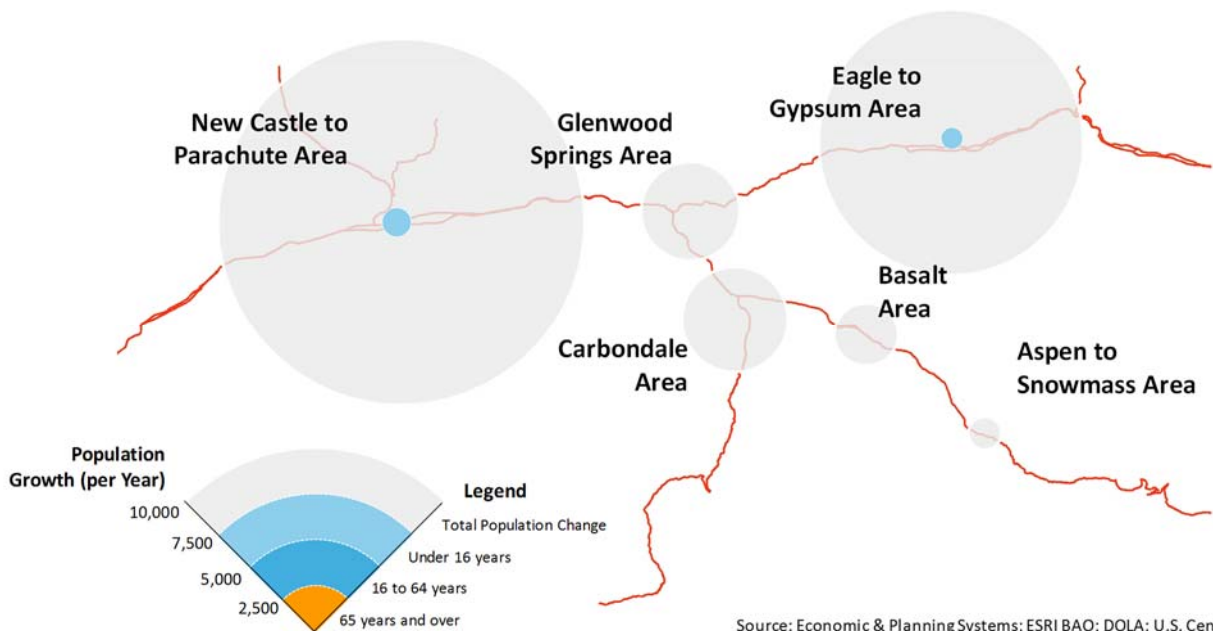
**Table 21. Regional Population Projection, Under 16 Years**

| Population Projection (2017-27) | Total         | Under 16     | as %      |
|---------------------------------|---------------|--------------|-----------|
| Aspen to Snowmass Area          | 899           | -73          | -8%       |
| Basalt Area                     | 1,752         | 88           | 5%        |
| Carbondale Area                 | 2,921         | -10          | 0%        |
| Glenwood Springs Area           | 2,687         | -50          | -2%       |
| New Castle to Parachute Area    | 10,037        | 786          | 8%        |
| Eagle to Gypsum Area            | 7,256         | 595          | 8%        |
| <b>Total</b>                    | <b>25,550</b> | <b>1,336</b> | <b>5%</b> |

Source: Economic & Planning Systems

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Population by Age Forecast - 122818-35 to 64 category.xlsx Pop Growth Tables

**Figure 21. Population Projection Under 16 Years**



### 16 to 64 Years

This age group is projected to account for more than 60 percent of regional population growth between 2017 and 2027.

Interestingly, there is less variation in the growth of this age group as a portion of the total population shift than there is in the younger age category.

Growth in this group is projected to account for more than 70 percent in the Basalt and Eagle to Gypsum Areas, and projected to account for approximately 60 percent in the remaining four areas.

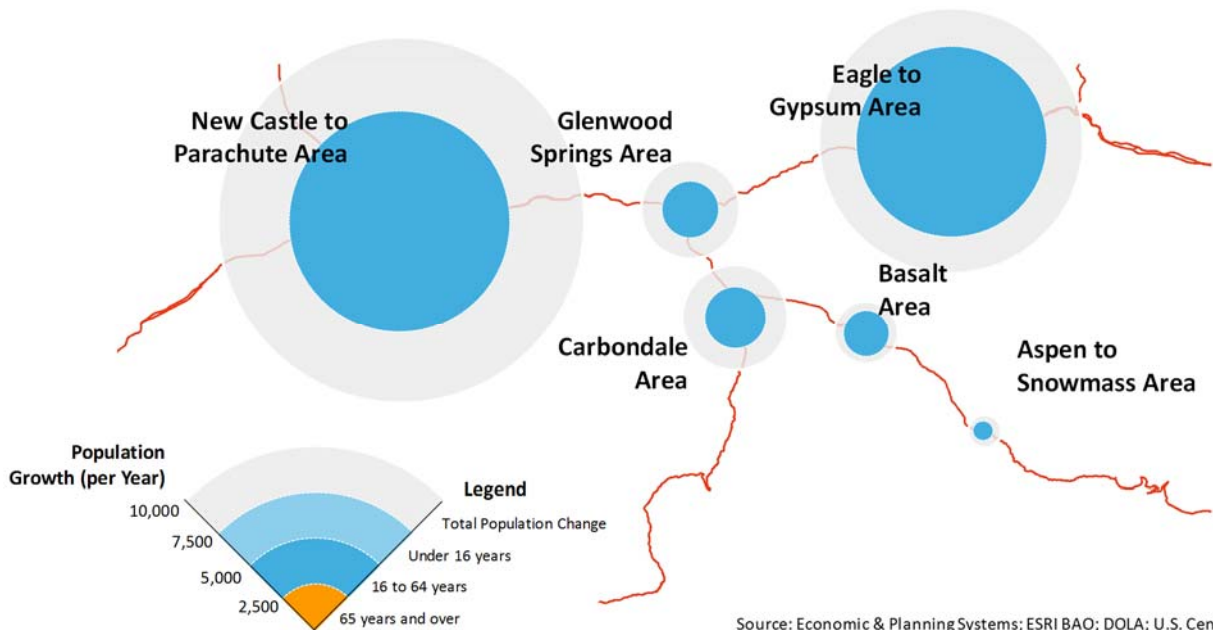
**Table 22. Regional Population Projection, 16 to 64 Years**

| Population Projection (2017-27) | Total         | 16 to 64      | as %       |
|---------------------------------|---------------|---------------|------------|
| Aspen to Snowmass Area          | 899           | 537           | 60%        |
| Basalt Area                     | 1,752         | 1,249         | 71%        |
| Carbondale Area                 | 2,921         | 1,691         | 58%        |
| Glenwood Springs Area           | 2,687         | 1,543         | 57%        |
| New Castle to Parachute Area    | 10,037        | 6,067         | 60%        |
| Eagle to Gypsum Area            | 7,256         | 5,205         | 72%        |
| <b>Total</b>                    | <b>25,550</b> | <b>16,292</b> | <b>64%</b> |

Source: Economic & Planning Systems

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Population by Age Forecast - 16 to 64 category.xlsx Pop Growth Tables

**Figure 22. Population Projection 16 to 65 Years**





### 65 Years and Over

Growth in this age group is reflective of the net migration of population at retirement age. Quality of life factors often influence residents' decisions to remain in place after retirement. This is particularly the case in several of the up-valley locations.

While the working age population accounted for a predominance of the population growth for the Basalt and Eagle to Gypsum Areas, the retirement age cohort accounts for less than 25 and 20 percent of the projected growth, respectively.

**Table 23. Regional Population Projection, 65 to Years**

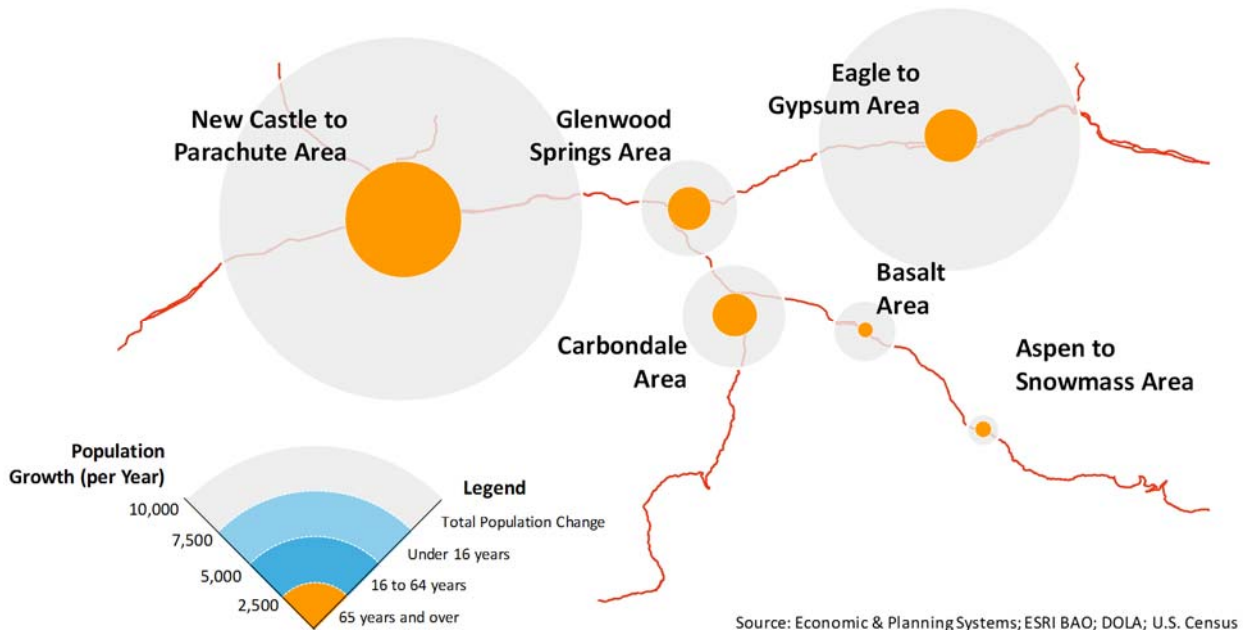
| Population Projection (2017-27) | Total         | 65 and Over  | as %       |
|---------------------------------|---------------|--------------|------------|
| Aspen to Snowmass Area          | 899           | 435          | 48%        |
| Basalt Area                     | 1,752         | 415          | 24%        |
| Carbondale Area                 | 2,921         | 1,240        | 42%        |
| Glenwood Springs Area           | 2,687         | 1,193        | 44%        |
| New Castle to Parachute Area    | 10,037        | 3,184        | 32%        |
| Eagle to Gypsum Area            | 7,256         | 1,456        | 20%        |
| <b>Total</b>                    | <b>25,550</b> | <b>7,923</b> | <b>31%</b> |

Source: Economic & Planning Systems

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Population by Age Forecast - 35 to 64 category.xlsx Pop Growth Tables

In New Castle to Parachute, this age group accounts for approximately one-third of growth, and it accounts for roughly 40 percent in both the Carbondale and Glenwood Springs Areas. In the Aspen to Snowmass Area, the older age cohort accounts for nearly half of projected population growth.

**Figure 23. Population Projection 65 Years and Over**

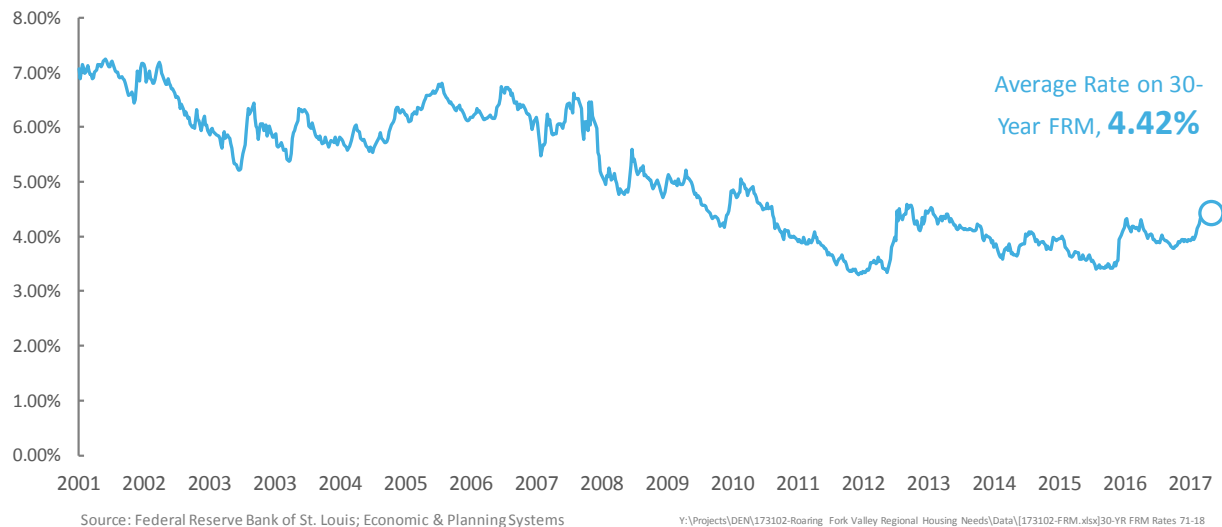


While the social and economic impacts of those trends would require further study, analysis of national data from the Bureau of Labor Statistics Consumer Expenditure Survey<sup>19</sup> shows that as households age (and retire) they spend less than households of working age. Research has also shown that older households spend more on experiential goods and services (like travel) and less on typical taxable retail items. This pattern in a geography with an aging population has implications for sales tax revenue generation. Without bringing in more households, sales tax revenues to the region's municipalities are at risk of stagnating.

### New Mortgage Investment

The rate of homeownership often swings with the broader market. For example, between 2002 and 2008, homeownership rates were on the rise in the U.S., but plummeted shortly after the Great Recession. Using the analysis trend, which encapsulates two economic cycles, this analysis looks at a period (2001 to 2017) when the average borrowing rate on a 30-year fixed rate mortgage dropped from approximately 7 percent to approximately 4 percent.

**Figure 24. Interest on 30-Year Fixed Rate Mortgage, 2001-2017**



<sup>19</sup> <https://www.bls.gov/cex/data.htm>

Although these tremendous and historically low borrowing conditions were supposed to incent more households into homeownership, the price of housing in the region (as described later) presented a challenge to even maintaining a level portion of owner households with a mortgage. Nevertheless, the portion of owner households with a mortgage dropped from 79 percent to 73 percent, as illustrated in **Table 24**.

While this downward trend has meant financial freedom for about 3,500 households, it also has meant a lack of broader investment (for reasons generally beyond the individual household's control) in the communities.

**Table 24. Owner Household Mortgage Status**

| Mortgage Status               | Eagle to<br>Gypsum | New Castle<br>to Parachute | Glenwood<br>Springs | Carbondale | Basalt | Aspen to<br>Snowmass | Total  |
|-------------------------------|--------------------|----------------------------|---------------------|------------|--------|----------------------|--------|
| <b>2000</b>                   |                    |                            |                     |            |        |                      |        |
| <u>Owner Occupied Housing</u> |                    |                            |                     |            |        |                      |        |
| Units w/ mortgage             | 80%                | 68%                        | 86%                 | 84%        | 81%    | 73%                  | 79%    |
| Units w/o mortgage            | 20%                | 32%                        | 14%                 | 16%        | 19%    | 27%                  | 21%    |
| Total Units                   | 100%               | 100%                       | 100%                | 100%       | 100%   | 100%                 | 100%   |
| <u>Owner Occupied Housing</u> |                    |                            |                     |            |        |                      |        |
| Units w/ mortgage             | 1,518              | 3,247                      | 2,475               | 2,319      | 823    | 2,185                | 12,566 |
| Units w/o mortgage            | 384                | 1,532                      | 415                 | 448        | 192    | 818                  | 3,788  |
| Total Units                   | 1,902              | 4,779                      | 2,890               | 2,767      | 1,014  | 3,003                | 16,355 |
| <b>2017</b>                   |                    |                            |                     |            |        |                      |        |
| <u>Owner Occupied Housing</u> |                    |                            |                     |            |        |                      |        |
| Units w/ mortgage             | 74%                | 70%                        | 82%                 | 68%        | 72%    | 65%                  | 73%    |
| Units w/o mortgage            | 26%                | 30%                        | 18%                 | 32%        | 28%    | 35%                  | 27%    |
| Total Units                   | 100%               | 100%                       | 100%                | 100%       | 100%   | 100%                 | 100%   |
| <u>Owner Occupied Housing</u> |                    |                            |                     |            |        |                      |        |
| Units w/ mortgage             | 3,035              | 5,420                      | 2,941               | 2,632      | 1,242  | 2,733                | 18,002 |
| Units w/o mortgage            | 1,084              | 2,308                      | 660                 | 1,267      | 480    | 1,458                | 7,256  |
| Total Units                   | 4,119              | 7,728                      | 3,600               | 3,899      | 1,721  | 4,191                | 25,258 |

Source: U.S. Census & ACS 5-year estimates, H84, H62, B25075, B25063; Economic & Planning Systems  
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## Supply Trends

As mentioned above, housing market growth typically responds to a variety of conditions, such as employment or population growth. At the heart of supply growth are a variety of capacity factors, such as: land availability; developable land or parcels; construction capacity; adequate infrastructure including roads, water, sewer, electricity; and public services to accommodate growth. Also key to growth in supply are external factors, such as neighborhood or community “infrastructure” that can channel growth.

## Residential Construction

Between 2001 and 2017, the region added 11,900 housing units, an average of nearly 740 units per year. More than 60 percent of the construction activity occurred in the New Castle to Parachute and Eagle to Gypsum areas (36 and 25 percent of total residential construction activity, respectively). Residential construction in the Carbondale Area accounted for 14 percent of all regional activity, and Aspen to Snowmass, Basalt, and Glenwood Springs each account for less than 10 percent of activity each.

**Table 25. Housing Unit Trends, 2001-2017**

| Housing Units                | 2001          | 2017          | Growth        | Ann. %      |
|------------------------------|---------------|---------------|---------------|-------------|
| Aspen to Snowmass Area       | 10,783        | 11,721        | 938           | 0.5%        |
| Basalt Area                  | 2,020         | 3,103         | 1,082         | 2.7%        |
| Carbondale Area              | 5,062         | 6,672         | 1,609         | 1.7%        |
| Glenwood Springs Area        | 5,501         | 6,508         | 1,006         | 1.1%        |
| New Castle to Parachute Area | 8,705         | 12,955        | 4,250         | 2.5%        |
| Eagle to Gypsum Area         | 3,523         | 6,539         | 3,017         | 3.9%        |
| <b>Total</b>                 | <b>35,595</b> | <b>47,498</b> | <b>11,903</b> | <b>1.8%</b> |

Source: Economic & Planning Systems  
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## Non-Local Ownership

The second homeowner market places a significant constraint on the supply of housing to meet demands for the local workforce and residents. To assess the level of constraint that the GRFR experiences, the following summarizes an analysis of vacant housing (particularly representative of “for seasonal, recreational use” that is indicative of the second homeowner market) as well as short-term rentals (STR).

### Vacant Housing

Of the 11,900 residential units added regionally, 16 percent were defined as vacant, for seasonal use—an increase in approximately 120 units per year.

Throughout the region, however, the number of units built for second homeowner (or investor) purposes increased in areas to greater or lesser extents. While the proportion of seasonal use housing in the Aspen to Snowmass Area remained constant (at approximately 4,500), Basalt added approximately 190 seasonal use units, Carbondale added more than 300, Glenwood Springs added nearly 170, New Castle to Parachute added 900, and Eagle to Gypsum added 330 seasonal use units.

### Non-Local Property Ownership

Another part of the analysis utilized current (2017) and historic (2005) County Assessor data to identify the portion of properties (and total residential valuation) identified as local and non-local ownership.<sup>20</sup> Overall, the portion of residential properties (which includes single family and multifamily properties) that are locally-owned decreased slightly from 73 to 72 percent. In the Carbondale, Basalt, and Aspen to Snowmass areas, local ownership dropped 2 percent, 4 percent, and 1 percent, respectively, and

**Table 26. Vacant Unit Trends, 2001-2017**

| Vacant Units                 | 2001         | 2017         | Growth       | Ann. %      |
|------------------------------|--------------|--------------|--------------|-------------|
| Aspen to Snowmass Area       | 4,530        | 4,521        | -9           | 0.0%        |
| Basalt Area                  | 326          | 514          | 188          | 2.9%        |
| Carbondale Area              | 545          | 854          | 309          | 2.8%        |
| Glenwood Springs Area        | 335          | 501          | 166          | 2.5%        |
| New Castle to Parachute Area | 608          | 1,507        | 899          | 5.8%        |
| Eagle to Gypsum Area         | 343          | 674          | 331          | 4.3%        |
| <b>Total</b>                 | <b>6,687</b> | <b>8,571</b> | <b>1,884</b> | <b>1.6%</b> |

Source: Economic & Planning Systems  
Y:\Project\DEN\173102-Roaring Fork Valley Regional Housing Needs\Data\173102-DOLA-083118-Version 2.xlsx] Growth Tables

| Vacant Units (as % of Inventory) | 2001       | 2017       | Growth     | Ann. %       |
|----------------------------------|------------|------------|------------|--------------|
| Aspen to Snowmass Area           | 42%        | 39%        | -3%        | -0.5%        |
| Basalt Area                      | 16%        | 17%        | 0%         | 0.2%         |
| Carbondale Area                  | 11%        | 13%        | 2%         | 1.1%         |
| Glenwood Springs Area            | 6%         | 8%         | 2%         | 1.5%         |
| New Castle to Parachute Area     | 7%         | 12%        | 5%         | 3.2%         |
| Eagle to Gypsum Area             | 10%        | 10%        | 1%         | 0.4%         |
| <b>Total</b>                     | <b>19%</b> | <b>18%</b> | <b>-1%</b> | <b>-0.3%</b> |

Source: Economic & Planning Systems  
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<sup>20</sup> Local ownership was defined as when the property owner zip code was among the 19 zip codes used to define the GRFR. Non-local ownership was designated when the property owner zip code was anything other than one of the zip codes defined as the GRFR.

increased slightly for the Eagle to Gypsum and New Castle to Parachute areas (Glenwood Springs was unchanged).

As for total property valuation, nearly 60 percent of new residential property valuation added between 2005 and 2017 was in non-local ownership. The New Castle to Parachute Area added the highest portion of valuation in local ownership (94 percent), followed by Glenwood Springs (86 percent), Carbondale (77 percent), Eagle to Gypsum (76 percent), and Basalt (61 percent). Just 29 percent of new residential property valuation in the Aspen to Snowmass Area was locally-owned (versus 71 percent non-locally owned residential property).

All else being equal, when demand is constant and supply is constrained, the price of housing is pushed higher. This has historically been the case in the region for the past decade and a half. For permanent residents, the prevalence of second homeownership constrains the supply and pushes up prices. Not only does this mean rising property values (property taxes), but for new residents it means locking in greater portions of household income on the cost of housing (new mortgage holders<sup>21</sup>) – both of which are affordability problems.

**Table 27. Non-Local Ownership Trends, 2005-2017**

| Residential Parcels          | 2005          | 2017          | Growth       | Ann. %      |
|------------------------------|---------------|---------------|--------------|-------------|
| Aspen to Snowmass Area       | 9,734         | 10,795        | 1,061        | 0.9%        |
| Basalt Area                  | 2,113         | 2,443         | 330          | 1.2%        |
| Carbondale Area              | 3,528         | 4,205         | 677          | 1.5%        |
| Glenwood Springs Area        | 4,507         | 5,277         | 770          | 1.3%        |
| New Castle to Parachute Area | 9,107         | 11,015        | 1,908        | 1.6%        |
| Eagle to Gypsum Area         | 3,840         | 5,783         | 1,943        | 3.5%        |
| <b>Total</b>                 | <b>32,829</b> | <b>39,518</b> | <b>6,689</b> | <b>1.6%</b> |

Source: Economic & Planning Systems

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| Non-Local Ownership (as % of Total Res. Parcels) | 2005       | 2017       | Growth     | Ann. %       |
|--------------------------------------------------|------------|------------|------------|--------------|
| Aspen to Snowmass Area                           | 53%        | 54%        | 1%         | 0.1%         |
| Basalt Area                                      | 18%        | 22%        | 4%         | 1.6%         |
| Carbondale Area                                  | 16%        | 18%        | 2%         | 1.1%         |
| Glenwood Springs Area                            | 12%        | 12%        | 0%         | 0.1%         |
| New Castle to Parachute Area                     | 15%        | 13%        | -2%        | -1.4%        |
| Eagle to Gypsum Area                             | 26%        | 25%        | -1%        | -0.2%        |
| <b>Total</b>                                     | <b>28%</b> | <b>27%</b> | <b>-1%</b> | <b>-0.2%</b> |

Source: Economic & Planning Systems

Y:\Projects\DEN\173102-Roaring Fork Valley Regional Housing Needs Data\173102-Property Ownership-Version 2.xlsx Growth Tables

<sup>21</sup> An analysis of survey responses indicates that, despite lower mortgage interest rates over time, newer residents are spending much more of their income on housing than those who have been in the region longer.

## Short Term Rentals

Short term rentals (STR) place constraints on housing inventory for the local workforce and residents, exacerbating upward price pressures on housing.<sup>22</sup>

A current snapshot of STRs in the GRFR reveals more than 1,600 listings—more than 3 percent of the region's entire housing stock (i.e. total housing inventory). As expected, a

majority of STRs are located in the Aspen to Snowmass area, with smaller proportions in other areas of the region, ranging from less than 1 percent of total inventory in New Castle to Parachute to an approximately 3 percent of the Carbondale Area's inventory.<sup>23</sup>

**Table 28. Regional Short-Term Rentals**

| Short-Term Rentals (STR)     | Housing Inventory | STRs         | as % of Inventory |
|------------------------------|-------------------|--------------|-------------------|
| Aspen to Snowmass Area       | 11,721            | 1,094        | 9.3%              |
| Basalt Area                  | 3,103             | 75           | 2.4%              |
| Carbondale Area              | 6,672             | 203          | 3.0%              |
| Glenwood Springs Area        | 6,508             | 149          | 2.3%              |
| New Castle to Parachute Area | 12,955            | 28           | 0.2%              |
| Eagle to Gypsum Area         | 6,539             | 68           | 1.0%              |
| <b>Total</b>                 | <b>47,498</b>     | <b>1,617</b> | <b>3.4%</b>       |

Source: Economic & Planning Systems  
Y:\Projects\DEN\173302-Roaring Fork Valley Regional Housing Needs Data\173302-Air DNA-Version 2.xlsx Growth Tables

## Residential Construction Costs

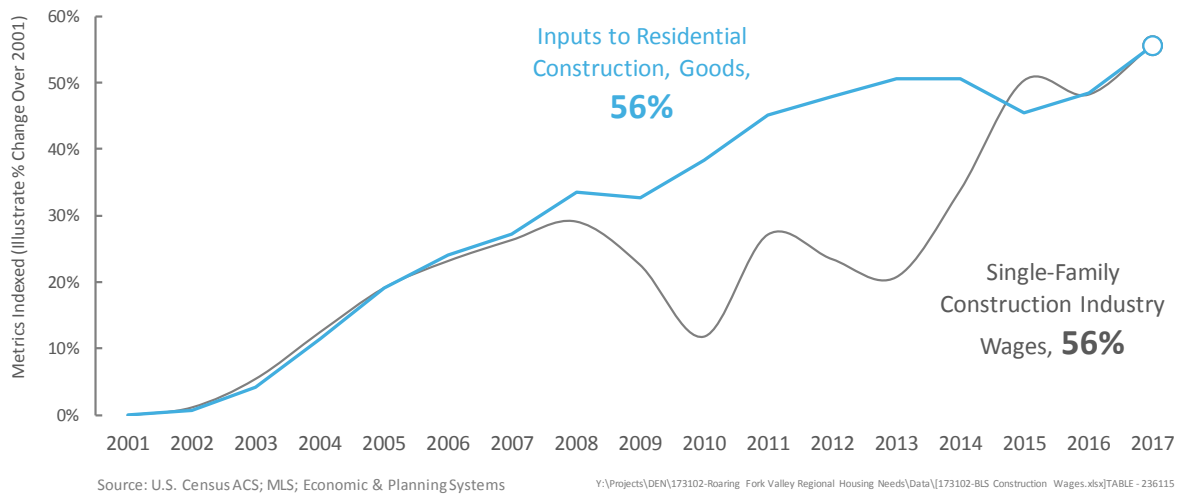
It is frequently overlooked that rising home prices can also be attributed to increases in labor costs and materials. On one hand, increases in the cost of labor benefit households and their spending, but play a role in the escalation of new housing costs.

<sup>22</sup> The term short-term rental (STR) or vacation rental refers to the rental of a furnished home, apartment, or condominium for a "short-term stay." Definitions of "short-term" vary from 5 days or fewer to up to 60 days. STRs can be managed independently by owners or third-party representatives and/or advertised via online platforms such as [www.airbnb.com](http://www.airbnb.com), [www.vrbo.com](http://www.vrbo.com), or others.

<sup>23</sup> Although this study does not delve into a measurement of the impact that STRs have, their impact can be generally understood as a constraint on supply, which under any circumstances (holding all other demand drivers constant) will cause an increase in the price of housing.

Typically, the cost of constructing a house accounts for 55 to 60 percent of the sales price of a home. Of that, approximately half is the cost of materials and half is the cost of labor. Since 2001, the cost of construction materials (utilizing Producer Price Index data from the Bureau of Labor Statistics) has appreciated 56 percent, and the cost of labor for single family home construction has risen between 56 and 69 percent (depending on location within the GRFR).

**Figure 25. Residential Construction Costs**



Additionally, as noted under the demand-side findings, the number of Construction sector jobs dropped considerably during this time (a total loss of 1,300 jobs between 2001 and 2017). Post-recession, nationwide anecdotes abound as to the practice of contractors poaching workers from other construction sites. As a result, wages in the residential construction industry appreciated considerably beyond the appreciation of wages in the wage and salary employment base generally.



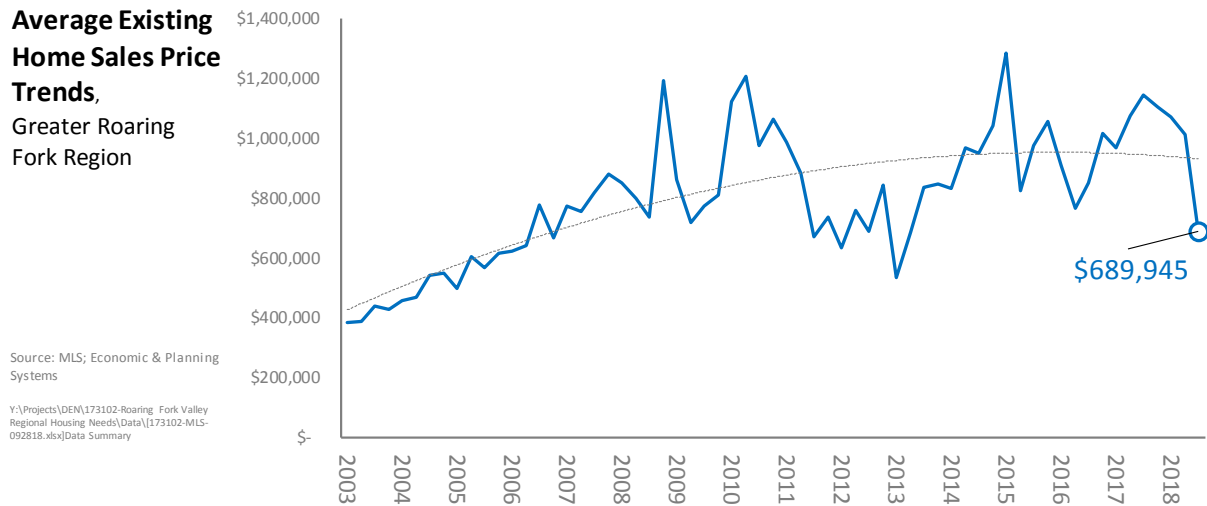
## Housing Affordability Trends

As stated earlier, housing affordability is more than a personal challenge; it's one that leads to negative impacts on a community's economic health and quality of life. Neighborhoods, schools, and a community's heritage and culture can be negatively impacted over time. The economic component, though, follows a constant feedback loop that has negative consequences for the regional economy.

### Prices

What can be said about housing prices that isn't already known? It's unreasonable to think that anyone working an ordinary job could afford to buy a home in Aspen—a market that for the last 40 years has been driven by some of the world's wealthiest households. As nearly everyone is aware, the price of housing varies considerably from area to area within the GRFR.

**Figure 26. GRFR Overall Average Housing Sales Prices**

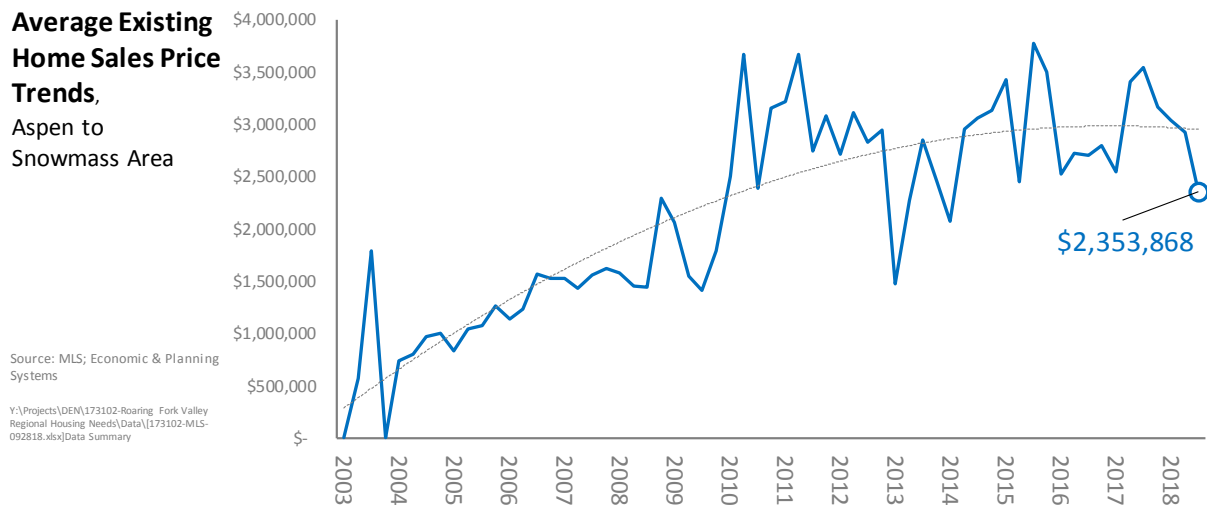


The following **Figure 27** through **Figure 32** illustrate the housing sales price trends of each area of the GRFR. In 2004, Eagle to Gypsum, New Castle to Parachute, and Glenwood Springs average housing sales prices were below \$400,000. As of the end of 2017, only the New Castle to Parachute area offered an average sales price below \$400,000. The markets of Eagle to Gypsum (influenced also by the Vail economy) and Glenwood Springs have average prices of approximately \$540,000, and both Basalt and Carbondale are around \$700,000. The average priced house in the Aspen to Snowmass market is \$2.4 million.

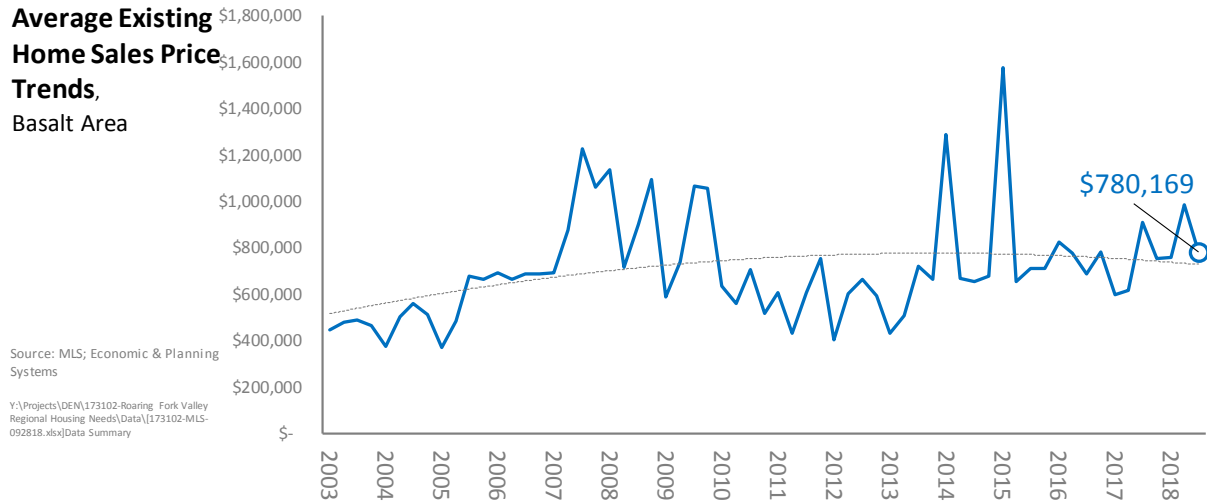
There has been, however, extreme volatility in these markets. In fact, some of the markets in the GRFR are still below their pre-recession peaks. The Eagle to Gypsum market is currently still 8 percent below its average price in 2008. The New Castle to Parachute market is nearly 40 percent below its average pricing during 2008; Glenwood Springs is 12 percent above its 2008 average pricing; Carbondale is 14 percent below; Basalt is 25 percent below; and the Aspen to Snowmass market is more than 100 percent above its 2008 pricing.

This trend tends to confirm why workers look for housing down valley, in what appears to be more stable markets. But there is something alarming about the trends of the past decade and a half. The investor-driven demand (and overbuilding) leading up to 2008 affected the markets that cater largely to working families—Basalt, Carbondale, and Eagle to Gypsum (more will be said about the balance of where in the GRFR worker housing demand is).

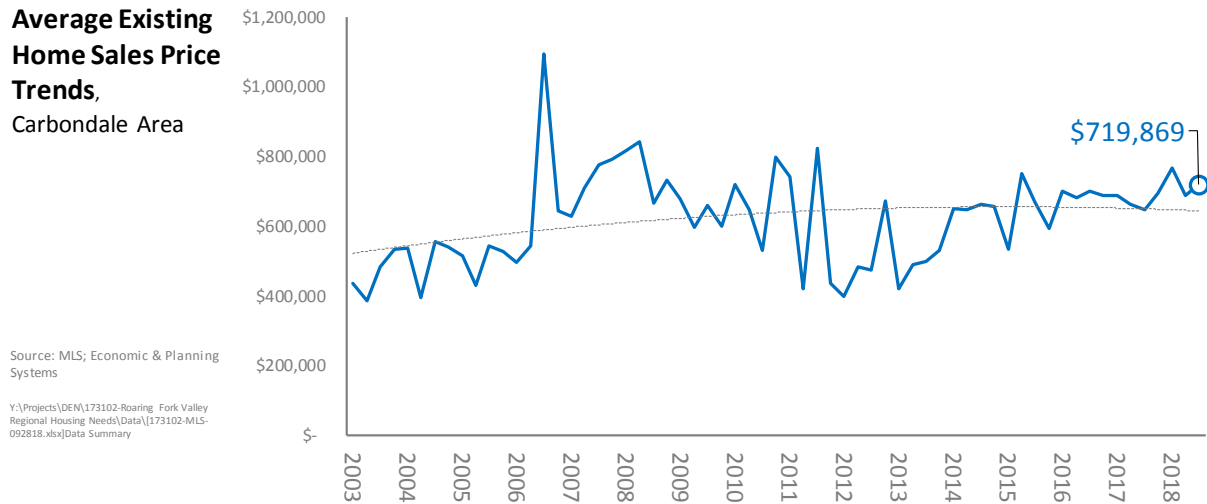
**Figure 27. Aspen to Snowmass Overall Average Housing Sales Prices**



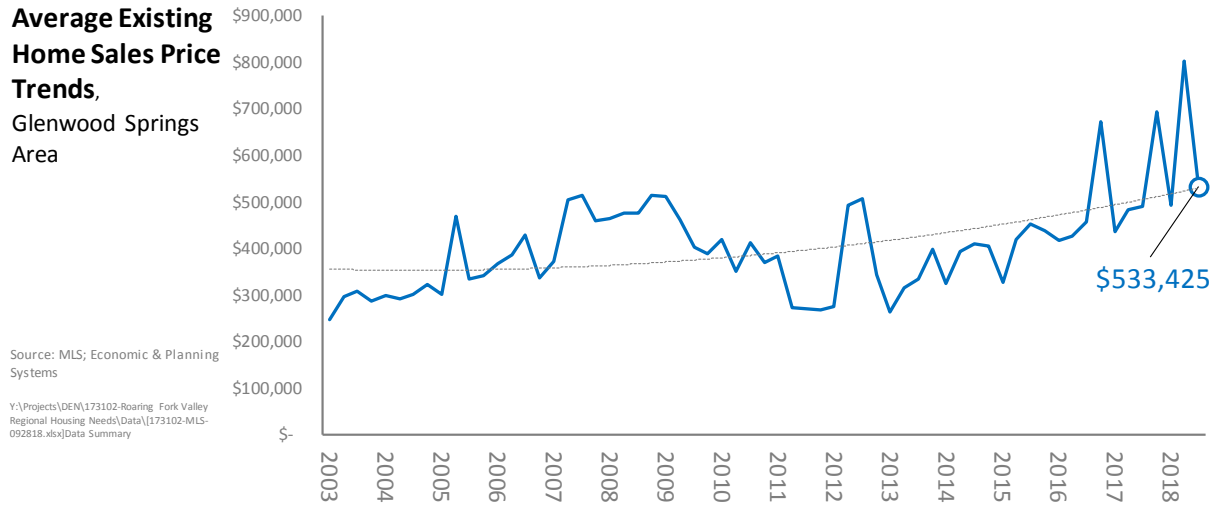
**Figure 28. Basalt Overall Average Housing Sales Prices**



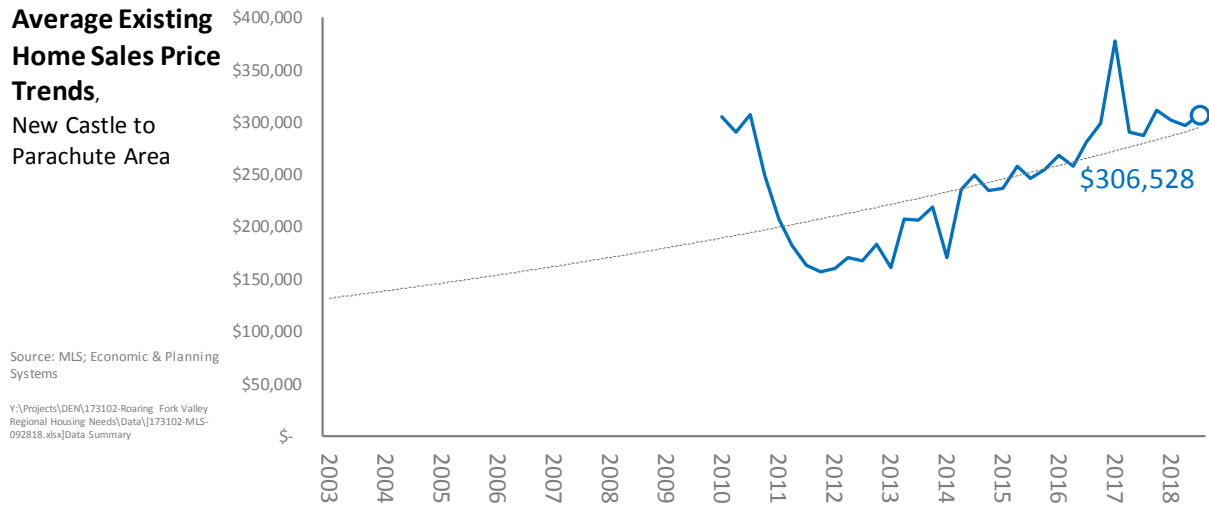
**Figure 29. Carbondale Overall Average Housing Sales Prices**



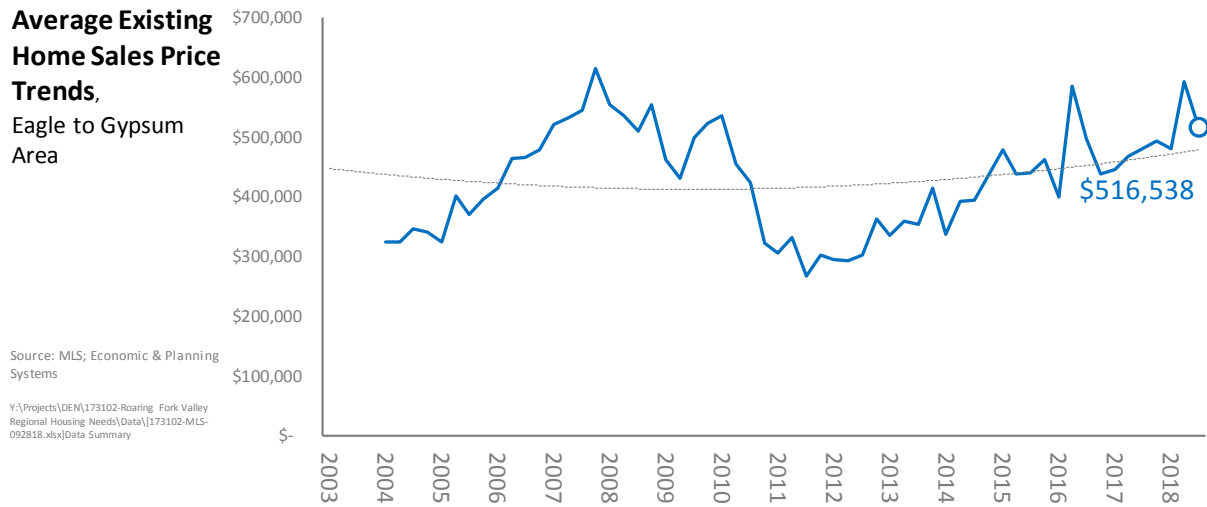
**Figure 30. Glenwood Springs Overall Average Housing Sales Prices**



**Figure 31. New Castle to Parachute Overall Average Housing Sales Prices**



**Figure 32. Eagle to Gypsum Overall Average Housing Sales Prices**



## Affordability Gap

The affordability gap is the difference between the median price of a home sold and what a household (4 persons) earning the median income, using median household income definitions from the Department of Housing and Urban Development, can afford with current underwriting terms.<sup>24</sup> In the following **Table 29** and **Table 30**, the HUD income definitions are illustrated alongside the affordable purchase prices for each of the GRFR areas and affordable maximum rents.

**Table 29. HUD Income Definitions**

| Income Definitions                                                                                                                                            | Eagle to<br>Gypsum | New Castle<br>to Parachute | Glenwood<br>Springs | Carbondale | Basalt    | Aspen to<br>Snowmass |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------|----------------------------|---------------------|------------|-----------|----------------------|
| <b>2000</b>                                                                                                                                                   |                    |                            |                     |            |           |                      |
| HUD AMI                                                                                                                                                       | \$79,600           | \$79,600                   | \$47,400            | \$47,400   | \$47,400  | \$68,100             |
| Less than 60% AMI                                                                                                                                             | \$47,760           | \$47,760                   | \$28,440            | \$28,440   | \$28,440  | \$40,860             |
| 61% to 80% AMI                                                                                                                                                | \$63,680           | \$63,680                   | \$37,920            | \$37,920   | \$37,920  | \$54,480             |
| 81% to 100% AMI                                                                                                                                               | \$79,600           | \$79,600                   | \$47,400            | \$47,400   | \$47,400  | \$68,100             |
| 101% to 120% AMI                                                                                                                                              | \$95,520           | \$95,520                   | \$56,880            | \$56,880   | \$56,880  | \$81,720             |
| 121% to 140% AMI                                                                                                                                              | \$111,440          | \$111,440                  | \$66,360            | \$66,360   | \$66,360  | \$95,340             |
| 141% to 160% AMI                                                                                                                                              | \$127,360          | \$127,360                  | \$75,840            | \$75,840   | \$75,840  | \$108,960            |
| <b>2017</b>                                                                                                                                                   |                    |                            |                     |            |           |                      |
| HUD AMI                                                                                                                                                       | \$98,000           | \$98,000                   | \$70,400            | \$70,400   | \$70,400  | \$89,500             |
| Less than 60% AMI                                                                                                                                             | \$58,800           | \$58,800                   | \$42,240            | \$42,240   | \$42,240  | \$53,700             |
| 61% to 80% AMI                                                                                                                                                | \$78,400           | \$78,400                   | \$56,320            | \$56,320   | \$56,320  | \$71,600             |
| 81% to 100% AMI                                                                                                                                               | \$98,000           | \$98,000                   | \$70,400            | \$70,400   | \$70,400  | \$89,500             |
| 101% to 120% AMI                                                                                                                                              | \$117,600          | \$117,600                  | \$84,480            | \$84,480   | \$84,480  | \$107,400            |
| 121% to 140% AMI                                                                                                                                              | \$137,200          | \$137,200                  | \$98,560            | \$98,560   | \$98,560  | \$125,300            |
| 141% to 160% AMI                                                                                                                                              | \$156,800          | \$156,800                  | \$112,640           | \$112,640  | \$112,640 | \$143,200            |
| Source: Economic & Planning Systems<br>Y:\Projects\DEN\173102-Roaring Fork Valley Regional Housing Needs\Data\173102-AMI Calculations.xlsx\TABLE - AMI Levels |                    |                            |                     |            |           |                      |

<sup>24</sup> The analysis utilizes historic 30-year fixed rate mortgage information from the Federal Reserve Bank of St. Louis, an average property tax mill levy of 52 mills, factors for insurance and utilities, as well as a 10 percent down payment.

**Table 30. Affordable Purchase Prices**

| <b>Affordability Targets</b>                                                                                                                      | <b>Eagle to<br/>Gypsum</b> | <b>New Castle<br/>to Parachute</b> | <b>Glenwood<br/>Springs</b> | <b>Carbondale</b> | <b>Basalt</b> | <b>Aspen to<br/>Snowmass</b> |
|---------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------|------------------------------------|-----------------------------|-------------------|---------------|------------------------------|
| <b>2000</b>                                                                                                                                       |                            |                                    |                             |                   |               |                              |
| HUD AMI                                                                                                                                           | \$79,600                   | \$79,600                           | \$47,400                    | \$47,400          | \$47,400      | \$68,100                     |
| <b><u>Affordable Purchase Price</u></b>                                                                                                           |                            |                                    |                             |                   |               |                              |
| Less than 60% AMI                                                                                                                                 | \$148,200                  | \$148,200                          | \$79,100                    | \$79,100          | \$79,100      | \$123,600                    |
| 61% to 80% AMI                                                                                                                                    | \$205,200                  | \$205,200                          | \$113,000                   | \$113,000         | \$113,000     | \$172,300                    |
| 81% to 100% AMI                                                                                                                                   | \$262,200                  | \$262,200                          | \$147,000                   | \$147,000         | \$147,000     | \$221,000                    |
| 101% to 120% AMI                                                                                                                                  | \$319,100                  | \$319,100                          | \$180,900                   | \$180,900         | \$180,900     | \$269,800                    |
| 121% to 140% AMI                                                                                                                                  | \$376,100                  | \$376,100                          | \$214,800                   | \$214,800         | \$214,800     | \$318,400                    |
| 141% to 160% AMI                                                                                                                                  | \$433,100                  | \$433,100                          | \$248,700                   | \$248,700         | \$248,700     | \$367,200                    |
| <b><u>Affordable Rent</u></b>                                                                                                                     |                            |                                    |                             |                   |               |                              |
| Less than 60% AMI                                                                                                                                 | \$1,194                    | \$1,194                            | \$711                       | \$711             | \$711         | \$1,022                      |
| 61% to 80% AMI                                                                                                                                    | \$1,592                    | \$1,592                            | \$948                       | \$948             | \$948         | \$1,362                      |
| 81% to 100% AMI                                                                                                                                   | \$1,990                    | \$1,990                            | \$1,185                     | \$1,185           | \$1,185       | \$1,703                      |
| 101% to 120% AMI                                                                                                                                  | \$2,388                    | \$2,388                            | \$1,422                     | \$1,422           | \$1,422       | \$2,043                      |
| 121% to 140% AMI                                                                                                                                  | \$2,786                    | \$2,786                            | \$1,659                     | \$1,659           | \$1,659       | \$2,384                      |
| 141% to 160% AMI                                                                                                                                  | \$3,184                    | \$3,184                            | \$1,896                     | \$1,896           | \$1,896       | \$2,724                      |
| <b>2017</b>                                                                                                                                       |                            |                                    |                             |                   |               |                              |
| HUD AMI                                                                                                                                           | \$98,000                   | \$98,000                           | \$70,400                    | \$70,400          | \$70,400      | \$89,500                     |
| <b><u>Affordable Purchase Price</u></b>                                                                                                           |                            |                                    |                             |                   |               |                              |
| Less than 60% AMI                                                                                                                                 | \$288,200                  | \$288,200                          | \$195,400                   | \$195,400         | \$182,800     | \$247,000                    |
| 61% to 80% AMI                                                                                                                                    | \$398,000                  | \$398,000                          | \$274,300                   | \$274,300         | \$261,700     | \$347,200                    |
| 81% to 100% AMI                                                                                                                                   | \$507,800                  | \$507,800                          | \$353,200                   | \$353,200         | \$340,400     | \$447,400                    |
| 101% to 120% AMI                                                                                                                                  | \$617,400                  | \$617,400                          | \$432,000                   | \$432,000         | \$419,300     | \$547,700                    |
| 121% to 140% AMI                                                                                                                                  | \$727,200                  | \$727,200                          | \$510,900                   | \$510,900         | \$498,200     | \$647,900                    |
| 141% to 160% AMI                                                                                                                                  | \$837,000                  | \$837,000                          | \$589,700                   | \$589,700         | \$577,000     | \$748,100                    |
| <b><u>Affordable Rent</u></b>                                                                                                                     |                            |                                    |                             |                   |               |                              |
| Less than 60% AMI                                                                                                                                 | \$1,470                    | \$1,470                            | \$1,056                     | \$1,056           | \$1,056       | \$1,343                      |
| 61% to 80% AMI                                                                                                                                    | \$1,960                    | \$1,960                            | \$1,408                     | \$1,408           | \$1,408       | \$1,790                      |
| 81% to 100% AMI                                                                                                                                   | \$2,450                    | \$2,450                            | \$1,760                     | \$1,760           | \$1,760       | \$2,238                      |
| 101% to 120% AMI                                                                                                                                  | \$2,940                    | \$2,940                            | \$2,112                     | \$2,112           | \$2,112       | \$2,685                      |
| 121% to 140% AMI                                                                                                                                  | \$3,430                    | \$3,430                            | \$2,464                     | \$2,464           | \$2,464       | \$3,133                      |
| 141% to 160% AMI                                                                                                                                  | \$3,920                    | \$3,920                            | \$2,816                     | \$2,816           | \$2,816       | \$3,580                      |
| Source: Economic & Planning Systems<br>Y:\Projects\DEN\173102-Roaring Fork Valley Regional Housing Needs\Data\173102-AMI Calculations.xlsx Sheet3 |                            |                                    |                             |                   |               |                              |

In 2004, when interest on an average 30-year fixed rate mortgage was approximately 6 percent, households in each of the areas of the GRFR had an affordability gap, ranging from approximately \$20,000 for households in Eagle to Gypsum to \$168,000 for households in Carbondale and \$264,000 for households in Aspen, as shown in **Table 31**.

By 2017, although purchasing power had increased with a drop in the interest rate on a 30-year FRM to under 4 percent, the affordability gap still increased in all areas except New Castle to Parachute (where an increase in household incomes has benefitted households). The affordability gap for households in Eagle to Gypsum increased to \$116,000; in Glenwood Springs from \$72,450 to approximately \$148,000; in Carbondale from \$168,000 to \$289,000; and in Basalt from \$52,000 to \$113,000.

**Table 31. Affordability Gaps**

| Affordability Gaps                                                                                                | Eagle to<br>Gypsum | New Castle<br>to Parachute | Glenwood<br>Springs | Carbondale | Basalt     | Aspen to<br>Snowmass |
|-------------------------------------------------------------------------------------------------------------------|--------------------|----------------------------|---------------------|------------|------------|----------------------|
| <b>2000</b>                                                                                                       |                    |                            |                     |            |            |                      |
| Affordable Purchase Price                                                                                         | \$273,000          | \$207,500                  | \$207,500           | \$207,500  | \$358,000  | \$358,000            |
| Median Priced Home                                                                                                | \$292,500          | \$295,000                  | \$279,950           | \$375,000  | \$410,000  | \$621,750            |
| Affordability Gap                                                                                                 | -\$19,500          | -\$87,500                  | -\$72,450           | -\$167,500 | -\$52,000  | -\$263,750           |
| <b>2017</b>                                                                                                       |                    |                            |                     |            |            |                      |
| Affordable Purchase Price                                                                                         | \$404,300          | \$307,600                  | \$307,600           | \$307,600  | \$447,300  | \$447,300            |
| Median Priced Home                                                                                                | \$520,000          | \$299,500                  | \$455,000           | \$596,825  | \$560,000  | \$1,800,000          |
| Affordability Gap                                                                                                 | -\$115,700         | \$8,100                    | -\$147,400          | -\$289,225 | -\$112,700 | -\$1,352,700         |
| <b>2004 to 2017 Change</b>                                                                                        |                    |                            |                     |            |            |                      |
| Affordable Purchase Price                                                                                         | \$131,300          | \$100,100                  | \$100,100           | \$100,100  | \$89,300   | \$89,300             |
| Median Priced Home                                                                                                | \$227,500          | \$4,500                    | \$175,050           | \$221,825  | \$150,000  | \$1,178,250          |
| Affordability Gap                                                                                                 | -\$96,200          | \$95,600                   | -\$74,950           | -\$121,725 | -\$60,700  | -\$1,088,950         |
| Source: Economic & Planning Systems                                                                               |                    |                            |                     |            |            |                      |
| Y:\Projects\IDEN\173102-Roaring Fork Valley Regional Housing Needs\Data\173102-Housing Gaps-Version 2.xlsx\Sheet2 |                    |                            |                     |            |            |                      |

Given the recent upward trajectory of the Federal Reserve's overnight borrowing rate, it is easy to imagine mortgage interest rates rising higher over the next decade. Although forecasting is filled with uncertainty, a projection of house prices and incomes along their current paths illustrates the growing threat of ever-expanding affordability gaps.



## Commuting Patterns

In total, more than 26,000 workers cross paths on the roads in the region every day. The following tables and maps illustrate the magnitude of this cross-commuting within the region.

### Aspen to Snowmass Area

In 2015 (the most recent year for which cross-commuting pattern data were available from the U.S. Census), just over a third of the area's entire local workforce (15,600 jobs) was local labor. More than 60 percent of the workforce is made up of in-commuters. Although it is estimated that there are approximately 5,700 local resident/workers, there are another nearly 2,500 employed residents that commute out for their jobs.

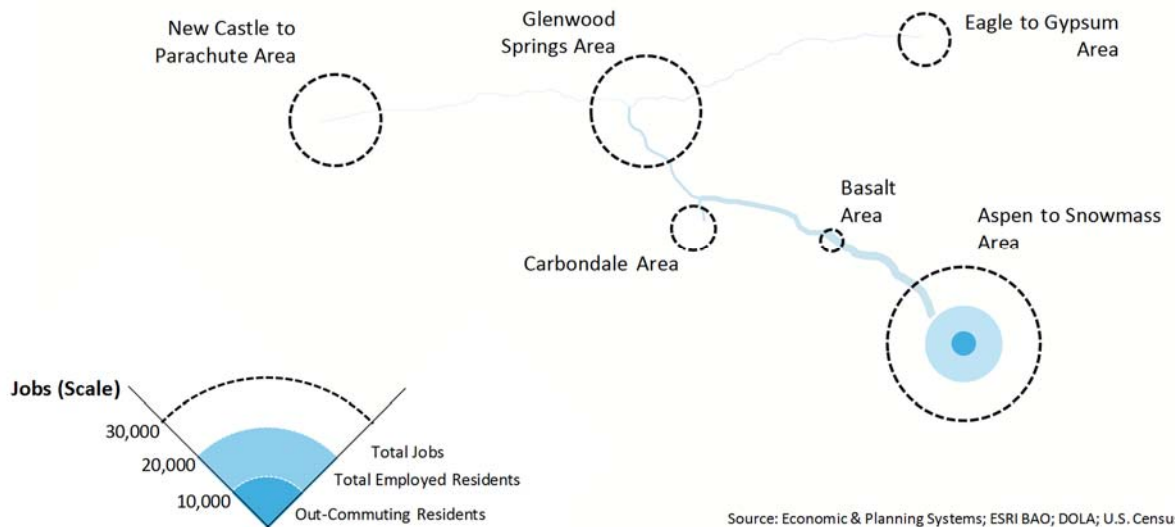
**Table 32. Aspen to Snowmass Out-Commuting Patterns**

| Aspen to Snowmass Area          | 2015         | as %       |
|---------------------------------|--------------|------------|
| Total local jobs                | 15,605       | 100%       |
| Local residents / Local workers | 5,692        | 36%        |
| <b>In-commuters</b>             | <b>9,913</b> | <b>64%</b> |
| Total working residents         | 8,157        | 100%       |
| Local residents / Local workers | 5,692        | 70%        |
| <b>Out-commuters</b>            | <b>2,465</b> | <b>30%</b> |

Source: Economic & Planning Systems

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**Figure 33. Aspen to Snowmass Out-Commuting Patterns**



Source: Economic & Planning Systems; ESRI BAO; DOLA; U.S. Census

### Basalt Area

In 2015, there were approximately 2,200 jobs in the Basalt Area, only 15 percent of which were filled by local resident/workers. In-commuters accounted for a massive 85 percent of the local jobs. On the other hand, there were an estimated 3,200 working residents of the Basalt Area, 90 percent of whom commuted out to jobs elsewhere in the region.

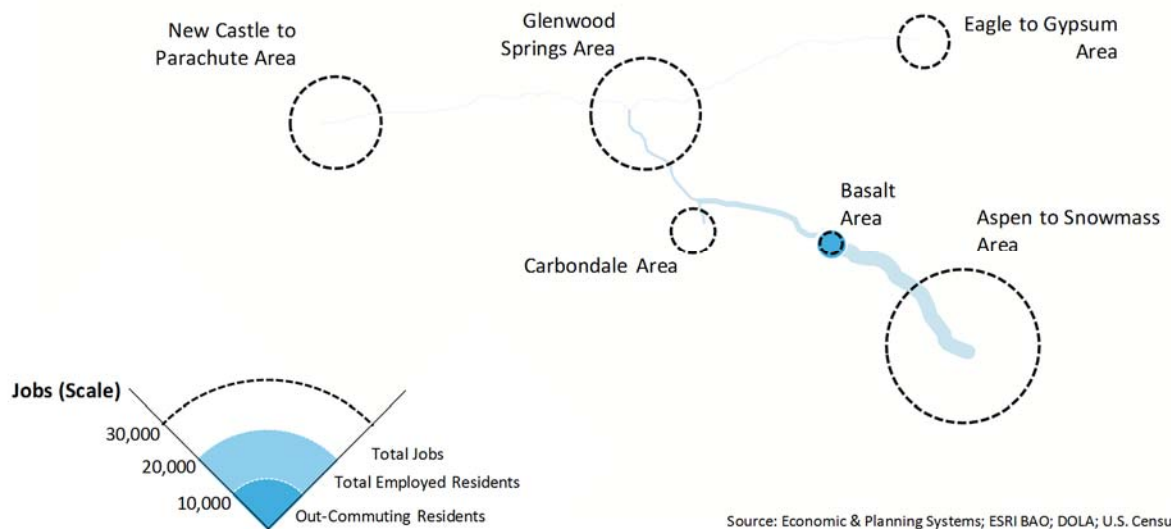
**Table 33. Basalt Area Out-Commuting Patterns**

| Basalt Area                     | 2015         | as %       |
|---------------------------------|--------------|------------|
| Total local jobs                | 2,241        | 100%       |
| Local residents / Local workers | 329          | 15%        |
| <b>In-commuters</b>             | <b>1,912</b> | <b>85%</b> |
| Total working residents         | 3,171        | 100%       |
| Local residents / Local workers | 329          | 10%        |
| <b>Out-commuters</b>            | <b>2,842</b> | <b>90%</b> |

Source: Economic & Planning Systems

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**Figure 34. Basalt Area Out-Commuting Patterns**



Source: Economic & Planning Systems; ESRI BAO; DOLA; U.S. Census

### Carbondale Area

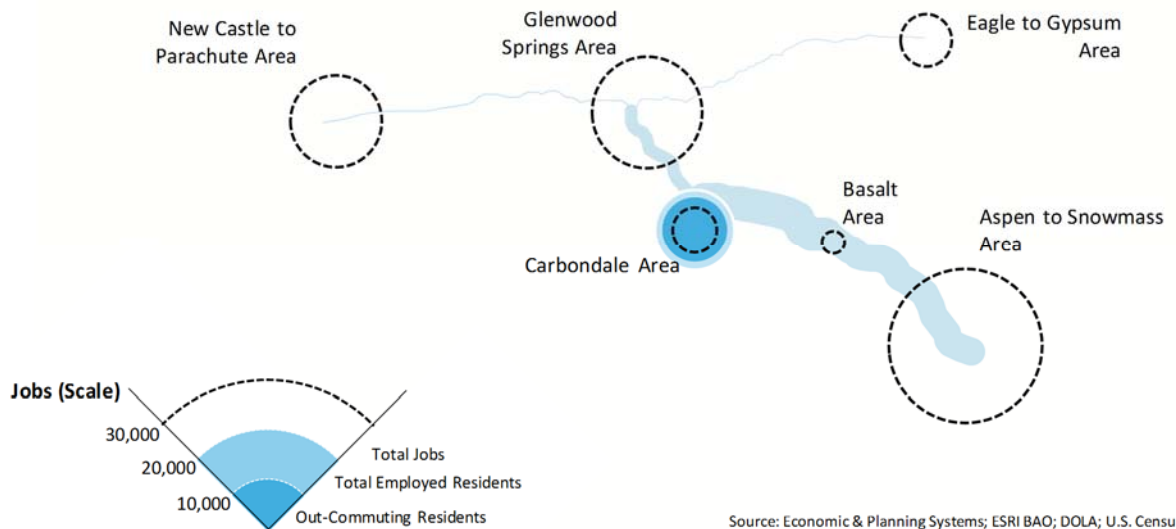
In 2015, it is estimated that there were approximately 4,600 jobs in the Carbondale Area, 35 percent of which were filled by local residents and 65 percent of which were filled by in-commuters. Characteristic of a community that has historically been more of a bedroom community than an employment center (although it has twice as many jobs as the Basalt Area), there are 8,200 employed residents in the Carbondale Area, 80 percent of whom commute somewhere else in the region for their jobs.

**Table 34. Carbondale Area Out-Commuting Patterns**

| Carbondale Area                 | 2015         | as %       |
|---------------------------------|--------------|------------|
| Total local jobs                | 4,594        | 100%       |
| Local residents / Local workers | 1,598        | 35%        |
| <b>In-commuters</b>             | <b>2,996</b> | <b>65%</b> |
| Total working residents         | 8,219        | 100%       |
| Local residents / Local workers | 1,598        | 19%        |
| <b>Out-commuters</b>            | <b>6,621</b> | <b>81%</b> |

Source: Economic & Planning Systems  
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**Figure 35. Carbondale Area Out-Commuting Patterns**



### Glenwood Springs Area

In 2015, there were an estimated 11,200 jobs in the Glenwood Springs Area, 35 percent of whom were local resident/workers, and 65 percent of which were filled by in-commuters. In the local labor force, however, there were an estimated 8,800 employed residents, more than 55 percent of whom commuted somewhere else for their jobs.

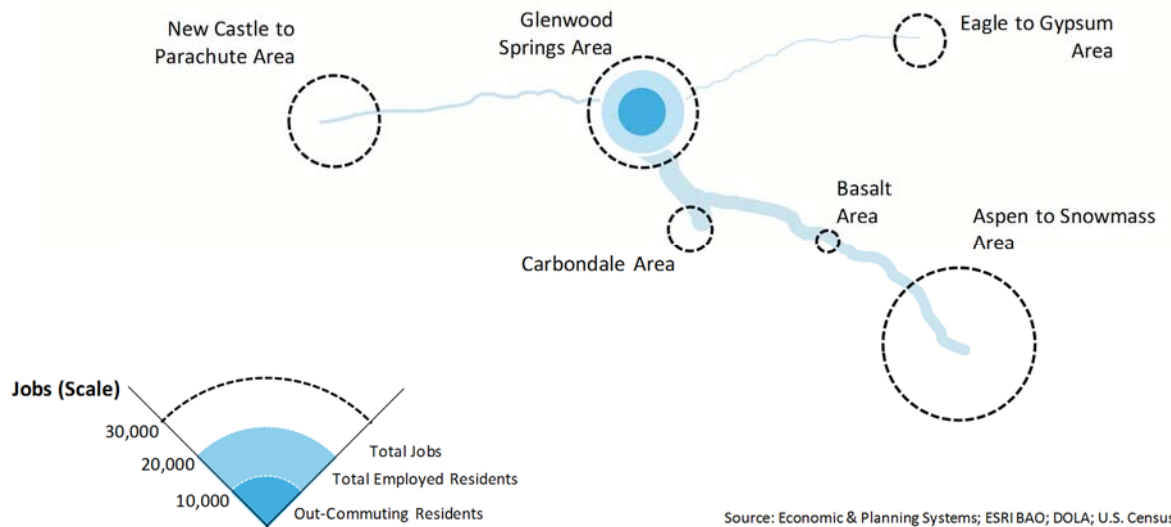
**Table 35. Glenwood Springs Area Out-Commuting Patterns**

| Glenwood Springs                | 2015         | as %       |
|---------------------------------|--------------|------------|
| Total local jobs                | 11,236       | 100%       |
| Local residents / Local workers | 3,905        | 35%        |
| <b>In-commuters</b>             | <b>7,331</b> | <b>65%</b> |
| Total working residents         | 8,798        | 100%       |
| Local residents / Local workers | 3,905        | 44%        |
| <b>Out-commuters</b>            | <b>4,893</b> | <b>56%</b> |

Source: Economic & Planning Systems

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**Figure 36. Glenwood Springs Out-Commuting Patterns**



Source: Economic & Planning Systems; ESRI BAO; DOLA; U.S. Census

### New Castle to Parachute Area

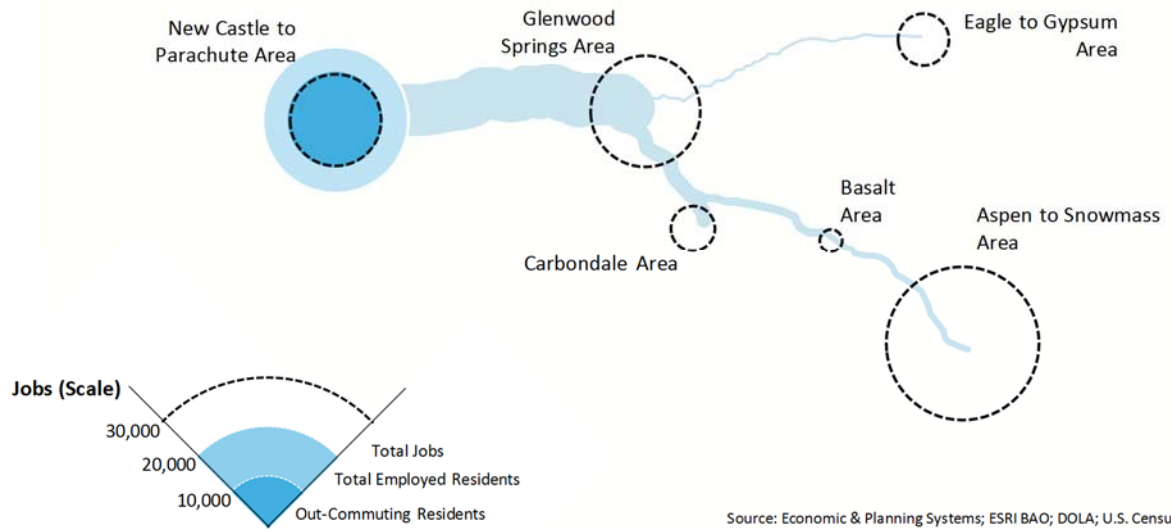
In 2015, there were an estimated 9,300 jobs in the New Castle to Parachute Area, more than 55 percent of residents live and work in the area, and slightly less than 45 percent commute in from elsewhere. Similar to the bedroom community dynamic of the Carbondale Area, this area contains significantly more employed residents than are necessary for its workforce. The area has 14,900 employed residents, 65 percent of whom commute somewhere else in the region (as well as to extra-regional locations, such as Grand Junction).

**Table 36. New Castle to Parachute Area Out-Commuting Patterns**

| New Castle to Parachute         | 2015         | as %       |
|---------------------------------|--------------|------------|
| Total local jobs                | 9,256        | 100%       |
| Local residents / Local workers | 5,166        | 56%        |
| <b>In-commuters</b>             | <b>4,090</b> | <b>44%</b> |
| Total working residents         | 14,909       | 100%       |
| Local residents / Local workers | 5,166        | 35%        |
| <b>Out-commuters</b>            | <b>9,743</b> | <b>65%</b> |

Source: Economic & Planning Systems  
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**Figure 37. New Castle to Parachute Area Out-Commuting Patterns**



Source: Economic & Planning Systems; ESRI BAO; DOLA; U.S. Census

### Eagle to Gypsum Area

In 2015, there were an estimated 5,300 jobs in the Eagle to Gypsum Area, approximately 40 percent of residents lived and worked in the area, and more than 60 percent of which commuted in from elsewhere. The ratio of local jobs to local employed residents is nearly one-to-one; however, nearly 65 percent of these employed local residents commute somewhere else for work (within the region, to Vail, or to Grand Junction).

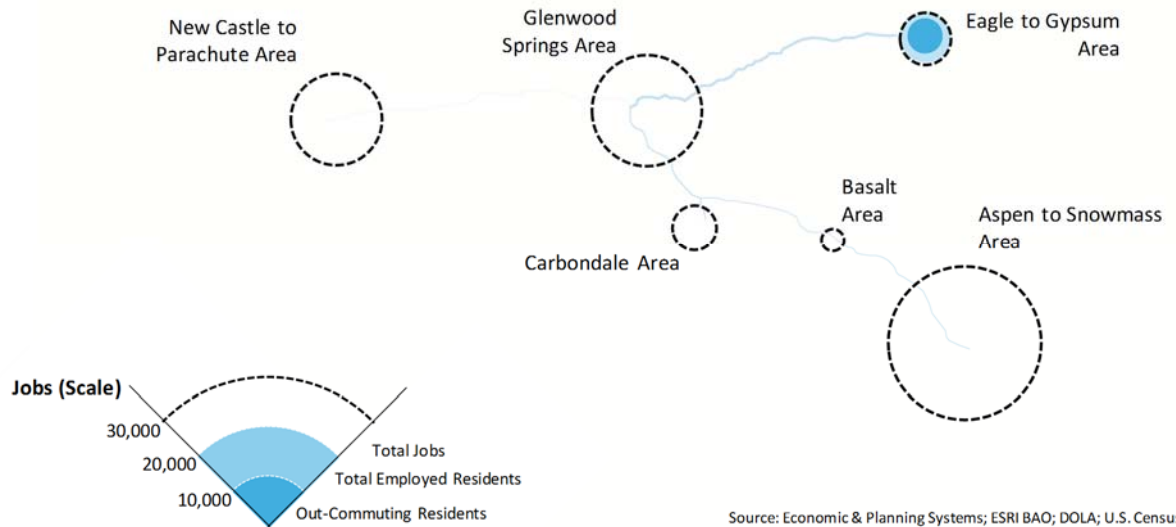
**Table 37. Eagle to Gypsum Area Out-Commuting Patterns**

| Eagle to Gypsum Area            | 2015         | as %       |
|---------------------------------|--------------|------------|
| Total local jobs                | 5,324        | 100%       |
| Local residents / Local workers | 1,976        | 37%        |
| <b>In-commuters</b>             | <b>3,348</b> | <b>63%</b> |
| <hr/>                           |              |            |
| Total working residents         | 5,518        | 100%       |
| Local residents / Local workers | 1,976        | 36%        |
| <b>Out-commuters</b>            | <b>3,542</b> | <b>64%</b> |

Source: Economic & Planning Systems

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**Figure 38. Eagle to Gypsum Area Out-Commuting Patterns**



Source: Economic & Planning Systems; ESRI BAO; DOLA; U.S. Census

On the surface, these trends imply greater wear and tear on the region's roads. At a deeper level, this points directly to a quality of life and sustainability problem. The economic demand drivers of the GRFR, i.e. limited land, land and housing values, ownership patterns, business sectors that cater to the visitor economy, prevalence of short-term rentals, etc., suggest an economic infrastructure that cannot easily be changed.

## Jobs to Population

As mentioned at the beginning of this commuting data section, the preceding tables and maps illustrate the location and magnitude of cross-commuting that occurs daily in the GRFR (a magnitude of more than 26,000 workers crossing paths on the region's roads). Comparing the population and employment by area, shown here in **Figure 39**, reveals the same order of magnitude—i.e. that those cross-commuting patterns of 26,000 workers are accounting for approximately 29,000 jobs.

It is estimated that nearly 47 percent of the regional population holds a job (primarily in the region), and that the portion of jobs in the region is roughly equivalent, also approximately 48,000 (note that this number is derived from U.S. Census commuting data and is slightly lower than the Department of Labor information reported previously). Analysis, however, indicates that only 18 percent of the jobs are held by workers who live locally.

**Table 38. Jobs to Population**

| Population and Employment    | Pop.           | Emp'd Pop     | Total Jobs    | Locally-Emp'd |
|------------------------------|----------------|---------------|---------------|---------------|
| Aspen to Snowmass Area       | 14,866         | 8,157         | 15,605        | 5,692         |
| Basalt Area                  | 6,440          | 3,171         | 2,241         | 329           |
| Carbondale Area              | 16,182         | 8,219         | 4,594         | 1,598         |
| Glenwood Springs Area        | 16,026         | 8,798         | 11,236        | 3,905         |
| New Castle to Parachute Area | 32,391         | 14,909        | 9,256         | 5,166         |
| Eagle to Gypsum Area         | 17,235         | 5,518         | 5,324         | 1,976         |
| <b>Total</b>                 | <b>103,139</b> | <b>48,772</b> | <b>48,256</b> | <b>18,666</b> |
| as % of Pop.                 | 100%           | 47%           | 47%           | 18%           |

Source: Economic & Planning Systems

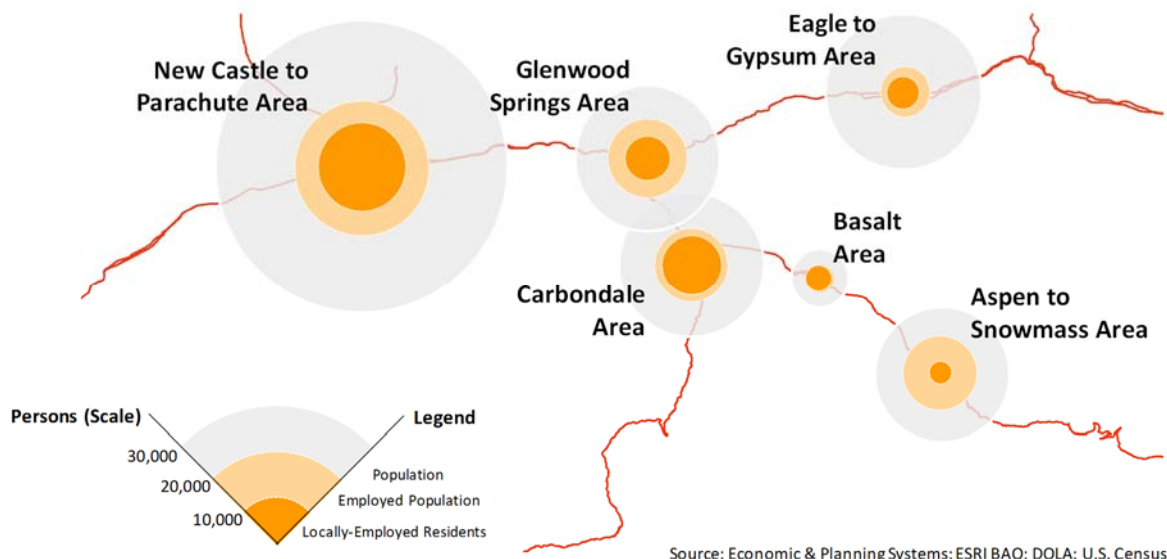
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| Population and Employment    | Pop.        | Emp'd Pop  | Total Jobs | Locally-Emp'd |
|------------------------------|-------------|------------|------------|---------------|
| Aspen to Snowmass Area       | 100%        | 55%        | 105%       | 38%           |
| Basalt Area                  | 100%        | 49%        | 35%        | 5%            |
| Carbondale Area              | 100%        | 51%        | 28%        | 10%           |
| Glenwood Springs Area        | 100%        | 55%        | 70%        | 24%           |
| New Castle to Parachute Area | 100%        | 46%        | 29%        | 16%           |
| Eagle to Gypsum Area         | 100%        | 32%        | 31%        | 11%           |
| <b>Total</b>                 | <b>100%</b> | <b>47%</b> | <b>47%</b> | <b>18%</b>    |

Source: Economic & Planning Systems

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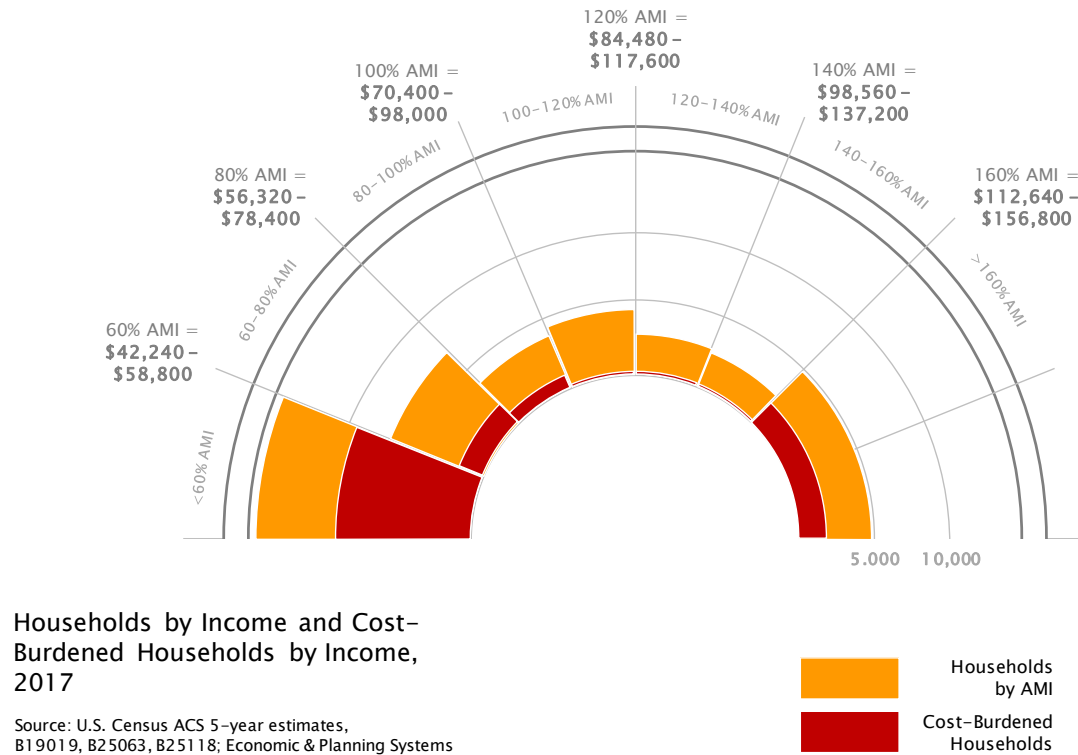
**Figure 39. Population, Employed Population, and Locally-Employed Population**



## How much does this affect the economy?

When a household spends more than 30 percent of its income on mortgage or rent, it is characterized as being “cost-burdened.” Although some households choose to spend more than this for a variety of reasons, the economic impact of “overspending” cannot be overlooked.

**Figure 40. Cost-Burdened Households in GRFR, 2017**





**Table 39. Cost-Burdened Households in GRFR by Area, 2017**

| <b>Cost Burden, 2017</b>                                                                                                                     | <b>Eagle to<br/>Gypsum</b> | <b>New Castle<br/>to Parachute</b> | <b>Glenwood<br/>Springs</b> | <b>Carbondale</b> | <b>Basalt</b> | <b>Aspen to<br/>Snowmass</b> | <b>Regional</b> |
|----------------------------------------------------------------------------------------------------------------------------------------------|----------------------------|------------------------------------|-----------------------------|-------------------|---------------|------------------------------|-----------------|
| <b><u>Cost-Burdened Households</u></b>                                                                                                       |                            |                                    |                             |                   |               |                              |                 |
| Less than 60% AMI                                                                                                                            | 1,399                      | 2,762                              | 1,470                       | 1,366             | 575           | 1,595                        | 9,167           |
| 61% to 80% AMI                                                                                                                               | 311                        | 487                                | 326                         | 305               | 95            | 252                          | 1,775           |
| 81% to 100% AMI                                                                                                                              | 30                         | 346                                | 247                         | 239               | 22            | 48                           | 932             |
| 101% to 120% AMI                                                                                                                             | 30                         | 16                                 | 25                          | 22                | 22            | 48                           | 162             |
| 121% to 140% AMI                                                                                                                             | 30                         | 16                                 | 25                          | 22                | 22            | 48                           | 162             |
| 141% to 160% AMI                                                                                                                             | 30                         | 16                                 | 25                          | 22                | 22            | 48                           | 162             |
| Greater than 160% AMI                                                                                                                        | 289                        | 239                                | 357                         | 312               | 181           | 390                          | 1,769           |
| <b>Subtotal Households</b>                                                                                                                   | <b>2,117</b>               | <b>3,883</b>                       | <b>2,475</b>                | <b>2,286</b>      | <b>939</b>    | <b>2,429</b>                 | <b>14,129</b>   |
| <b><u>All Households</u></b>                                                                                                                 |                            |                                    |                             |                   |               |                              |                 |
| Less than 60% AMI                                                                                                                            | 1,807                      | 3,799                              | 1,922                       | 1,652             | 849           | 2,861                        | 12,889          |
| 61% to 80% AMI                                                                                                                               | 793                        | 1,333                              | 703                         | 604               | 439           | 1,048                        | 4,919           |
| 81% to 100% AMI                                                                                                                              | 524                        | 1,269                              | 635                         | 650               | 404           | 703                          | 4,185           |
| 101% to 120% AMI                                                                                                                             | 503                        | 1,096                              | 597                         | 528               | 186           | 496                          | 3,406           |
| 121% to 140% AMI                                                                                                                             | 563                        | 1,012                              | 579                         | 469               | 161           | 473                          | 3,256           |
| 141% to 160% AMI                                                                                                                             | 563                        | 547                                | 252                         | 338               | 126           | 371                          | 2,197           |
| Greater than 160% AMI                                                                                                                        | 1,111                      | 2,392                              | 1,319                       | 1,579             | 425           | 1,248                        | 8,074           |
| <b>Total Households</b>                                                                                                                      | <b>5,865</b>               | <b>11,448</b>                      | <b>6,007</b>                | <b>5,818</b>      | <b>2,588</b>  | <b>7,201</b>                 | <b>38,927</b>   |
| <b><u>Cost-Burdened as % of Total</u></b>                                                                                                    |                            |                                    |                             |                   |               |                              |                 |
| Less than 60% AMI                                                                                                                            | 77%                        | 73%                                | 76%                         | 83%               | 68%           | 56%                          | 71%             |
| 61% to 80% AMI                                                                                                                               | 39%                        | 37%                                | 46%                         | 50%               | 22%           | 24%                          | 36%             |
| 81% to 100% AMI                                                                                                                              | 6%                         | 27%                                | 39%                         | 37%               | 5%            | 7%                           | 22%             |
| 101% to 120% AMI                                                                                                                             | 6%                         | 2%                                 | 4%                          | 4%                | 12%           | 10%                          | 5%              |
| 121% to 140% AMI                                                                                                                             | 5%                         | 2%                                 | 4%                          | 5%                | 14%           | 10%                          | 5%              |
| 141% to 160% AMI                                                                                                                             | 5%                         | 3%                                 | 10%                         | 6%                | 18%           | 13%                          | 7%              |
| Greater than 160% AMI                                                                                                                        | 26%                        | 10%                                | 27%                         | 20%               | 43%           | 31%                          | 22%             |
| <b>Subtotal Households</b>                                                                                                                   | <b>36%</b>                 | <b>34%</b>                         | <b>41%</b>                  | <b>39%</b>        | <b>36%</b>    | <b>34%</b>                   | <b>36%</b>      |
| Source: Economic & Planning Systems                                                                                                          |                            |                                    |                             |                   |               |                              |                 |
| Y:\Projects\DEN\173102-Roaring Fork Valley Regional Housing Needs\Data\173102-Housing Costs as Percent Income by Tract-Version 2.xlsx\Sheet2 |                            |                                    |                             |                   |               |                              |                 |

In the GRFR, it is estimated that overspending amounted to approximately \$54 million in 2017, averaging \$320 per month for each of the 14,100 cost-burdened households in the region. Layering the analysis of owners with and without a mortgage also illustrates a growing problem (again, in spite of the supposedly beneficial trend of lower mortgage interest rates) that over the last decade and a half, approximately 40 percent of all new owner households in the region are cost-burdened.

The macroeconomic implication is that this \$320 per month could be spent differently and recirculate through the regional economy. Household discretionary spending typically accounts for a much larger portion of regional economic activity than that which is derived from mortgage payments, the economic benefits of which accrue largely outside the region.<sup>25</sup>

**Table 40. Economic Impact of Overspending, 2017**

| Economic Impact of Cost Burden, 2017   | Eagle to Gypsum    | New Castle to Parachute | Glenwood Springs   | Carbondale         | Basalt             | Aspen to Snowmass   | Regional            |
|----------------------------------------|--------------------|-------------------------|--------------------|--------------------|--------------------|---------------------|---------------------|
| <b><u>Overspending</u></b>             |                    |                         |                    |                    |                    |                     |                     |
| Owner Households                       | \$6,026,876        | \$6,810,810             | \$5,744,398        | \$5,982,059        | \$3,331,465        | \$6,152,412         | \$34,048,021        |
| Renter Households                      | \$2,818,782        | \$4,530,871             | \$3,943,572        | \$1,781,000        | \$1,268,688        | \$5,528,696         | \$19,871,610        |
| <b>Total Overspending</b>              | <b>\$8,845,658</b> | <b>\$11,341,681</b>     | <b>\$9,687,970</b> | <b>\$7,763,059</b> | <b>\$4,600,154</b> | <b>\$11,681,109</b> | <b>\$53,919,631</b> |
| <b><u>Cost-Burdened Households</u></b> |                    |                         |                    |                    |                    |                     |                     |
| Owner Households                       | 1,317              | 2,380                   | 1,322              | 1,541              | 681                | 1,403               | 8,645               |
| Renter Households                      | 800                | 1,503                   | 1,152              | 745                | 259                | 1,026               | 5,484               |
| <b>Subtotal Households</b>             | <b>2,117</b>       | <b>3,883</b>            | <b>2,475</b>       | <b>2,286</b>       | <b>939</b>         | <b>2,429</b>        | <b>14,129</b>       |
| <b><u>Monthly Overspending</u></b>     |                    |                         |                    |                    |                    |                     |                     |
| Owner Households                       | \$381              | \$238                   | \$362              | \$323              | \$408              | \$365               | \$328               |
| Renter Households                      | \$294              | \$251                   | \$285              | \$199              | \$409              | \$449               | \$302               |
| <b>Subtotal Households</b>             | <b>\$348</b>       | <b>\$243</b>            | <b>\$326</b>       | <b>\$283</b>       | <b>\$408</b>       | <b>\$401</b>        | <b>\$318</b>        |

Source: Economic & Planning Systems  
Y:\Projects\DEN\173102-Roaring Fork Valley Regional Housing Needs\Data\173102-Housing Costs as Percent Income by Tract-Version 2.xlsx\Sheet3

<sup>25</sup> While a downstream analysis of “where” these dollars go (e.g. local versus non-local landlords or local versus non-local mortgage bond holders) is not possible without rigorous and proprietary data collection, it is understood that these dollars would be spent on a different array of goods and services benefitting not only local households’ quality of life but also benefitting the local economy.

## 3. Household Survey

### Introduction

This section provides a summary of the results from the 2018 Roaring Fork/Colorado River Valley/Eagle County Household Survey that was conducted during late winter and spring 2018. A series of graphs illustrate key findings from the study concerning household characteristics, household income, housing cost, and housing preferences and satisfaction. In addition, the survey results have been presented in a series of Appendices to this report that are provided under separate cover. The Appendix tables serve as a technical summary of findings; they break survey responses down by various segments of responses including whether the household is an owner or renter (tenure), as well as other attributes including the geographic location of the residents in the study area, income, and length of time residing in the region.

Survey Distribution. Survey packets were mailed to a random sampling of households located between Aspen and Parachute/Battlement Mesa along the Roaring Fork/Colorado River valleys, as well as to residents of Eagle County located between Eagle and Dotsero. The mailing list was purchased from a commercial vendor and provides a relatively current source of addresses that included owner and renter households. The mailed packet consisted of a cover letter (explaining options to complete the survey, including on-line in either English or Spanish), a paper survey, and a postage paid return envelope. Additionally, the survey included an invitation to participate in a prize drawing for one of 10 \$50 grocery store gift certificates. That prize drawing message was presented on a small slip of paper separate from the survey form in order to preserve the anonymity of respondents.

Survey Responses. The sample consisted of 6,000 surveys sent, with a total of 273 surveys returned as undeliverable. The mailing resulted in 948 returned paper forms (including 6 Spanish language surveys), an overall response rate of 16.5% based on delivered surveys. Additionally, the survey was publicized via Facebook in the valleys with ads in English and Spanish. A total of 100 surveys were completed based on the Facebook invitations. Finally, an “open link” version of the survey was made available throughout the study area with ads, public notices and some advertising. As summarized below, the open invitation version of the survey resulted in 1,063 responses.

The mailed invitation segment of survey responses was obtained through random distribution and as a result, confidence intervals have been estimated for that set of survey respondents. The 95 percent confidence interval for a sample of 948 is +/-3.0 percentage points (larger for subgroups of respondents and questions with smaller sample sizes). The responses from the Facebook and Open Invitation

sources were not obtained through random sampling and as a result, confidence intervals were not calculated for these subgroups. It is noted that survey responses from all sources of survey distribution have been compared and are similar.

#### Survey Responses by Source

Mailed Invitation to Random Sample: 948

Facebook Invitation 100

Open Invitation 1,063

TOTAL RESPONSES 2,111

Weighting of the Data. The survey results were weighted on the basis of household income, housing tenure (own/rent), and zip code of residence to enhance representativeness. Household income by housing tenure by zip code was derived from US Census American Community Survey (ACS) 2012-16 five-year data, adjusted forward to 2018 on the basis of the 2016-18 change in the QCEW employment series average weekly wage. Geographic distributions of households by zip were based on the ACS 2012-16 five-year data. Housing tenure by zip was based on the 2010 Decennial Census. As a result of the weighting, the results have been made representative of the distribution of households on the basis of place of residence, housing tenure, and household income, both within each zip in the study area, and across zips in the study area.

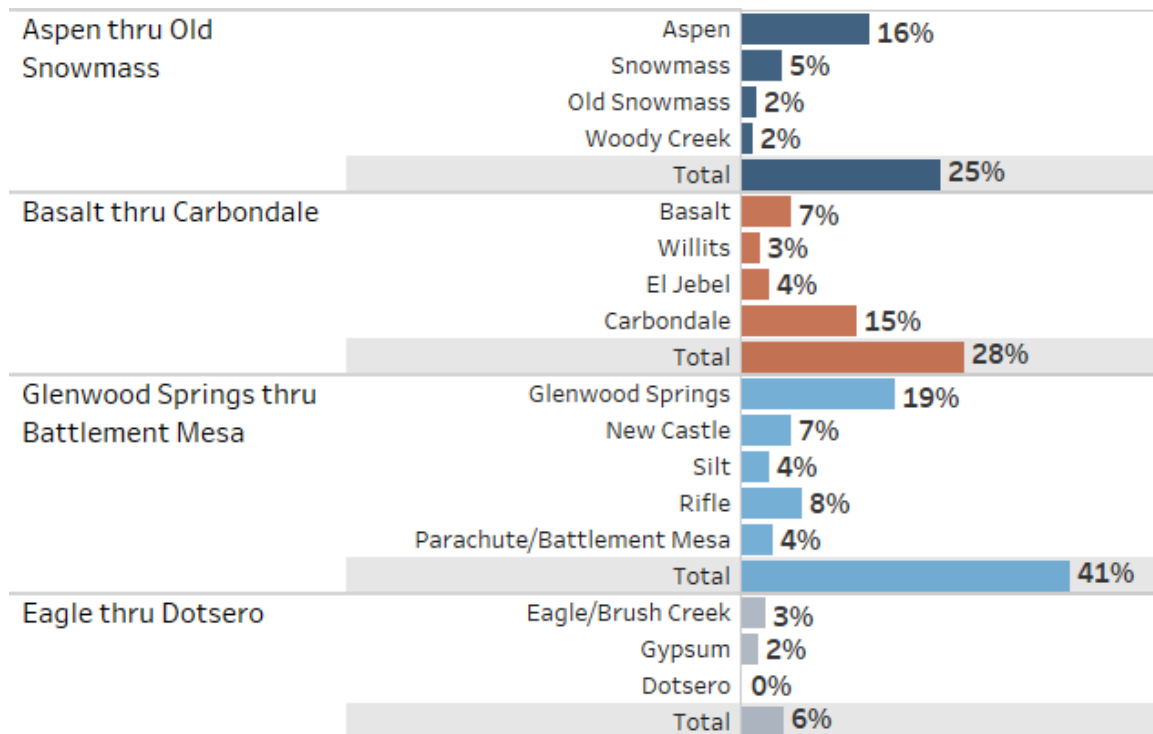
Analysis of the Survey Results. The survey results provide a large data set that can be analyzed in a variety of ways. The consultant team considers the Mailed Invitation pool of responses to be most representative of regional households. However, because the results from the Facebook and Open Invitation segments of the sample closely resemble the random sample, the entire set of responses have been combined for much of this report. The sample is sufficiently large to permit analysis based on geographic subareas of the region, as well as by individual communities. The following discussion is primarily oriented around graphs that portray the "Overall" set of responses, as well as responses from four distinct geographic subareas based on zip codes of respondents: Aspen through Old Snowmass, Basalt through Carbondale, Glenwood Springs through Battlement Mesa/Parachute, and Eagle through Dotsero.

## Respondent Characteristics

The survey contained a series of questions designed to characterize household demographics as well as other background information. Results are portrayed in a series of graphs.

### Place of Residence of Respondents, Grouping of Respondents by Area.

The survey contained a zip code identification and additionally respondents were asked where they live now? These results were then regrouped into four primary subareas as shown below. The majority of the discussion in this report is based on these areas; however, in selected instances the data are broken down to the town level. It is possible to examine all of the survey questions by town, although small sample sizes for some communities require caution in their use.



Source: 2018 Roaring Fork / Colorado River Valley / Eagle County Household Survey

### Location of Residence of Survey Respondents.

The survey obtained responses from residents throughout the region. While most of this discussion is summarized in terms of four general geographic areas, the data permit analysis at the individual community level if there are particular topics that warrant such investigation.

The data indicate that there is a significant percentage of residents that live outside incorporated communities (27% of survey respondents). These data are potentially significant as various policy options are considered by regional decisionmakers. While communities in the region, and particularly towns in the Greater Roaring Fork Region, have considerable experience with affordable housing problems, the challenges are confounded by residents living in unincorporated areas resulting in a significant role for counties as well as towns/cities.

|                                                              |           | Area of residence |                         |                        |                                       |                    |
|--------------------------------------------------------------|-----------|-------------------|-------------------------|------------------------|---------------------------------------|--------------------|
|                                                              |           | Overall           | Aspen thru Old Snowmass | Basalt thru Carbondale | Glenwood Springs thru Battlement Mesa | Eagle thru Dotsero |
| Q12: Do you live within town limits of an incorporated town? | Yes       | 68%               | 73%                     | 61%                    | 64%                                   | 84%                |
|                                                              | No        | 27%               | 20%                     | 36%                    | 30%                                   | 11%                |
|                                                              | Uncertain | 6%                | 7%                      | 4%                     | 6%                                    | 5%                 |

Source: 2018 Roaring Fork / Colorado River Valley / Eagle County Household Survey

### Do you Own or Rent?

Overall, about 68% of responses are from owners, 30% from renters, with 1% indicating other circumstances such as caretaking, living with parents, work exchange, etc. Among survey respondents, the percentage of renters varies across the region with the highest percentage of renters found in the Aspen/Snowmass area (39%), and a lower percentage in Eagle/Gypsum (13%).

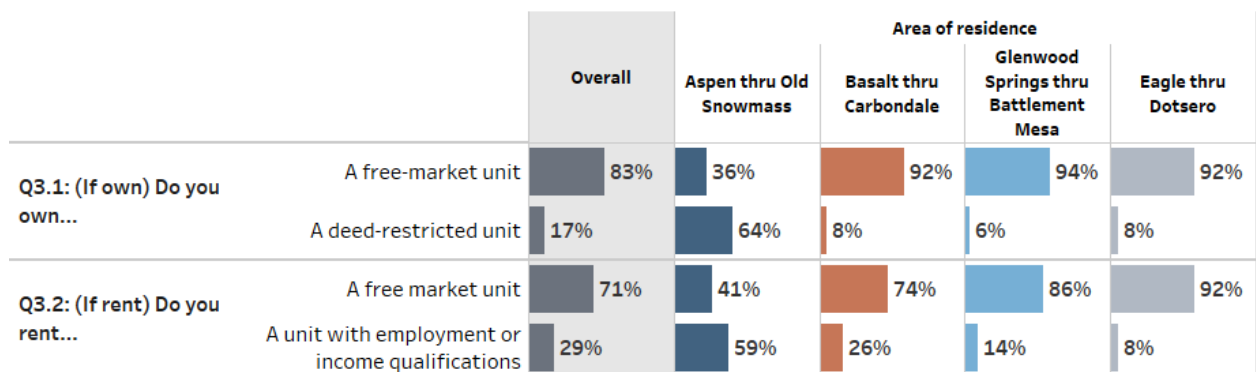
|                                                                |                              | Area of residence |                         |                        |                                       |                    |
|----------------------------------------------------------------|------------------------------|-------------------|-------------------------|------------------------|---------------------------------------|--------------------|
|                                                                |                              | Overall           | Aspen thru Old Snowmass | Basalt thru Carbondale | Glenwood Springs thru Battlement Mesa | Eagle thru Dotsero |
| Q3: Do you own or rent the residence where you currently live? | Own                          | 68%               | 59%                     | 68%                    | 66%                                   | 87%                |
|                                                                | Rent                         | 30%               | 39%                     | 30%                    | 31%                                   | 13%                |
|                                                                | Other:                       | 1%                | 1%                      | 1%                     | 2%                                    |                    |
|                                                                | Currently don't have housing | 0%                | 1%                      | 0%                     | 1%                                    |                    |

Source: 2018 Roaring Fork / Colorado River Valley / Eagle County Household Survey

### Deed Restricted / Income Qualified Units

The owner mix consists of about 83% free-market owners and 17% deed restricted owners. Not surprisingly, there are major differences in this breakdown by geography: in Aspen/Snowmass about 64% of responding owners reported that they are in deed-restricted units, while in the other areas that figure is a much lower 6% to 8%.

Similarly, while the majority of renters (71%) report they are living in free market units, that figure is a much lower 41% in the Aspen/Snowmass area. In contrast, the share of renters living in units with employment or income qualifications is fully 59% in the Aspen/Snowmass area, and declines to 26% in Basalt/Carbondale, 14% in Glenwood to Battlement Mesa, and 8% in Eagle/Gypsum.



Source: 2018 Roaring Fork / Colorado River Valley / Eagle County Household Survey

## Type of Home

The survey includes responses from household living in a variety of unit types. There are distinct geographic differences in this measure. Overall, slightly over half of the respondents live in single-family homes (56%), but this figure varies from 28% in the Aspen/Snowmass area to 70% in Eagle/Gypsum. About 5% are in mobile homes. Among mobile home residents, there is wide geographic variation in lot ownership, with 82% of Aspen area residents on owned lots, while most mobile home dwellers in other parts of the region rent their lots.

|                                            |                          | Overall | Area of residence       |                        |                                       |                    |
|--------------------------------------------|--------------------------|---------|-------------------------|------------------------|---------------------------------------|--------------------|
|                                            |                          |         | Aspen thru Old Snowmass | Basalt thru Carbondale | Glenwood Springs thru Battlement Mesa | Eagle thru Dotsero |
| Q7: In what type of residence do you live? | Single-family home/cabin | 56%     | 28%                     | 58%                    | 63%                                   | 70%                |
|                                            | Apartment                | 16%     | 33%                     | 13%                    | 13%                                   | 6%                 |
|                                            | Townhouse/duplex         | 12%     | 12%                     | 15%                    | 11%                                   | 13%                |
|                                            | Condo                    | 9%      | 20%                     | 8%                     | 5%                                    | 6%                 |
|                                            | Mobile home              | 5%      | 5%                      | 3%                     | 6%                                    | 2%                 |
|                                            | Tent/camper/truck/van    | 0%      | 1%                      | 1%                     | 0%                                    |                    |
|                                            | Staying with friends     | 0%      | 0%                      | 0%                     | 1%                                    |                    |
|                                            | Motel                    | 0%      | 0%                      |                        | 0%                                    |                    |
|                                            | Other:                   | 2%      | 1%                      | 1%                     | 2%                                    | 3%                 |

Source: 2018 Roaring Fork / Colorado River Valley / Eagle County Household Survey

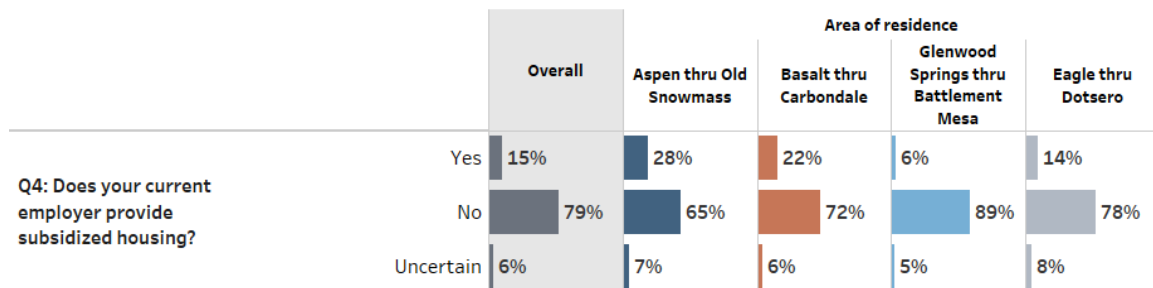
|                                                  |            | Overall | Area of residence       |                        |                                       |                    |
|--------------------------------------------------|------------|---------|-------------------------|------------------------|---------------------------------------|--------------------|
|                                                  |            |         | Aspen thru Old Snowmass | Basalt thru Carbondale | Glenwood Springs thru Battlement Mesa | Eagle thru Dotsero |
| Q7.1: (If mobile home) Is your mobile home on... | Rented lot | 57%     | 18%                     | 82%                    | 59%                                   | 100%               |
|                                                  | Owned land | 43%     | 82%                     | 18%                    | 41%                                   |                    |

Source: 2018 Roaring Fork / Colorado River Valley / Eagle County Household Survey



## Employer Assistance with Housing

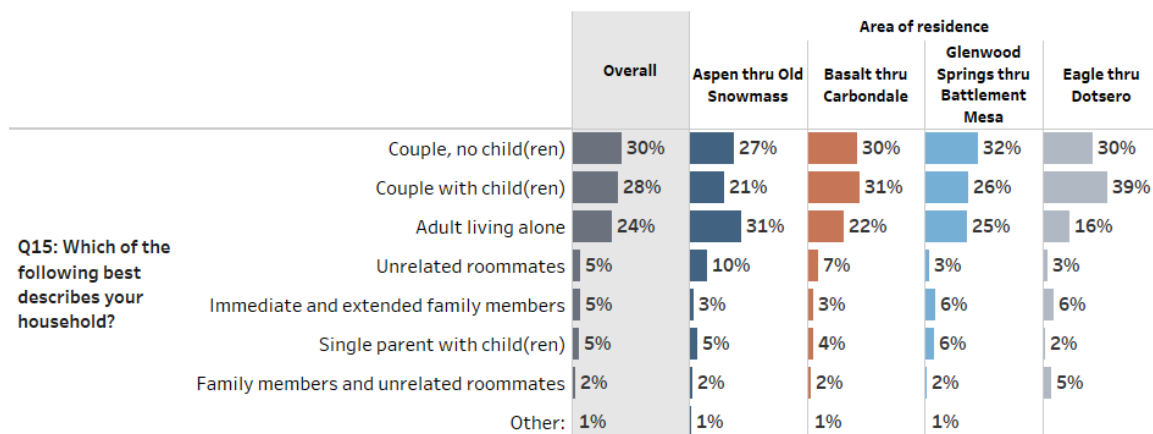
A notable share of respondents (15%) live in housing provided or subsidized by their employer. Once again, sharp geographic differences are evident, ranging from 28% among Aspen/Snowmass area residents to 6% in the Glenwood Springs to Parachute region.



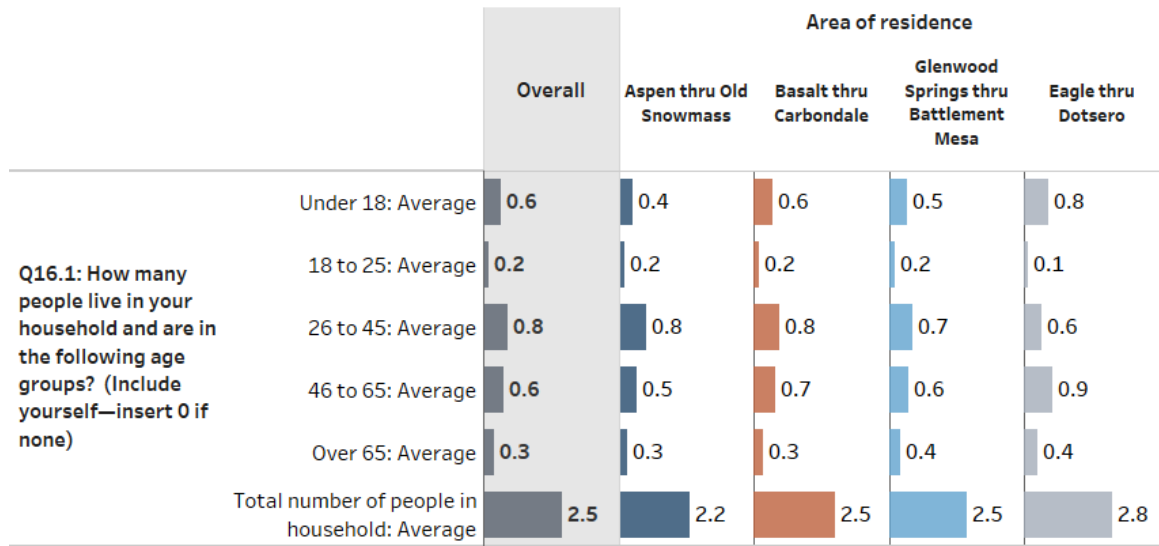
Source: 2018 Roaring Fork / Colorado River Valley / Eagle County Household Survey

## Makeup of Household and Persons per Unit

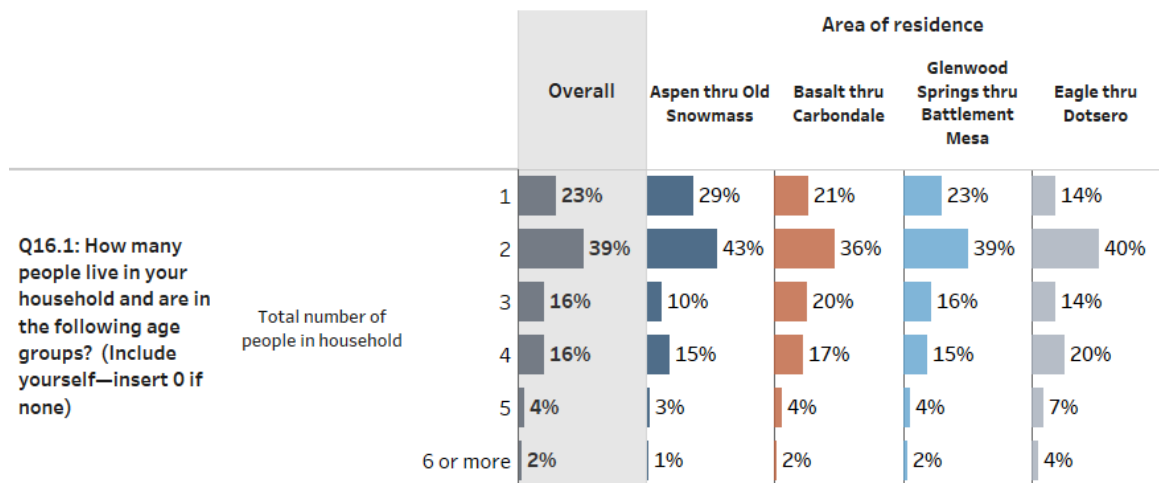
The survey contains a series of questions designed to understand the makeup of households and occupancy levels. These are important factors in determining appropriate unit design and a various aspects of consumer preferences. Overall, the data show similarities across the geographic areas. However, Aspen/Snowmass households are especially likely to report living alone or with unrelated roommates, while Basalt/Carbondale and Eagle/Gypsum have higher levels of couples with children than other communities.



Source: 2018 Roaring Fork / Colorado River Valley / Eagle County Household Survey



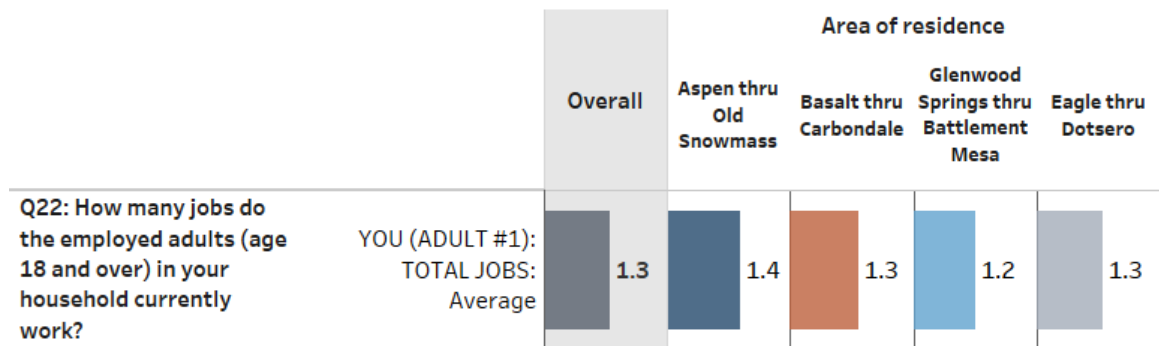
Source: 2018 Roaring Fork / Colorado River Valley / Eagle County Household Survey



Source: 2018 Roaring Fork / Colorado River Valley / Eagle County Household Survey

### Multiple Job Holding Continues to be Prevalent

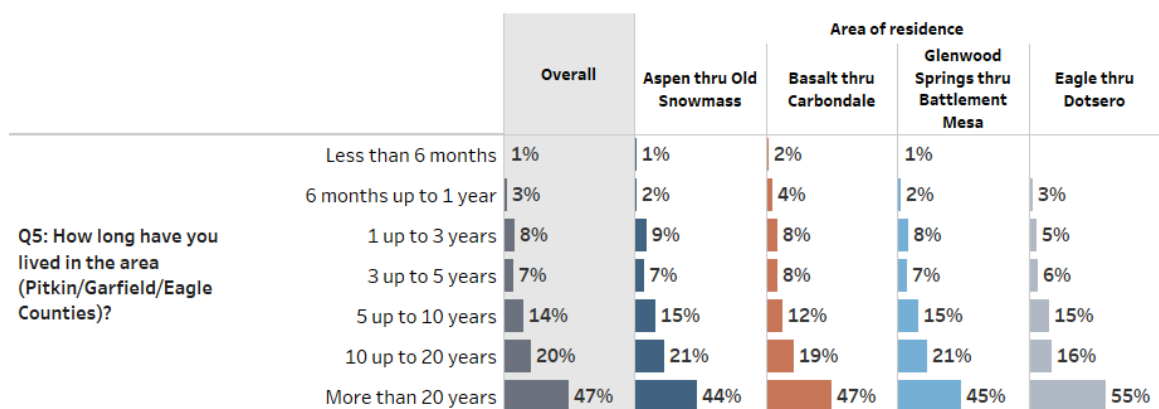
As is common in mountain communities, the average number of jobs held per individual significantly exceeds 1 job. As shown below, the average is 1.4 jobs per person in Aspen, 1.3 jobs in Basalt/Carbondale and the Eagle/Gypsum areas, and 1.2 jobs. The figure is slightly lower in Glenwood Springs and areas west.



Source: 2018 Roaring Fork / Colorado River Valley / Eagle County Household Survey

### Time of Residency in Region

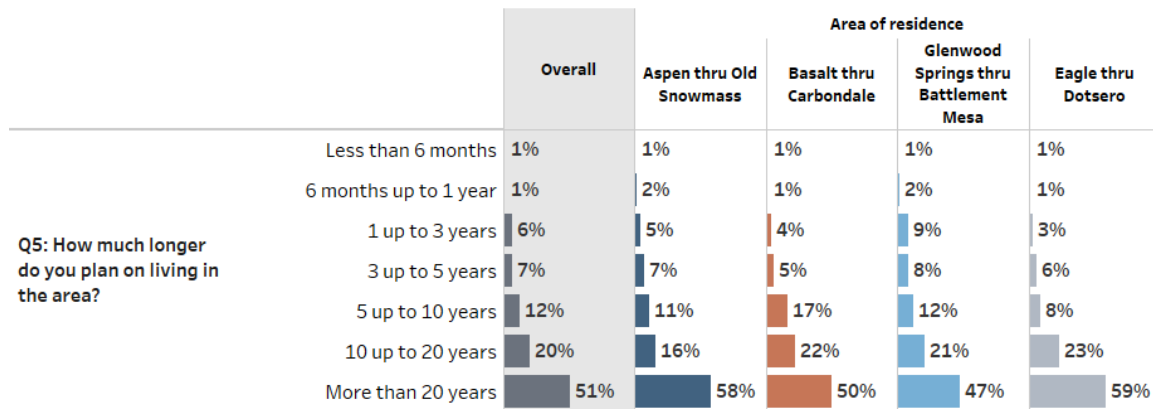
Survey results suggest that a large percentage of residents have lived in the region for some time, with over 67% indicating 10 years or more. This measure shows relatively little geographic variation. This question is used to segment some of the other survey questions; typically, relative newcomers to the region have differing opinions about the housing situation and they often encounter differing experiences.



Source: 2018 Roaring Fork / Colorado River Valley / Eagle County Household Survey

### Expected Time in Region

In a related finding, the majority of respondents anticipate continuing to live in the region long-term. Only 8% anticipate moving out of the region in the next three years. There is little variation in this measure across the geographic areas. In general, the data suggest that in spite of housing and other challenges, most residents want to stay in the area.



Source: 2018 Roaring Fork / Colorado River Valley / Eagle County Household Survey

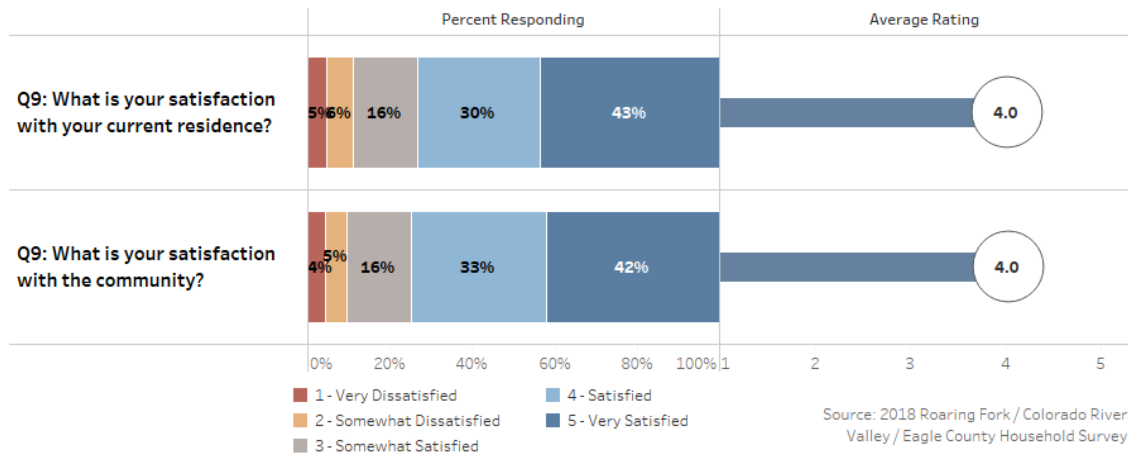
## Satisfaction

The survey asked respondents about their satisfaction with their current residence and the community in which they live. These questions represent an important indicator of overall opinion and they also serve to segment survey results permitting the exploration of those respondents that are least satisfied. As described below, a large percentage of residents are satisfied with both their residence and the community in which they live. Yet, there is widely held sentiment that housing is a “critical” or “serious” problem in the region.

### Ratings of Personal Housing Situation

Overall, just under half of the respondents (43%) rate their satisfaction with their residence a “5” or “very satisfied”, and another 30% are “satisfied.” In contrast, about 11% are “very” or “somewhat dissatisfied.” In other words, while the focus of much of the local discussion is on problems with housing and the challenges felt by many segments of residents, the prevailing sentiment in terms of the individual situation of residents is generally quite positive.

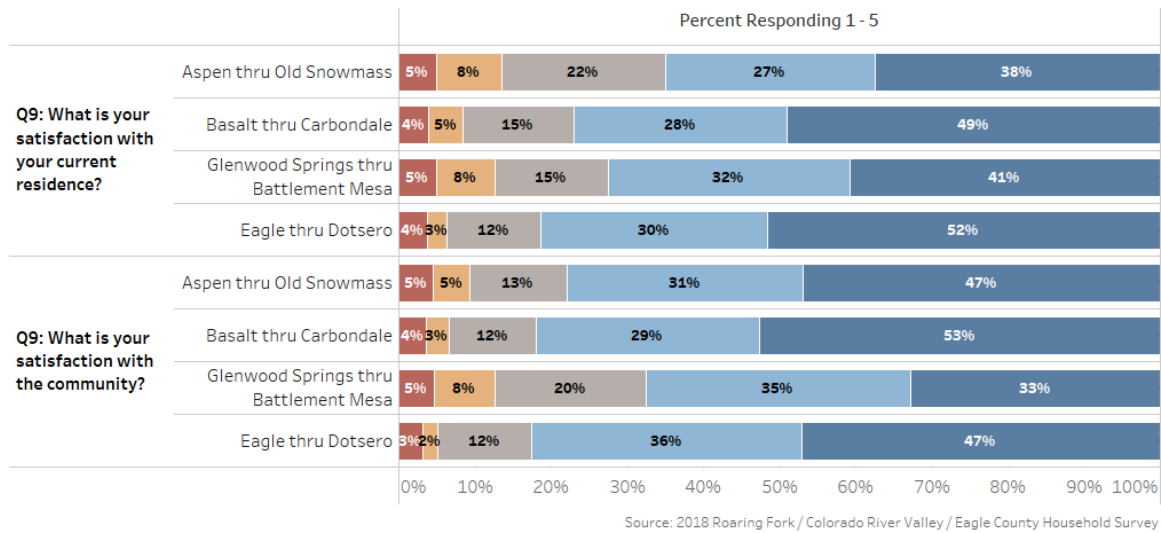
Further, respondents are also generally satisfied with the community in which they live, overall 42% responding “very satisfied” and 33% “satisfied.”



|                                                            | Overall | Average Satisfaction Rating 1 - 5 |                        |                                       |                    |
|------------------------------------------------------------|---------|-----------------------------------|------------------------|---------------------------------------|--------------------|
|                                                            |         | Aspen thru Old Snowmass           | Basalt thru Carbondale | Glenwood Springs thru Battlement Mesa | Eagle thru Dotsero |
| Q9: What is your satisfaction with your current residence? | 4.0     | 3.8                               | 4.1                    | 4.0                                   | 4.2                |
| Q9: What is your satisfaction with the community?          | 4.0     | 4.1                               | 4.2                    | 3.8                                   | 4.2                |

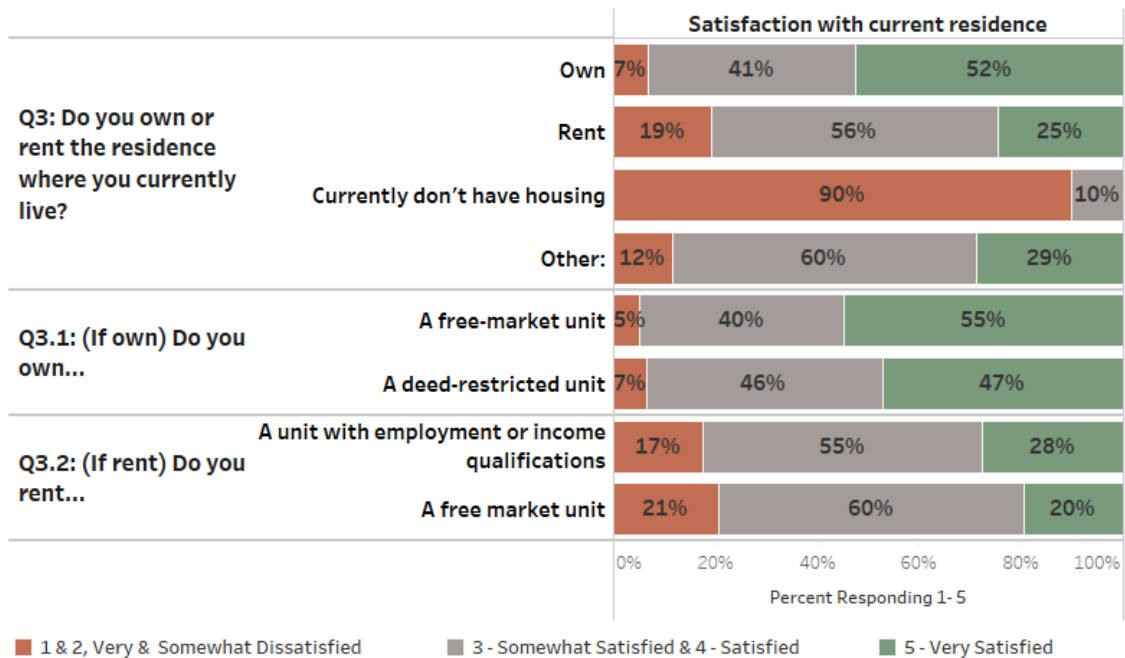
Source: 2018 Roaring Fork / Colorado River Valley / Eagle County Household Survey

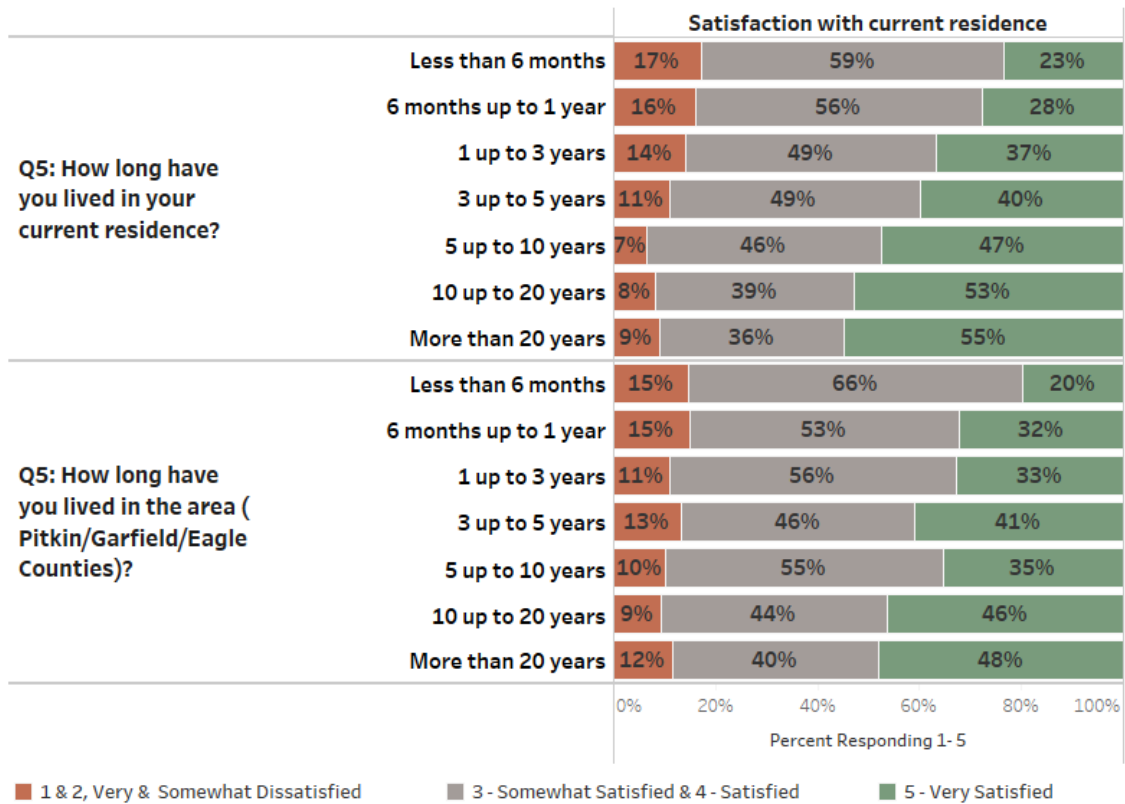
Additional probing of satisfaction reveals there are only fairly modest differences in these results when the “somewhat dissatisfied” and “very dissatisfied” respondents are examined by the geographic breakdowns that have been used in this analysis. And while there is some variation in the percentages that report they are “very satisfied” (Carbondale/Basalt and Eagle Gypsum are most frequently rated high) the data indicate that there is no particular area that stands out as the source of dissatisfaction with current residences or with the communities themselves.



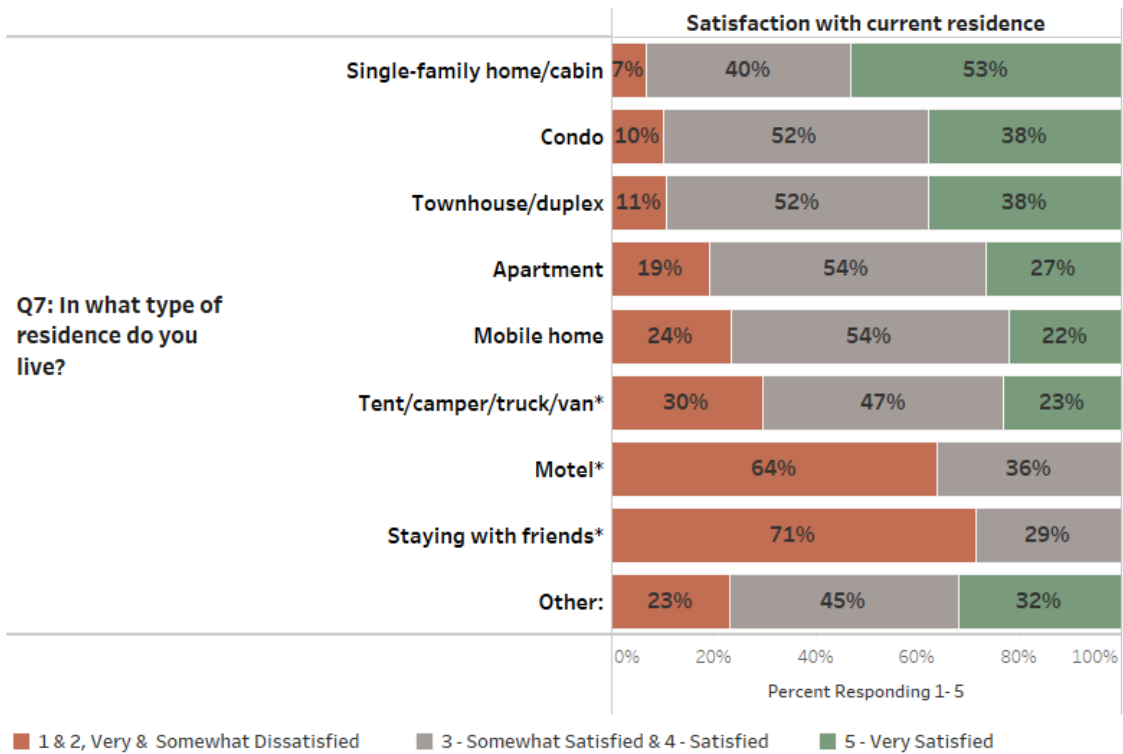
In an effort to further probe the sources of dissatisfaction, a series of crosstabulations were performed. The results are summarized below. Once again, the survey responses indicate that there is single “smoking gun” to explain dissatisfaction. However, as shown below, a deeper investigation reveals that renters are relatively more dissatisfied (19% rating satisfaction a negative 1 or 2 compared to 7% of owners). Perhaps surprising, there are only modest differences between dissatisfaction scores from owners in deed restricted units compared to free market units, or from renters in free market compared to renters with income or employment qualifications. Newer occupants of dwelling units, and relatively newer residents in the region are generally more likely to be experiencing dissatisfaction, but by small amounts. Consistent with the renter ratings, apartment dwellers are relatively more negative, as are mobile home residents. Yet about one in four of each of these segments is also reporting that they are “very satisfied.”

Finally, breaking these results out by community shows that there is no single pocket of dissatisfaction. For example, residents of Aspen are about as likely to report be dissatisfied as residents of New Castle, Parachute/Battlement Mesa and New Castle (16% to 20% further indicating that the results are not being determined by geography. Snowmass residents report slightly lower levels of dissatisfaction (12%) than the communities identified above.

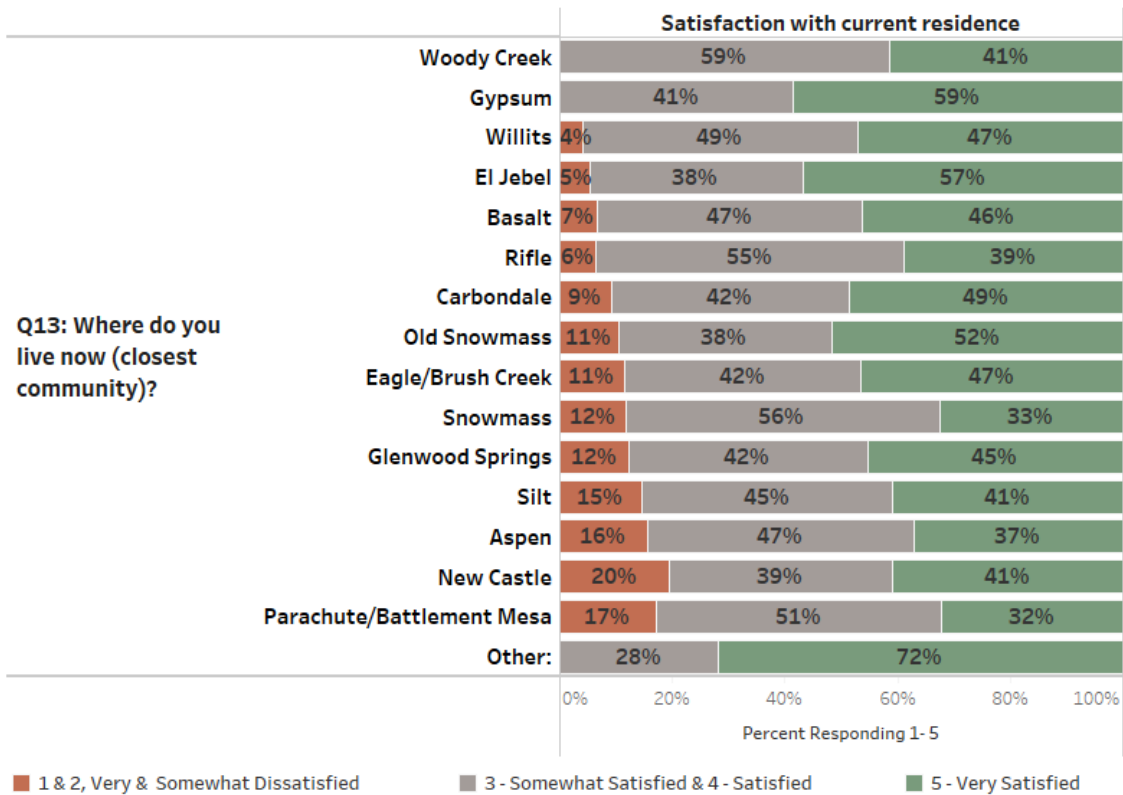


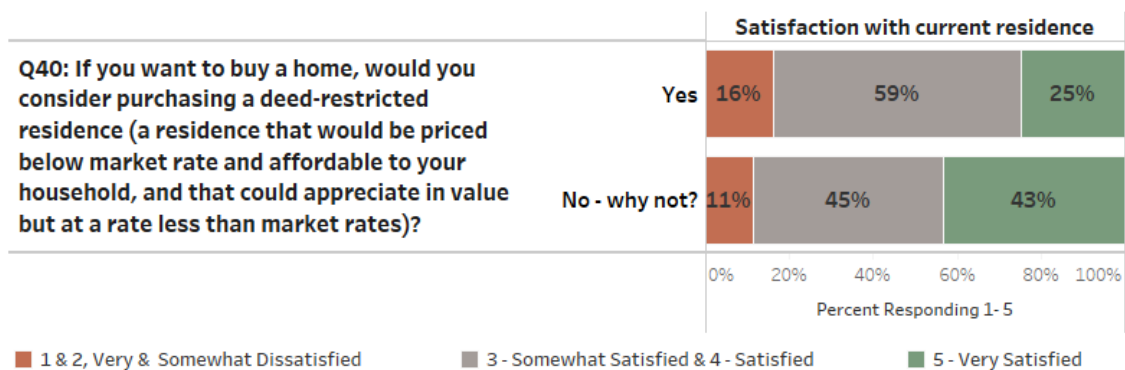
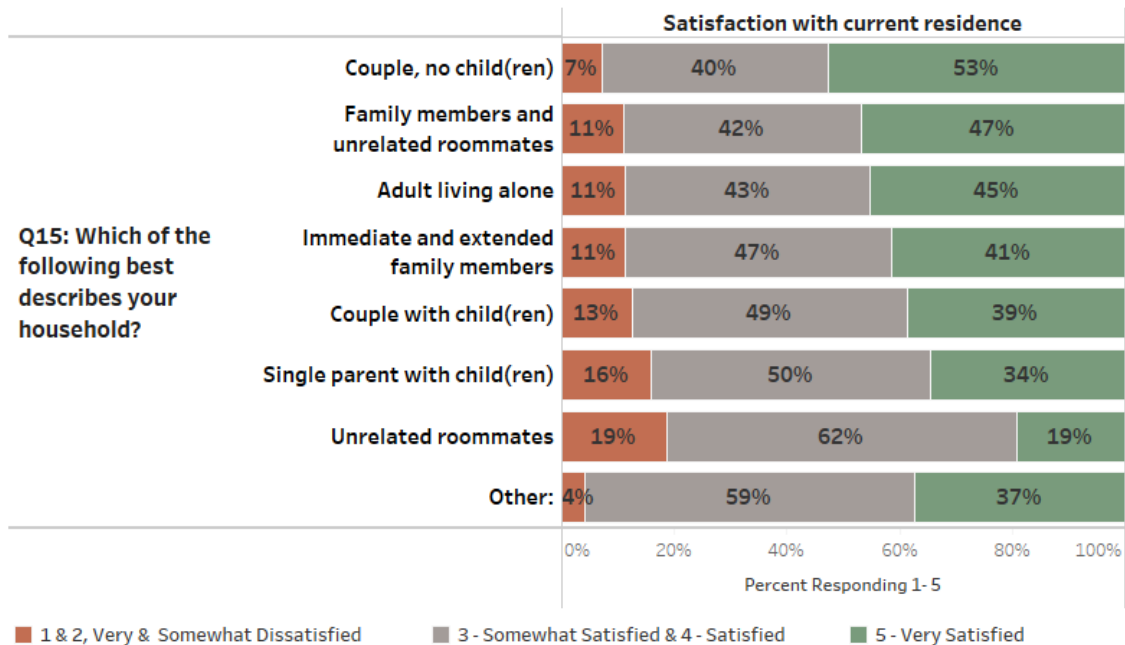






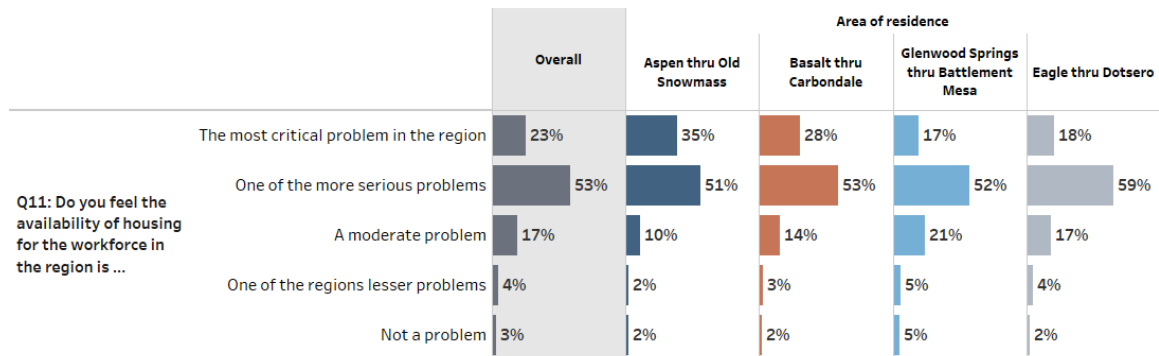
\*Low response numbers. Data may not be reliable.





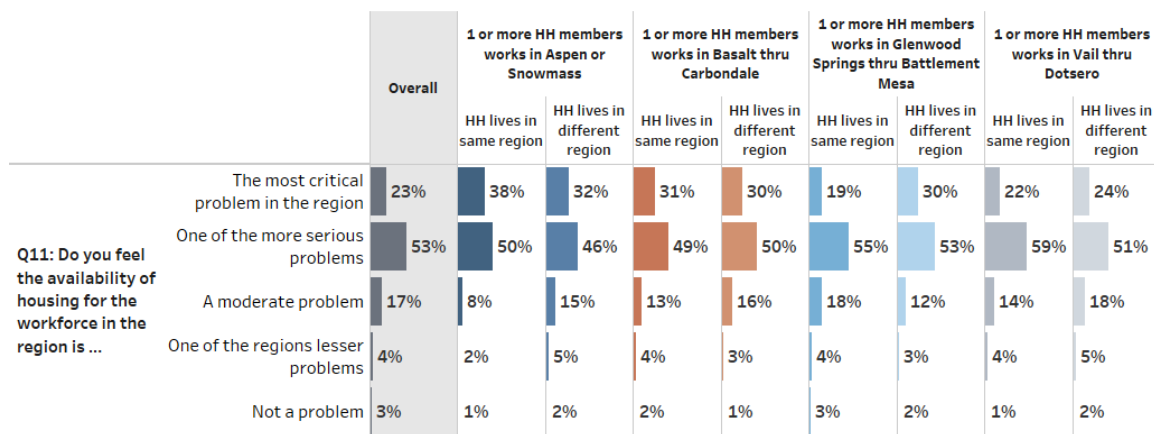
### Perceived Extent of the Housing Problem

The survey contained a question that provides insight into the local perception of the housing problem. As shown below, overall 23% consider housing to be the “most critical” problem in the region, with an additional 53% calling it “one of the more serious problems.” However, there are significant differences in response by geography. In the Aspen/Snowmass area, 86% are calling the problem either “critical” or “serious,” with 35% in the critical category. In the areas Glenwood Springs and below that number drops to 69%, with 17% in the critical category. And it is 18% critical in Eagle/Gypsum/Dotsero, but with 59% calling it “one of the more serious problems.” In other words, housing is widely perceived to be a problem but there are variations in opinion that could be weighed as regional efforts are considered.



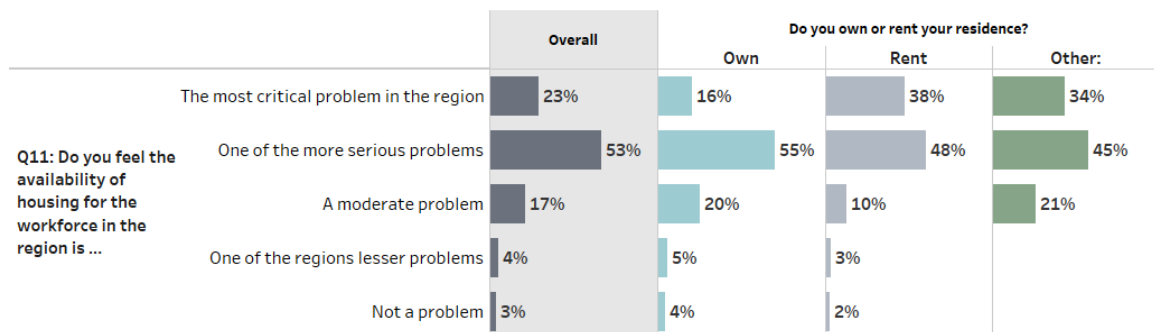
Source: 2018 Roaring Fork / Colorado River Valley / Eagle County Household Survey

Another way of viewing these data is to consider whether the household has one or more members commuting to a different region for work. As shown, there is some variation in the percent calling the problem “critical” among those with one or more household members commuting outside the region for work (particularly in the Glenwood to Parachute area), but across all categories there is a perception of a problem.



Source: 2018 Roaring Fork / Colorado River Valley / Eagle County Household Survey

Perhaps not surprising is the finding that renters perceive the problem go be more “critical” than owners. However, the strong majority of respondents share the opinion that it is a critical or serious problem.



Source: 2018 Roaring Fork / Colorado River Valley / Eagle County Household Survey

### Comparisons to Ratings of the Problem from other Geographic Areas

Comparing the results from this current 2018 Roaring Fork/ Colorado River Valleys study to the findings from two other recent studies provides a context for considering public perceptions of housing as a problem in the region. While it is clearly a widely held concern among local residents, the data show that it is not rated at the same “critical” level as was recently measured in Eagle and San Miguel counties. Results from the current study show 23% of households calling the problem critical, compared to 42% in Eagle County and 39% in San Miguel County. The results below from the three geographic areas also show the strong similarities between the opinions obtained from employers and households in each geographic area.

|                                                                         |                                       | Roaring Fork |           | Eagle    |           | San Miguel |           |
|-------------------------------------------------------------------------|---------------------------------------|--------------|-----------|----------|-----------|------------|-----------|
|                                                                         |                                       | Employer     | Household | Employer | Household | Employer   | Household |
| <b>Do you feel affordable/ employee housing for local residents is:</b> | The most critical problem in the area | 28%          | 23%       | 40%      | 42%       | 32%        | 39%       |
|                                                                         | One of the more serious problems      | 48%          | 53%       | 48%      | 43%       | 47%        | 48%       |
|                                                                         | A moderate problem                    | 18%          | 17%       | 10%      | 15%       | 21%        | 10%       |
|                                                                         | One of our lesser problems            | 4%           | 4%        | 1%       | 0%        | 1%         | 1%        |
|                                                                         | Not a problem                         | 3%           | 3%        | 1%       | 0%        | 0%         | 2%        |

Source: 2018 Roaring Fork / Colorado River Valley / Eagle County Employer Survey

## Retirement Issues

A topic of considerable local discussion has revolved around the challenges of an aging workforce and the potential retirement of a large number of residents. As noted above, many residents indicate that they would like to stay in the region for the long term. The impacts of retirees on housing demand and on the current inventory of deed-restricted units are significant; the surveys were designed to permit these topics to be explored.

### Expected Use of Home Five Years from Now

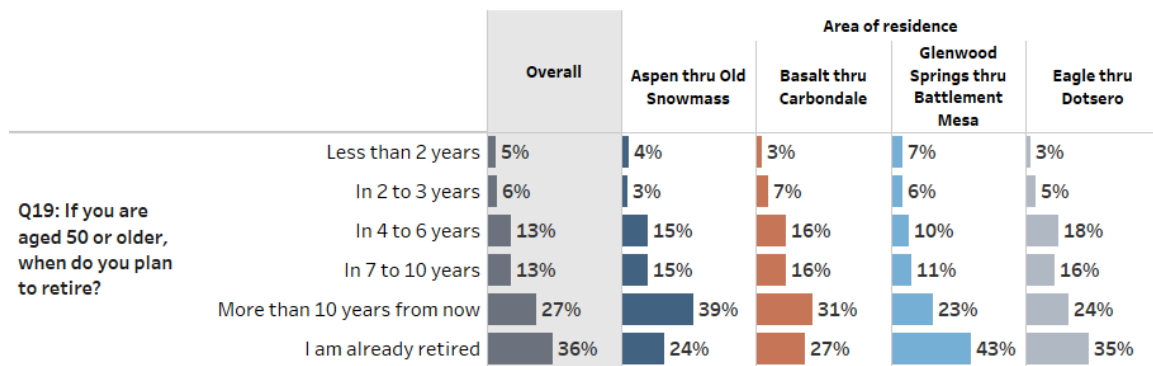
Survey respondents were asked how they expect to use their home in the future. Note that this question permitted multiple responses so totals sum to greater than 100%. Most respondents (70%) expect to use their home as a primary residence. As illustrated, this figure varies from 82% in Aspen/Snowmass to 64% in Glenwood to Parachute. While few respondents expect to sell and move outside the area (8% overall), this expectation was relatively higher in the down valley areas (12%) and very low in Aspen (4%). Overall, the results show general similarities across the region, in other words all communities can expect a significant number of residents to want to stay in their community and in place into the future.

|                                                                                                         |                                                                               | Area of residence |                         |                        |                                       |                    |
|---------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------|-------------------|-------------------------|------------------------|---------------------------------------|--------------------|
|                                                                                                         |                                                                               | Overall           | Aspen thru Old Snowmass | Basalt thru Carbondale | Glenwood Springs thru Battlement Mesa | Eagle thru Dotsero |
| Q18: If you own your home, how do you expect to be using it five years from now? (Check all that apply) | As a primary residence for my household                                       | 70%               | 82%                     | 76%                    | 64%                                   | 67%                |
|                                                                                                         | I intend to use home as my retirement residence                               | 14%               | 13%                     | 15%                    | 14%                                   | 15%                |
|                                                                                                         | I intend to sell my home within the next five years but stay in the area      | 10%               | 11%                     | 9%                     | 10%                                   | 8%                 |
|                                                                                                         | I intend to sell my home in the next five years and relocate outside the area | 8%                | 4%                      | 6%                     | 12%                                   | 6%                 |
|                                                                                                         | Rented long term to local resident                                            | 7%                | 3%                      | 6%                     | 8%                                    | 7%                 |
|                                                                                                         | Vacation rental to visitors/tourists                                          | 3%                | 4%                      | 4%                     | 2%                                    | 1%                 |
|                                                                                                         | A vacation home for owner or guests of owner                                  | 1%                | 1%                      | 2%                     | 1%                                    | 3%                 |
|                                                                                                         | Don't know/uncertain                                                          | 9%                | 5%                      | 9%                     | 10%                                   | 11%                |

Source: 2018 Roaring Fork / Colorado River Valley / Eagle County Household Survey

## Timing of Retirement

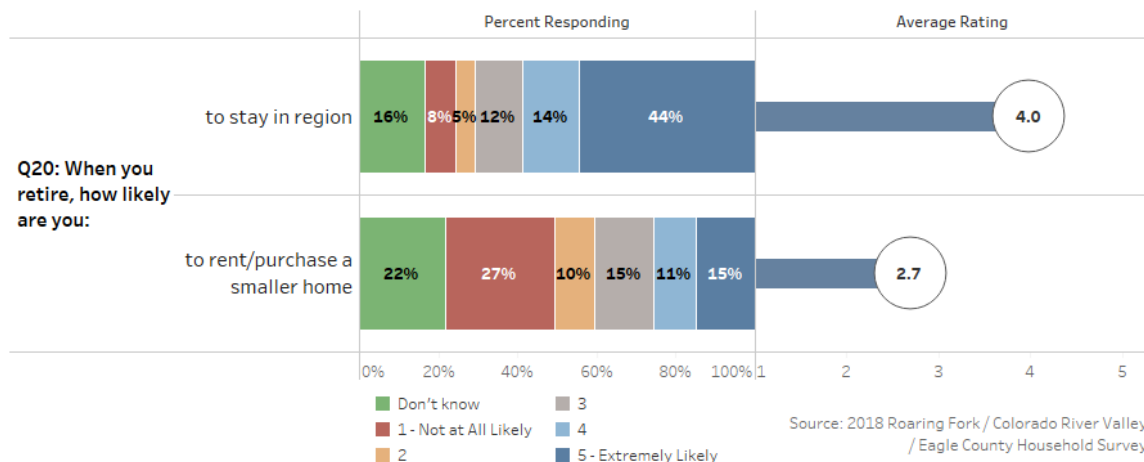
Survey results suggest that the retirement challenges are likely to be felt on a continuing basis over the next 10 years. About 11% of respondents aged 50 and older say they will be retiring in the next 2 to 3 years, with 13% overall in 4 to 6, and 13% in 7 to 10 years. In Aspen/Snowmass, 37% of respondents age 50 and older report they will be retiring in the next 10 years, suggesting that challenges of retiring workers will continue to increase in the foreseeable future throughout the region, including the Aspen/Snowmass area.



Source: 2018 Roaring Fork / Colorado River Valley / Eagle County Household Survey

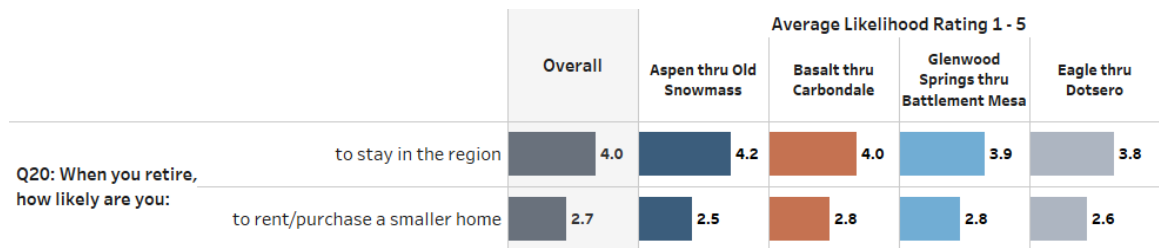
## Retirement Preferences

When asked to look ahead to their retirement, most respondents aged 50 and older indicated a high likelihood of staying within the region, with Aspen/Snowmass residents indicating the highest likelihood. Additionally, most respondents indicated that they were unlikely to rent or purchase a smaller home, suggesting a preference to age in place. These results suggest that much of the housing stock will not turn over as residents retire, thereby exacerbating some of the housing shortages faced.

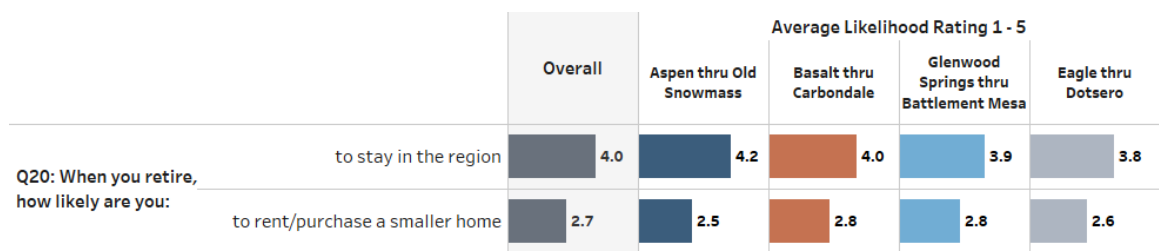


Source: 2018 Roaring Fork / Colorado River Valley / Eagle County Household Survey

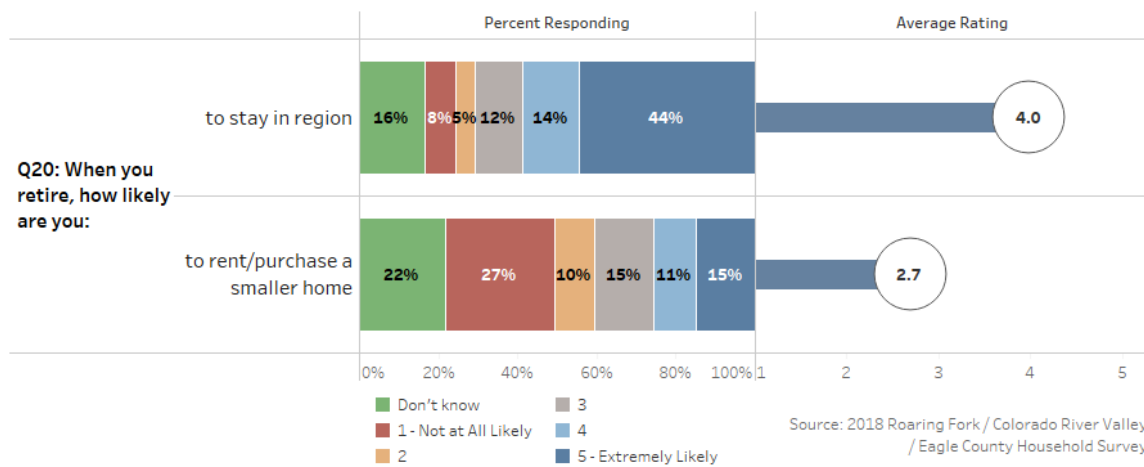




Source: 2018 Roaring Fork / Colorado River Valley / Eagle County Household Survey



Source: 2018 Roaring Fork / Colorado River Valley / Eagle County Household Survey



Source: 2018 Roaring Fork / Colorado River Valley / Eagle County Household Survey

## Live / Work Patterns

The relationship between where households live and where they work in the region are central to understanding housing current housing demand patterns and to planning for future housing and transportation policies. Analyzing these patterns is complex because households typically have more than one worker and for most, the decision where to live is based on a calculus that includes a variety of considerations as explored below.

### Relationship between Place of Residence and Place of Work

Understanding commuting begins with data that describe where working households live now and where they work. As shown, with the exception of Aspen, most households in the region have one or more workers working outside their community. Moving diagonally across the chart below, it shows that 95% of Aspen working respondents have at least one household member working in Aspen. For Snowmass it is 64% working in Snowmass, and in Basalt, Willits and El Jebel less than 50% of households have workers employed in the same town. For Carbondale residents the figure is 69%. Glenwood Springs (84%) and Rifle (73%) are well established employment centers. However, further west in Garfield County, out-commuting is the norm, as only 29% of New Castle residents and 28% of Silt residents have all household members working in their community of residence, and in Parachute/Battlement Mesa it is approximately 41%. These figures provide one metric of the current relationship of employment location in relation to residency.

Another way of looking at these data is to consider the pull of Aspen as an employment center. Moving across the top line in the chart below, survey results show that in communities between Snowmass and El Jebel, between 62% and 97% of respondents have one or more household member working in Aspen. Among Carbondale residents the figure drops to 49%, and it then falls off even more sharply among Glenwood Springs (16%) and Rifle (8%) residents. Nonetheless, a still significant 18-20% of New Castle and Silt households report one or more persons working in Aspen. Clearly, the survey shows widespread commuting that provides the demand that is served in part by RFTA and by other efforts including employer transportation assistance or subsidies.

**Q13: Where do you live now (closest community)?**

|                                                                                        | Aspen                            | Snowmass | Old Snowmass | Woody Creek | Basalt | Willits | El Jebel | Carbondale | Glenwood Springs | New Castle | Rifle | Silt | Parachute/<br>Battlement Mesa | Eagle/Brush Creek | Gypsum | Dotsero | Other: |
|----------------------------------------------------------------------------------------|----------------------------------|----------|--------------|-------------|--------|---------|----------|------------|------------------|------------|-------|------|-------------------------------|-------------------|--------|---------|--------|
| Share of households that have at least one member working in the following communities | Aspen                            | 95%      | 62%          | 63%         | 97%    | 77%     | 77%      | 74%        | 49%              | 16%        | 18%   | 8%   | 20%                           | 7%                | 1%     | 2%      | 44%    |
|                                                                                        | Snowmass                         | 14%      | 64%          | 45%         | 30%    | 26%     | 22%      | 25%        | 20%              | 11%        | 4%    | 5%   | 16%                           | 4%                | 2%     | 3%      | 32%    |
|                                                                                        | Basalt                           | 9%       | 16%          | 26%         | 18%    | 50%     | 42%      | 36%        | 31%              | 11%        | 7%    | 5%   | 15%                           | 3%                |        | 3%      | 44%    |
|                                                                                        | Willits                          | 2%       | 4%           | 3%          | 5%     | 10%     | 24%      | 4%         | 14%              | 5%         | 4%    | 1%   | 9%                            | 2%                |        |         | 14%    |
|                                                                                        | El Jebel                         | 2%       | 1%           | 14%         | 15%    | 9%      | 12%      | 14%        | 17%              | 5%         | 5%    | 4%   | 12%                           | 5%                |        |         | 14%    |
|                                                                                        | Carbondale                       | 6%       | 1%           | 3%          | 19%    | 22%     | 22%      | 20%        | 69%              | 21%        | 19%   | 7%   | 20%                           | 7%                | 1%     | 6%      | 31%    |
|                                                                                        | Glenwood Springs                 | 3%       | 2%           | 12%         | 14%    | 16%     | 22%      | 20%        | 31%              | 84%        | 77%   | 41%  | 54%                           | 38%               | 10%    | 20%     | 14%    |
|                                                                                        | Rifle                            | 0%       |              | 2%          |        | 4%      | 3%       | 1%         | 5%               | 7%         | 18%   | 73%  | 44%                           | 67%               |        | 2%      | 7%     |
|                                                                                        | New Castle                       | 0%       |              | 2%          |        | 2%      |          | 2%         | 4%               | 7%         | 29%   | 10%  | 20%                           | 10%               |        |         | 14%    |
|                                                                                        | Silt                             | 0%       |              |             |        | 3%      |          |            | 3%               | 6%         | 13%   | 8%   | 28%                           | 13%               | 0%     |         | 7%     |
|                                                                                        | Parachute / Battlement Mesa      | 0%       |              |             |        | 2%      |          | 4%         |                  | 2%         | 2%    | 9%   | 9%                            | 41%               | 0%     |         | 7%     |
|                                                                                        | Gypsum                           |          |              |             |        |         | 1%       |            | 1%               | 1%         | 3%    | 4%   | 7%                            | 2%                | 22%    | 56%     |        |
|                                                                                        | Dotsero                          |          |              |             |        |         |          |            |                  | 0%         | 1%    | 1%   | 1%                            | 2%                | 4%     | 10%     |        |
|                                                                                        | Eagle / Brush Creek              |          |              |             |        | 1%      | 3%       |            | 2%               | 1%         | 2%    | 4%   | 3%                            | 2%                | 63%    | 30%     | 7%     |
|                                                                                        | Edwards / Avon / Vail area       | 1%       |              | 1%          |        | 1%      | 2%       |            | 2%               | 2%         | 3%    | 4%   | 5%                            | 4%                | 61%    | 61%     | 100%   |
|                                                                                        | Outside the region / telecommute | 3%       | 2%           |             |        | 7%      | 1%       | 9%         | 8%               | 4%         | 3%    | 8%   | 3%                            | 6%                | 5%     | 5%      | 10%    |
|                                                                                        | Other location                   | 3%       | 3%           | 4%          |        | 6%      | 3%       | 6%         | 5%               | 6%         | 8%    | 11%  | 11%                           | 19%               | 13%    | 10%     | 45%    |

Source: 2018 Roaring Fork / Colorado River Valley / Eagle County Household Survey

### Where You Live Now vs. Where Would You Like to Live

The survey also explored where current residents “would like to live if you could afford the cost of housing.” The highlighted blue color that runs diagonally across the chart below illustrates the percentage of respondents that responded that their current residence location is their preferred location. For example, 91% of Aspen respondents prefer Aspen, 67% of Snowmass residents prefer Snowmass, and 56% of Basalt residents prefer Basalt. Significant majorities living in Carbondale (75%) and Glenwood Springs (64%) also prefer their communities. Among towns further west the figure dips to between 40 and 50%. For residents in the Eagle it is a high 78%, and in Gypsum it is 63%. These data are important, with many implications. For example, they suggest that while Aspen may be the location of employment for many, it is not necessarily everyone’s preferred place to live. Additionally, the data provide a measure of current living conditions in the region; this metric could be used to measure change over time as individual communities work on policies and infrastructure to enhance their livability and attractiveness.

|                                                                                                          |                           | Q13: Where do you live now (closest community)? |          |              |             |        |         |          |            |                  |            |      |       |                    |                   |        |         |        |
|----------------------------------------------------------------------------------------------------------|---------------------------|-------------------------------------------------|----------|--------------|-------------|--------|---------|----------|------------|------------------|------------|------|-------|--------------------|-------------------|--------|---------|--------|
|                                                                                                          |                           | Aspen                                           | Snowmass | Old Snowmass | Woody Creek | Basalt | Willits | El Jebel | Carbondale | Glenwood Springs | New Castle | Silt | Rifle | Parachute/Battle.. | Eagle/Brush Creek | Gypsum | Dotsero | Other: |
| Q13: Where in the region would you most like to live if you could afford the cost of housing? TOP CHOICE | Aspen                     | 91%                                             | 23%      | 30%          | 55%         | 22%    | 23%     | 21%      | 11%        | 4%               | 1%         | 2%   | 1%    |                    |                   |        |         | 15%    |
|                                                                                                          | Snowmass                  | 3%                                              | 67%      | 12%          | 16%         | 6%     | 4%      | 5%       | 3%         | 2%               |            |      | 0%    | 1%                 |                   |        |         |        |
|                                                                                                          | Old Snowmass              | 1%                                              | 3%       | 46%          | 6%          | 6%     |         |          | 2%         | 2%               | 2%         | 1%   | 1%    |                    |                   | 2%     |         | 15%    |
|                                                                                                          | Woody Creek               | 1%                                              | 3%       | 4%           | 19%         | 2%     | 2%      | 1%       | 0%         | 0%               |            |      | 1%    |                    |                   |        |         | 19%    |
|                                                                                                          | Basalt                    | 2%                                              | 3%       | 3%           | 4%          | 56%    | 13%     | 17%      | 6%         | 5%               | 3%         |      |       |                    |                   |        |         | 9%     |
|                                                                                                          | Willits                   |                                                 |          | 2%           |             | 43%    | 15%     | 2%       | 0%         | 2%               |            |      |       |                    |                   |        |         | 22%    |
|                                                                                                          | El Jebel                  |                                                 |          |              |             | 1%     |         | 25%      | 0%         | 1%               | 1%         |      |       | 1%                 |                   |        |         |        |
|                                                                                                          | Carbondale                | 1%                                              | 1%       | 3%           |             | 5%     | 7%      | 14%      | 75%        | 21%              | 9%         | 5%   | 11%   | 6%                 |                   |        |         |        |
|                                                                                                          | Glenwood Springs          |                                                 |          |              |             | 1%     | 8%      |          | 1%         | 64%              | 37%        | 19%  | 18%   | 17%                | 3%                | 2%     |         | 19%    |
|                                                                                                          | New Castle                |                                                 |          |              |             |        |         | 2%       | 0%         | 1%               | 41%        | 10%  | 7%    | 18%                | 5%                |        |         |        |
|                                                                                                          | Silt                      |                                                 |          |              |             |        |         |          |            |                  | 0%         | 43%  | 3%    | 5%                 |                   | 2%     |         |        |
|                                                                                                          | Rifle                     |                                                 |          |              |             |        |         |          |            |                  | 2%         | 9%   | 50%   | 3%                 |                   |        |         |        |
|                                                                                                          | Parachute/Battlement Mesa |                                                 |          |              |             |        |         |          |            |                  |            | 10%  | 1%    | 43%                |                   |        |         |        |
|                                                                                                          | Edwards/Avon/Vail area    |                                                 |          |              |             |        |         |          |            |                  |            |      | 2%    | 1%                 | 14%               | 14%    |         |        |
|                                                                                                          | Eagle/Brush Creek         |                                                 |          |              |             |        |         |          |            |                  | 3%         |      | 0%    |                    | 78%               | 16%    | 100%    |        |
|                                                                                                          | Gypsum                    |                                                 |          |              |             |        |         |          |            | 0%               |            | 1%   | 2%    | 5%                 |                   | 63%    |         |        |

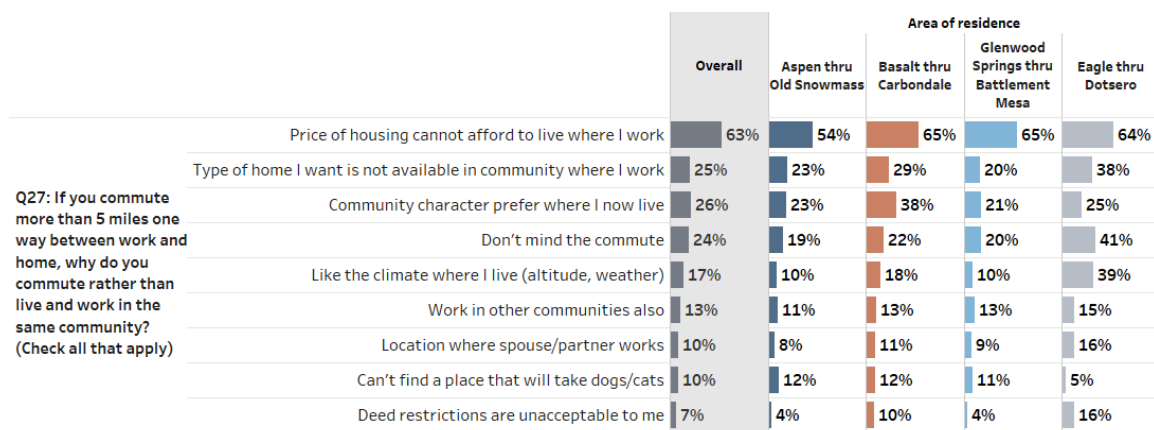
Source: 2018 Roaring Fork / Colorado River Valley / Eagle County Household Survey

|                                                                                           |                             | Q13: Where in the region would you most like to live if you could afford the cost of housing? TOP CHOICE |          |             |              |        |         |          |            |                  |       |            |      |                               |        |                   |                           |       |
|-------------------------------------------------------------------------------------------|-----------------------------|----------------------------------------------------------------------------------------------------------|----------|-------------|--------------|--------|---------|----------|------------|------------------|-------|------------|------|-------------------------------|--------|-------------------|---------------------------|-------|
|                                                                                           |                             | Aspen                                                                                                    | Snowmass | Woody Creek | Old Snowmass | Basalt | Willits | El Jebel | Carbondale | Glenwood Springs | Rifle | New Castle | Silt | Parachute/<br>Battlement Mesa | Gypsum | Eagle/Brush Creek | Edwards/Avon/Vail<br>area | Other |
| Share of households that have at least one<br>member working in the following communities | Aspen                       | 90%                                                                                                      | 65%      | 67%         | 53%          | 65%    | 60%     | 48%      | 34%        | 15%              | 4%    | 8%         | 22%  | 7%                            |        | 5%                |                           | 18%   |
|                                                                                           | Snowmass                    | 18%                                                                                                      | 62%      | 43%         | 24%          | 19%    | 11%     | 34%      | 14%        | 7%               | 5%    | 7%         | 24%  |                               | 6%     | 2%                |                           | 16%   |
|                                                                                           | Basalt                      | 14%                                                                                                      | 11%      | 29%         | 19%          | 43%    | 47%     | 41%      | 24%        | 9%               | 2%    | 7%         | 15%  |                               | 6%     |                   |                           | 13%   |
|                                                                                           | Willits                     | 2%                                                                                                       | 5%       | 11%         | 14%          | 7%     | 23%     | 14%      | 11%        | 5%               | 1%    | 5%         | 10%  |                               |        |                   |                           | 2%    |
|                                                                                           | El Jebel                    | 3%                                                                                                       | 3%       | 17%         | 22%          | 10%    | 17%     | 14%      | 12%        | 5%               | 2%    | 6%         | 11%  |                               |        |                   |                           | 10%   |
|                                                                                           | Carbondale                  | 10%                                                                                                      | 8%       | 20%         | 29%          | 23%    | 22%     | 30%      | 54%        | 15%              | 4%    | 14%        | 14%  | 6%                            | 13%    | 5%                |                           | 23%   |
|                                                                                           | Glenwood Springs            | 8%                                                                                                       | 13%      | 23%         | 55%          | 19%    | 35%     | 39%      | 45%        | 84%              | 32%   | 59%        | 42%  | 16%                           | 20%    | 8%                | 14%                       | 18%   |
|                                                                                           | Rifle                       | 2%                                                                                                       | 1%       | 11%         | 12%          | 2%     | 6%      | 11%      | 14%        | 22%              | 89%   | 47%        | 48%  | 40%                           | 4%     | 1%                | 6%                        | 11%   |
|                                                                                           | New Castle                  | 1%                                                                                                       |          |             | 6%           | 3%     | 6%      | 5%       | 8%         | 10%              | 7%    | 25%        | 16%  |                               |        |                   | 4%                        | 20%   |
|                                                                                           | Silt                        | 1%                                                                                                       |          |             | 4%           | 2%     | 6%      |          | 5%         | 10%              | 7%    | 8%         | 38%  |                               |        |                   |                           | 6%    |
|                                                                                           | Parachute / Battlement Mesa | 0%                                                                                                       | 2%       |             | 4%           | 1%     |         | 5%       | 3%         | 5%               | 10%   | 10%        | 5%   | 50%                           | 1%     | 0%                | 4%                        | 6%    |
|                                                                                           | Gypsum                      | 0%                                                                                                       |          | 11%         | 6%           | 1%     | 1%      |          | 1%         | 4%               |       | 6%         | 5%   |                               | 59%    | 25%               | 28%                       | 8%    |
|                                                                                           | Dotsero                     |                                                                                                          |          | 11%         |              |        |         |          |            | 1%               |       | 2%         |      |                               | 17%    | 3%                | 6%                        |       |
|                                                                                           | Eagle / Brush Creek         | 0%                                                                                                       |          | 11%         | 6%           | 1%     |         |          |            | 2%               | 2%    | 4%         | 3%   | 2%                            | 33%    | 64%               | 26%                       | 10%   |
|                                                                                           | Edwards / Avon / Vail area  | 0%                                                                                                       | 1%       | 11%         | 9%           | 2%     |         |          |            | 2%               | 3%    | 1%         | 9%   | 3%                            | 63%    | 61%               | 73%                       |       |
| Outside the region/ telecommute                                                           | 4%                          | 3%                                                                                                       | 5%       |             | 4%           |        | 18%     | 5%       | 2%         | 2%               | 13%   | 4%         | 7%   | 9%                            | 6%     |                   | 11%                       |       |
| Other location                                                                            | 4%                          | 3%                                                                                                       | 8%       | 4%          | 7%           | 3%     | 8%      | 6%       | 6%         | 5%               | 19%   | 14%        | 16%  | 5%                            | 13%    | 10%               | 7%                        |       |

Source: 2018 Roaring Fork / Colorado River Valley / Eagle County Household Survey

## Commuting

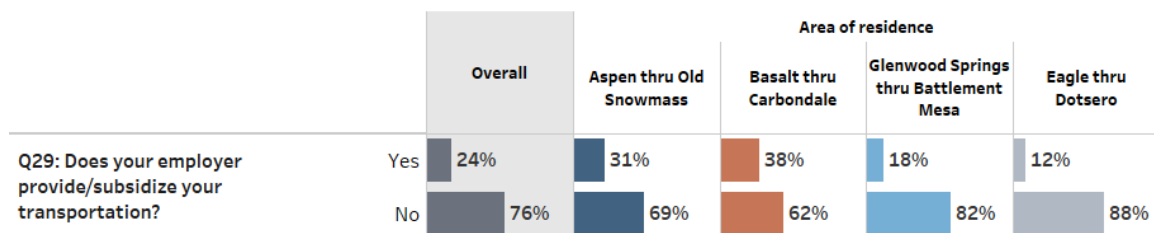
The survey explored methods of commuting (walk, drive, bus, etc.) and reasons for commuting if the home to work distance is greater than five miles. Results show that most respondents commute by driving alone. For the majority of commuters, the price of housing is the most identified reason for commuting (63%). However, for many the “type of home I want not available where I work” (25%) and “community character, I prefer where I live” (26%) were also frequently mentioned. Additionally, almost one in four say they “don’t mind the commute” including a very high percentage (50%) of Eagle/Gypsum commuters.



Source: 2018 Roaring Fork / Colorado River Valley / Eagle County Household Survey

## Employers Subsidizing Transportation Costs

Assistance with the costs of commuting are quite widely provided in the Aspen/Snowmass area (31%) and in the Basalt/Carbondale area (38%). Transportation subsidies are less common in Glenwood Springs and for residents further to the west (18%), and in Eagle County (12%).



Source: 2018 Roaring Fork / Colorado River Valley / Eagle County Household Survey

## Preferences – Important Factors in Looking for a Place to Live

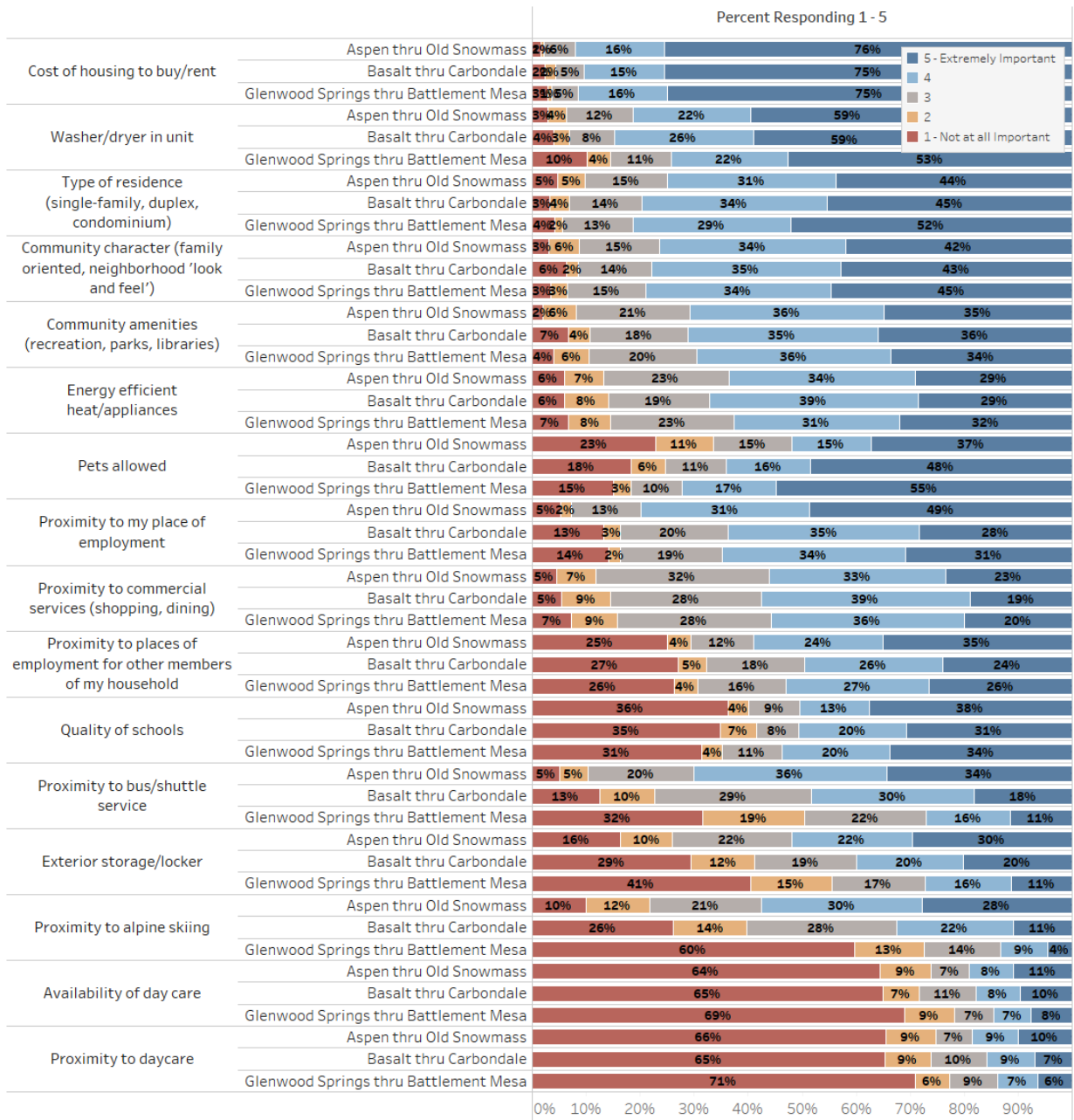
The survey asked respondents to identify the importance of a series of factors in looking for a place to live. Cost of housing to buy/rent was most identified (receiving an average score of 4.6 on a five-point scale). Of interest, while there are some differences by community (for example, Aspen residents choosing “proximity to place of employment” and “proximity to bus/shuttle”) the overall averages are fairly similar across the geographic areas. Examples include “community character” and “energy efficiency” which were rated of relatively high importance and received similar ratings from all geographic areas.

**Q30: Please indicate how important the following factors are to you when looking for a place to live. Use a scale where 1 = "not at all important" and 5 = "extremely important."**

|                                                                     | Overall | Aspen thru Old Snowmass | Basalt thru Carbondale | Glenwood Springs thru Battlement Mesa | Eagle thru Dotsero |
|---------------------------------------------------------------------|---------|-------------------------|------------------------|---------------------------------------|--------------------|
| Cost of housing to buy/rent                                         | 4.6     | 4.6                     | 4.6                    | 4.6                                   | 4.6                |
| Washer/dryer in unit                                                | 4.2     | 4.3                     | 4.3                    | 4.0                                   | 4.3                |
| Type of residence (single-family, duplex, condominium)              | 4.2     | 4.0                     | 4.1                    | 4.2                                   | 4.3                |
| Community character (family oriented, neighborhood 'look and feel') | 4.1     | 4.1                     | 4.1                    | 4.1                                   | 4.3                |
| Community amenities (recreation, parks, libraries)                  | 3.9     | 4.0                     | 3.9                    | 3.9                                   | 4.0                |
| Energy efficient heat/appliances                                    | 3.8     | 3.7                     | 3.8                    | 3.7                                   | 4.0                |
| Pets allowed                                                        | 3.7     | 3.3                     | 3.7                    | 3.9                                   | 3.8                |
| Proximity to my place of employment                                 | 3.7     | 4.2                     | 3.6                    | 3.7                                   | 3.4                |
| Proximity to commercial services (shopping, dining)                 | 3.5     | 3.6                     | 3.6                    | 3.5                                   | 3.3                |
| Proximity to places of employment for other members of my household | 3.2     | 3.4                     | 3.1                    | 3.2                                   | 3.1                |
| Quality of schools                                                  | 3.2     | 3.1                     | 3.0                    | 3.2                                   | 3.2                |
| Proximity to bus/shuttle service                                    | 3.0     | 3.9                     | 3.3                    | 2.6                                   | 2.4                |
| Exterior storage/locker                                             | 2.7     | 3.4                     | 2.9                    | 2.4                                   | 2.5                |
| Proximity to alpine skiing                                          | 2.5     | 3.5                     | 2.8                    | 1.9                                   | 2.3                |
| Availability of day care                                            | 1.9     | 1.9                     | 1.9                    | 1.7                                   | 2.0                |
| Proximity to daycare                                                | 1.8     | 1.9                     | 1.8                    | 1.7                                   | 1.9                |

Source: 2018 Roaring Fork / Colorado River Valley / Eagle County Household Survey

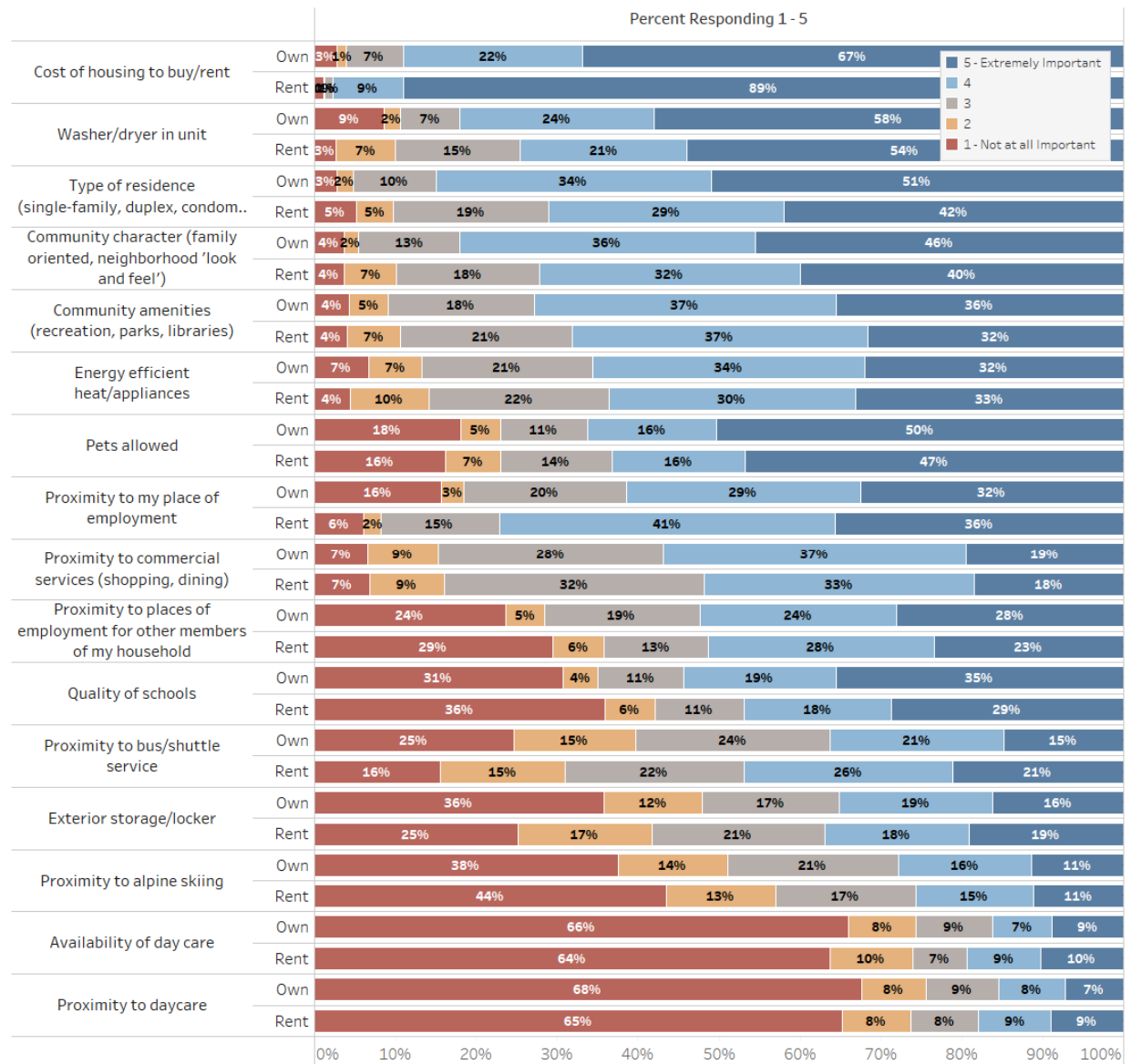
The survey results are further portrayed below in a series of graphs that summarize the importance factors by location using the 5-point scales contained in the survey. In an effort to simplify the analysis, in this comparison the Eagle/Gypsum area is not included. While there are general similarities in responses by geographic areas, there are also differences. Energy efficiency and community character are two considerations that resonates in all geographic areas. In contrast, pets are a notable example of a difference, where they are of less importance to Aspen-area residents than for other areas, particularly in the Glenwood to Parachute region. Exterior storage/locker is another example where the feature is of less importance in Aspen/Snowmass, and not surprising is the finding that proximity to Alpine skiing is also important there and relatively unimportant in other areas.



Source: 2018 Roaring Fork / Colorado River Valley / Eagle County Household Survey

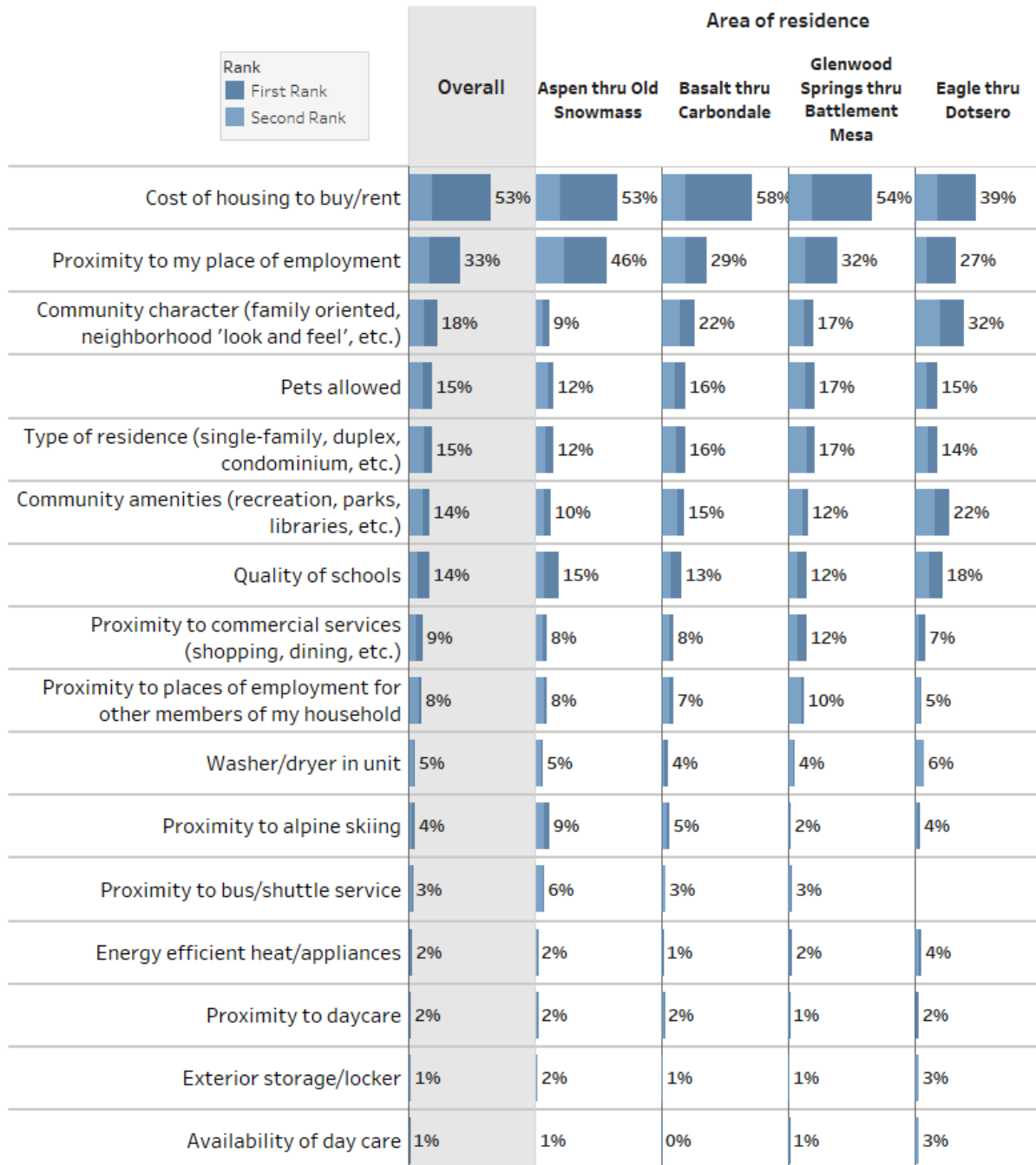


These responses are also broken out by owners and renters and are illustrated by the graph below. Renters are particularly likely to report that the cost of housing is extremely important (89% rating it a 5 on the five-point scale). Energy efficiency, community character, community amenities, allowances for pets, and proximity to commercial services were all rated of similar importance among owners and renters alike.



### Most Important Factors in Looking for a Place to Live

The survey also asked respondents to identify the most important three factors in looking for a place to live. In the graph below the two most important factors are illustrated. Overall, cost and proximity to employment were most identified, especially in Aspen. Community character was especially important in Basalt/Carbondale, and Eagle/Gypsum showed some differences in responses when compared to those received from the Greater Roaring Fork Region.

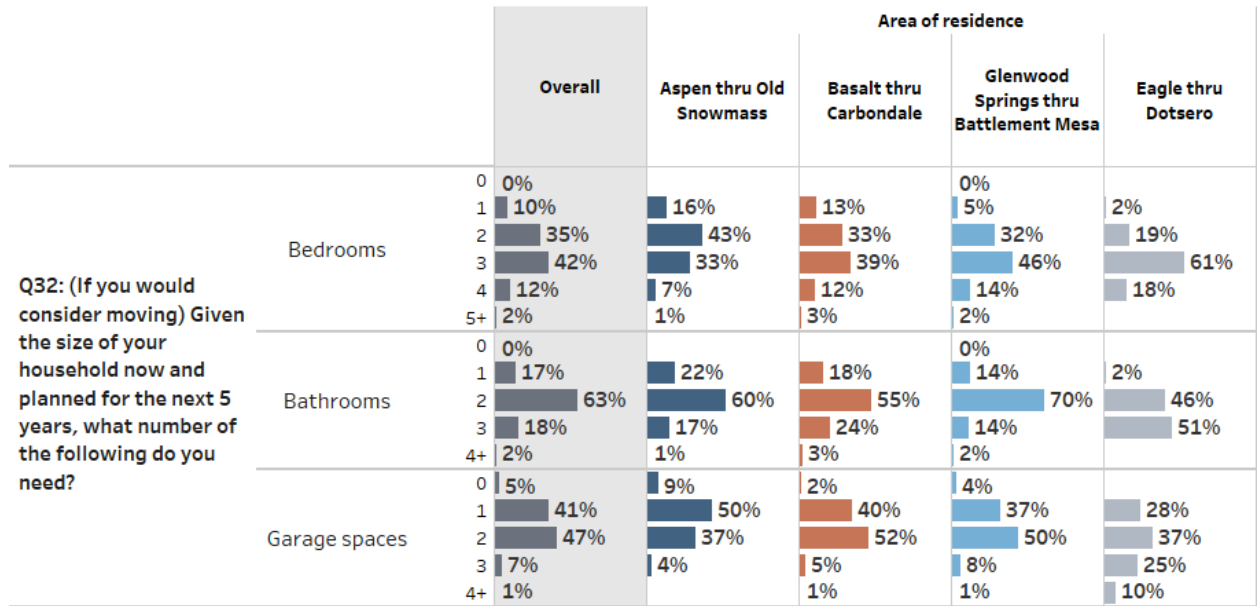


## Preferences – Housing Considerations

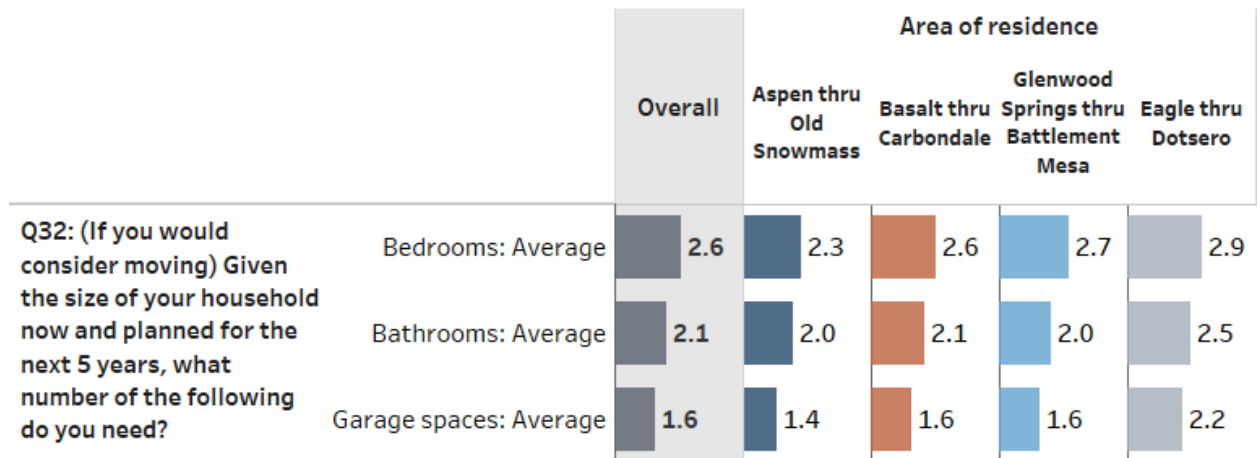
The survey explored preferences of residents that would consider moving in the next five years. While more respondents indicated they would move to buy (46%) about 19% said they would consider “buying or renting.” In an important finding, about 35% overall said they would not consider moving (25% of Aspen/Snowmass residents and 55% of Eagle/Gypsum respondents). These groups of respondents were then explored in greater detail through a series of questions designed to better understand preferred number of bedrooms, bathrooms and garage spaces. Breakdowns of these results are available to housing providers to assist in unit design and configuration planning. In addition, unit types and pet policies were considered for renters.

|                                                                                                                                                                       |                                                                           | Overall | Area of residence             |                           |                                                |                       |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------|---------|-------------------------------|---------------------------|------------------------------------------------|-----------------------|
|                                                                                                                                                                       |                                                                           |         | Aspen thru<br>Old<br>Snowmass | Basalt thru<br>Carbondale | Glenwood<br>Springs thru<br>Battlement<br>Mesa | Eagle thru<br>Dotsero |
| Q31: If housing were available that you could afford, would you consider moving within the next five years for reasons of convenience, economics, or quality of life? | Yes, if I could BUY a home                                                | 46%     | 53%                           | 51%                       | 45%                                            | 34%                   |
|                                                                                                                                                                       | Yes, if I could RENT a home                                               | 2%      | 2%                            | 1%                        | 3%                                             | 2%                    |
|                                                                                                                                                                       | Yes, if I could BUY OR RENT a home                                        | 17%     | 20%                           | 19%                       | 17%                                            | 10%                   |
|                                                                                                                                                                       | No                                                                        | 35%     | 25%                           | 29%                       | 35%                                            | 55%                   |
| Q31.1: Why would you not consider moving within the next 5 years?                                                                                                     | I prefer to live in my present community/residence                        | 90%     | 92%                           | 91%                       | 88%                                            | 93%                   |
|                                                                                                                                                                       | My current residence is closer to the workplace of others in my household | 3%      | 5%                            | 2%                        | 3%                                             | 5%                    |
|                                                                                                                                                                       | Other reason:                                                             | 6%      | 3%                            | 7%                        | 9%                                             | 2%                    |

Source: 2018 Roaring Fork / Colorado River Valley / Eagle County Household Survey

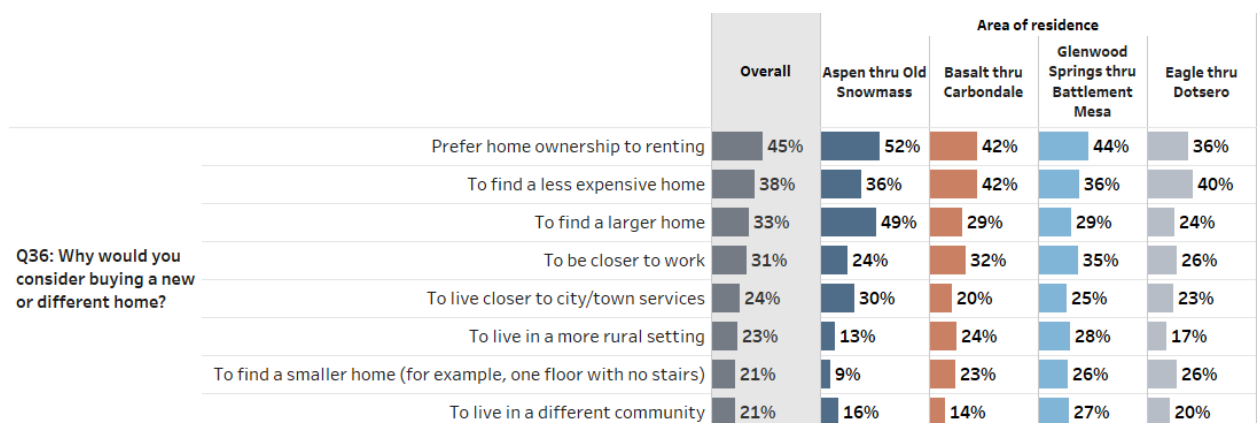
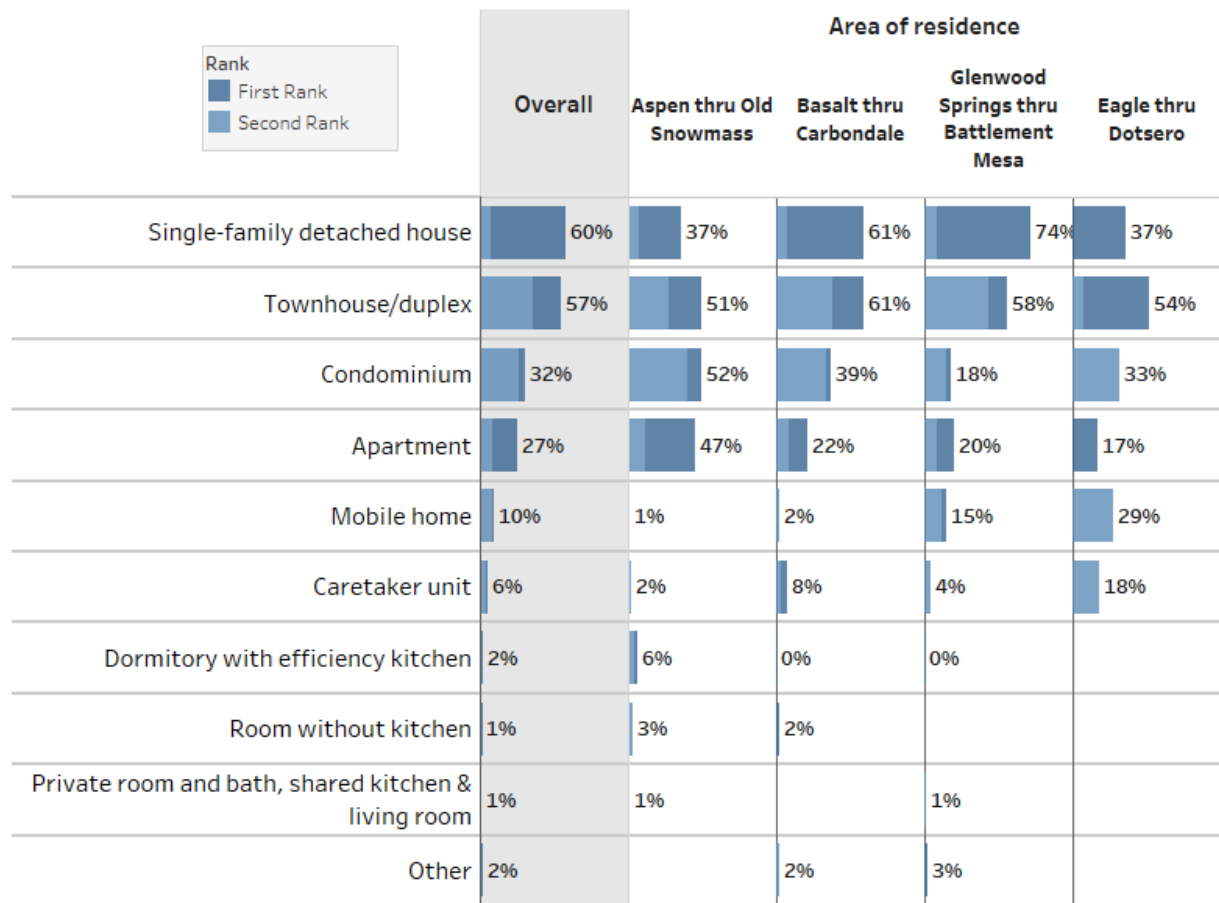


Source: 2018 Roaring Fork / Colorado River Valley / Eagle County Household Survey



Source: 2018 Roaring Fork / Colorado River Valley / Eagle County Household Survey

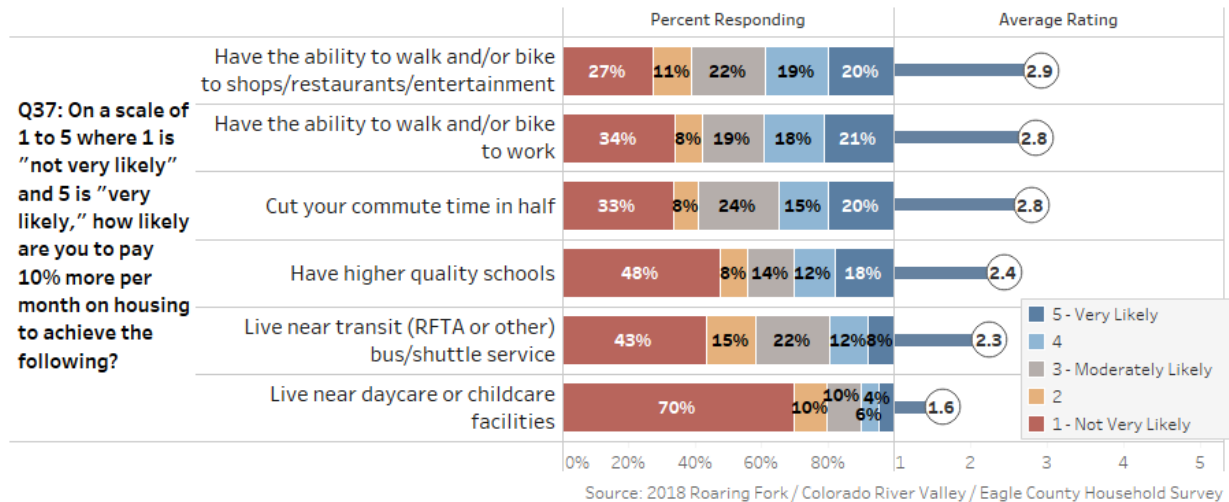
Q33: "Using a 1, 2 and 3, where "1" is your first choice, please rank your top three housing preferences to rent." The graph below presents the top two choices of renters summed together. Results show clearly that renters in Aspen have very different preferences than those in the other geographic areas of Garfield County. Condos and apartments are highly preferred in the Aspen/Snowmass area among renters.



Source: 2018 Roaring Fork / Colorado River Valley / Eagle County Household Survey

## Willingness to Pay More for Preferred Locations and Features

The survey examined willingness to pay 10% more for selected benefits such as location, unit size and proximity to work. As shown below, the ability to walk and/or bike as highest rated (2.9 average on five-point scale), especially among Aspen/Snowmass and Basalt/Carbondale respondents. Living near transit (average 2.3) and near day care (1.6) rated relatively lower, although for households with kids the childcare factor was rated much higher.

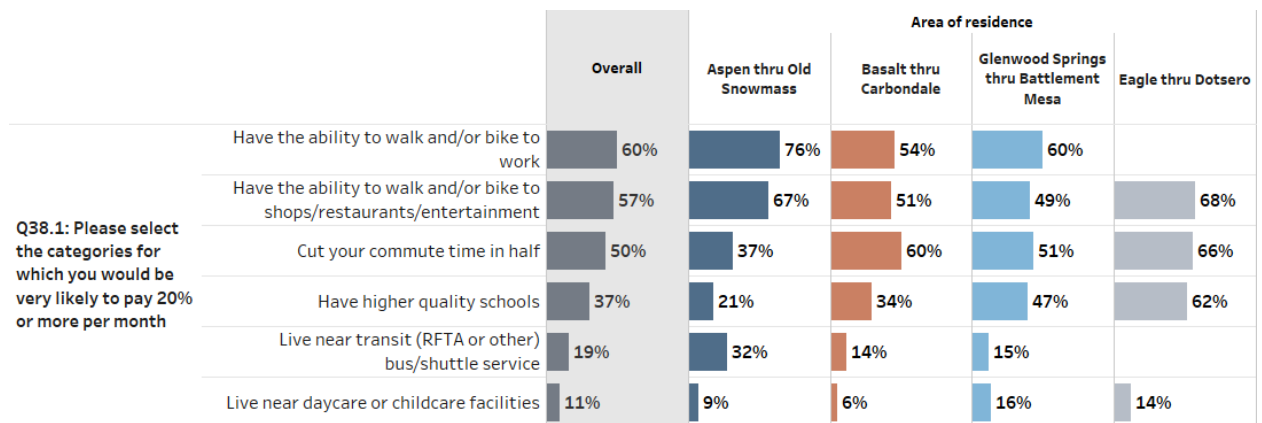


## Willingness to Pay More by Location

There were some notable differences in the responses on willingness to pay by location. For example, among Aspen/Snowmass residents having the ability to walk or ride to shops and to work, cutting commuting time in half, and living near transit differed from most other areas are relatively highly rated.

|                                                                                                                                                                  |                                                                         | Average Likelihood Rating 1 - 5 |                         |                        |                                       |                    |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------|---------------------------------|-------------------------|------------------------|---------------------------------------|--------------------|
|                                                                                                                                                                  |                                                                         | Overall                         | Aspen thru Old Snowmass | Basalt thru Carbondale | Glenwood Springs thru Battlement Mesa | Eagle thru Dotsero |
| Q37: On a scale of 1 to 5 where 1 is "not very likely" and 5 is "very likely," how likely are you to pay 10% more per month on housing to achieve the following? | Have the ability to walk and/or bike to shops/restaurants/entertainment | 2.9                             | 3.2                     | 3.1                    | 2.7                                   | 2.8                |
|                                                                                                                                                                  | Have the ability to walk and/or bike to work                            | 2.8                             | 3.3                     | 3.0                    | 2.6                                   | 2.6                |
|                                                                                                                                                                  | Cut your commute time in half                                           | 2.8                             | 3.0                     | 2.9                    | 2.7                                   | 2.7                |
|                                                                                                                                                                  | Have higher quality schools                                             | 2.4                             | 2.5                     | 2.3                    | 2.5                                   | 2.5                |
|                                                                                                                                                                  | Live near transit (RFTA or other) bus/shuttle service                   | 2.3                             | 2.7                     | 2.5                    | 2.0                                   | 2.0                |
|                                                                                                                                                                  | Live near daycare or childcare facilities                               | 1.6                             | 1.7                     | 1.6                    | 1.6                                   | 1.8                |

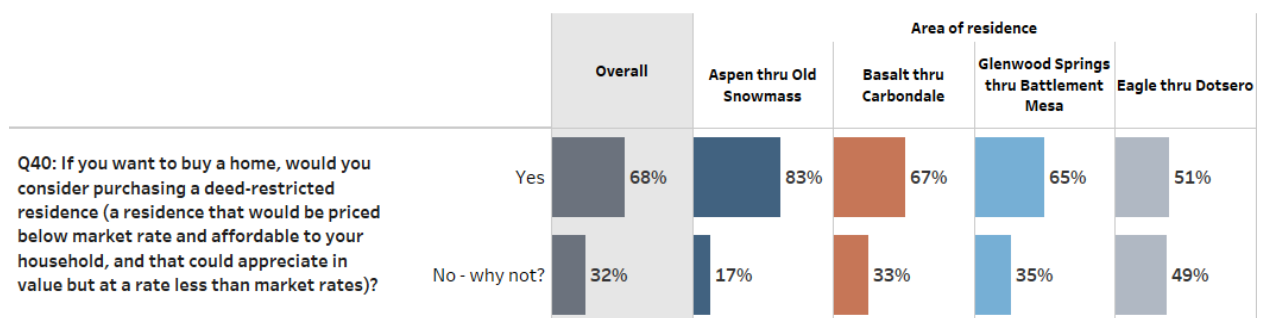
Source: 2018 Roaring Fork / Colorado River Valley / Eagle County Household Survey



Source: 2018 Roaring Fork / Colorado River Valley / Eagle County Household Survey

### Interest in Considering a Deed-Restricted Unit?

There was an overall willingness to consider purchasing units with deed restrictions among about two-thirds of survey respondents. However, this figure varies geographically with 83% willingness in Aspen/Snowmass, to more like 50 to 70% in other areas. The open-ended responses to this question help to explain the thinking of residents. Those that are not interested sometimes cite the loss of resale value, a “poor investment” and “not worth it,” and inability to qualify, and concerns/dislike for the program as reasons for saying “no, they would not consider it.”

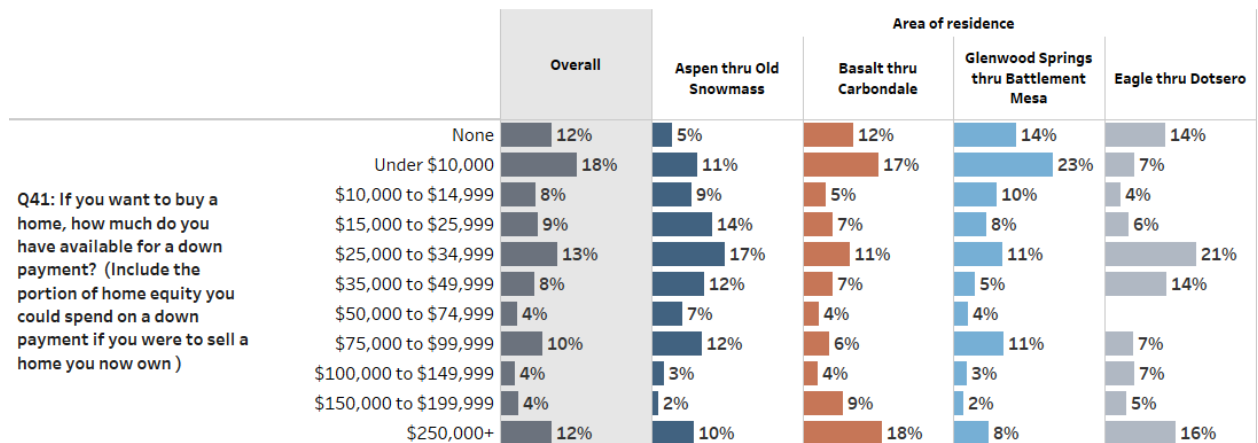


Source: 2018 Roaring Fork / Colorado River Valley / Eagle County Household Survey

## Down Payments and Household Incomes

### Funds Available for a Down Payment

For many regional residents the availability of a down payment for housing purchase is a problem. As illustrated below, the availability of down payment money ranges widely. Approximately 12% overall say they have no funds available, and 18% have less than \$10,000, meaning about one in three have less than \$30,000. As illustrated, about 12% report that they have over \$250,000. A relatively high percentage of respondents from the Basalt/Carbondale (18%) and Eagle/Gypsum areas (16%) have over \$250,000 available for a down payment. Not surprisingly, many of these individuals have been in the area for some time and are relatively longtime owners; they have benefitted from housing price increases over decades.

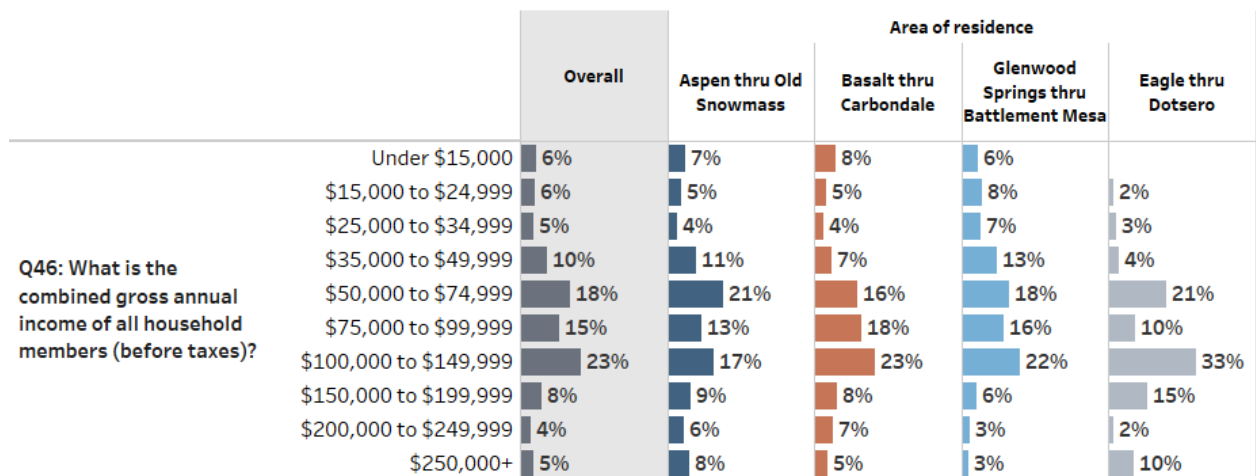


Source: 2018 Roaring Fork / Colorado River Valley / Eagle County Household Survey

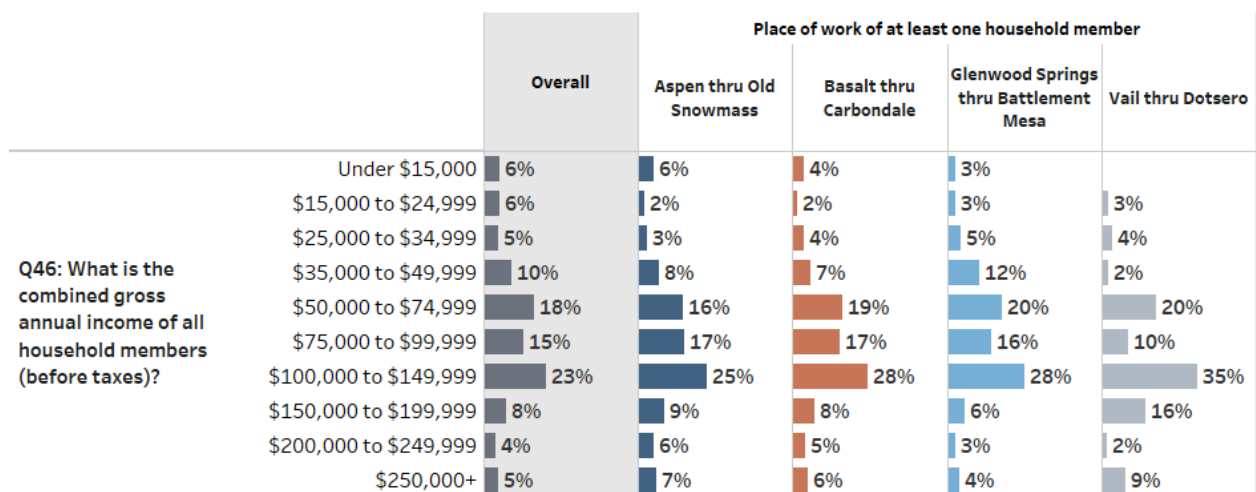


## Household Income

Income is a critical determinant of demand for housing and it is central to developing policies and regulations. The survey provides a number of measures that permit household incomes to be explored. The graph below breaks incomes down by sub areas of residence. It is followed by a graph that portrays income by the locations of employment. The survey shows the dominance of middle-income households throughout the region. And, perhaps surprising is the finding that reported gross household incomes show fairly strong similarities across the region. While there are differences area to area, and within individual communities, the overall distributions are generally similar.



Source: 2018 Roaring Fork / Colorado River Valley / Eagle County Household Survey



Source: 2018 Roaring Fork / Colorado River Valley / Eagle County Household Survey

## Open-Ended Comments

The Household Survey contained a large number of “open-ended” questions that permitted respondents to comment or expand upon a quantitative response. Taken together, these comments represent over 300 pages of input. In an effort to make these results readily available the consultant team has provided several different summaries of the results. Described below are summaries of selected questions. Various “themes” emerge from written comments and they are categorized into various sub-categories. Additionally, a listing of verbatim comments from several of the key open-ended questions are presented as an Appendix to this report. The Appendix comments are sorted alphabetically, then grouped by community.

Finally, a Comments Tool has been provided. It provides a means for self-exploration of the comments using an Excel based tool. With this feature, a reader can investigate comments by community and can also get a feel for the range of suggestions and the total number of individual responses received in response to each survey question. The tool has been provided under separate cover and it can be shared with interested individuals upon request.

### A Summary of Selected Comments Organized by Question Number

Q6: If planning on leaving the area in three years or less, why are you likely to leave the area?

- Repeated themes include cost of living and affordability, desire to own a home and few (expensive) options locally, changing communities and retirement.

Q10: If somewhat dissatisfied or very dissatisfied with your residence or community can you briefly describe why?

**At the end of the survey**, the respondents were asked to provide any other comments or suggestions regarding local housing issues. In total, 454 respondents provided comments which were organized into five general categories: free-market housing issues, affordable housing issues, the role of government in affordable housing, cost of living issues, and general sentiments about housing issues. For each category, common themes and examples are provided below. A full listing of these comments is presented in the Appendix.

**Affordable Housing Issues.** As may be expected, residents expressed a wide variety of concerns related to affordable housing options in the Greater Roaring Fork Region. Overall the most prominent theme in this category was a need for more subsidized senior housing options; numerous comments that plainly point to the issue, such as “*we need more affordable senior housing in our area*” and “***I hope through this survey that action will be taken to provide long term affordable housing especially for those nearing retirement age,***” express a clear concern for an aging segment of the population in the Greater Roaring Fork

Region. The frequency of these comments is followed closely by concerns for affordable housing rates still being too high, coupled with poor living conditions and maintenance, and often an expressed desire or intention to leave.

"I can barely afford my 'Affordable Housing' rent with 2 jobs (1 full-time, 1 part-time). I don't have many bills or debt, so I'm not living beyond my means, but I have no money because everything goes towards rent. I have no cable because I can't afford it. My apartment is so poorly insulated, and we have electric heat, my bill in winter is ridiculous, even with me turning my heat down to 50 degrees when I leave. It's absurd we can't get cable or other utilities included in rent, which goes up every year!!! I can barely take a real shower because my hot water runs out so quickly. So, also, since I can never seem to get ahead financially because I'm putting everything towards rent and electric, how am I supposed to come up with \$2000 to put down towards a house if I win the lottery? I have been here 14 years and see no real housing in my future. I have been here 14 years and see no real housing in my future. I'm moving to Denver."

"New 'affordable' housing is aimed at 80% of median. Already paying more than 50% of net income for rent and do not make median income. Off seasons I just make rent, forget anything else. Do not want to leave, but it is no longer possible to stay."

Other issues with affordable housing included needs for alternative housing assistance such as down payment and deposit assistance, as well as a common interest in prioritizing affordable housing for long-term residents of the area.

Free-market Housing Issues. Overwhelmingly, residents discussed the need for lower-cost market-level homes. Many of these comments specifically addressed the existence of a substantial gap between maximum earnings for housing assistance, and the cost of appropriate housing on the free market. Many other comments cited concerns for HOA fees driving up the cost of housing. The most common theme within these concerns was related to affordable homes that were appropriate for families, while other themes addressed starter homes and affordable market options for young adults.

"I am in the process of purchasing a new home with my partner. Together, we represent a good financial means/middle class. We both have homes that went under contract within 3 days each (Carbondale and New Castle). We had trouble finding a home to work for our future (family, size of home, garage, location to each of our work places). The one takeaway I found in our search is that attainable housing exists for us, but with very steep HOA dues (RVR, Iron Bridge... \$400/month!). The next generation of homeowners is very likely matching our demographic and not willing to subsidize golf courses. Otherwise, we could integrate into those neighborhoods and communities."

"We've been looking to buy for 3 years. The market has only gotten worse for people like us. Small to average homes, or fixer uppers that we would be looking to buy are usually well over \$400K. This is going to be a problem for those

looking to put down a root in this town. Average first-time home owners around the country are looking to pay half that. The housing lotto only pops up once every few months and 60+ families vie for a home that would be considered average price elsewhere around the country.”

“Housing is extremely difficult to find. I don't even qualify for affordable housing because I apparently make too much, which is insane to me. I shouldn't have to living pay check to pay check in order to pay for housing. I'm in one of the few professions who live in the Greater Roaring Fork Region year-round, architecture. I have a college degree and work more than 40+ hours a week. It's stupid how restrictive housing is here.”

“It is heart breaking to know our children will not be able to afford to live in this beautiful community. We were lucky to build our home when we did - my husband has worked for the resort for 30+ years and at his current salary we could not afford to purchase our home. The turn-over of core employees such as teachers and police/fire officers is greatly impacted by the lack of 'decent' affordable housing. Many of the deed-restricted developments have become slums - yet still too expensive. I would not want my children living there. We could sell our home for a lot of money but we wouldn't be able to replace it in the valley. Pay (all 3 have college degrees) versus cost of living don't add up.”

“Build housing to support young professionals. We don't need 4/5-bedroom golf communities. We need more inventory in the 2/1 1000-1200 sf range so that young people can afford housing to start families and not be burdened by deed restrictions or rent stipulations.”

Aside from these issues, commenters also frequently voiced concerns over short term rentals, vacation homes, and rent-by-owner services (AirBnB, VRBO, etc.

“The Airbnb vacation rentals have decimated the available rental market for new employees in C'dale and G'wood area.”

“I am concerned that the housing prices are too high for people to get out of renting and the renting inventory is being pinched by units being taken off the rental market and being put into platforms like air B&B, further hurting people trying to get a home. If people can't live in their town, the town will cease to be a community.”

The Role of Government in Affordable Housing. Regarding how city and county governments should be involved in affordable housing initiatives, the respondents were split between two different positions. Many respondents argued that governments should not be involved in housing at all and to eliminate development barriers to better serve a free-market, while many others called for the creation of a regional housing authority, increased regulation of the housing market (particularly to regulate rent-by-owner programs, like AirBnB), and more effort into planning and zoning for new developments to regulate traffic flow and water usage.

“The Greater Roaring Fork Region needs an active regional housing authority that governs or makes recommendations with teeth to local municipal and county governments about housing placement. County/municipal governments must work together so that the Hwy 82 corridor does not over-reach its carrying capacity. Inter-county planning is a must. Municipal infill is also a must to avoid sprawl. The GRFR needs affordable options for senior housing and so forth but mainly coordinated planning efforts. The amount of water available for housing must also be taken into consideration since studies have shown that the state's population will increase beyond water capacity very soon.”

“The problem with housing is one of excessive zoning and regulation. Take these barriers of the free market away and there would be affordable housing in Aspen. The studies are clear. Please read the studies before enacting another government scheme that will de-facto zone out and exclude minorities and the poor. Look at results, not intentions as a guide to your actions. Free up the marketplace and the housing shortage will quickly disappear, and the local economy will get a boost when more efficient builders who were excluded from the market due to cronyism enter and flourish...”

Cost of Living Issues. By far, the most common theme related to cost of living was a concern for low wages. One commenter explains **“Housing costs compared to incomes are horrifying. I have zero savings because of the rental market. I have little recreation time because I work so much for so little, and I have a masters degree,”** while another argues **“We don't have a housing problem, we have a wage problem. Our family's income is less than 12 years ago for same type of work, while expenses have increased.”** Aside from wages, common themes included cost of health insurance and child care.

## 4. Employer Survey Results

### Introduction and Methodology

The primary purpose of the Employer Survey was to understand local housing and employment issues from the perspective of employers. The survey collected a variety of data on employment patterns, the impact of housing availability on retaining/recruiting employees and business operations, employer opinions and activities regarding local workforce housing, and related issues. The survey was fielded in August through October, 2018 utilizing a variety of techniques, as follows:

- A survey form with accompanying cover letter and return envelope was mailed to a random sample of 600 employers throughout the study area, with a deliberate oversampling of larger employers (which account for a disproportionate share of employment). Employers were given the option of completing the survey using either the paper form or online.
- Invitations to an online survey were emailed to a random sample of 842 employers located throughout the region, using an email list purchased from a commercial list vendor, again with an oversampling of larger employers. An additional 41 employers were contacted via email based on a business directory posted on the Town of New Castle website.
- Invitations to an online survey were emailed by the Glenwood Springs Chamber Resort Association and Carbondale Arts to their respective memberships. Additionally, the Aspen/Pitkin County Housing Authority emailed survey invitations to business licensees of the City of Aspen.
- Finally, personalized outreach was made to selected large employers in the region to encourage response, given the significant number of employees they have.

Altogether, a total of 300 employer surveys were received. A first draft report was prepared for discussions in October. That report was based on 230 responses. It was updated in December to include responses from an additional 70 employers. The responding employers represent a diverse range of sizes, locations, and industry sectors. Altogether, responding employers account for 14,485 total peak-season employees (taking the maximum of winter employment and summer employment for each employer), an appreciable share of total employment in the region.

The 95% confidence interval for a sample of 300 is +/-5.7 percentage points (larger for subgroups of respondents and questions with smaller sample sizes).

Included in the appendices to this report are the survey form and cover letter, verbatim responses to the survey's open-ended questions, and statistical tables summarizing the survey results.

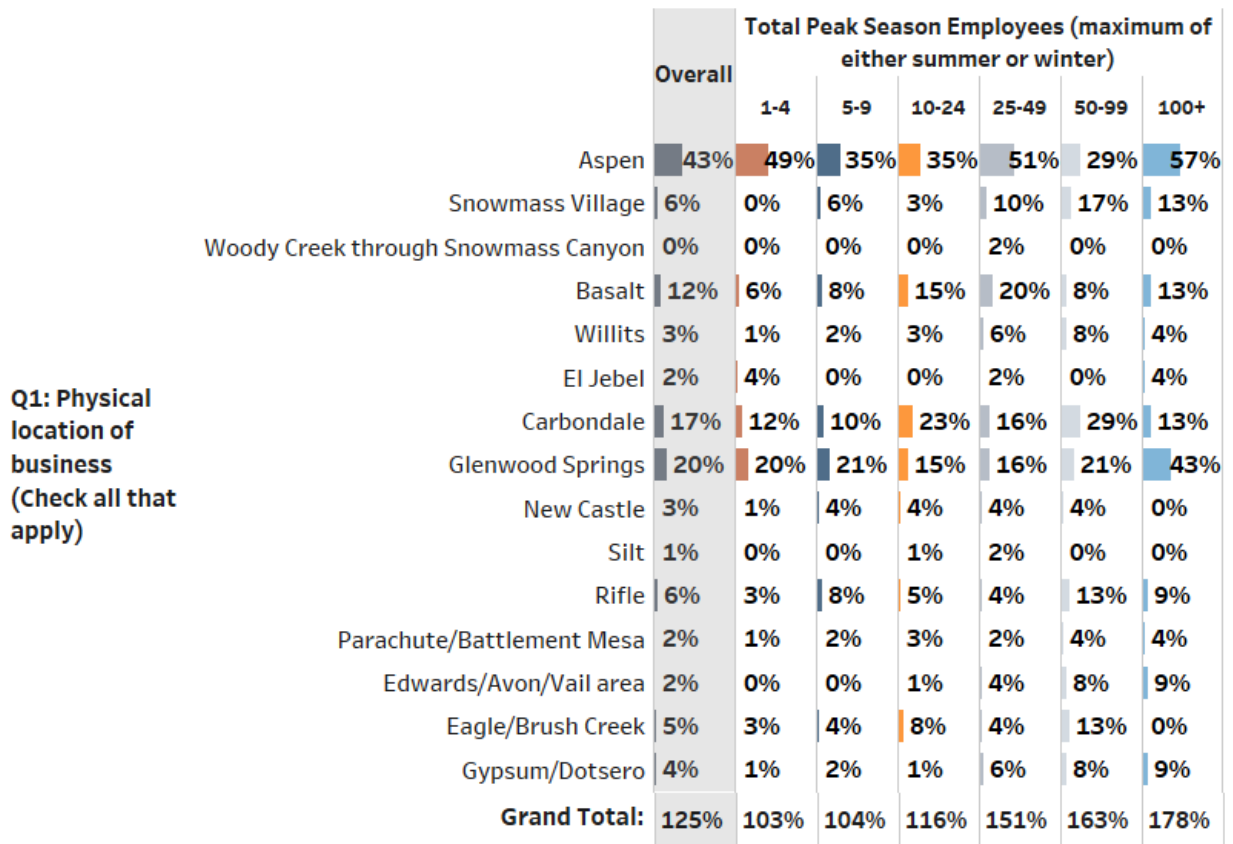
The discussion to follow focuses on the overall results as well as breakouts by employer size (i.e. number of employees).

## **Employer Demographics**

The survey contained a series of questions designed to characterize employers on the basis of location, industry sector, square footage, and other functional characteristics.

### **Employer location**

The survey obtained responses from employers throughout the region, with the greatest representation in the employment centers of Aspen (43%) and Glenwood Springs (20%). Employers could check all the locations where they had a presence; altogether, employers averaged 1.25 locations (as reflected in the "Grand Total" row). While most small employers with nine or fewer employees had just one location, larger employers were more likely to have multiple locations – with the largest employers (100+ employees) averaging 1.78 locations in the region.

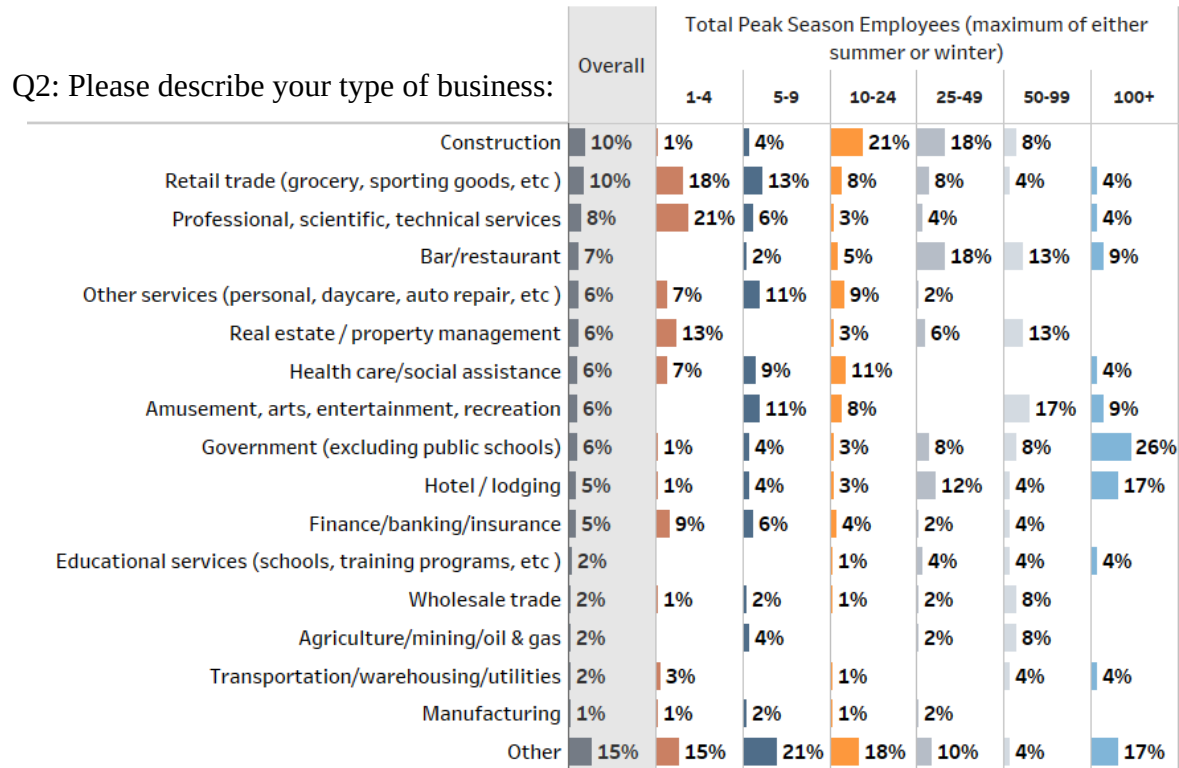


Source: 2018 Roaring Fork / Colorado River Valley / Eagle County Employer Survey



## Industry sector

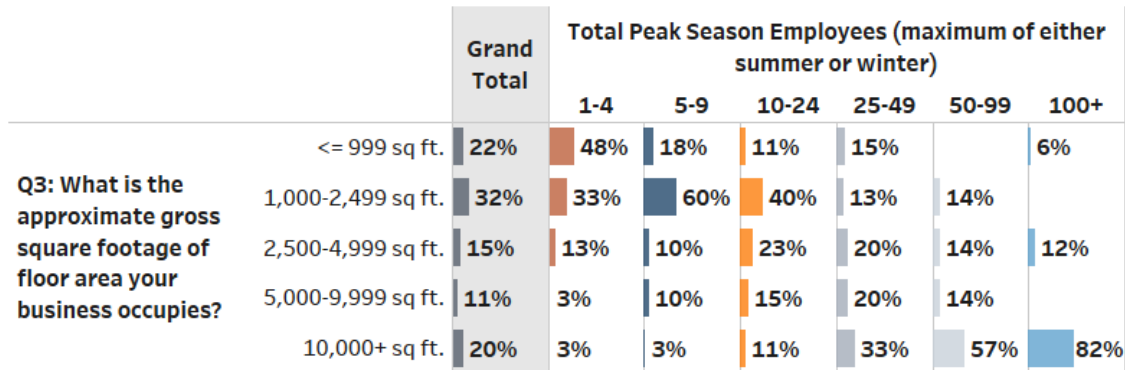
Survey respondents were distributed across a broad variety of industry sectors, led by construction (10% of respondents), retail trade (10%), professional/scientific/technical services (8%), and bar/restaurant (7%).



Source: 2018 Roaring Fork / Colorado River Valley / Eagle County Employer Survey

### Square footage

Employers occupied a diverse range of spaces, with 22% occupying less than 1000 square feet (square feet), 32% occupying 1000 – 2499 square feet, 15% occupying 2500 – 4999 square feet, 11% occupying 5000 – 9999 square feet, and 20% occupying 10,000+ square feet. The median space occupied was 2200 square feet, and the average (pulled up by very large employers) was 19,251 square feet.



Source: 2018 Roaring Fork / Colorado River Valley / Eagle County Employer Survey

## Employment Patterns

Employment characteristics were probed in depth, in order to understand the profile of the workforce, the degree to which employers are adequately staffed, the impact of housing availability on staffing, and related issues.

### Number of employees

Employers were asked to state the number of people they employ in both the summer season (June – September) and winter season (December – March). As shown in the table below, responding employers had a range of sizes. In summer, 24% of respondents employed 1-4 workers; 17% employed 5-9 workers; 27% employed 10-24 workers; 17% employed 25-49 workers; 8% employed 50-99 workers; and 7% employed 100+ workers. Generally similar patterns are apparent in winter. As such, the bulk of respondents were small to medium sized employers. *(Note: The universe of all employers in the region includes a higher share of small establishments with under 10 employees. As noted previously, the employer survey deliberately oversampled larger employers, in recognition of the fact that larger employers account for comparatively greater employment.)*

| No. of employees  | Share of Employers - by Number of Employees, by Season |                     |                                    |
|-------------------|--------------------------------------------------------|---------------------|------------------------------------|
|                   | Employees in Summer                                    | Employees in Winter | Maximum of either summer or winter |
| 1- 4              | 24%                                                    | 28%                 | 24%                                |
| 5- 9              | 17%                                                    | 18%                 | 16%                                |
| 10- 24            | 27%                                                    | 25%                 | 26%                                |
| 25- 49            | 17%                                                    | 16%                 | 17%                                |
| 50- 99            | 8%                                                     | 7%                  | 8%                                 |
| <u>100+</u>       | <u>7%</u>                                              | <u>7%</u>           | <u>8%</u>                          |
| Total             | 100%                                                   | 100%                | 100%                               |
| Average employees | 39.3                                                   | 46.8                | 50.3                               |
| Median employees  | 12.0                                                   | 11.0                | 12.0                               |
| Survey responses  | 287                                                    | 272                 | 288                                |

## Employees by job status

Employers were asked to report their total number of year-round full-time, year-round part-time, seasonal full-time, and seasonal part-time employees, in both the summer and winter seasons. Following is a summary of the major findings.

- Year-round vs. seasonal job status: At responding employers, most jobs are held by year-round employees in both summer (80% of employees) and to a lesser degree winter (69%). A significant share of employees are seasonal in summer (20%) and to a higher degree in winter (31%).
- Full-time / part-time job status: Most persons employed by responding employers are full-time workers (32 or more hours per week), while a minority are part-time (under 32 hours/week). Specifically, 82% of summer employees at responding employers are full-time, as are 78% of winter employees. The remaining 18 – 22% of employees in each season are part-time employees.

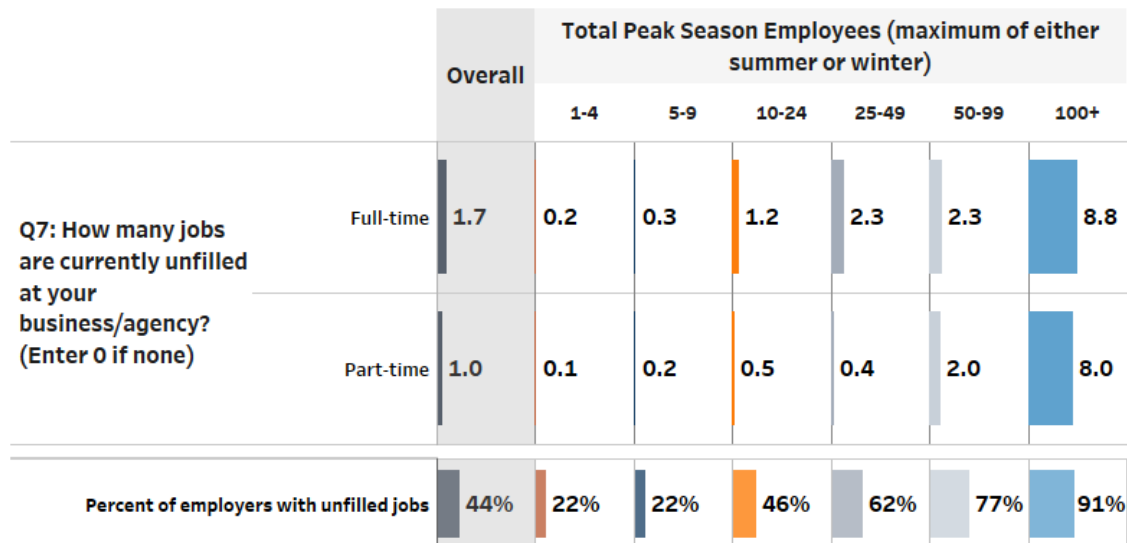
| Employee type*        | Employees in summer |                      | Employees in winter |                      |
|-----------------------|---------------------|----------------------|---------------------|----------------------|
|                       | Average # employees | Percent of employees | Average # employees | Percent of employees |
| Year-round, full-time | 27.6                | 70%                  | 28.0                | 60%                  |
| Year-round, part-time | 4.0                 | 10%                  | 4.2                 | 9%                   |
| Seasonal, full-time   | 4.8                 | 12%                  | 8.6                 | 18%                  |
| Seasonal, part-time   | 2.9                 | 7%                   | 6.0                 | 13%                  |
| <b>Total</b>          | <b>39.3</b>         | <b>100 %</b>         | <b>46.8</b>         | <b>100 %</b>         |
| Total year-round      | 31.6                | 80%                  | 32.2                | 69%                  |
| Total seasonal        | 7.8                 | 20%                  | 14.6                | 31%                  |
| <b>Total</b>          | <b>39.3</b>         | <b>100 %</b>         | <b>46.8</b>         | <b>100 %</b>         |
| Total full-time       | 32.4                | 82%                  | 36.6                | 78%                  |
| Total part-time       | 7.0                 | 18%                  | 10.2                | 22%                  |
| <b>Total</b>          | <b>39.3</b>         | <b>100 %</b>         | <b>46.8</b>         | <b>100 %</b>         |

\*Note: Full-time jobs are defined as 32 or more hours/week; part time jobs as <32 hours/week.

## Unfilled jobs at the present time

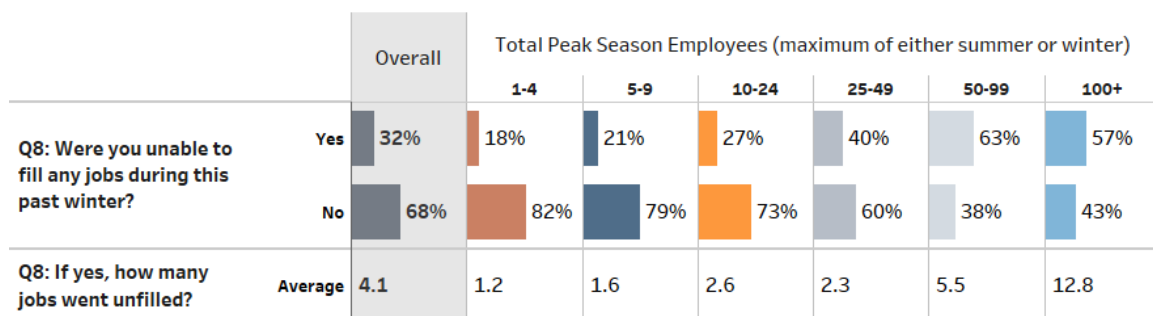
Fully 45% of responding employers said they had unfilled jobs at the present time, including 37% with unfilled full-time jobs and 19% with unfilled part-time jobs. As might be expected, the larger the employer, the greater the likelihood of having unfilled jobs. Specifically, the share of employers with unfilled jobs rises steadily from 22% among the smallest employers with 1-9 jobs, to 91% among employers with 100+ jobs.

Altogether (including both employers understaffed and fully staffed), employers averaged 2.7 unfilled jobs, which is equivalent to 7% of summer season employment at these employers. (Stated another way, at the time of the survey, staffing at responding employers was about 7% short of their full needs.)



### Unfilled jobs this past winter

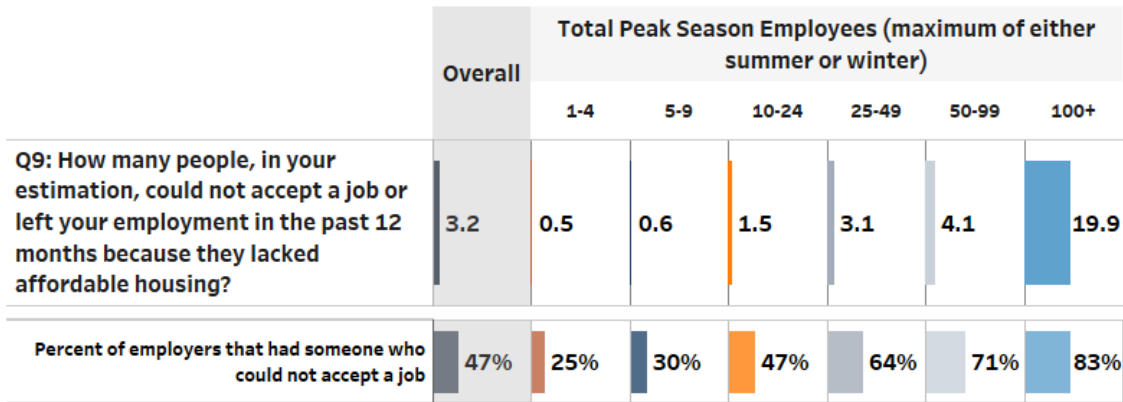
This past winter (2017/18 season), 32% of responding employers had jobs they were unable to fill. The share of employers with unfilled jobs varied from 18% at employers with 1-4 workers to 60% at employers with 50+ workers. Altogether, including respondents both fully staffed and understaffed, employers were on average understaffed by 2.8% this past winter.



Source: 2018 Roaring Fork / Colorado River Valley / Eagle County Employer Survey

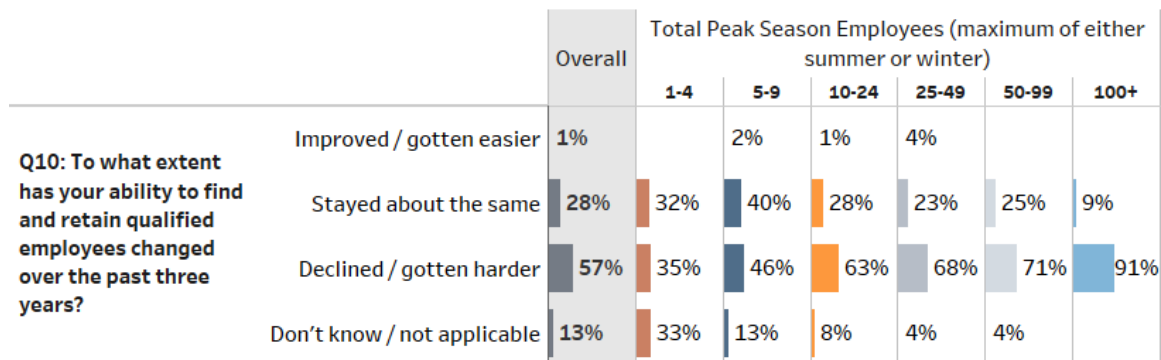
### Persons unable to accept a job or who left employment because they lacked affordable housing

In the past 12 months, 47% of responding employers had workers decline a job or leave their employment due to a lack of affordable housing. The share of employers experiencing this situation rose from 25% among the smallest employers with 1-4 employees to 83% among the largest employers with 100+ employees. Altogether, employers had an average of 3.2 job candidates or employees in this situation, which is equivalent to 6.3% of their peak season employment.



### Ease of finding and retaining qualified employees

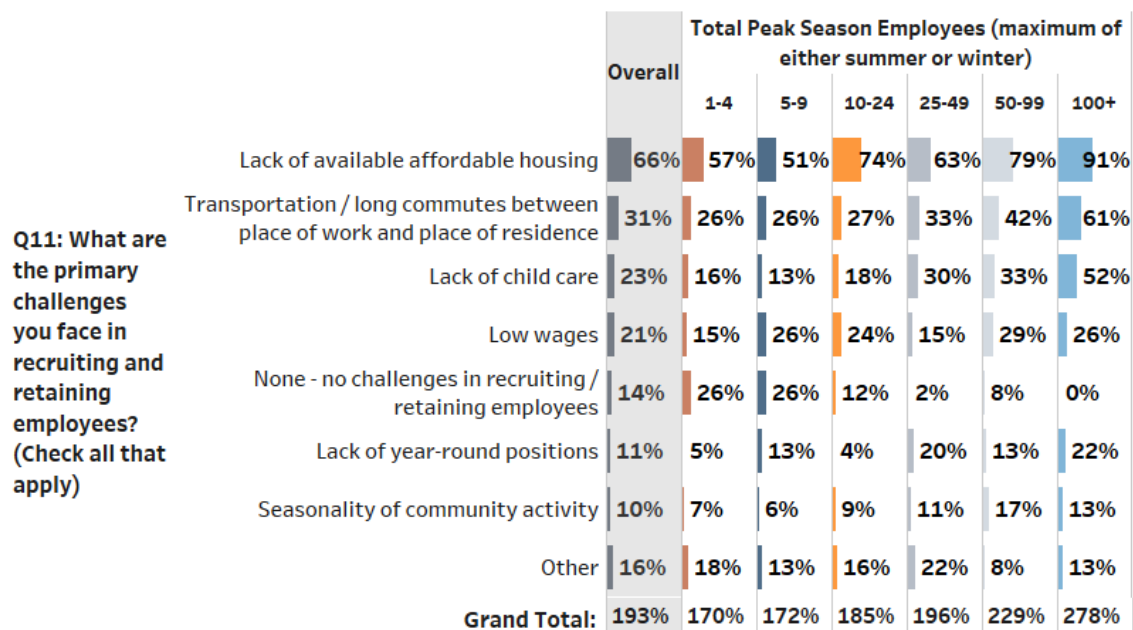
Most employers (57%) say it has gotten harder to find and retain qualified employees over the past three years, while 28% say it has stayed about the same, and just 1% say it has gotten easier (13% don't know). The share of employers saying it has gotten harder to find/retain employees increases from 35% at the smallest employers to 91% at the largest.



Source: 2018 Roaring Fork / Colorado River Valley / Eagle County Employer Survey

### Primary challenges in recruiting and retaining employees

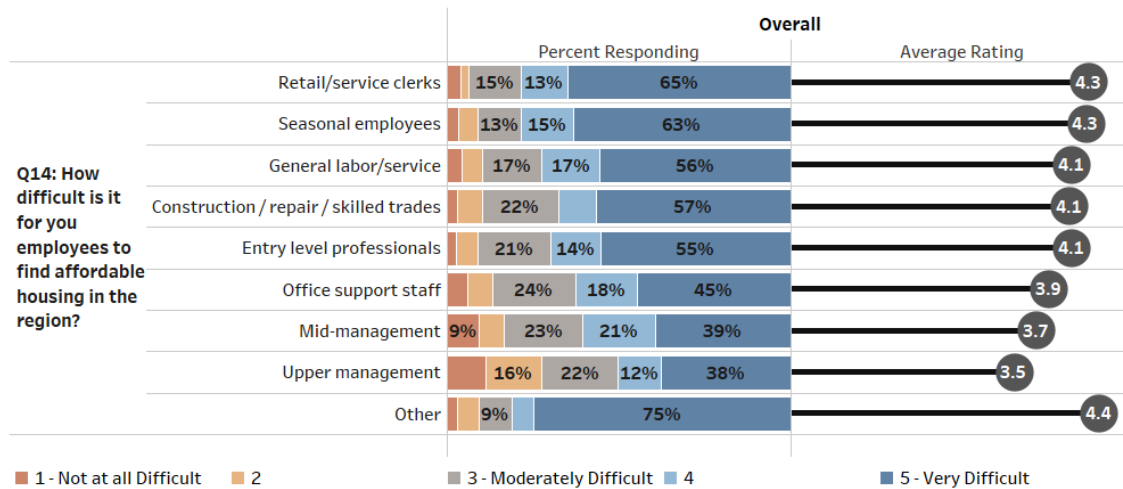
Fully 86% of responding employees say they have challenges in recruiting and retaining employees, including 74% of the smallest employers and 100% of the largest. The biggest challenge by far is a lack of affordable housing, cited by 66% of employers. Other factors cited by lesser numbers of employers include long commutes (31%), lack of child care (23%), low wages (21%), and various other issues. Large employers tend to identify more challenges than smaller employers.



Source: 2018 Roaring Fork / Colorado River Valley / Eagle County Employer Survey

### How difficult is it for your employees to find affordable housing?

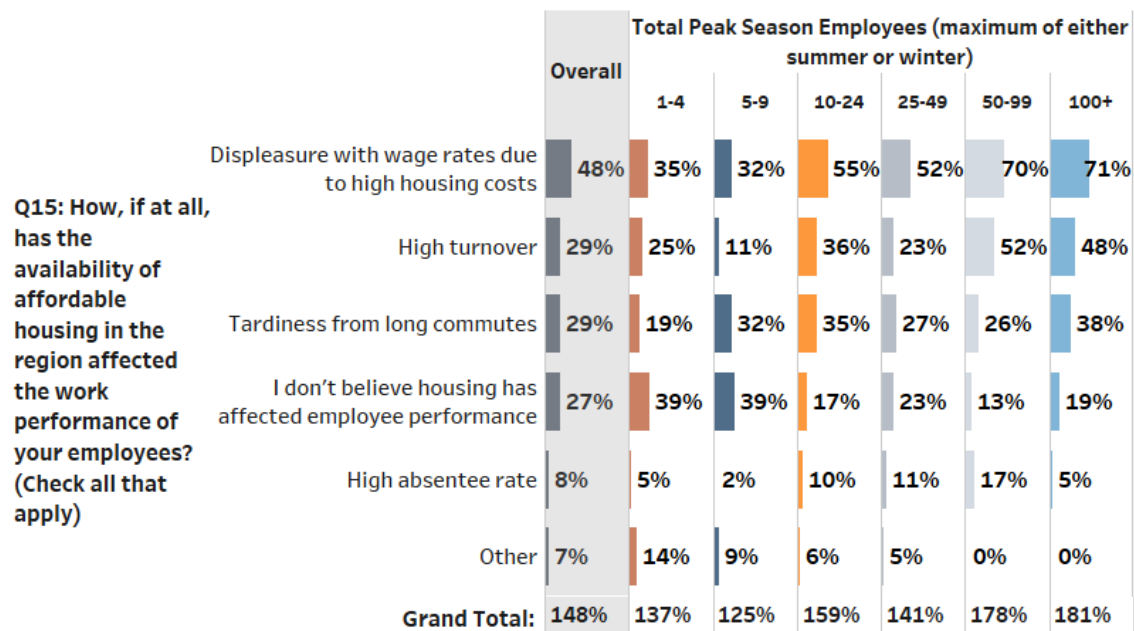
Employers were asked to rate how difficult it is for various employee groups to find affordable housing in the region, using a scale where 1=not at all difficult and 5=very difficult. As shown below, a majority of employers believe it is “5-very difficult” for the following groups of employees to find affordable housing: retail/service clerks (65%), seasonal employees (63%), general labor/service (56%), construction/repair/skilled trades (57%), and entry level professionals (55%). A significant but smaller share of employers say that finding affordable housing is very difficult for office support staff (45%), mid-management (39%), and upper management (38%).





## Impact of housing availability on work performance of employees

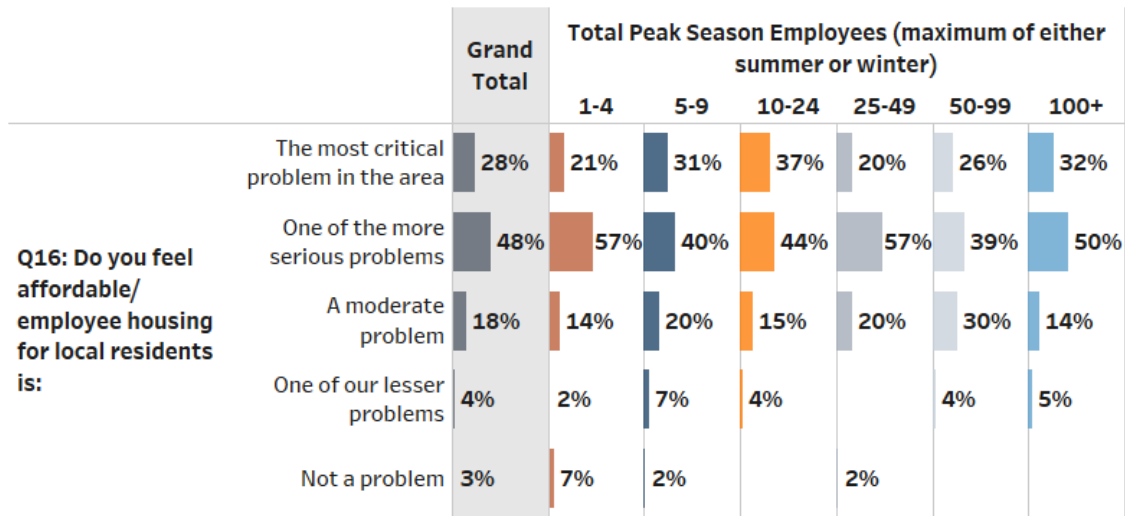
Almost three-quarters of employers (73%) feel that the availability of affordable housing has impacted the work performance of their employees, rising from 61% of the smallest employers to 81% of the largest. Impacts include displeasure with wage rates due to high housing costs (48%), high turnover (29%), tardiness from long commutes (29%), high absentee rates (8%), and other issues (7%, e.g. fatigue from long commutes, inability to expand business, etc.). Larger employers are more likely to experience several of these impacts than smaller employers.



Source: 2018 Roaring Fork / Colorado River Valley / Eagle County Employer Survey

### Seriousness of the issue of affordable/employee housing for local residents

Most employers feel that affordable/employee housing is a serious issue, with 28% rating it as “the most critical problem in the area,” and 48% rating it as “one of the more serious problems.” Smaller shares responded that it is “a moderate problem” (18%), “one of our lesser problems” (4%), or “not a problem” (3%). A large majority of employers in all size categories feel that housing is a “critical” or “serious” problem (65-82%).



Source: 2018 Roaring Fork / Colorado River Valley / Eagle County Employer Survey

### Future hiring plans

Most responding employers either plan to increase their number of employees in the next five years (45%) or stay about the same (46%), while just 1% plan to reduce their number of employees. Employers of all sizes tend to have a similar split of opinions, except for the largest employers, which are much more likely to say they will stay about the same (83%) than increase employment (17%).

|                                                         |                                                  | Overall | Total Peak Season Employees (maximum of either summer or winter) |     |       |       |       |      |
|---------------------------------------------------------|--------------------------------------------------|---------|------------------------------------------------------------------|-----|-------|-------|-------|------|
|                                                         |                                                  |         | 1-4                                                              | 5-9 | 10-24 | 25-49 | 50-99 | 100+ |
| <b>Q12: During the next five years, do you plan to:</b> | Increase your number of employees - by how many? | 45%     | 52%                                                              | 40% | 48%   | 49%   | 42%   | 17%  |
|                                                         | Stay about the same                              | 46%     | 39%                                                              | 54% | 41%   | 45%   | 46%   | 83%  |
|                                                         | Reduce your number of employees - by how many?   | 1%      | 2%                                                               | 2%  | 1%    |       | 4%    |      |
|                                                         | Don't know                                       | 7%      | 8%                                                               | 4%  | 10%   | 6%    | 8%    |      |
|                                                         | If increase, by how many employees?: Average     | 4.9     | 2.1                                                              | 2.1 | 4.2   | 7.8   | 11.4  | 20.7 |
|                                                         | If reduce, by how many employees?: Average       | 2.0     |                                                                  | 2.0 |       |       |       |      |

Source: 2018 Roaring Fork / Colorado River Valley / Eagle County Employer Survey

## Employer Actions

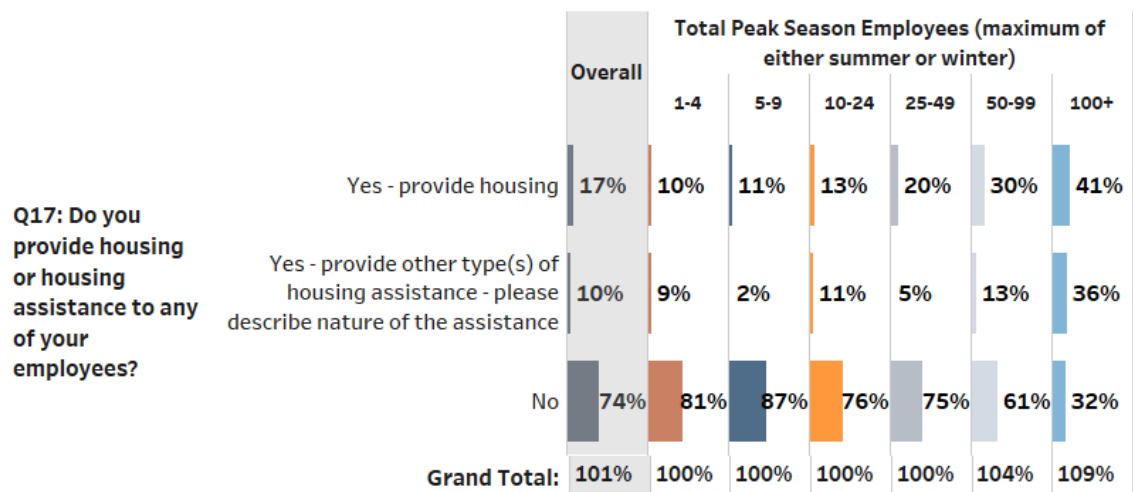
The survey probed specific actions currently being undertaken by employers to address housing needs, as well as their potential willingness to assist in the future.

### Provision of housing and housing assistance to employees

A significant share of employers – and especially the largest employers – provide some type of housing assistance to their employees. Specifically, 17% of respondents provide housing (including 10% of the smallest employers, increasing to 41% of the largest). Additionally, 10% of employers provide other types of housing assistance, including 2-13% of small to medium employers and 36% of the largest. As indicated by comments, the most common types of “other housing assistance” are housing stipends/allowances (e.g. rolled into base wages), housing subsidies, and master leasing units for employees. Additionally, some employers provide down payment assistance, help/loans for security deposits, referrals, and other types of assistance.

Altogether, responding employers provide housing to 1,030 employees in summer and 1,055 employees in winter – roughly equivalent to 9% of their summer employees and 8% of their winter employees. Slightly over half of the employees housed are seasonal employees (53% of employees housed in summer, 54% in winter), while 46-47% of those housed are year-round employees.

Additionally, responding employers provide other types of housing assistance to 275 employees in summer and 260 employees in ski season – roughly equivalent to 2% of their summer and winter employees. Most of those assisted are year-round employees (76% of employees assisted in summer, 80% in winter).



Source: 2018 Roaring Fork / Colorado River Valley / Eagle County Employer Survey

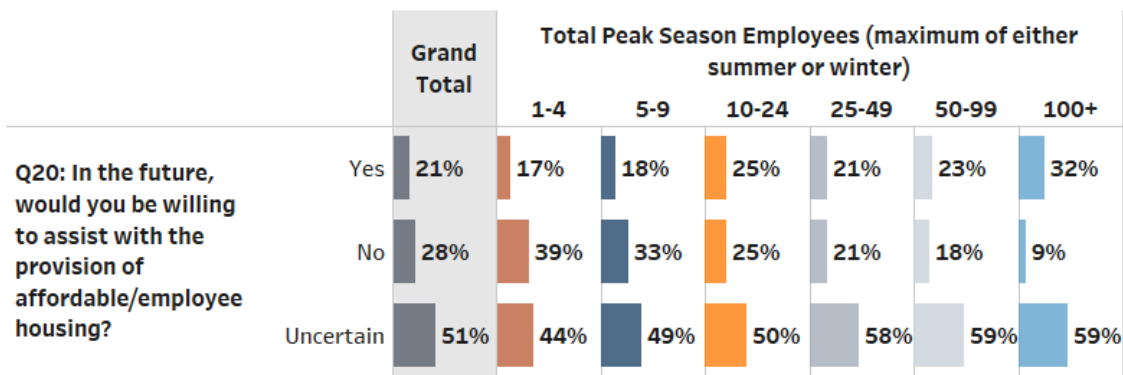
### Share of Employees Housed or Receiving Other Housing Assistance from Employer by Season



Source: 2018 Roaring Fork / Colorado River Valley / Eagle County Employer Survey

### Willingness to assist with provision of affordable housing in the future

About one in five employers (21%) stated they would be willing to assist with the provision of affordable housing in the future, while 28% are unwilling, and fully half (51%) are uncertain. The high level of uncertainty may imply a potential openness to assisting, subject to the details of what that might entail.



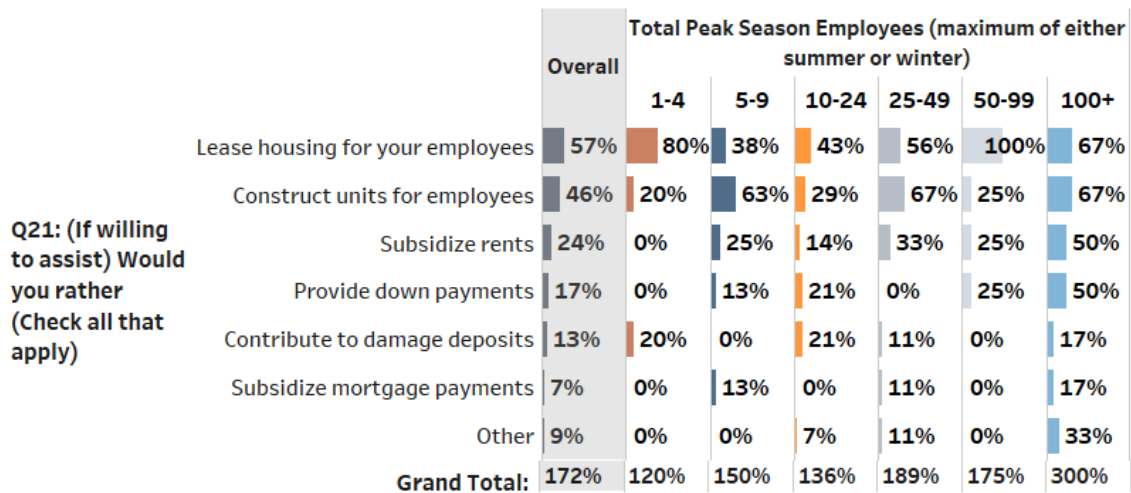
Source: 2018 Roaring Fork / Colorado River Valley / Eagle County Employer Survey

### (If willing to assist) Preferred type(s) of assistance

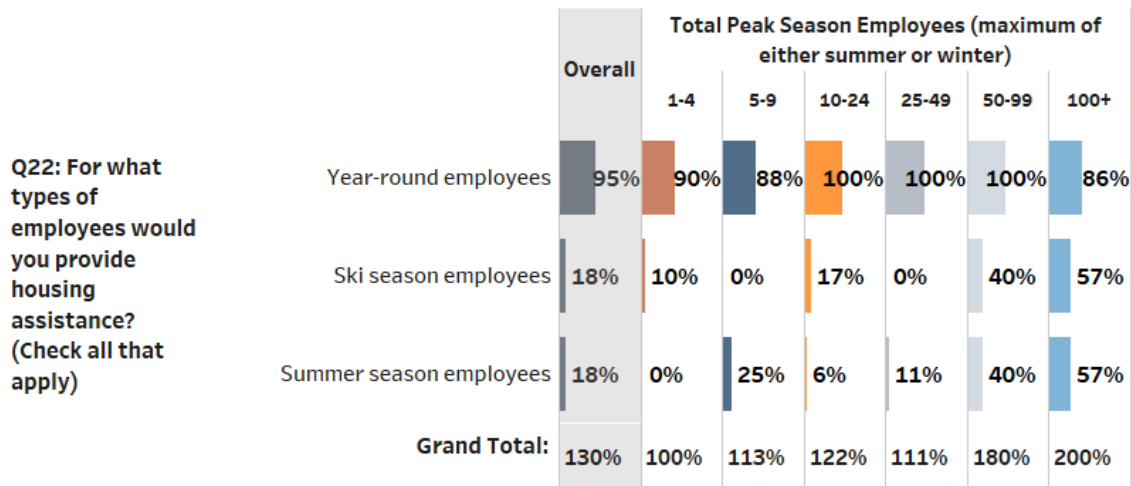
Among employers who expressed a willingness to assist, the most preferred types of assistance are leasing housing for employees (57%) and constructing units for employees (46%). Lesser shares cite subsidizing rents (24%), providing down payments (17%), contributing to damage deposits (13%), and other approaches.

### (If willing to assist) Type(s) of employees you would assist

Among employers who expressed a willingness to assist, a strong preference is apparent for assisting year-round employees (95% of employers would assist), with much lower shares willing to assist ski season employees (18%) or summer season employees (18%).



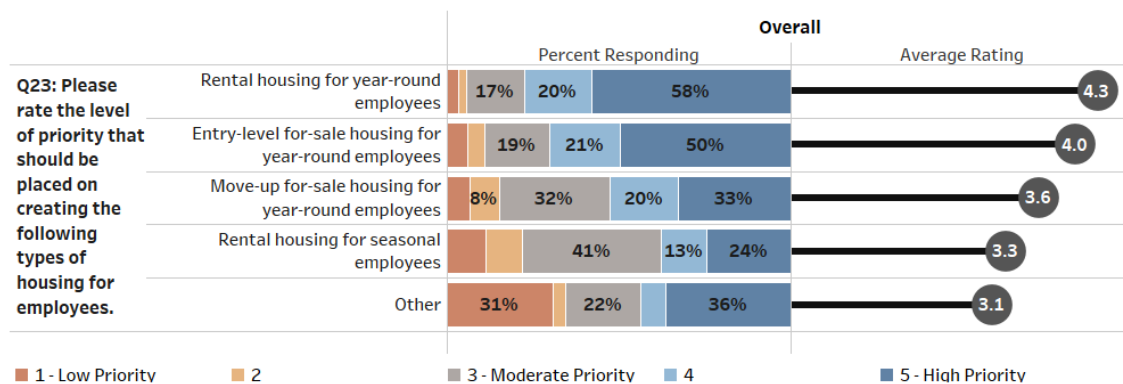
Source: 2018 Roaring Fork / Colorado River Valley / Eagle County Employer Survey



Source: 2018 Roaring Fork / Colorado River Valley / Eagle County Employer Survey

## Level of priority that should be placed on types of housing for employees

On a scale where 1 = “low priority,” 3 = “moderate priority,” and 5 = “high priority,” employers placed the highest priority on rental housing for year-round employees (58% responding “5 – high priority”). Following in priority were entry-level for-sale housing for year-round employees (50% “5”), move-up for-sale housing for year-round employees (33%), and rental housing for seasonal employees (24%).



## Open-ended Comments and Suggestions

The Employer Survey included several opportunities for open-ended comments. A complete listing of these comments is presented in an Appendix to this report, while selected key findings regarding the comment feedback are summarized below.

### **Q24: Do you have any other comments or suggestions regarding affordable housing for employees in the region?**

At the end of the employer survey, respondents were asked to provide any other comments or suggestions regarding affordable housing for employees in the region. In total, 87 employers provided comments. These responses have been organized into five general categories related to affordable housing needs/concerns, general support for or opposition to employee housing, the role of government in affordable housing, and general comments about living in the area. For each category, common themes and examples are provided below.

#### **Affordable Housing Concerns**

The most common theme in this category was obstacles; many respondents discussed how there are a number of obstacles that contribute to the problem of finding affordable housing in the region. These obstacles including a lack of information about the issue, a risk of misrepresentation in eligibility for assistance, qualifications that are too restrictive, and a lack of general community buy-in to addressing the issues. In one example, a respondent emphasized a concern with a lack of community buy-in by explaining as follows:

“There's a lot of 'talk' about affordable and workforce-level housing in this valley, but when decent developments are presented to councils/town halls, etc. they always seem to be denied because of neighbor disapproval. The community needs to be willing to accept some amount of workforce housing, even if it's not exactly in the ideal location for each individual in this valley.”

Another common theme was found among respondents who used this opportunity to express specific needs for the community, including affordable family-oriented homes, housing for emergency services personnel, long-term supportive housing, seasonal housing, and upkeep/maintenance of existing homes.



### **Support vs. Opposition to Employee Housing**

Overall, responses related to employer sponsored housing were mixed. Many commenters said that the lack of availability of affordable housing negatively impacts the local economy.

“As a small business owner in Eagle County, for over 20 years, the lack of affordable housing has limited my selection of qualified applicants.”

“From a resort Standpoint -As a luxury, high end destination we are losing our ability to service our guests. From a Community Standpoint - we are losing the demographic that has school age children, losing our doctors and nurses, our teachers, our backbones of a sustainable community.”

However, a number of other employer respondents emphasized reasons they are opposed to employer sponsored housing, such as high property taxes, high cost of upkeep, and an inability for the program to address other issues that contribute to the housing economy and living conditions in the area.

“Simply increasing the number of affordable housing units is a very limited approach. Each new job creates the need for additional services in the community resulting in the need for more employees and more housing units, etc. There is no current method for building our way out of the lack of housing and affordability. Our current approach to housing leads to reductions in the quality of life in the communities and increased stresses. A primary focus should be on infrastructure like real multi-modal transportation corridors/options. Multi-family units linked to these multi-modal transportation corridors would have long range benefits for our communities that are currently undervalued.”

### **The Role of Government in Affordable Housing**

Many respondents offered suggestions and opinions regarding the involvement of local and county-level governments in solving the problem of affordable housing. Themes within these comments emphasized the government's responsibility to provide regulation, to incentivize new developments, and to focus on issues that contribute to the housing market. Other comments called for better collaboration between counties, implementing a housing authority or similar dedicated division of government, and developing city-owned land for affordable housing.

"Offer tax incentive to employer to offer employee housing assistance."

"Very complicated issue. Very little incentive for developers to build new housing stock that matches the price point that makes economic sense for the working people of the area. Perhaps a housing authority could be formed."

"I hate adding to government size but to have an in-house affordable construction division would be a good way for the housing department to control additions, code issues, costs, etc. and to a certain extent keep better tabs on having legitimate owners."

"Eagle, Garfield and Pitkin Counties need to learn to work together to help each other as the cost of housing problem and being able to attract hires from out of area or even in is only going to worsen. It is in the best interest for all, (the mountain communities) to allow families to for example live in Pitkin County housing but work in Eagle County and vice versa. The County lines in the valley are a problem in more ways than one."

### **Other Themes and Comments**

Other themes included an emphasis on using local resources to complete housing developments. One respondent commented;

"I would be happy to talk about constructing employee housing with other small businesses so we can pull our resources and start to handle this extremely important issue. Or anything really, it is a huge problem for the health of my businesses, it is the number 1 problem in all my businesses. I am open to doing everything I can to help fix it."



Appendix:  
Household Survey with  
Glenwood Springs Breakout

# Roaring Fork Housing | By Area of Residence

|                                                                                   |                                                    | Overall | Area of residence          |                           |                     |                                          |                       |
|-----------------------------------------------------------------------------------|----------------------------------------------------|---------|----------------------------|---------------------------|---------------------|------------------------------------------|-----------------------|
|                                                                                   |                                                    |         | Aspen thru<br>Old Snowmass | Basalt thru<br>Carbondale | Glenwood<br>Springs | New Castle<br>thru<br>Battlement<br>Mesa | Eagle thru<br>Dotsero |
| Q1: How many months per year do<br>you typically reside in the area?              | Less than 3 months/year                            | 0%      | 0%                         | 0%                        |                     | 0%                                       |                       |
|                                                                                   | 3 to 6 months/year                                 | 0%      | 1%                         |                           | 0%                  | 0%                                       | 1%                    |
|                                                                                   | 7 to 11 months/year                                | 2%      | 5%                         | 3%                        | 3%                  | 0%                                       | 2%                    |
|                                                                                   | All year - 12 months                               | 97%     | 94%                        | 97%                       | 97%                 | 99%                                      | 97%                   |
| Q3: Do you own or rent the<br>residence where you currently<br>live?              | Own                                                | 68%     | 59%                        | 68%                       | 59%                 | 70%                                      | 87%                   |
|                                                                                   | Rent                                               | 30%     | 39%                        | 30%                       | 38%                 | 27%                                      | 13%                   |
|                                                                                   | Other                                              | 1%      | 1%                         | 1%                        | 2%                  | 2%                                       |                       |
|                                                                                   | Currently don't have housing                       | 0%      | 1%                         | 0%                        | 1%                  | 1%                                       |                       |
| Q3.1: (If own) Do you own...                                                      | A free-market unit                                 | 83%     | 36%                        | 92%                       | 98%                 | 92%                                      | 92%                   |
|                                                                                   | A deed-restricted unit                             | 17%     | 64%                        | 8%                        | 2%                  | 8%                                       | 8%                    |
| Q3.2: (If rent) Do you rent...                                                    | A free market unit                                 | 71%     | 41%                        | 74%                       | 83%                 | 88%                                      | 92%                   |
|                                                                                   | A unit with employment or income<br>qualifications | 29%     | 59%                        | 26%                       | 17%                 | 12%                                      | 8%                    |
| Q4: Does your current employer<br>provide subsidized housing?                     | Yes                                                | 15%     | 28%                        | 22%                       | 10%                 | 4%                                       | 14%                   |
|                                                                                   | No                                                 | 79%     | 65%                        | 72%                       | 86%                 | 91%                                      | 78%                   |
|                                                                                   | Uncertain                                          | 6%      | 7%                         | 6%                        | 4%                  | 5%                                       | 8%                    |
| Q5: How long have you lived in<br>your current residence?                         | Less than 6 months                                 | 5%      | 7%                         | 8%                        | 4%                  | 5%                                       |                       |
|                                                                                   | 6 months up to 1 year                              | 10%     | 11%                        | 11%                       | 11%                 | 8%                                       | 8%                    |
|                                                                                   | 1 up to 3 years                                    | 20%     | 21%                        | 20%                       | 18%                 | 21%                                      | 17%                   |
|                                                                                   | 3 up to 5 years                                    | 13%     | 15%                        | 12%                       | 12%                 | 12%                                      | 12%                   |
|                                                                                   | 5 up to 10 years                                   | 15%     | 13%                        | 13%                       | 18%                 | 16%                                      | 13%                   |
|                                                                                   | 10 up to 20 years                                  | 22%     | 15%                        | 23%                       | 20%                 | 22%                                      | 33%                   |
|                                                                                   | More than 20 years                                 | 16%     | 17%                        | 14%                       | 17%                 | 15%                                      | 17%                   |
| Q5.0: How long have you lived in<br>the area (Pitkin/Garfield/Eagle<br>Counties)? | Less than 6 months                                 | 1%      | 1%                         | 2%                        | 1%                  | 1%                                       |                       |
|                                                                                   | 6 months up to 1 year                              | 3%      | 2%                         | 4%                        | 3%                  | 2%                                       | 3%                    |
|                                                                                   | 1 up to 3 years                                    | 8%      | 9%                         | 8%                        | 11%                 | 7%                                       | 5%                    |
|                                                                                   | 3 up to 5 years                                    | 7%      | 7%                         | 8%                        | 6%                  | 8%                                       | 6%                    |
|                                                                                   | 5 up to 10 years                                   | 14%     | 15%                        | 12%                       | 14%                 | 16%                                      | 15%                   |
|                                                                                   | 10 up to 20 years                                  | 20%     | 21%                        | 19%                       | 20%                 | 22%                                      | 16%                   |
|                                                                                   | More than 20 years                                 | 47%     | 44%                        | 47%                       | 46%                 | 45%                                      | 55%                   |
| Q5.2: How much longer do you<br>plan on living in the area?                       | Less than 6 months                                 | 1%      | 1%                         | 1%                        | 1%                  | 1%                                       | 1%                    |
|                                                                                   | 6 months up to 1 year                              | 1%      | 2%                         | 1%                        | 3%                  | 1%                                       | 1%                    |

Source: 2018 Roaring Fork / Colorado River Valley / Eagle County Household Survey

## Roaring Fork Housing | By Area of Residence

|                                                                                     |                                         |     | Overall | Area of residence          |                           |                     |                                          |                       |
|-------------------------------------------------------------------------------------|-----------------------------------------|-----|---------|----------------------------|---------------------------|---------------------|------------------------------------------|-----------------------|
|                                                                                     |                                         |     |         | Aspen thru<br>Old Snowmass | Basalt thru<br>Carbondale | Glenwood<br>Springs | New Castle<br>thru<br>Battlement<br>Mesa | Eagle thru<br>Dotsero |
| Q5.2: How much longer do you plan on living in the area?                            | 1 up to 3 years                         | 6%  | 5%      | 4%                         | 7%                        | 10%                 | 3%                                       |                       |
|                                                                                     | 3 up to 5 years                         | 7%  | 7%      | 5%                         | 7%                        | 9%                  | 6%                                       |                       |
|                                                                                     | 5 up to 10 years                        | 12% | 11%     | 17%                        | 13%                       | 11%                 | 8%                                       |                       |
|                                                                                     | 10 up to 20 years                       | 20% | 16%     | 22%                        | 21%                       | 20%                 | 23%                                      |                       |
|                                                                                     | More than 20 years                      | 51% | 58%     | 50%                        | 48%                       | 47%                 | 59%                                      |                       |
| Q7: In what type of residence do you live?                                          | Single-family home/cabin                | 56% | 28%     | 58%                        | 58%                       | 65%                 | 70%                                      |                       |
|                                                                                     | Townhouse/duplex                        | 12% | 12%     | 15%                        | 9%                        | 11%                 | 13%                                      |                       |
|                                                                                     | Apartment                               | 16% | 33%     | 13%                        | 19%                       | 9%                  | 6%                                       |                       |
|                                                                                     | Condo                                   | 9%  | 20%     | 8%                         | 9%                        | 2%                  | 6%                                       |                       |
|                                                                                     | Mobile home                             | 5%  | 5%      | 3%                         | 1%                        | 9%                  | 2%                                       |                       |
|                                                                                     | Motel                                   | 0%  | 0%      |                            | 1%                        |                     |                                          |                       |
|                                                                                     | Staying with friends                    | 0%  | 0%      | 0%                         | 0%                        | 1%                  |                                          |                       |
|                                                                                     | Tent/camper/truck/van                   | 0%  | 1%      | 1%                         | 1%                        | 0%                  |                                          |                       |
|                                                                                     | Other                                   | 2%  | 1%      | 1%                         | 3%                        | 1%                  | 3%                                       |                       |
| Q7.0: (If mobile home) Is your mobile home on...                                    | Owned land                              | 43% | 82%     | 18%                        |                           | 42%                 |                                          |                       |
|                                                                                     | Rented lot                              | 57% | 18%     | 82%                        | 100%                      | 58%                 | 100%                                     |                       |
| Q8: How many of the following are in your home?                                     | Bedrooms: Average                       | 2.8 | 2.2     | 2.8                        | 2.7                       | 2.9                 | 3.2                                      |                       |
|                                                                                     | Bathrooms: Average                      | 2.2 | 1.9     | 2.4                        | 2.1                       | 2.1                 | 2.8                                      |                       |
| Q11: Do you feel the availability of housing for the workforce in the region is ... | The most critical problem in the region | 23% | 35%     | 28%                        | 21%                       | 15%                 | 18%                                      |                       |
|                                                                                     | One of the more serious problems        | 53% | 51%     | 53%                        | 53%                       | 51%                 | 59%                                      |                       |
|                                                                                     | A moderate problem                      | 17% | 10%     | 14%                        | 18%                       | 23%                 | 17%                                      |                       |
|                                                                                     | One of the regions lesser problems      | 4%  | 2%      | 3%                         | 6%                        | 5%                  | 4%                                       |                       |
|                                                                                     | Not a problem                           | 3%  | 2%      | 2%                         | 1%                        | 6%                  | 2%                                       |                       |
| Q12: Do you live within town limits of an incorporated town?                        | Yes                                     | 68% | 73%     | 61%                        | 70%                       | 61%                 | 84%                                      |                       |
|                                                                                     | No                                      | 27% | 20%     | 36%                        | 24%                       | 32%                 | 11%                                      |                       |
|                                                                                     | Uncertain                               | 6%  | 7%      | 4%                         | 6%                        | 6%                  | 5%                                       |                       |
| Q13: Where do you live now (closest community)?                                     | Aspen                                   | 13% | 66%     |                            |                           |                     |                                          |                       |
|                                                                                     | Glenwood Springs                        | 16% |         |                            | 100%                      |                     |                                          |                       |
|                                                                                     | Carbondale                              | 12% |         | 57%                        |                           |                     |                                          |                       |
|                                                                                     | Snowmass                                | 4%  | 21%     |                            |                           |                     |                                          |                       |
|                                                                                     | Rifle                                   | 12% |         |                            |                           | 42%                 |                                          |                       |

Source: 2018 Roaring Fork / Colorado River Valley / Eagle County Household Survey

# Roaring Fork Housing | By Area of Residence

|                                                                                                                                                         |                                              | Overall | Area of residence          |                           |                     |                                          |                       |
|---------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------|---------|----------------------------|---------------------------|---------------------|------------------------------------------|-----------------------|
|                                                                                                                                                         |                                              |         | Aspen thru<br>Old Snowmass | Basalt thru<br>Carbondale | Glenwood<br>Springs | New Castle<br>thru<br>Battlement<br>Mesa | Eagle thru<br>Dotsero |
| Q13: Where do you live now<br>(closest community)?                                                                                                      | Basalt                                       | 5%      |                            | 22%                       |                     |                                          |                       |
|                                                                                                                                                         | Eagle/Brush Creek                            | 7%      |                            |                           |                     |                                          | 55%                   |
|                                                                                                                                                         | Gypsum                                       | 6%      |                            |                           |                     |                                          | 44%                   |
|                                                                                                                                                         | El Jebel                                     | 3%      |                            | 12%                       |                     |                                          |                       |
|                                                                                                                                                         | Willits                                      | 2%      |                            | 7%                        |                     |                                          |                       |
|                                                                                                                                                         | New Castle                                   | 7%      |                            |                           |                     | 22%                                      |                       |
|                                                                                                                                                         | Silt                                         | 5%      |                            |                           |                     | 16%                                      |                       |
|                                                                                                                                                         | Parachute/Battlement Mesa                    | 6%      |                            |                           |                     | 20%                                      |                       |
|                                                                                                                                                         | Dotsero                                      | 0%      |                            |                           |                     |                                          | 1%                    |
|                                                                                                                                                         | Woody Creek                                  | 1%      | 6%                         |                           |                     |                                          |                       |
|                                                                                                                                                         | Old Snowmass                                 | 1%      | 7%                         |                           |                     |                                          |                       |
|                                                                                                                                                         | Other                                        | 1%      | 0%                         | 2%                        |                     | 0%                                       |                       |
| Q14: If you rent, caretake, or<br>otherwise do not own your<br>residence: Within the next three<br>years, do you want to:                               | Buy a home                                   | 68%     | 73%                        | 76%                       | 68%                 | 59%                                      | 59%                   |
|                                                                                                                                                         | Continue to rent/caretake/other              | 32%     | 27%                        | 24%                       | 32%                 | 41%                                      | 41%                   |
| Q15: Which of the following best<br>describes your household?                                                                                           | Couple, no child(ren)                        | 30%     | 27%                        | 30%                       | 29%                 | 33%                                      | 30%                   |
|                                                                                                                                                         | Couple with child(ren)                       | 28%     | 21%                        | 31%                       | 22%                 | 28%                                      | 39%                   |
|                                                                                                                                                         | Adult living alone                           | 24%     | 31%                        | 22%                       | 31%                 | 22%                                      | 16%                   |
|                                                                                                                                                         | Unrelated roommates                          | 5%      | 10%                        | 7%                        | 5%                  | 2%                                       | 3%                    |
|                                                                                                                                                         | Immediate and extended family members        | 5%      | 3%                         | 3%                        | 5%                  | 7%                                       | 6%                    |
|                                                                                                                                                         | Single parent with child(ren)                | 5%      | 5%                         | 4%                        | 5%                  | 6%                                       | 2%                    |
|                                                                                                                                                         | Family members and unrelated roommates       | 2%      | 2%                         | 2%                        | 2%                  | 2%                                       | 5%                    |
|                                                                                                                                                         | Other                                        | 1%      | 1%                         | 1%                        | 1%                  | 1%                                       |                       |
| Q16.1: How many people live in<br>your household and are in the<br>following age groups? (Include<br>yourself—insert 0 if none)                         | Under 18: Average                            | 0.6     | 0.4                        | 0.6                       | 0.5                 | 0.6                                      | 0.8                   |
|                                                                                                                                                         | 18 to 25: Average                            | 0.2     | 0.2                        | 0.2                       | 0.2                 | 0.2                                      | 0.1                   |
|                                                                                                                                                         | 26 to 45: Average                            | 0.8     | 0.8                        | 0.8                       | 0.7                 | 0.7                                      | 0.6                   |
|                                                                                                                                                         | 46 to 65: Average                            | 0.6     | 0.5                        | 0.7                       | 0.6                 | 0.6                                      | 0.9                   |
|                                                                                                                                                         | Over 65: Average                             | 0.3     | 0.3                        | 0.3                       | 0.4                 | 0.4                                      | 0.4                   |
|                                                                                                                                                         | Total number of people in household: Average | 2.5     | 2.2                        | 2.5                       | 2.3                 | 2.5                                      | 2.8                   |
| Q16.1: If children under 18 in the<br>household, please enter the<br>number of children in each age<br>group (If no children, skip to next<br>question) | Under 5: Average                             | 0.5     | 0.5                        | 0.4                       | 0.5                 | 0.5                                      | 0.6                   |
|                                                                                                                                                         | 5 to 11: Average                             | 0.6     | 0.7                        | 0.7                       | 0.6                 | 0.7                                      | 0.5                   |
|                                                                                                                                                         | 11 to 17: Average                            | 0.6     | 0.5                        | 0.6                       | 0.6                 | 0.6                                      | 0.8                   |

Source: 2018 Roaring Fork / Colorado River Valley / Eagle County Household Survey

# Roaring Fork Housing | By Area of Residence

|                                                                                                               |                                                                                         | Area of residence |                            |                           |                     |                                          |                       |
|---------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------|-------------------|----------------------------|---------------------------|---------------------|------------------------------------------|-----------------------|
|                                                                                                               |                                                                                         | Overall           | Aspen thru<br>Old Snowmass | Basalt thru<br>Carbondale | Glenwood<br>Springs | New Castle<br>thru<br>Battlement<br>Mesa | Eagle thru<br>Dotsero |
| Q18: If you own your home, how do you expect to be using it five years from now? (Check all that apply)       | As a primary residence for my household                                                 | 70%               | 82%                        | 76%                       | 67%                 | 63%                                      | 67%                   |
|                                                                                                               | Other                                                                                   | 1%                | 0%                         | 0%                        |                     |                                          | 3%                    |
|                                                                                                               | I intend to use home as my retirement residence                                         | 14%               | 13%                        | 15%                       | 13%                 | 14%                                      | 15%                   |
|                                                                                                               | I intend to sell my home within the next five years but stay in the area                | 10%               | 11%                        | 9%                        | 10%                 | 10%                                      | 8%                    |
|                                                                                                               | I intend to sell my home in the next five years and relocate outside the area           | 8%                | 4%                         | 6%                        | 12%                 | 12%                                      | 6%                    |
|                                                                                                               | Rented long term to local resident                                                      | 7%                | 3%                         | 6%                        | 7%                  | 8%                                       | 7%                    |
|                                                                                                               | Vacation rental to visitors/tourists                                                    | 3%                | 4%                         | 4%                        | 5%                  | 1%                                       | 1%                    |
|                                                                                                               | A vacation home for owner or guests of owner                                            | 1%                | 1%                         | 2%                        | 2%                  | 0%                                       | 3%                    |
|                                                                                                               | Don't know/uncertain                                                                    | 9%                | 5%                         | 9%                        | 8%                  | 11%                                      | 11%                   |
| Q19: If you are aged 50 or older, when do you plan to retire?                                                 | Less than 2 years                                                                       | 5%                | 4%                         | 3%                        | 6%                  | 7%                                       | 3%                    |
|                                                                                                               | In 2 to 3 years                                                                         | 6%                | 3%                         | 7%                        | 10%                 | 4%                                       | 5%                    |
|                                                                                                               | In 4 to 6 years                                                                         | 13%               | 15%                        | 16%                       | 9%                  | 10%                                      | 18%                   |
|                                                                                                               | In 7 to 10 years                                                                        | 13%               | 15%                        | 16%                       | 12%                 | 10%                                      | 16%                   |
|                                                                                                               | More than 10 years from now                                                             | 27%               | 39%                        | 31%                       | 24%                 | 22%                                      | 24%                   |
|                                                                                                               | I am already retired                                                                    | 36%               | 24%                        | 27%                       | 38%                 | 46%                                      | 35%                   |
| Q21: Including yourself, how many adults (age 18 and over) in your household are in the following categories? | Unemployed and looking for work: Average                                                | 0.0%              | 0.0%                       | 0.0%                      | 0.0%                | 0.1                                      | 0.0%                  |
|                                                                                                               | Employed: Average                                                                       | 1.5               | 1.6                        | 1.6                       | 1.4                 | 1.3                                      | 1.6                   |
|                                                                                                               | Not employed by choice (e.g., homemaker, student, volunteer, prefer not to work): Ave.. | 0.1               | 0.1                        | 0.1                       | 0.1                 | 0.1                                      | 0.1                   |
|                                                                                                               | Retired: Average                                                                        | 0.3               | 0.2                        | 0.2                       | 0.4                 | 0.5                                      | 0.4                   |
| Q22: How many jobs do the employed adults (age 18 and over) in your household currently work?                 | OTHER ADULT (#2): Full-time jobs (> 30 hrs/week): Average                               | 0.9               | 0.9                        | 0.9                       | 0.9                 | 0.9                                      | 1.0                   |
|                                                                                                               | OTHER ADULT (#2): Part-time jobs (< 30 hrs/week): Average                               | 0.3               | 0.4                        | 0.3                       | 0.3                 | 0.2                                      | 0.2                   |
|                                                                                                               | OTHER ADULT (#2): TOTAL JOBS: Average                                                   | 1.2               | 1.3                        | 1.2                       | 1.2                 | 1.1                                      | 1.2                   |
|                                                                                                               | OTHER ADULT (#3): Full-time jobs (> 30 hrs/week): Average                               | 0.7               | 0.7                        | 0.7                       | 0.6                 | 0.6                                      | 0.7                   |
|                                                                                                               | OTHER ADULT (#3): Part-time jobs (< 30 hrs/week): Average                               | 0.4               | 0.6                        | 0.4                       | 0.6                 | 0.3                                      | 0.3                   |
|                                                                                                               | OTHER ADULT (#3): TOTAL JOBS: Average                                                   | 1.1               | 1.2                        | 1.2                       | 1.2                 | 1.0                                      | 1.0                   |
|                                                                                                               | YOU (ADULT #1): Full-time jobs (> 30 hrs/week): Average                                 | 0.9               | 0.9                        | 0.9                       | 0.9                 | 0.9                                      | 0.9                   |
|                                                                                                               | YOU (ADULT #1): Part-time jobs (< 30 hrs/week): Average                                 | 0.3               | 0.4                        | 0.3                       | 0.4                 | 0.2                                      | 0.3                   |
|                                                                                                               | YOU (ADULT #1): TOTAL JOBS: Average                                                     | 1.3               | 1.4                        | 1.3                       | 1.3                 | 1.1                                      | 1.3                   |
| Q23: How would you describe your employment? (Check all that apply)                                           | I work as much as I want to work                                                        | 26%               | 26%                        | 30%                       | 23%                 | 26%                                      | 27%                   |
|                                                                                                               | I work primarily or exclusively out of my home                                          | 22%               | 19%                        | 24%                       | 22%                 | 22%                                      | 22%                   |
|                                                                                                               | I am primarily self-employed                                                            | 20%               | 18%                        | 25%                       | 18%                 | 16%                                      | 24%                   |

Source: 2018 Roaring Fork / Colorado River Valley / Eagle County Household Survey

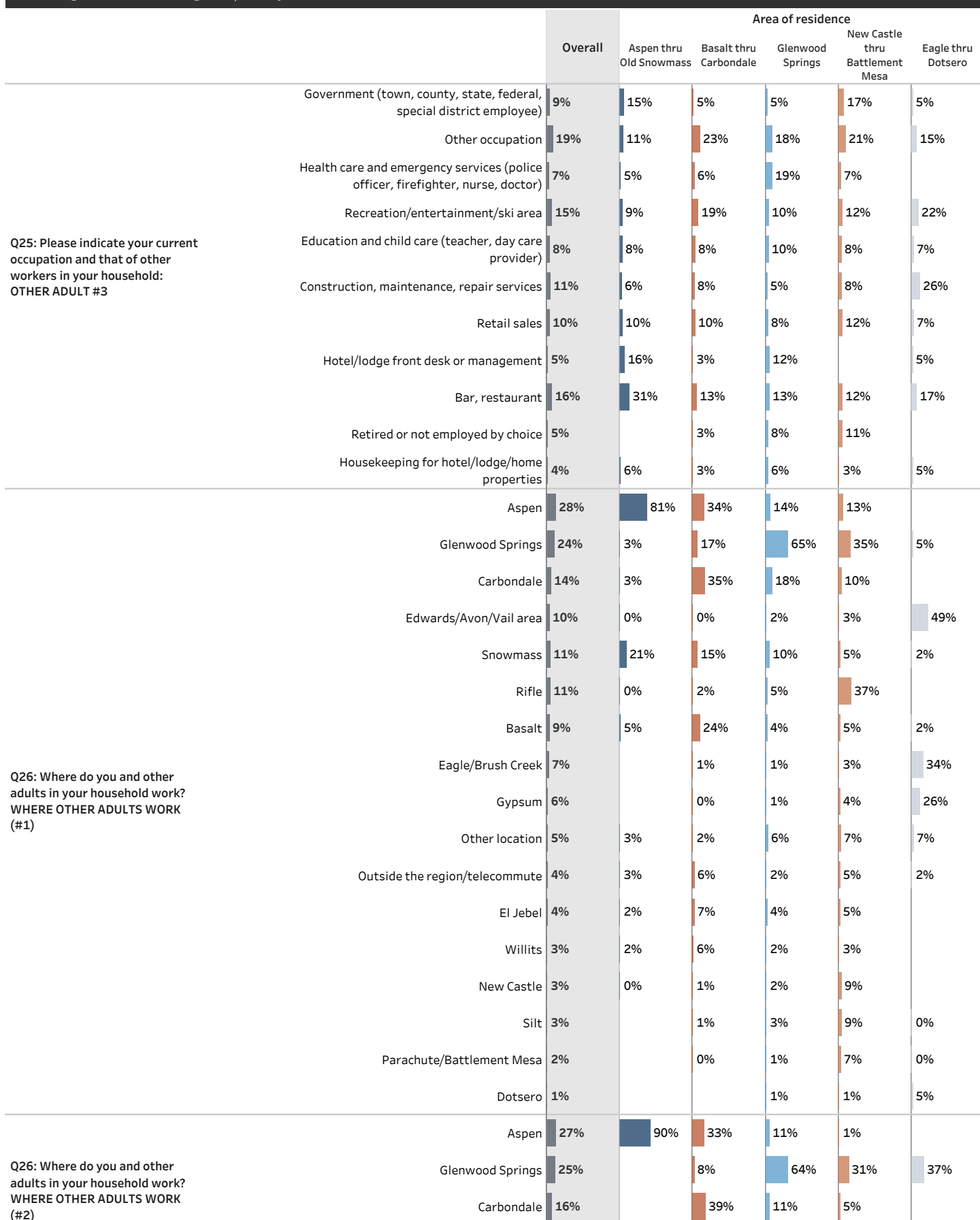
# Roaring Fork Housing | By Area of Residence

|                                                                                                     |                                                                                                                   | Overall                                                                            | Area of residence          |                           |                     |                                          |                       |     |
|-----------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------|----------------------------|---------------------------|---------------------|------------------------------------------|-----------------------|-----|
|                                                                                                     |                                                                                                                   |                                                                                    | Aspen thru<br>Old Snowmass | Basalt thru<br>Carbondale | Glenwood<br>Springs | New Castle<br>thru<br>Battlement<br>Mesa | Eagle thru<br>Dotsero |     |
| Q23: How would you describe<br>your employment? (Check all that<br>apply)                           | I am under-employed and need additional<br>work                                                                   | 5%                                                                                 | 5%                         | 5%                        | 6%                  | 7%                                       | 4%                    |     |
|                                                                                                     | I am retired or not employed by choice                                                                            | 3%                                                                                 | 0%                         | 1%                        | 5%                  | 4%                                       | 3%                    |     |
|                                                                                                     | None of the above                                                                                                 | 36%                                                                                | 40%                        | 34%                       | 37%                 | 38%                                      | 26%                   |     |
| Q24: If self-employed or work<br>primarily from home, does your<br>business serve:                  | Customers mostly in region                                                                                        | 61%                                                                                | 58%                        | 67%                       | 61%                 | 62%                                      | 53%                   |     |
|                                                                                                     | Customers mostly outside region                                                                                   | 18%                                                                                | 12%                        | 13%                       | 16%                 | 25%                                      | 24%                   |     |
|                                                                                                     | Both about equally                                                                                                | 21%                                                                                | 30%                        | 20%                       | 23%                 | 13%                                      | 22%                   |     |
| Q25: Please indicate your current<br>occupation and that of other<br>workers in your household: YOU | Management, professional, legal, banking,<br>accounting, architecture, real estate                                | 23%                                                                                | 28%                        | 31%                       | 22%                 | 14%                                      | 20%                   |     |
|                                                                                                     | Government (town, county, state, federal,<br>special district employee)                                           | 17%                                                                                | 8%                         | 10%                       | 15%                 | 31%                                      | 21%                   |     |
|                                                                                                     | Other occupation                                                                                                  | 17%                                                                                | 18%                        | 18%                       | 18%                 | 16%                                      | 12%                   |     |
|                                                                                                     | Health care and emergency services (police<br>officer, firefighter, nurse, doctor)                                | 11%                                                                                | 6%                         | 9%                        | 17%                 | 13%                                      | 16%                   |     |
|                                                                                                     | Recreation/entertainment/ski area                                                                                 | 10%                                                                                | 22%                        | 14%                       | 5%                  | 4%                                       | 5%                    |     |
|                                                                                                     | Education and child care (teacher, day care<br>provider)                                                          | 10%                                                                                | 4%                         | 12%                       | 12%                 | 13%                                      | 12%                   |     |
|                                                                                                     | Construction, maintenance, repair services                                                                        | 9%                                                                                 | 7%                         | 10%                       | 7%                  | 9%                                       | 13%                   |     |
|                                                                                                     | Retail sales                                                                                                      | 6%                                                                                 | 9%                         | 4%                        | 6%                  | 5%                                       | 5%                    |     |
|                                                                                                     | Hotel/lodge front desk or management                                                                              | 5%                                                                                 | 11%                        | 6%                        | 5%                  | 1%                                       | 3%                    |     |
|                                                                                                     | Bar, restaurant                                                                                                   | 4%                                                                                 | 8%                         | 4%                        | 4%                  | 1%                                       | 4%                    |     |
|                                                                                                     | Retired or not employed by choice                                                                                 | 3%                                                                                 | 2%                         | 1%                        | 3%                  | 5%                                       | 4%                    |     |
|                                                                                                     | Housekeeping for hotel/lodge/home<br>properties                                                                   | 0%                                                                                 | 1%                         | 0%                        | 0%                  | 0%                                       | 1%                    |     |
|                                                                                                     | Q25: Please indicate your current<br>occupation and that of other<br>workers in your household:<br>OTHER ADULT #2 | Management, professional, legal, banking,<br>accounting, architecture, real estate | 16%                        | 22%                       | 19%                 | 16%                                      | 7%                    | 17% |
|                                                                                                     |                                                                                                                   | Government (town, county, state, federal,<br>special district employee)            | 10%                        | 6%                        | 7%                  | 12%                                      | 13%                   | 12% |
|                                                                                                     |                                                                                                                   | Other occupation                                                                   | 19%                        | 19%                       | 21%                 | 18%                                      | 20%                   | 17% |
| Health care and emergency services (police<br>officer, firefighter, nurse, doctor)                  |                                                                                                                   | 9%                                                                                 | 7%                         | 7%                        | 8%                  | 11%                                      | 10%                   |     |
| Recreation/entertainment/ski area                                                                   |                                                                                                                   | 10%                                                                                | 18%                        | 10%                       | 11%                 | 3%                                       | 12%                   |     |
| Education and child care (teacher, day care<br>provider)                                            |                                                                                                                   | 9%                                                                                 | 3%                         | 12%                       | 13%                 | 9%                                       | 9%                    |     |
| Construction, maintenance, repair services                                                          |                                                                                                                   | 17%                                                                                | 7%                         | 15%                       | 14%                 | 26%                                      | 15%                   |     |
| Retail sales                                                                                        |                                                                                                                   | 7%                                                                                 | 7%                         | 5%                        | 6%                  | 7%                                       | 9%                    |     |
| Hotel/lodge front desk or management                                                                |                                                                                                                   | 3%                                                                                 | 8%                         | 4%                        | 2%                  | 1%                                       | 3%                    |     |
| Bar, restaurant                                                                                     |                                                                                                                   | 6%                                                                                 | 14%                        | 6%                        | 5%                  | 5%                                       | 1%                    |     |
| Retired or not employed by choice                                                                   |                                                                                                                   | 3%                                                                                 | 1%                         | 2%                        | 3%                  | 4%                                       | 2%                    |     |
| Housekeeping for hotel/lodge/home<br>properties                                                     |                                                                                                                   | 1%                                                                                 | 1%                         | 1%                        | 2%                  | 1%                                       | 1%                    |     |
| Q25: Please indicate your current<br>occupation and that of other                                   | Management, professional, legal, banking,<br>accounting, architecture, real estate                                | 8%                                                                                 | 11%                        | 12%                       | 8%                  | 6%                                       | 5%                    |     |

Source: 2018 Roaring Fork / Colorado River Valley / Eagle County Household Survey



# Roaring Fork Housing | By Area of Residence



Source: 2018 Roaring Fork / Colorado River Valley / Eagle County Household Survey

# Roaring Fork Housing | By Area of Residence

|                                                                                                  |                                                                                 | Overall                                              | Area of residence          |                           |                     |                                          |                       |     |
|--------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------|------------------------------------------------------|----------------------------|---------------------------|---------------------|------------------------------------------|-----------------------|-----|
|                                                                                                  |                                                                                 |                                                      | Aspen thru<br>Old Snowmass | Basalt thru<br>Carbondale | Glenwood<br>Springs | New Castle<br>thru<br>Battlement<br>Mesa | Eagle thru<br>Dotsero |     |
| Q26: Where do you and other<br>adults in your household work?<br>WHERE OTHER ADULTS WORK<br>(#2) | Edwards/Avon/Vail area                                                          | 2%                                                   |                            | 1%                        |                     |                                          | 18%                   |     |
|                                                                                                  | Snowmass                                                                        | 6%                                                   | 12%                        | 6%                        | 8%                  | 2%                                       |                       |     |
|                                                                                                  | Rifle                                                                           | 5%                                                   |                            |                           | 3%                  | 17%                                      |                       |     |
|                                                                                                  | Basalt                                                                          | 4%                                                   |                            | 8%                        | 5%                  | 3%                                       |                       |     |
|                                                                                                  | Eagle/Brush Creek                                                               | 1%                                                   |                            | 2%                        |                     |                                          |                       |     |
|                                                                                                  | Gypsum                                                                          | 3%                                                   |                            |                           |                     |                                          | 29%                   |     |
|                                                                                                  | Other location                                                                  | 16%                                                  | 2%                         | 9%                        | 8%                  | 32%                                      | 34%                   |     |
|                                                                                                  | Outside the region/telecommute                                                  | 3%                                                   |                            | 2%                        | 2%                  | 7%                                       |                       |     |
|                                                                                                  | El Jebel                                                                        | 3%                                                   |                            | 8%                        | 2%                  |                                          |                       |     |
|                                                                                                  | Willits                                                                         | 3%                                                   |                            | 8%                        | 2%                  |                                          |                       |     |
|                                                                                                  | New Castle                                                                      | 1%                                                   |                            | 2%                        |                     | 2%                                       |                       |     |
|                                                                                                  | Silt                                                                            | 2%                                                   |                            |                           | 5%                  | 2%                                       |                       |     |
|                                                                                                  | Parachute/Battlement Mesa                                                       | 5%                                                   |                            | 2%                        |                     | 18%                                      |                       |     |
|                                                                                                  | Q26: Where do you and other<br>adults in your household work?<br>WHERE YOU WORK | Aspen                                                | 33%                        | 81%                       | 54%                 | 10%                                      | 4%                    | 2%  |
| Glenwood Springs                                                                                 |                                                                                 | 27%                                                  | 2%                         | 15%                       | 74%                 | 39%                                      | 10%                   |     |
| Carbondale                                                                                       |                                                                                 | 13%                                                  | 4%                         | 33%                       | 14%                 | 6%                                       | 4%                    |     |
| Edwards/Avon/Vail area                                                                           |                                                                                 | 6%                                                   | 0%                         | 1%                        | 1%                  | 2%                                       | 40%                   |     |
| Snowmass                                                                                         |                                                                                 | 10%                                                  | 22%                        | 15%                       | 7%                  | 3%                                       | 1%                    |     |
| Rifle                                                                                            |                                                                                 | 13%                                                  | 0%                         | 3%                        | 6%                  | 44%                                      | 1%                    |     |
| Basalt                                                                                           |                                                                                 | 10%                                                  | 10%                        | 26%                       | 9%                  | 4%                                       |                       |     |
| Eagle/Brush Creek                                                                                |                                                                                 | 6%                                                   |                            | 1%                        | 1%                  | 1%                                       | 37%                   |     |
| Gypsum                                                                                           |                                                                                 | 4%                                                   |                            | 1%                        | 1%                  | 1%                                       | 24%                   |     |
| Other location                                                                                   |                                                                                 | 4%                                                   | 2%                         | 3%                        | 2%                  | 5%                                       | 9%                    |     |
| Outside the region/telecommute                                                                   |                                                                                 | 2%                                                   | 1%                         | 2%                        | 3%                  | 2%                                       | 3%                    |     |
| El Jebel                                                                                         |                                                                                 | 4%                                                   | 2%                         | 9%                        | 3%                  | 3%                                       |                       |     |
| Willits                                                                                          |                                                                                 | 3%                                                   | 2%                         | 8%                        | 4%                  | 1%                                       |                       |     |
| New Castle                                                                                       |                                                                                 | 5%                                                   | 0%                         | 2%                        | 6%                  | 12%                                      |                       |     |
| Silt                                                                                             |                                                                                 | 4%                                                   | 0%                         | 2%                        | 4%                  | 9%                                       |                       |     |
| Parachute/Battlement Mesa                                                                        |                                                                                 | 3%                                                   | 0%                         | 1%                        | 2%                  | 9%                                       | 0%                    |     |
| Dotsero                                                                                          |                                                                                 | 0%                                                   |                            |                           |                     | 1%                                       | 2%                    |     |
| Q27: If you commute more than 5 miles one way between work and                                   |                                                                                 | Price of housing; cannot afford to live where I work | 62%                        | 53%                       | 64%                 | 48%                                      | 71%                   | 63% |

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# Roaring Fork Housing | By Area of Residence

|                                                                                                                                                                                   |                                                                           | Overall | Area of residence          |                           |                     |                                          |                       |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------|---------|----------------------------|---------------------------|---------------------|------------------------------------------|-----------------------|
|                                                                                                                                                                                   |                                                                           |         | Aspen thru<br>Old Snowmass | Basalt thru<br>Carbondale | Glenwood<br>Springs | New Castle<br>thru<br>Battlement<br>Mesa | Eagle thru<br>Dotsero |
| Q27: If you commute more than 5 miles one way between work and home, why do you commute rather than live and work in the same community? (Check all that apply)                   | Community character; prefer where I now live                              | 26%     | 22%                        | 37%                       | 22%                 | 20%                                      | 25%                   |
|                                                                                                                                                                                   | Type of home I want is not available in community where I work            | 25%     | 23%                        | 28%                       | 18%                 | 20%                                      | 37%                   |
|                                                                                                                                                                                   | Donâ€™t mind the commute                                                  | 23%     | 18%                        | 22%                       | 19%                 | 20%                                      | 41%                   |
|                                                                                                                                                                                   | Like the climate where I live (altitude, weather)                         | 17%     | 10%                        | 18%                       | 11%                 | 10%                                      | 38%                   |
|                                                                                                                                                                                   | Work in other communities also                                            | 13%     | 11%                        | 13%                       | 14%                 | 12%                                      | 15%                   |
|                                                                                                                                                                                   | Location where spouse/partner works                                       | 10%     | 8%                         | 11%                       | 15%                 | 6%                                       | 15%                   |
|                                                                                                                                                                                   | Other                                                                     | 9%      | 17%                        | 6%                        | 15%                 | 6%                                       | 12%                   |
|                                                                                                                                                                                   | Canâ€™t find a place that will take dogs/cats                             | 10%     | 12%                        | 12%                       | 6%                  | 12%                                      | 4%                    |
|                                                                                                                                                                                   | Deed restrictions are unacceptable to me                                  | 7%      | 4%                         | 10%                       | 5%                  | 3%                                       | 15%                   |
| Q28: How many days per week do you typically use the following modes of transportation to get to work? Enter number of days as applicable                                         | Drive alone: Average                                                      | 3.3     | 2.3                        | 3.1                       | 3.1                 | 4.1                                      | 4.1                   |
|                                                                                                                                                                                   | Walk or bike: Average                                                     | 0.7     | 1.5                        | 0.6                       | 0.8                 | 0.2                                      | 0.3                   |
|                                                                                                                                                                                   | Bus: Average                                                              | 0.4     | 1.0                        | 0.7                       | 0.3                 | 0.1                                      | 0.9                   |
|                                                                                                                                                                                   | Carpool (2-4 people): Average                                             | 0.3     | 0.3                        | 0.4                       | 0.4                 | 0.4                                      | 0.2                   |
|                                                                                                                                                                                   | Work at home/telecommute: Average                                         | 0.2     | 0.1                        | 0.2                       | 0.3                 | 0.1                                      | 0.4                   |
|                                                                                                                                                                                   | Vanpool (5+ people): Average                                              | 0.0%    | 0.0%                       | 0.1                       | 0.0%                | 0.0%                                     | 0.0%                  |
| Q29: Does your employer provide/subsidize your transportation?                                                                                                                    | Yes                                                                       | 24%     | 31%                        | 38%                       | 13%                 | 20%                                      | 12%                   |
|                                                                                                                                                                                   | No                                                                        | 76%     | 69%                        | 62%                       | 87%                 | 80%                                      | 88%                   |
| Q30: Please indicate how important the following factors are to you when looking for a place to live. Use a scale where 1 = "not at all important" and 5 = "extremely important." | Cost of housing to buy/rent                                               | 37%     | 37%                        | 42%                       | 36%                 | 40%                                      | 24%                   |
|                                                                                                                                                                                   | Proximity to my place of employment                                       | 20%     | 27%                        | 14%                       | 18%                 | 22%                                      | 19%                   |
|                                                                                                                                                                                   | Community character (family oriented, neighborhood 'look and feel', etc.) | 8%      | 4%                         | 10%                       | 10%                 | 5%                                       | 16%                   |
|                                                                                                                                                                                   | Quality of schools                                                        | 8%      | 9%                         | 7%                        | 4%                  | 8%                                       | 8%                    |
|                                                                                                                                                                                   | Pets allowed                                                              | 6%      | 4%                         | 7%                        | 6%                  | 5%                                       | 7%                    |
|                                                                                                                                                                                   | Type of residence (single-family, duplex, condominium, etc.)              | 5%      | 4%                         | 6%                        | 8%                  | 4%                                       | 5%                    |
|                                                                                                                                                                                   | Community amenities (recreation, parks, libraries, etc.)                  | 4%      | 4%                         | 4%                        | 4%                  | 3%                                       | 9%                    |
|                                                                                                                                                                                   | Proximity to commercial services (shopping, dining, etc.)                 | 5%      | 3%                         | 3%                        | 6%                  | 7%                                       | 4%                    |
|                                                                                                                                                                                   | Proximity to places of employment for other members of my household       | 2%      | 2%                         | 2%                        | 2%                  | 2%                                       | 1%                    |
|                                                                                                                                                                                   | Proximity to alpine skiing                                                | 2%      | 3%                         | 1%                        | 1%                  | 1%                                       | 2%                    |
|                                                                                                                                                                                   | Energy efficient heat/appliances                                          | 1%      | 0%                         | 1%                        | 1%                  | 2%                                       | 1%                    |
|                                                                                                                                                                                   | Washer/dryer in unit                                                      | 1%      | 1%                         | 2%                        | 1%                  | 0%                                       |                       |
|                                                                                                                                                                                   | Proximity to daycare                                                      | 1%      | 0%                         | 0%                        | 1%                  |                                          | 2%                    |
|                                                                                                                                                                                   | Proximity to bus/shuttle service                                          | 0%      | 0%                         |                           | 2%                  | 1%                                       |                       |

Source: 2018 Roaring Fork / Colorado River Valley / Eagle County Household Survey

# Roaring Fork Housing | By Area of Residence

|                                                                                                                                                                                   |                                                                     |                                                                           | Overall                                                                   | Area of residence          |                           |                     |                                          |                       |     |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------|---------------------------------------------------------------------------|---------------------------------------------------------------------------|----------------------------|---------------------------|---------------------|------------------------------------------|-----------------------|-----|
|                                                                                                                                                                                   |                                                                     |                                                                           |                                                                           | Aspen thru<br>Old Snowmass | Basalt thru<br>Carbondale | Glenwood<br>Springs | New Castle<br>thru<br>Battlement<br>Mesa | Eagle thru<br>Dotsero |     |
| Q30: Please indicate how important the following factors are to you when looking for a place to live. Use a scale where 1 = "not at all important" and 5 = "extremely important." | First Rank                                                          | Availability of day care                                                  | 0%                                                                        | 0%                         | 0%                        |                     | 0%                                       |                       |     |
|                                                                                                                                                                                   |                                                                     | Cost of housing to buy/rent                                               | 15%                                                                       | 16%                        | 16%                       | 16%                 | 15%                                      | 15%                   |     |
|                                                                                                                                                                                   |                                                                     | Proximity to my place of employment                                       | 13%                                                                       | 19%                        | 15%                       | 15%                 | 9%                                       | 8%                    |     |
|                                                                                                                                                                                   |                                                                     | Community character (family oriented, neighborhood 'look and feel', etc.) | 10%                                                                       | 5%                         | 12%                       | 13%                 | 8%                                       | 16%                   |     |
|                                                                                                                                                                                   |                                                                     | Quality of schools                                                        | 6%                                                                        | 6%                         | 6%                        | 3%                  | 7%                                       | 10%                   |     |
|                                                                                                                                                                                   |                                                                     | Pets allowed                                                              | 9%                                                                        | 8%                         | 8%                        | 8%                  | 13%                                      | 8%                    |     |
|                                                                                                                                                                                   |                                                                     | Type of residence (single-family, duplex, condominium, etc.)              | 10%                                                                       | 7%                         | 10%                       | 9%                  | 14%                                      | 9%                    |     |
|                                                                                                                                                                                   |                                                                     | Community amenities (recreation, parks, libraries, etc.)                  | 9%                                                                        | 6%                         | 10%                       | 8%                  | 10%                                      | 13%                   |     |
|                                                                                                                                                                                   | Second Rank                                                         | Proximity to commercial services (shopping, dining, etc.)                 | 5%                                                                        | 5%                         | 5%                        | 7%                  | 5%                                       | 3%                    |     |
|                                                                                                                                                                                   |                                                                     | Proximity to places of employment for other members of my household       | 7%                                                                        | 6%                         | 5%                        | 8%                  | 8%                                       | 4%                    |     |
|                                                                                                                                                                                   |                                                                     | Proximity to alpine skiing                                                | 2%                                                                        | 6%                         | 4%                        | 1%                  | 0%                                       | 1%                    |     |
|                                                                                                                                                                                   |                                                                     | Energy efficient heat/appliances                                          | 1%                                                                        | 1%                         | 0%                        | 1%                  | 1%                                       | 3%                    |     |
|                                                                                                                                                                                   |                                                                     | Washer/dryer in unit                                                      | 4%                                                                        | 4%                         | 2%                        | 2%                  | 4%                                       | 6%                    |     |
|                                                                                                                                                                                   |                                                                     | Proximity to daycare                                                      | 1%                                                                        | 1%                         | 1%                        | 0%                  | 2%                                       |                       |     |
|                                                                                                                                                                                   |                                                                     | Proximity to bus/shuttle service                                          | 2%                                                                        | 5%                         | 3%                        | 3%                  | 1%                                       |                       |     |
|                                                                                                                                                                                   |                                                                     | Availability of day care                                                  | 1%                                                                        | 0%                         | 0%                        | 1%                  | 1%                                       | 3%                    |     |
|                                                                                                                                                                                   |                                                                     | Exterior storage/locker                                                   | 1%                                                                        | 2%                         | 1%                        | 2%                  | 1%                                       | 3%                    |     |
|                                                                                                                                                                                   |                                                                     | Third Rank                                                                | Cost of housing to buy/rent                                               | 8%                         | 8%                        | 6%                  | 9%                                       | 7%                    | 13% |
|                                                                                                                                                                                   |                                                                     |                                                                           | Proximity to my place of employment                                       | 9%                         | 8%                        | 12%                 | 10%                                      | 9%                    | 4%  |
|                                                                                                                                                                                   |                                                                     |                                                                           | Community character (family oriented, neighborhood 'look and feel', etc.) | 11%                        | 8%                        | 8%                  | 11%                                      | 15%                   | 14% |
|                                                                                                                                                                                   | Quality of schools                                                  |                                                                           | 6%                                                                        | 4%                         | 5%                        | 4%                  | 7%                                       | 9%                    |     |
|                                                                                                                                                                                   | Pets allowed                                                        |                                                                           | 11%                                                                       | 10%                        | 8%                        | 10%                 | 13%                                      | 12%                   |     |
|                                                                                                                                                                                   | Type of residence (single-family, duplex, condominium, etc.)        |                                                                           | 9%                                                                        | 5%                         | 11%                       | 8%                  | 9%                                       | 14%                   |     |
|                                                                                                                                                                                   | Community amenities (recreation, parks, libraries, etc.)            |                                                                           | 9%                                                                        | 9%                         | 11%                       | 11%                 | 9%                                       | 4%                    |     |
|                                                                                                                                                                                   | Proximity to commercial services (shopping, dining, etc.)           |                                                                           | 7%                                                                        | 5%                         | 8%                        | 11%                 | 6%                                       | 8%                    |     |
|                                                                                                                                                                                   | Proximity to places of employment for other members of my household |                                                                           | 4%                                                                        | 3%                         | 4%                        | 4%                  | 5%                                       | 2%                    |     |
|                                                                                                                                                                                   | Proximity to alpine skiing                                          |                                                                           | 3%                                                                        | 8%                         | 3%                        | 3%                  | 0%                                       | 2%                    |     |
|                                                                                                                                                                                   | Energy efficient heat/appliances                                    |                                                                           | 4%                                                                        | 4%                         | 3%                        | 3%                  | 5%                                       | 5%                    |     |
|                                                                                                                                                                                   | Washer/dryer in unit                                                |                                                                           | 9%                                                                        | 12%                        | 9%                        | 6%                  | 9%                                       | 7%                    |     |
|                                                                                                                                                                                   | Proximity to daycare                                                |                                                                           | 1%                                                                        | 0%                         | 1%                        | 0%                  | 2%                                       | 1%                    |     |
| Proximity to bus/shuttle service                                                                                                                                                  | 3%                                                                  |                                                                           | 7%                                                                        | 4%                         | 3%                        | 1%                  |                                          |                       |     |

Source: 2018 Roaring Fork / Colorado River Valley / Eagle County Household Survey

# Roaring Fork Housing | By Area of Residence

|                                                                                                                                                                       |               |                                                                           | Overall | Area of residence          |                           |                     |                                          |                       |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------|---------------------------------------------------------------------------|---------|----------------------------|---------------------------|---------------------|------------------------------------------|-----------------------|
|                                                                                                                                                                       |               |                                                                           |         | Aspen thru<br>Old Snowmass | Basalt thru<br>Carbondale | Glenwood<br>Springs | New Castle<br>thru<br>Battlement<br>Mesa | Eagle thru<br>Dotsero |
| How important are the following factors to you when looking for a place to live. Use a scale where 1 = "not at all important" and 5 = "extremely important."          | Third Rank    | Availability of day care                                                  | 1%      | 1%                         | 1%                        | 0%                  |                                          |                       |
|                                                                                                                                                                       |               | Exterior storage/locker                                                   | 2%      | 3%                         | 2%                        | 1%                  | 2%                                       | 1%                    |
| Q31: If housing were available that you could afford, would you consider moving within the next five years for reasons of convenience, economics, or quality of life? |               | Yes, if I could BUY a home                                                | 46%     | 53%                        | 51%                       | 45%                 | 44%                                      | 34%                   |
|                                                                                                                                                                       |               | Yes, if I could BUY OR RENT a home                                        | 17%     | 20%                        | 19%                       | 17%                 | 18%                                      | 10%                   |
|                                                                                                                                                                       |               | Yes, if I could RENT a home                                               | 2%      | 2%                         | 1%                        | 1%                  | 4%                                       | 2%                    |
|                                                                                                                                                                       |               | No                                                                        | 35%     | 25%                        | 29%                       | 37%                 | 34%                                      | 55%                   |
| Q31.1: Why would you not consider moving within the next 5 years?                                                                                                     |               | I prefer to live in my present community/residence                        | 90%     | 92%                        | 91%                       | 92%                 | 86%                                      | 93%                   |
|                                                                                                                                                                       |               | My current residence is closer to the workplace of others in my household | 3%      | 5%                         | 2%                        | 1%                  | 4%                                       | 5%                    |
|                                                                                                                                                                       |               | Other reason:                                                             | 6%      | 3%                         | 7%                        | 8%                  | 10%                                      | 2%                    |
| Q32: (If you would consider moving) Given the size of your household now and planned for the next 5 years, what number of the following do you need?                  |               | Bedrooms: Average                                                         | 2.6     | 2.3                        | 2.6                       | 2.5                 | 2.9                                      | 2.9                   |
|                                                                                                                                                                       |               | Bathrooms: Average                                                        | 2.1     | 2.0                        | 2.1                       | 1.9                 | 2.1                                      | 2.5                   |
|                                                                                                                                                                       |               | Garage spaces: Average                                                    | 1.6     | 1.4                        | 1.6                       | 1.6                 | 1.7                                      | 2.2                   |
|                                                                                                                                                                       | Bathrooms     | 0                                                                         | 0%      |                            |                           |                     | 0%                                       |                       |
|                                                                                                                                                                       |               | 1                                                                         | 17%     | 22%                        | 18%                       | 24%                 | 8%                                       | 2%                    |
|                                                                                                                                                                       |               | 2                                                                         | 63%     | 60%                        | 55%                       | 63%                 | 74%                                      | 46%                   |
|                                                                                                                                                                       |               | 3                                                                         | 18%     | 17%                        | 24%                       | 12%                 | 15%                                      | 51%                   |
|                                                                                                                                                                       |               | 4+                                                                        | 2%      | 1%                         | 3%                        | 2%                  | 3%                                       |                       |
|                                                                                                                                                                       | Bedrooms      | 0                                                                         | 0%      |                            |                           |                     | 0%                                       |                       |
|                                                                                                                                                                       |               | 1                                                                         | 10%     | 16%                        | 13%                       | 10%                 | 2%                                       | 2%                    |
|                                                                                                                                                                       |               | 2                                                                         | 35%     | 43%                        | 33%                       | 42%                 | 26%                                      | 19%                   |
|                                                                                                                                                                       |               | 3                                                                         | 42%     | 33%                        | 39%                       | 34%                 | 54%                                      | 61%                   |
|                                                                                                                                                                       |               | 4                                                                         | 12%     | 7%                         | 12%                       | 11%                 | 16%                                      | 18%                   |
|                                                                                                                                                                       |               | 5+                                                                        | 2%      | 1%                         | 3%                        | 2%                  | 2%                                       |                       |
|                                                                                                                                                                       | Garage spaces | 0                                                                         | 5%      | 9%                         | 2%                        | 5%                  | 4%                                       |                       |
|                                                                                                                                                                       |               | 1                                                                         | 41%     | 50%                        | 40%                       | 39%                 | 37%                                      | 28%                   |
|                                                                                                                                                                       |               | 2                                                                         | 47%     | 37%                        | 52%                       | 51%                 | 50%                                      | 37%                   |
|                                                                                                                                                                       |               | 3                                                                         | 7%      | 4%                         | 5%                        | 6%                  | 9%                                       | 25%                   |
| 4+                                                                                                                                                                    |               | 1%                                                                        |         | 1%                         | 0%                        | 1%                  | 10%                                      |                       |
| Q33: Using a 1, 2 and 3, where "1" is your first choice, please rank your top three housing preferences to rent:                                                      | First Rank    | Single-family detached house                                              | 52%     | 30%                        | 53%                       | 52%                 | 72%                                      | 37%                   |
|                                                                                                                                                                       |               | Townhouse/duplex                                                          | 20%     | 23%                        | 23%                       | 11%                 | 15%                                      | 46%                   |
|                                                                                                                                                                       |               | Apartment                                                                 | 18%     | 34%                        | 13%                       | 16%                 | 10%                                      | 17%                   |

Source: 2018 Roaring Fork / Colorado River Valley / Eagle County Household Survey

# Roaring Fork Housing | By Area of Residence

|                                                                                                                           |             |                                                        | Overall | Area of residence          |                           |                     |                                          |                       |
|---------------------------------------------------------------------------------------------------------------------------|-------------|--------------------------------------------------------|---------|----------------------------|---------------------------|---------------------|------------------------------------------|-----------------------|
|                                                                                                                           |             |                                                        |         | Aspen thru<br>Old Snowmass | Basalt thru<br>Carbondale | Glenwood<br>Springs | New Castle<br>thru<br>Battlement<br>Mesa | Eagle thru<br>Dotsero |
| Q33: Using a 1, 2 and 3, where “1”<br>is your first choice, please rank<br>your top three housing<br>preferences to rent: | First Rank  | Other                                                  | 1%      |                            |                           | 6%                  | 1%                                       |                       |
|                                                                                                                           |             | Condominium                                            | 5%      | 11%                        | 4%                        | 5%                  | 2%                                       |                       |
|                                                                                                                           |             | Caretaker unit                                         | 1%      |                            | 4%                        |                     |                                          |                       |
|                                                                                                                           |             | Dormitory with efficiency kitchen                      | 1%      | 1%                         | 0%                        | 1%                  |                                          |                       |
|                                                                                                                           |             | Mobile home                                            | 1%      |                            |                           | 9%                  |                                          |                       |
|                                                                                                                           |             | Private room and bath, shared kitchen &<br>living room | 0%      | 1%                         |                           |                     |                                          |                       |
|                                                                                                                           |             | Room without kitchen                                   | 1%      |                            | 2%                        |                     |                                          |                       |
|                                                                                                                           | Second Rank | Single-family detached house                           | 7%      | 7%                         | 8%                        | 15%                 | 5%                                       |                       |
|                                                                                                                           |             | Townhouse/duplex                                       | 37%     | 28%                        | 39%                       | 40%                 | 47%                                      | 8%                    |
|                                                                                                                           |             | Apartment                                              | 9%      | 12%                        | 9%                        | 8%                  | 9%                                       |                       |
|                                                                                                                           |             | Other                                                  | 1%      |                            | 2%                        |                     |                                          |                       |
|                                                                                                                           |             | Condominium                                            | 27%     | 41%                        | 35%                       | 25%                 | 10%                                      | 33%                   |
|                                                                                                                           |             | Caretaker unit                                         | 5%      | 2%                         | 4%                        |                     | 6%                                       | 18%                   |
|                                                                                                                           |             | Dormitory with efficiency kitchen                      | 1%      | 5%                         |                           |                     |                                          |                       |
|                                                                                                                           |             | Mobile home                                            | 9%      | 1%                         | 2%                        | 7%                  | 15%                                      | 29%                   |
|                                                                                                                           |             | Private room and bath, shared kitchen &<br>living room | 0%      |                            |                           | 2%                  |                                          |                       |
|                                                                                                                           |             | Room without kitchen                                   | 1%      | 3%                         |                           |                     |                                          |                       |
|                                                                                                                           | Third Rank  | Single-family detached house                           | 7%      | 9%                         | 6%                        | 6%                  | 4%                                       | 17%                   |
|                                                                                                                           |             | Townhouse/duplex                                       | 17%     | 22%                        | 15%                       | 12%                 | 17%                                      | 11%                   |
|                                                                                                                           |             | Apartment                                              | 26%     | 26%                        | 28%                       | 28%                 | 22%                                      | 42%                   |
|                                                                                                                           |             | Other                                                  | 5%      | 1%                         | 2%                        | 12%                 | 7%                                       |                       |
|                                                                                                                           |             | Condominium                                            | 22%     | 16%                        | 33%                       | 23%                 | 22%                                      |                       |
|                                                                                                                           |             | Caretaker unit                                         | 3%      | 2%                         | 6%                        | 8%                  | 0%                                       |                       |
|                                                                                                                           |             | Dormitory with efficiency kitchen                      | 1%      | 3%                         | 1%                        |                     | 1%                                       |                       |
|                                                                                                                           |             | Mobile home                                            | 6%      | 2%                         | 7%                        | 5%                  | 10%                                      |                       |
|                                                                                                                           |             | Private room and bath, shared kitchen &<br>living room | 5%      | 10%                        |                           | 2%                  | 5%                                       | 18%                   |
|                                                                                                                           |             | Room without kitchen                                   | 0%      | 1%                         |                           |                     |                                          |                       |
| Q35: Using a 1, 2 and 3, where “1”<br>is your first choice, please rank<br>your top three housing<br>preferences to buy:  | First Rank  | Duplex                                                 | 2%      | 2%                         | 2%                        | 1%                  | 2%                                       | 4%                    |
|                                                                                                                           |             | Single-family detached house                           | 83%     | 75%                        | 83%                       | 84%                 | 87%                                      | 86%                   |
|                                                                                                                           |             | Other                                                  | 2%      | 0%                         | 2%                        | 2%                  | 4%                                       | 3%                    |
|                                                                                                                           |             | Condominium                                            | 5%      | 9%                         | 5%                        | 6%                  | 3%                                       |                       |
|                                                                                                                           |             |                                                        |         |                            |                           |                     |                                          |                       |

Source: 2018 Roaring Fork / Colorado River Valley / Eagle County Household Survey

# Roaring Fork Housing | By Area of Residence

|                                                                                                                        |             |                                                                         | Area of residence |                            |                           |                     |                                          |                       |
|------------------------------------------------------------------------------------------------------------------------|-------------|-------------------------------------------------------------------------|-------------------|----------------------------|---------------------------|---------------------|------------------------------------------|-----------------------|
|                                                                                                                        |             |                                                                         | Overall           | Aspen thru<br>Old Snowmass | Basalt thru<br>Carbondale | Glenwood<br>Springs | New Castle<br>thru<br>Battlement<br>Mesa | Eagle thru<br>Dotsero |
| <p>Q35: Using a 1, 2 and 3, where "1" is your first choice, please rank your top three housing preferences to buy:</p> | First Rank  | Mobile home                                                             | 1%                | 1%                         | 0%                        | 2%                  | 1%                                       |                       |
|                                                                                                                        |             | Townhouse                                                               | 7%                | 11%                        | 8%                        | 6%                  | 2%                                       | 7%                    |
|                                                                                                                        | Second Rank | Duplex                                                                  | 27%               | 29%                        | 28%                       | 26%                 | 25%                                      | 31%                   |
|                                                                                                                        |             | Single-family detached house                                            | 5%                | 2%                         | 4%                        | 7%                  | 7%                                       | 7%                    |
|                                                                                                                        |             | Other                                                                   | 3%                | 1%                         | 4%                        | 4%                  | 4%                                       | 2%                    |
|                                                                                                                        |             | Condominium                                                             | 9%                | 12%                        | 9%                        | 10%                 | 6%                                       | 4%                    |
|                                                                                                                        |             | Mobile home                                                             | 5%                | 3%                         | 2%                        | 5%                  | 9%                                       | 3%                    |
|                                                                                                                        |             | Townhouse                                                               | 42%               | 49%                        | 47%                       | 38%                 | 36%                                      | 34%                   |
|                                                                                                                        | Third Rank  | Duplex                                                                  | 20%               | 23%                        | 21%                       | 18%                 | 16%                                      | 23%                   |
|                                                                                                                        |             | Single-family detached house                                            | 4%                | 8%                         | 4%                        | 4%                  | 2%                                       |                       |
|                                                                                                                        |             | Other                                                                   | 3%                | 1%                         | 3%                        | 3%                  | 5%                                       |                       |
|                                                                                                                        |             | Condominium                                                             | 27%               | 35%                        | 31%                       | 29%                 | 16%                                      | 25%                   |
|                                                                                                                        |             | Mobile home                                                             | 6%                | 2%                         | 4%                        | 6%                  | 11%                                      |                       |
|                                                                                                                        |             | Townhouse                                                               | 29%               | 24%                        | 29%                       | 27%                 | 33%                                      | 26%                   |
| <p>Q36: Why would you consider buying a new or different home?</p>                                                     |             | Other                                                                   | 9%                | 11%                        | 9%                        | 11%                 | 8%                                       | 8%                    |
|                                                                                                                        |             | Prefer home ownership to renting                                        | 44%               | 52%                        | 42%                       | 54%                 | 39%                                      | 36%                   |
|                                                                                                                        |             | To find a less expensive home                                           | 37%               | 35%                        | 41%                       | 35%                 | 35%                                      | 40%                   |
|                                                                                                                        |             | To be closer to work                                                    | 31%               | 24%                        | 32%                       | 21%                 | 42%                                      | 26%                   |
|                                                                                                                        |             | To find a larger home                                                   | 32%               | 48%                        | 28%                       | 27%                 | 29%                                      | 23%                   |
|                                                                                                                        |             | To live closer to city/town services                                    | 24%               | 30%                        | 19%                       | 16%                 | 29%                                      | 23%                   |
|                                                                                                                        |             | To live in a different community                                        | 21%               | 16%                        | 14%                       | 20%                 | 31%                                      | 20%                   |
|                                                                                                                        |             | To live in a more rural setting                                         | 22%               | 13%                        | 24%                       | 25%                 | 29%                                      | 17%                   |
|                                                                                                                        |             | To find a smaller home (for example, one floor with no stairs)          | 21%               | 9%                         | 23%                       | 26%                 | 25%                                      | 25%                   |
| <p>Q38: Would you be very likely to pay 20% or more to achieve any of the categories listed above?</p>                 | Yes         |                                                                         | 18%               | 26%                        | 18%                       | 19%                 | 15%                                      | 11%                   |
|                                                                                                                        | No          |                                                                         | 82%               | 74%                        | 82%                       | 81%                 | 85%                                      | 89%                   |
| <p>Q38.1: Please select the categories for which you would be very likely to pay 20% or more per month</p>             |             | Have the ability to walk and/or bike to work                            | 60%               | 76%                        | 54%                       | 67%                 | 54%                                      |                       |
|                                                                                                                        |             | Have the ability to walk and/or bike to shops/restaurants/entertainment | 57%               | 67%                        | 51%                       | 54%                 | 46%                                      | 68%                   |
|                                                                                                                        |             | Cut your commute time in half                                           | 50%               | 37%                        | 60%                       | 40%                 | 59%                                      | 66%                   |
|                                                                                                                        |             | Have higher quality schools                                             | 37%               | 21%                        | 34%                       | 35%                 | 55%                                      | 62%                   |
|                                                                                                                        |             | Live near transit (RFTA or other) bus/shuttle service                   | 19%               | 32%                        | 14%                       | 19%                 | 12%                                      |                       |
|                                                                                                                        |             | Live near daycare or childcare facilities                               | 11%               | 9%                         | 6%                        | 10%                 | 19%                                      | 14%                   |

Source: 2018 Roaring Fork / Colorado River Valley / Eagle County Household Survey

# Roaring Fork Housing | By Area of Residence

|                                                                                                                                                                                                   |                                                                                        |                            | Overall  | Area of residence         |                     |                                          |                       |  |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------|----------------------------|----------|---------------------------|---------------------|------------------------------------------|-----------------------|--|
|                                                                                                                                                                                                   |                                                                                        | Aspen thru<br>Old Snowmass |          | Basalt thru<br>Carbondale | Glenwood<br>Springs | New Castle<br>thru<br>Battlement<br>Mesa | Eagle thru<br>Dotsero |  |
| Q39: In addition to your current mortgage or rent, how much more per month would you be willing to pay to have some combination of most of the characteristics listed above?                      | Less than \$100                                                                        | 43%                        | 39%      | 44%                       | 40%                 | 46%                                      | 43%                   |  |
|                                                                                                                                                                                                   | \$100 - \$199                                                                          | 26%                        | 21%      | 24%                       | 31%                 | 26%                                      | 34%                   |  |
|                                                                                                                                                                                                   | \$200 - \$299                                                                          | 15%                        | 16%      | 15%                       | 15%                 | 16%                                      | 7%                    |  |
|                                                                                                                                                                                                   | \$300 - \$399                                                                          | 6%                         | 9%       | 5%                        | 4%                  | 6%                                       | 4%                    |  |
|                                                                                                                                                                                                   | \$400 - \$499                                                                          | 4%                         | 4%       | 4%                        | 3%                  | 2%                                       | 7%                    |  |
|                                                                                                                                                                                                   | \$500 - \$600                                                                          | 4%                         | 5%       | 5%                        | 3%                  | 2%                                       | 3%                    |  |
|                                                                                                                                                                                                   | More than \$600                                                                        | 3%                         | 6%       | 3%                        | 5%                  | 1%                                       | 2%                    |  |
| Q40: If you want to buy a home, would you consider purchasing a deed-restricted residence (a residence that would be priced b..                                                                   | Yes                                                                                    | 68%                        | 83%      | 67%                       | 64%                 | 67%                                      | 51%                   |  |
|                                                                                                                                                                                                   | No - why not?                                                                          | 32%                        | 17%      | 33%                       | 36%                 | 33%                                      | 49%                   |  |
| Q41: If you want to buy a home, how much do you have available for a down payment? (Include the portion of home equity you could spend on a down payment if you were to sell a home you now own ) | None                                                                                   | 12%                        | 5%       | 12%                       | 12%                 | 16%                                      | 14%                   |  |
|                                                                                                                                                                                                   | Under \$10,000                                                                         | 18%                        | 11%      | 17%                       | 19%                 | 25%                                      | 7%                    |  |
|                                                                                                                                                                                                   | \$10,000 to \$14,999                                                                   | 8%                         | 9%       | 5%                        | 8%                  | 11%                                      | 4%                    |  |
|                                                                                                                                                                                                   | \$15,000 to \$25,999                                                                   | 9%                         | 14%      | 7%                        | 14%                 | 4%                                       | 6%                    |  |
|                                                                                                                                                                                                   | \$25,000 to \$34,999                                                                   | 13%                        | 17%      | 11%                       | 13%                 | 10%                                      | 21%                   |  |
|                                                                                                                                                                                                   | \$35,000 to \$49,999                                                                   | 8%                         | 12%      | 7%                        | 5%                  | 5%                                       | 14%                   |  |
|                                                                                                                                                                                                   | \$50,000 to \$74,999                                                                   | 4%                         | 7%       | 4%                        | 4%                  | 3%                                       |                       |  |
|                                                                                                                                                                                                   | \$75,000 to \$99,999                                                                   | 10%                        | 12%      | 6%                        | 7%                  | 14%                                      | 7%                    |  |
|                                                                                                                                                                                                   | \$100,000 to \$149,999                                                                 | 4%                         | 3%       | 4%                        | 1%                  | 4%                                       | 7%                    |  |
|                                                                                                                                                                                                   | \$150,000 to \$199,999                                                                 | 4%                         | 2%       | 9%                        | 4%                  | 1%                                       | 5%                    |  |
|                                                                                                                                                                                                   | \$250,000+                                                                             | 12%                        | 10%      | 18%                       | 13%                 | 6%                                       | 16%                   |  |
|                                                                                                                                                                                                   | If you want to buy a home, how much do you have available for a down payment?: Average | 86,838.6                   | 86,877.4 | 113,676.4                 | 80,962.0            | 60,604.1                                 | 108,249.6             |  |
| Q42: Are you registered to vote in Colorado?                                                                                                                                                      | Yes                                                                                    | 94%                        | 91%      | 95%                       | 96%                 | 94%                                      | 96%                   |  |
|                                                                                                                                                                                                   | No, but registered in another state (what state?)                                      | 2%                         | 3%       | 1%                        | 1%                  | 1%                                       | 2%                    |  |
|                                                                                                                                                                                                   | No, not registered                                                                     | 4%                         | 7%       | 4%                        | 2%                  | 5%                                       | 2%                    |  |
| Q43.1: What is your household's current total monthly RENT and/or MORTGAGE PAYMENT?                                                                                                               | No, do not pay rent or mortgage                                                        | 4%                         | 3%       | 4%                        | 7%                  | 4%                                       | 4%                    |  |
|                                                                                                                                                                                                   | No, mortgage is paid off                                                               | 13%                        | 16%      | 12%                       | 15%                 | 12%                                      | 13%                   |  |
|                                                                                                                                                                                                   | Yes, paying a rent or mortgage                                                         | 82%                        | 81%      | 83%                       | 78%                 | 83%                                      | 84%                   |  |
| Q43: What is your household's current total monthly RENT and/..                                                                                                                                   | Rent or mortgage per month: What is your household's current total monthly RENT and..  | 1,304.4                    | 1,464.1  | 1,561.6                   | 1,145.0             | 977.5                                    | 1,550.1               |  |
| Q44: What are your monthly homeowners' association (HOA) ..                                                                                                                                       | What are your monthly homeowners' association (HOA) fees?: Average                     | 73.8                       | 152.6    | 101.9                     | 48.1                | 20.8                                     | 62.7                  |  |
| Q44.1: HOA status                                                                                                                                                                                 | I don't pay HOA fees                                                                   | 60%                        | 50%      | 52%                       | 71%                 | 75%                                      | 45%                   |  |
|                                                                                                                                                                                                   | I pay monthly HOA fees                                                                 | 40%                        | 50%      | 48%                       | 29%                 | 25%                                      | 55%                   |  |

Source: 2018 Roaring Fork / Colorado River Valley / Eagle County Household Survey



# Roaring Fork Housing | By Area of Residence

|                                                                                               |                                                                                           | Overall                   | Area of residence          |                           |                           |                                          |                           |                           |
|-----------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------|---------------------------|----------------------------|---------------------------|---------------------------|------------------------------------------|---------------------------|---------------------------|
|                                                                                               |                                                                                           |                           | Aspen thru<br>Old Snowmass | Basalt thru<br>Carbondale | Glenwood<br>Springs       | New Castle<br>thru<br>Battlement<br>Mesa | Eagle thru<br>Dotsero     |                           |
| Q45: What is the approximate average monthly cost of househo..                                | What is the approximate average monthly cost of household utilities, including gas, ele.. | 257.6                     | 229.5                      | 237.7                     | 303.8                     | 248.6                                    | 292.4                     |                           |
| Q45.1: Are utilities included in rent?                                                        | Yes                                                                                       | <div><div>11%</div></div> | <div><div>16%</div></div>  | <div><div>10%</div></div> | <div><div>15%</div></div> | <div><div>6%</div></div>                 | <div><div>11%</div></div> |                           |
|                                                                                               | No                                                                                        | <div><div>89%</div></div> | <div><div>84%</div></div>  | <div><div>90%</div></div> | <div><div>85%</div></div> | <div><div>94%</div></div>                | <div><div>89%</div></div> |                           |
| Q46: What is the combined gross annual income of all household members (before taxes)?        | Under \$15,000                                                                            | <div><div>6%</div></div>  | <div><div>7%</div></div>   | <div><div>8%</div></div>  | <div><div>6%</div></div>  | <div><div>6%</div></div>                 |                           |                           |
|                                                                                               | \$15,000 to \$24,999                                                                      | <div><div>6%</div></div>  | <div><div>5%</div></div>   | <div><div>5%</div></div>  | <div><div>7%</div></div>  | <div><div>8%</div></div>                 | <div><div>2%</div></div>  |                           |
|                                                                                               | \$25,000 to \$34,999                                                                      | <div><div>5%</div></div>  | <div><div>4%</div></div>   | <div><div>4%</div></div>  | <div><div>7%</div></div>  | <div><div>7%</div></div>                 | <div><div>3%</div></div>  |                           |
|                                                                                               | \$35,000 to \$49,999                                                                      | <div><div>10%</div></div> | <div><div>11%</div></div>  | <div><div>7%</div></div>  | <div><div>15%</div></div> | <div><div>13%</div></div>                | <div><div>4%</div></div>  |                           |
|                                                                                               | \$50,000 to \$74,999                                                                      | <div><div>18%</div></div> | <div><div>21%</div></div>  | <div><div>16%</div></div> | <div><div>15%</div></div> | <div><div>19%</div></div>                | <div><div>21%</div></div> |                           |
|                                                                                               | \$75,000 to \$99,999                                                                      | <div><div>15%</div></div> | <div><div>13%</div></div>  | <div><div>18%</div></div> | <div><div>16%</div></div> | <div><div>15%</div></div>                | <div><div>10%</div></div> |                           |
|                                                                                               | \$100,000 to \$149,999                                                                    | <div><div>23%</div></div> | <div><div>17%</div></div>  | <div><div>23%</div></div> | <div><div>18%</div></div> | <div><div>24%</div></div>                | <div><div>33%</div></div> |                           |
|                                                                                               | \$150,000 to \$199,999                                                                    | <div><div>8%</div></div>  | <div><div>9%</div></div>   | <div><div>8%</div></div>  | <div><div>8%</div></div>  | <div><div>4%</div></div>                 | <div><div>15%</div></div> |                           |
|                                                                                               | \$250,000+                                                                                | <div><div>5%</div></div>  | <div><div>8%</div></div>   | <div><div>5%</div></div>  | <div><div>4%</div></div>  | <div><div>2%</div></div>                 | <div><div>10%</div></div> |                           |
|                                                                                               | \$200,000 to \$249,999                                                                    | <div><div>4%</div></div>  | <div><div>6%</div></div>   | <div><div>7%</div></div>  | <div><div>4%</div></div>  | <div><div>2%</div></div>                 | <div><div>2%</div></div>  |                           |
| What is the combined gross annual income of all household members (before taxes)?: Aver..     |                                                                                           | 101,507.3                 | 111,046.7                  | 101,318.9                 | 84,775.0                  | 80,134.1                                 | 152,744.1                 |                           |
| Q47: Do you have:                                                                             | Auto loan payments?                                                                       | Yes                       | <div><div>44%</div></div>  | <div><div>35%</div></div> | <div><div>42%</div></div> | <div><div>40%</div></div>                | <div><div>51%</div></div> | <div><div>49%</div></div> |
|                                                                                               |                                                                                           | No                        | <div><div>56%</div></div>  | <div><div>65%</div></div> | <div><div>58%</div></div> | <div><div>60%</div></div>                | <div><div>49%</div></div> | <div><div>51%</div></div> |
|                                                                                               | Health insurance paid for (through work, Medic..                                          | Yes                       | <div><div>90%</div></div>  | <div><div>91%</div></div> | <div><div>90%</div></div> | <div><div>87%</div></div>                | <div><div>87%</div></div> | <div><div>95%</div></div> |
|                                                                                               |                                                                                           | No                        | <div><div>10%</div></div>  | <div><div>9%</div></div>  | <div><div>10%</div></div> | <div><div>13%</div></div>                | <div><div>13%</div></div> | <div><div>5%</div></div>  |
|                                                                                               | Student loan payments?                                                                    | Yes                       | <div><div>25%</div></div>  | <div><div>22%</div></div> | <div><div>24%</div></div> | <div><div>26%</div></div>                | <div><div>29%</div></div> | <div><div>20%</div></div> |
|                                                                                               |                                                                                           | No                        | <div><div>75%</div></div>  | <div><div>78%</div></div> | <div><div>76%</div></div> | <div><div>74%</div></div>                | <div><div>71%</div></div> | <div><div>80%</div></div> |
| Q13: Where in the region would you most like to live if you could afford the cost of housing? | Aspen                                                                                     | <div><div>18%</div></div> | <div><div>70%</div></div>  | <div><div>15%</div></div> | <div><div>4%</div></div>  | <div><div>1%</div></div>                 |                           |                           |
|                                                                                               | Glenwood Springs                                                                          | <div><div>17%</div></div> |                            | <div><div>2%</div></div>  | <div><div>63%</div></div> | <div><div>22%</div></div>                | <div><div>3%</div></div>  |                           |
|                                                                                               | Carbondale                                                                                | <div><div>16%</div></div> | <div><div>1%</div></div>   | <div><div>44%</div></div> | <div><div>21%</div></div> | <div><div>8%</div></div>                 |                           |                           |
|                                                                                               | Edwards/Avon/Vail area                                                                    | <div><div>2%</div></div>  |                            |                           |                           | <div><div>1%</div></div>                 | <div><div>14%</div></div> |                           |
|                                                                                               | Snowmass                                                                                  | <div><div>5%</div></div>  | <div><div>18%</div></div>  | <div><div>4%</div></div>  | <div><div>2%</div></div>  | <div><div>0%</div></div>                 |                           |                           |
|                                                                                               | Rifle                                                                                     | <div><div>7%</div></div>  |                            |                           |                           | <div><div>23%</div></div>                |                           |                           |
|                                                                                               | Basalt                                                                                    | <div><div>6%</div></div>  | <div><div>2%</div></div>   | <div><div>19%</div></div> | <div><div>4%</div></div>  | <div><div>1%</div></div>                 |                           |                           |
|                                                                                               | Eagle/Brush Creek                                                                         | <div><div>7%</div></div>  |                            |                           |                           | <div><div>1%</div></div>                 | <div><div>52%</div></div> |                           |
|                                                                                               | First Rank                                                                                |                           |                            |                           |                           |                                          |                           |                           |
|                                                                                               | Gypsum                                                                                    | <div><div>4%</div></div>  |                            |                           | <div><div>0%</div></div>  | <div><div>2%</div></div>                 | <div><div>25%</div></div> |                           |
|                                                                                               | El Jebel                                                                                  | <div><div>1%</div></div>  |                            | <div><div>4%</div></div>  | <div><div>1%</div></div>  | <div><div>1%</div></div>                 |                           |                           |
|                                                                                               | Willits                                                                                   | <div><div>2%</div></div>  | <div><div>0%</div></div>   | <div><div>6%</div></div>  | <div><div>0%</div></div>  | <div><div>1%</div></div>                 |                           |                           |

Source: 2018 Roaring Fork / Colorado River Valley / Eagle County Household Survey

# Roaring Fork Housing | By Area of Residence

|             |                                                                                               |                                                                                                                                                     | Overall                   | Area of residence          |                           |                     |                                          |                       |     |
|-------------|-----------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------|----------------------------|---------------------------|---------------------|------------------------------------------|-----------------------|-----|
|             |                                                                                               |                                                                                                                                                     |                           | Aspen thru<br>Old Snowmass | Basalt thru<br>Carbondale | Glenwood<br>Springs | New Castle<br>thru<br>Battlement<br>Mesa | Eagle thru<br>Dotsero |     |
| First Rank  |                                                                                               | New Castle                                                                                                                                          | 5%                        |                            | 0%                        | 1%                  | 17%                                      | 3%                    |     |
|             |                                                                                               | Silt                                                                                                                                                | 3%                        |                            |                           |                     | 9%                                       | 1%                    |     |
|             |                                                                                               | Parachute/Battlement Mesa                                                                                                                           | 3%                        |                            |                           |                     | 10%                                      |                       |     |
|             |                                                                                               | Other                                                                                                                                               | 3%                        | 1%                         | 3%                        | 2%                  | 4%                                       | 2%                    |     |
|             |                                                                                               | Woody Creek                                                                                                                                         | 1%                        | 3%                         | 1%                        | 0%                  | 0%                                       |                       |     |
|             |                                                                                               | Old Snowmass                                                                                                                                        | 2%                        | 4%                         | 2%                        | 2%                  | 1%                                       | 1%                    |     |
|             | Q13: Where in the region would you most like to live if you could afford the cost of housing? |                                                                                                                                                     | Aspen                     | 4%                         | 13%                       | 6%                  | 1%                                       | 1%                    | 1%  |
|             |                                                                                               | Glenwood Springs                                                                                                                                    | 10%                       | 1%                         | 7%                        | 21%                 | 15%                                      | 8%                    |     |
|             |                                                                                               | Carbondale                                                                                                                                          | 13%                       | 8%                         | 16%                       | 25%                 | 10%                                      | 9%                    |     |
|             |                                                                                               | Edwards/Avon/Vail area                                                                                                                              | 3%                        | 0%                         | 0%                        | 1%                  | 1%                                       | 19%                   |     |
|             |                                                                                               | Snowmass                                                                                                                                            | 9%                        | 33%                        | 10%                       | 2%                  | 1%                                       |                       |     |
|             |                                                                                               | Rifle                                                                                                                                               | 5%                        |                            | 0%                        | 1%                  | 16%                                      | 1%                    |     |
|             |                                                                                               | Basalt                                                                                                                                              | 8%                        | 9%                         | 19%                       | 5%                  | 4%                                       | 1%                    |     |
|             |                                                                                               | Eagle/Brush Creek                                                                                                                                   | 3%                        |                            | 0%                        | 2%                  | 1%                                       | 21%                   |     |
|             |                                                                                               | Gypsum                                                                                                                                              | 3%                        |                            | 0%                        | 1%                  | 1%                                       | 18%                   |     |
| Second Rank |                                                                                               |                                                                                                                                                     | El Jebel                  | 2%                         | 1%                        | 4%                  | 2%                                       | 2%                    |     |
|             |                                                                                               |                                                                                                                                                     | Willits                   | 4%                         | 6%                        | 7%                  | 5%                                       | 1%                    |     |
|             |                                                                                               |                                                                                                                                                     | New Castle                | 7%                         |                           | 1%                  | 9%                                       | 18%                   |     |
|             |                                                                                               |                                                                                                                                                     | Silt                      | 2%                         | 0%                        | 0%                  |                                          | 8%                    |     |
|             |                                                                                               |                                                                                                                                                     | Parachute/Battlement Mesa | 1%                         |                           | 0%                  |                                          | 4%                    |     |
|             |                                                                                               |                                                                                                                                                     | Dotsero                   | 0%                         |                           |                     | 0%                                       | 1%                    | 1%  |
|             |                                                                                               |                                                                                                                                                     | Other                     | 3%                         | 1%                        | 3%                  | 3%                                       | 4%                    | 1%  |
|             |                                                                                               |                                                                                                                                                     | Woody Creek               | 3%                         | 10%                       | 4%                  | 2%                                       | 0%                    |     |
|             |                                                                                               |                                                                                                                                                     | Old Snowmass              | 3%                         | 8%                        | 6%                  | 2%                                       | 1%                    |     |
|             |                                                                                               | Q26: Where do you and other adults in your household work? Share of households which have at least one member working in the following communities: |                           | Aspen                      | 38%                       | 86%                 | 61%                                      | 16%                   | 12% |
|             |                                                                                               |                                                                                                                                                     | Glenwood Springs          | 35%                        | 4%                        | 25%                 | 84%                                      | 51%                   | 14% |
|             | Carbondale                                                                                    |                                                                                                                                                     | 19%                       | 5%                         | 47%                       | 21%                 | 12%                                      | 4%                    |     |
|             | Snowmass                                                                                      |                                                                                                                                                     | 15%                       | 27%                        | 22%                       | 11%                 | 7%                                       | 2%                    |     |
|             | Rifle                                                                                         |                                                                                                                                                     | 17%                       | 0%                         | 4%                        | 7%                  | 54%                                      | 1%                    |     |
|             | Basalt                                                                                        |                                                                                                                                                     | 15%                       | 12%                        | 37%                       | 11%                 | 7%                                       | 1%                    |     |
|             | Gypsum                                                                                        |                                                                                                                                                     | 6%                        |                            | 1%                        | 1%                  | 4%                                       | 36%                   |     |

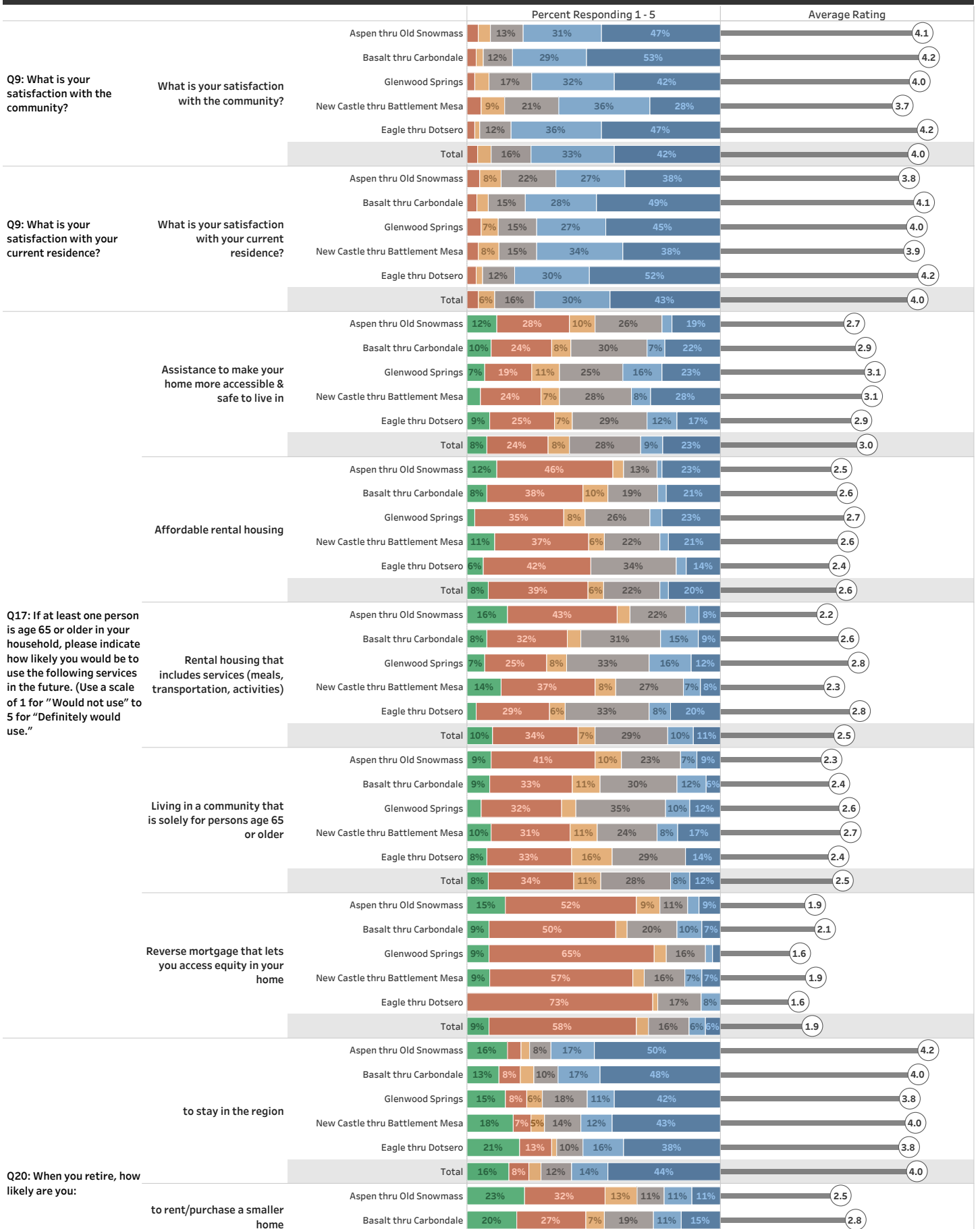
Source: 2018 Roaring Fork / Colorado River Valley / Eagle County Household Survey

## Roaring Fork Housing | By Area of Residence

|                                                                                                                                                        |                                  | Overall | Area of residence          |                           |                     |                                          |                       |
|--------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------|---------|----------------------------|---------------------------|---------------------|------------------------------------------|-----------------------|
|                                                                                                                                                        |                                  |         | Aspen thru<br>Old Snowmass | Basalt thru<br>Carbondale | Glenwood<br>Springs | New Castle<br>thru<br>Battlement<br>Mesa | Eagle thru<br>Dotsero |
| Q26: Where do you and other adults in your household work?<br>Share of households which have at least one member working in the following communities: | Other location                   | 8%      | 3%                         | 6%                        | 6%                  | 12%                                      | 11%                   |
|                                                                                                                                                        | El Jebel                         | 6%      | 3%                         | 14%                       | 5%                  | 6%                                       |                       |
|                                                                                                                                                        | Willits                          | 5%      | 3%                         | 12%                       | 5%                  | 3%                                       |                       |
|                                                                                                                                                        | New Castle                       | 6%      | 0%                         | 3%                        | 7%                  | 16%                                      |                       |
|                                                                                                                                                        | Silt                             | 5%      | 0%                         | 2%                        | 6%                  | 13%                                      | 0%                    |
|                                                                                                                                                        | Dotsero                          | 1%      |                            |                           | 0%                  | 1%                                       | 6%                    |
|                                                                                                                                                        | Eagle / Brush Creek              | 8%      |                            | 2%                        | 1%                  | 3%                                       | 49%                   |
|                                                                                                                                                        | Edwards / Avon / Vail area       | 10%     | 0%                         | 1%                        | 2%                  | 4%                                       | 62%                   |
|                                                                                                                                                        | Outside the region / telecommute | 5%      | 2%                         | 7%                        | 4%                  | 6%                                       | 5%                    |
|                                                                                                                                                        | Parachute / Battlement Mesa      | 4%      | 0%                         | 1%                        | 2%                  | 12%                                      | 0%                    |

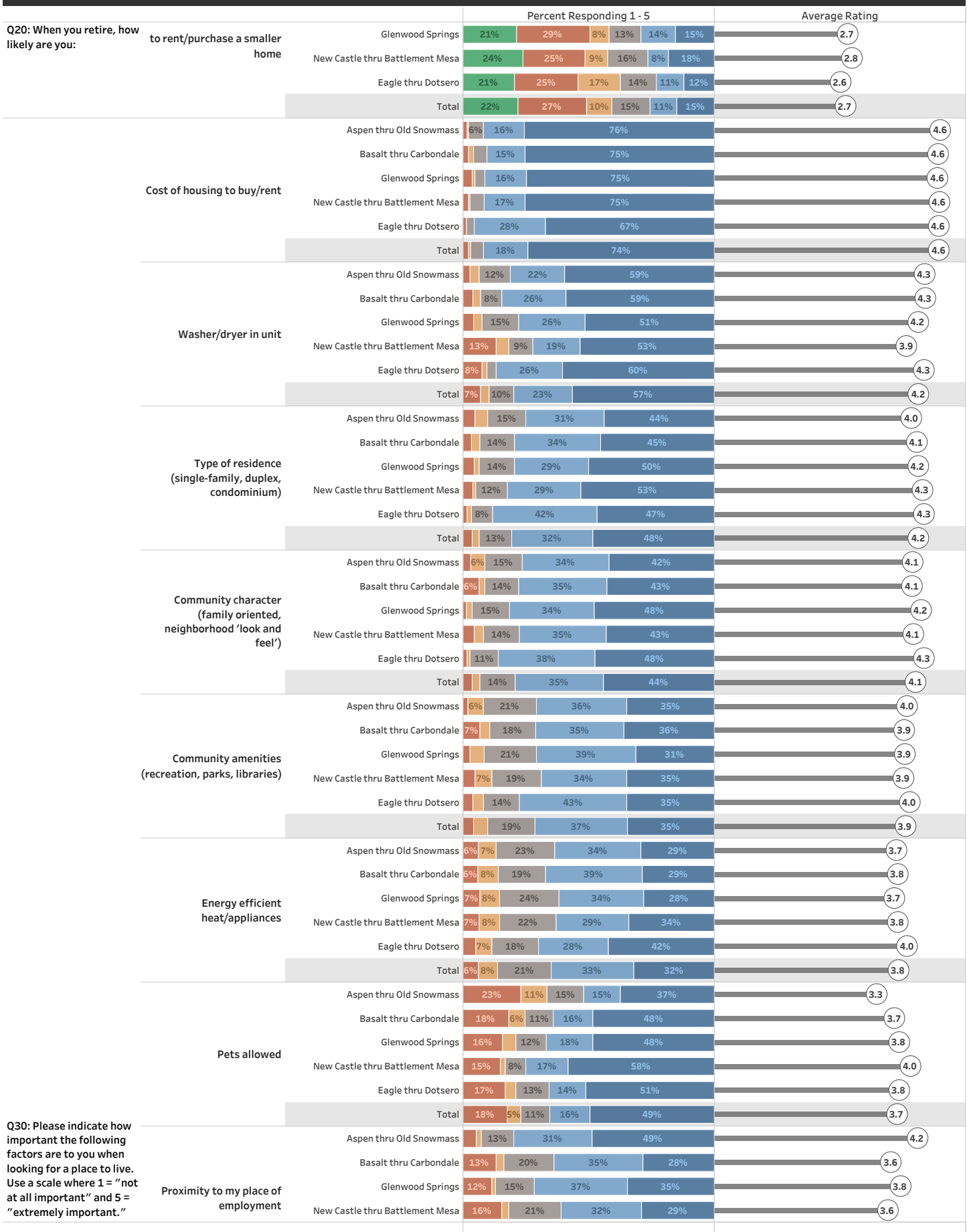
Source: 2018 Roaring Fork / Colorado River Valley / Eagle County Household Survey

# Roaring Fork Housing Ratings | By Area of Residence



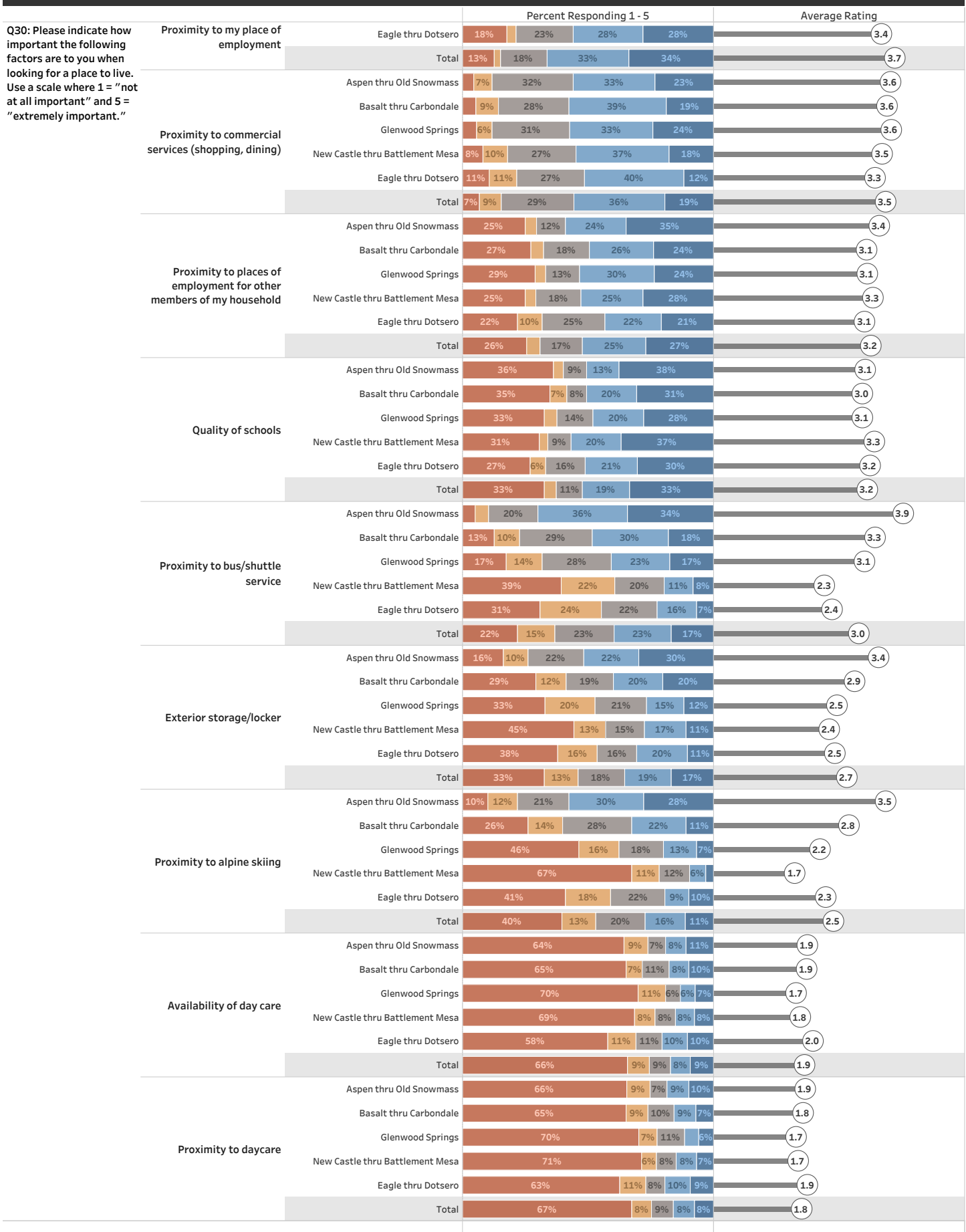
Source: 2018 Roaring Fork / Colorado River Valley / Eagle County Household Survey

## Roaring Fork Housing Ratings | By Area of Residence



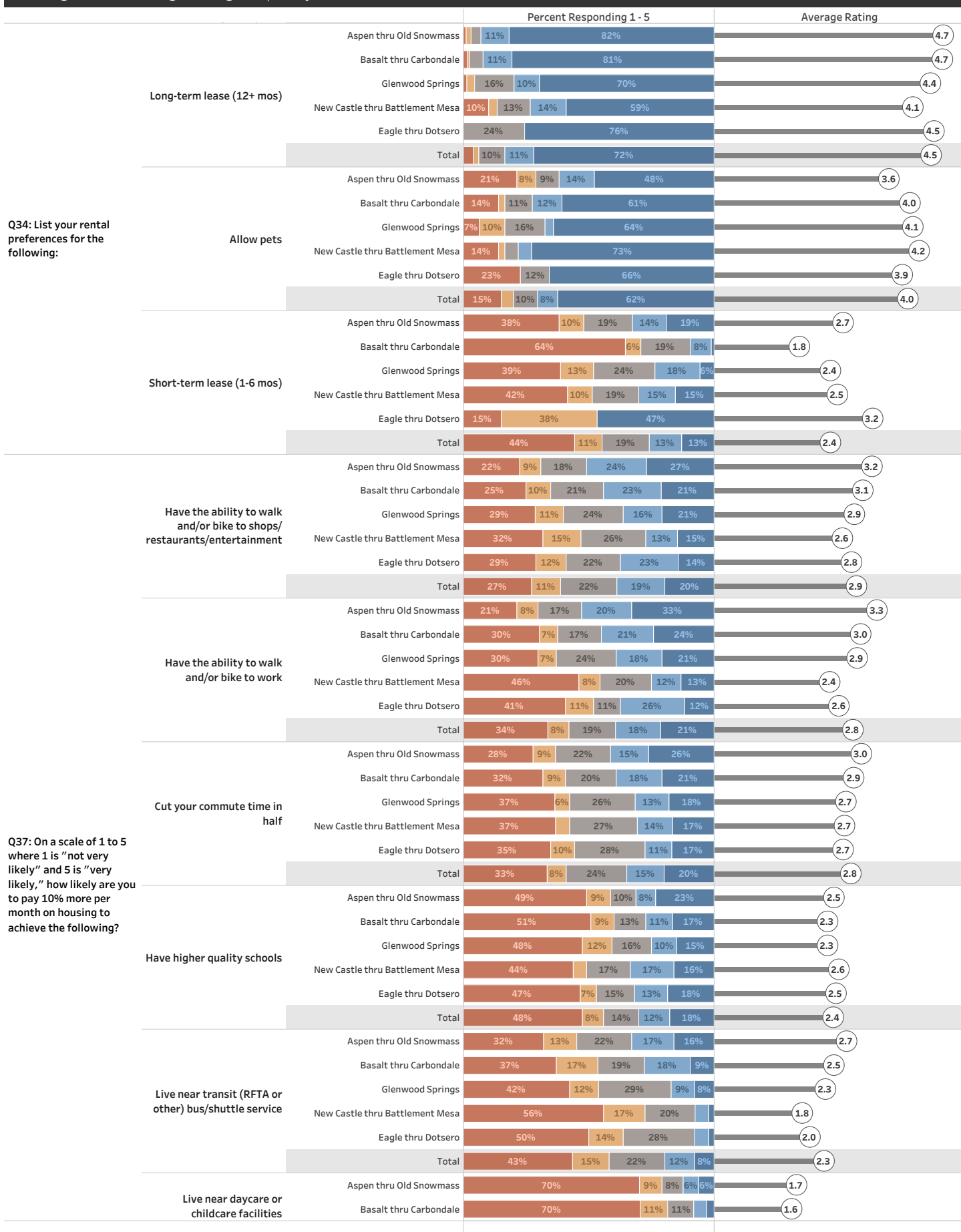
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## Roaring Fork Housing Ratings | By Area of Residence

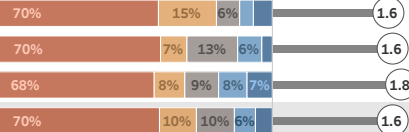
Q37: On a scale of 1 to 5 where 1 is "not very likely" and 5 is "very likely," how likely are you to pay 10% more per month on housing to achieve the following?

Live near daycare or childcare facilities

Glenwood Springs  
New Castle thru Battlement Mesa  
Eagle thru Dotsero  
Total

Percent Responding 1 - 5

Average Rating



Source: 2018 Roaring Fork / Colorado River Valley / Eagle County Household Survey



## LODGING TAX COMPARISON - 2021

| TOWN              | LODGING TAX            | COMMENTS / SPECIFICALLY EARMARKED                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
|-------------------|------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| ASPEN             | 2.00%                  | 25% to fund the Local Transit Services and 75% to promote tourism in Aspen.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
| AVON              | 4.00%                  | Avon Council just took action to refer a 2% Short Term Rental tax to the Nov 2, 2022 election.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
| BASALT            | 4.00%                  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
| BLUE RIVER        | 3.40%                  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
| BRECKENRIDGE      | 3.40%                  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
| CARBONDALE        | 2.00%                  | To be used for promotion, development and marketing of tourism. It brought in \$131,324 in 2019 and will be up from that this year. The funds are provided to the Tourism Committee coordinated by the Chamber.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
| CRESTED BUTTE     | 4.00%                  | Stopped Summer Advertising due to affordable housing shortage in 2021.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
| DILLON            | 2.00%                  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
| DURANGO           | 2.00%                  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
| EAGLE             | 6.00%                  | Half pays for open space. The other half pays for marketing and events. The Town doesn't have a revenue source for affordable housing.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
| ESTES PARK        | 2.00%                  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
| FRASER            | 1.80%                  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
| FRISCO            | 2.35%                  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
| GLENWOOD SPRINGS  | 2.50%                  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
| GRAND LAKE        | 1.80%                  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
| GUNNISON          | 4.00%                  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
| GYPSUM            | 0.00%                  | Gypsum's sales tax rate is 4% and the town doesn't have a lodging tax (nor lodging).                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
| JACKSON, WY       | 2.00%                  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
| KETCHUM, ID       | 3% on rooms rented <30 |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
| MINTURN           | 1.50%                  | Minturn is 4% sales tax and 1.5% lodging tax. The Council may consider a STR tax in April 2022.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
| MOUNTAIN VILLAGE  | 4.00%                  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
| MT. CRESTED BUTTE | 6.90%                  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
| OURAY             | 3.50%                  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
| PAGOSA SPRINGS    | 4.90%                  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
| PARK CITY, UT     | 4.32%                  | LODGING Tax: Park City receives only 1% directed toward Tax for Arts & Culture. Remaining 3.32% goes to state /county. Resort community tax rates incorporated into the TOWN rate number, of which 0.5% is traditionally directed toward Capital Improvement Projects.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
| RED CLIFF         | 3.00%                  | Assigned to events and marketing. Has affordable housing so money is not set aside for that.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
| SALIDA            | \$3.66/night           |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
| SILVERTHORNE      | 2.00%                  | LODGING TAX: 20% marketing/80% trails, open space, etc.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
| SILVERTON         | 2.00%                  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
| SNOWMASS VILLAGE  | 2.40%                  | This 2.4% is only applied to short term lodging and is an addition to our 3.5% TOSV sales tax (which is also collected on lodging and all other sales in town). Our lodging tax is currently restricted to attracting large group business, paying for some special events (that bring in groups), and some marketing to bring in groups).                                                                                                                                                                                                                                                                                                                                                                                                                                        |
| STEAMBOAT SPRINGS | 1.00%                  | 1% - City-wide lodging tax dedicated for tourism related entities. Previously used to build a golf course, tennis center, and music pavilion. Currently used for multi-use trails and a chair lift at our city-owned ski mountain. There is no sunset date on this tax. This is expected to generate ~ \$1.3M in 2022.                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
| TELLURIDE         | 2.00%                  | 2% - Local Marketing District lodging tax – This is only applied within the LMD boundaries which is smaller than our city limits. This is specifically used for minimum revenue guarantees for airline service (primarily winter) and is managed by the LMD Board. This is expected to generate ~\$2.1M in 2022.                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
| VAIL              | 1.40%                  | 2% Lodging and Restaurant Excise Tax earmarked for Air Guarantee                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
| WHISTLER, BC      | 2.00%                  | SPENDING OF LODGING TAX RESTRICTED TO SPECIAL EVENTS AND MARKETING.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
| WINTER PARK       | 1.00%                  | Municipal Regional District Tax (MRDT) aka Hotel Tax. Total tax charged to guests is 10% and 2% goes to Local Gov't. Option to increase to 3% in 2017.<br>The sales tax rate is 7.0%. Lodging includes leasing or rental of any hotel room, motel room, or other public accommodation in any hotel, apartment-hotel, motel or trailer court or park or any similar. place to any person, who, for a consideration, uses, possesses or has the right to use or possess such room or other accommodation for a total continuous duration of less than thirty (30) days. Tax should be collected on any services that are not optional including resort fees, cleaning fees, or other fees associated with the rental. (4% Sales Tax, 1% Accommodation Tax, 2% Transit & Trails Tax) |

**RETT (Real estate transfer tax)**

- Aspen – 2%
- Avon – 2%
- Breck – 1%
- Crested Butte – 1%
- Frisco – 1%
- Telluride – 2%
- Vail – 1%
- Winter Park – 1%

**Redirects lodging taxes to housing**

- Avon
- Big Sky
- Crested Butte
- Frisco
- Pagosa Springs
- Park City
- Telluride
- Vail
- Winter Park

**Considering tax for affordable housing**

- Basalt – this fall
- Crested Butte - November ballot question include combined tax on non-primary residences and 0.5% sales tax.
- In November 2021 Vail will have a .05cent sales tax on the ballot which would be dedicated toward our Housing Fund and would raise up to \$4.5 million annually

**Existing tax**

- Breckenridge – ¾ cent to workforce housing
- Dillion - .6% sales tax
- Telluride - 2.5% excise tax on short-term rental properties (passed in 2019), 0.5% sales tax (passed in 1993-ish), 2-mill property tax (passed in 2018), mitigation fees charged on both commercial and residential construction.

Dear Council Members,

My name is Dana Wood and I have lived in this valley since 2011. I'm 37, well-educated, work full-time, and hold second jobs on and off to continue to live in this amazing community. I consider myself a community leader and have worked in public service (a low paying job) for the last 8 years, serving the folks that live in our county. I've seen lots of people come and go due to the high cost of living and low paying or lack of jobs in our area. I truly love this place and all it has to offer. I support our local businesses, use our trails/rivers/paths/parks, and eat at our restaurants.

It is becoming extremely difficult and expensive to live in this community. I never thought I would still be renting a home and working multiple jobs just to get by at the age of 37. Yes, I qualify for a home, but not nearly enough for me to continue to live here, let alone anywhere in Garfield County. If I want to continue to rent and not have roommates, I would be paying an extraordinary amount, up to \$2500/month in rent alone; much more than a mortgage. A lot of my life goals and dreams can never become a reality if I continue to live here. I won't be able to own a home, save for retirement, pay off debt, or even consider having a family. The same goes for many of those my age who have similar stories and love living here.

Without making significant and drastic changes to the housing landscape in Glenwood Springs, you will not only lose quality people, you will lose your sense of community and place. Glenwood will become just another California town filled with second homeowners who show up a few times a year. Businesses will close because of the lack of workforce due to expensive or no housing.

I urge you to please address the issue of affordable housing now. Don't wait for the perfect scenario or time; there will never be one. The time is now. Take a risk to keep Glenwood's hardworking people in this community by voting to raise the attractions and lodging taxes.

Thank you for your time and consideration.

Sincerely,

Dana Wood, MBA  
she/her/hers  
3800 Old Lodge Road, Apt 7A  
Glenwood Springs, CO 81601

## RESOLUTION NO. 2021 - 21

### A RESOLUTION OF THE CITY OF GLENWOOD SPRINGS CALLING AN ELECTION ON NOVEMBER 2, 2021 AND CERTIFYING A BALLOT ISSUE TO AUTHORIZE AN EXCISE TAX ON ACCOMODATIONS; SETTING THE BALLOT TITLE AND CONTENT FOR THE BALLOT ISSUE; AND PROVIDING OTHER MATTERS RELATING TO THE ELECTION.

**WHEREAS**, the City of Glenwood Springs (“Glenwood Springs” or the “City”) is a home-rule municipality organized pursuant to Article XX of the Colorado Constitution and with the authority of the Glenwood Springs Home Rule Charter; and

**WHEREAS**, Article X, Section 20 of the Colorado Constitution (“TABOR Amendment”) limits the ability of the City to enact new taxes, and permits the City’s eligible electors to approve the adoption of new taxes and authorize the expenditure of new revenues therefrom; and

**WHEREAS**, the City Council finds and believes that it is appropriate to propose to the qualified electors of the City at the November 2, 2021 election a ballot issue concerning whether to impose an excise tax on the price paid for accommodations throughout the City; and

**WHEREAS**, the election shall be conducted as a coordinated election in Garfield County in accordance with articles 1 to 13 of title 1, Colorado Revised Statutes, as amended (the “Uniform Election Code”); and

**WHEREAS**, the Clerk and Recorder of Garfield County (the “County Clerk”) is the coordinated election official for the election pursuant to the Uniform Election Code, and is responsible for mailing the notice of election required by Article X, Section 20(3)(b) of the Colorado Constitution (the “TABOR Notice”); and

**WHEREAS**, the City will assist the County Clerk in providing necessary information and notices for the conduct of the election.

NOW THEREFORE, BE IT RESOLVED BY THE CITY COUNCIL OF THE CITY OF GLENWOOD SPRINGS, COLORADO:

**Section 1.** An election shall be held on Tuesday, November 2, 2021 (the “Election Date”) at which there shall be submitted to the eligible electors of the City a ballot issue which shall be in substantially the form attached hereto in **Exhibit A**.

**Section 2.** For purposes of Section 1-11-203.5, C.R.S., this Resolution shall serve to set the ballot title and content for the ballot issue set forth in the exhibit hereto. **Exhibit A** is hereby incorporated into this Resolution as if set forth in full herein. The ballot title for the ballot issue attached hereto as **Exhibit A** shall be the text of such ballot issue.

**Section 3.** If a majority of the votes cast on the ballot issue attached hereto as **Exhibit A** submitted at the election shall be in favor of any such ballot issue, the City acting through the City Council shall be authorized to proceed with the necessary action to continue the mill levy rate in accordance with the approved ballot issue.

**Section 4.** The City Clerk, as the designated election official of the City, is hereby authorized and directed to take all action necessary or appropriate to hold an election on the Election Date and to effectuate the provisions of this Resolution.

**Section 5.** All actions not inconsistent with the provisions of this Resolution heretofore taken by the members of the City Council and the officers and employees of the City and directed toward holding the election for the purposes stated herein, including without limitation the execution of an intergovernmental agreement with the County Clerk in connection with the conduct of the election, are hereby ratified, approved and confirmed.

**Section 6.** All prior acts, orders or resolutions, or parts thereof, by the City in conflict with this Resolution are hereby repealed, except that this repealer shall not be construed to revive any act, order or resolution, or part thereof, heretofore repealed.

**Section 7.** If any section, paragraph, clause or provision of this Resolution shall be adjudged to be invalid or unenforceable, the invalidity or unenforceability of such section, paragraph, clause or provision shall not affect any of the remaining sections, paragraphs, clauses or provisions of this Resolution, it being the intention that the various parts hereof are severable.

**Section 8.** This Resolution shall take effect immediately upon its passage.

ADOPTED AND APPROVED this \_\_\_\_ day of September 2021.

By \_\_\_\_\_  
Jonathan Godes, Mayor

ATTEST:

By \_\_\_\_\_  
Ryan Muse, City Clerk

**EXHIBIT A  
FORM OF THE BALLOT ISSUE**

**Accommodations Tax Question**

Ballot Issue \_\_\_\_ Tax on Accommodations

SHALL THE CITY OF GLENWOOD SPRINGS TAXES BE INCREASED \$5,000,000 IN THE FIRST FULL FISCAL YEAR (2022) AND BY WHATEVER AMOUNTS ARE RAISED ANNUALLY THEREAFTER THROUGH THE IMPOSITION AND ASSESSMENT OF A FIVE PERCENT (5%) EXCISE TAX TO BE PAID BY LODGERS WITHIN THE CITY OF GLENWOOD SPRINGS ON THE PURCHASE PRICE PAID OR CHARGED FOR THE FURNISHING OF ANY HOTEL ROOM, MOTEL ROOM, LODGING ROOM, MOTOR HOTEL ROOM, GUEST HOUSE, OR OTHER SIMILAR SHORT TERM TEMPORARY ACCOMMODATION OF LESS THAN THIRTY (30) CONSECUTIVE DAYS; AND SHALL ALL REVENUES DERIVED FROM SUCH EXCISE TAX BE DEPOSITED IN A DEDICATED FUND ESTABLISHING A WORKFORCE HOUSING PROGRAM FOR THE THE GLENWOOD SPRINGS WORKFORCE TO:

- ACQUIRE, SELL, DESIGN, CONSTRUCT, OPERATE, AND MAINTAIN CITY OWNED WORKFORCE HOUSING;
- ACQUIRE, SELL, DESIGN, CONSTRUCT, OPERATE, AND MAINTAIN WORKFORCE HOUSING THROUGH PUBLIC PRIVATE PARTNERSHIPS;
- ACQUIRE, SELL, DESIGN, CONSTRUCT, OPERATE AND MAINTAIN WORKFORCE HOUSING IN PARTNERSHIP WITH FEDERAL, STATE, AND LOCAL GOVERNMENTS AND HOUSING TRUSTS;
- EMPLOYEE COSTS ASSOCIATED WITH ACQUISITION, SALE, DESIGN, CONSTRUCTION, OPERATION, AND MAINTENANCE OF WORK FOR HOUSING;

AND OTHER RELATED CITY EXPENSES, TO BE COLLECTED AND SPENT AS A VOTER APPROVED REVENUE CHANGE NOTWITHSTANDING ANY

REVENUE OR EXPENDITURE LIMITATIONS CONTAINED IN ARTICLE X,  
SECTION 20 OF THE COLORADO CONSTITUTION?



**City Council**  
**STAFF REPORT**  
**City of Glenwood Springs**  
**September 2, 2021**

**Agenda Item:** Resolution 2021-22: A resolution of the City of Glenwood Springs calling an election on November 2, 2021 and certifying a ballot issue to authorize a mill levy to provide the operational and capital costs of providing, maintaining and expanding the municipal airport; setting the ballot title and content for the ballot issue; and providing other matters relating to the election.

**Action Requested:** Determine whether and how much property tax to put on the November ballot to support operational and capital expenditures at the airport.

**Department:** Attorney

**Presented By:** Glenwood Springs Legal, Legal  
Terri Partch, City Engineer  
Brian Smith, Recreation Director

**Background Info:** This agenda item contains:

1. Description of current condition of airport assets and the necessary modifications needed to construct South Bridge.
2. A resolution authorizing a November ballot initiative that would ask voters if they want to impose a property tax to support the improvement and growth of the airport. Staff estimates each mill would generate \$250,000 in revenue but the ballot question will have a maximum of \$300,000.

The South Bridge Environmental Assessment analyzed 34 different alignments for a southern evacuation route for the City. After many years of evaluating routes and different impacts, it was determined that the preferred route would go through the City's airport in a tunnel underneath the runway. The design of the evacuation route is approaching 90%.

Improvements needed to keep the airport in place in its current configuration and operational regime with the crossing of the South Bridge project:

- Tunnel underneath the runway (to avoid shortening the runway) - \$4.678 M
- Reconstructed runway, taxiway and lighting (due to the elevation of the tunnel structure) - \$484,000
- Redesign of the tunnel to accommodate tunnel insulation (Insulation needed to be able to avoid winter closures of the runway during differential icing conditions) - \$295,000

Safety improvements needed at the airport within the next year regardless of the South Bridge project:

- New fuel farm - \$450,000
- Radios/UNICOM and new weather station - \$185,000
- Perimeter fencing - \$120,000

Airport Improvements for financial viability:

New FBO - \$2,50,000  
Seal coat and runway painting and striping (every three to four years) - \$150,000



New City owned hangars - \$2,400,000

Covered and powered tie downs on the south side (5) - \$675,000

Bobcat or maintenance inspection vehicle - \$30,000

Picnic /Camping grounds improvements - \$20,000

Other undefined costs:

Moving the public works operations areas further to the south to allow for the new hangars and fuel farm

Moving the airport maintenance facility to the north to allow for additional space for public works operations.

Locating a new area to store snow in south Glenwood.

**Issues:**

Costs of moving the public works storage and the airport maintenance facility are unknown.

**Staff Recommendation:**

Staff defers to City Council.

## **TO THE CITY COUNCIL**

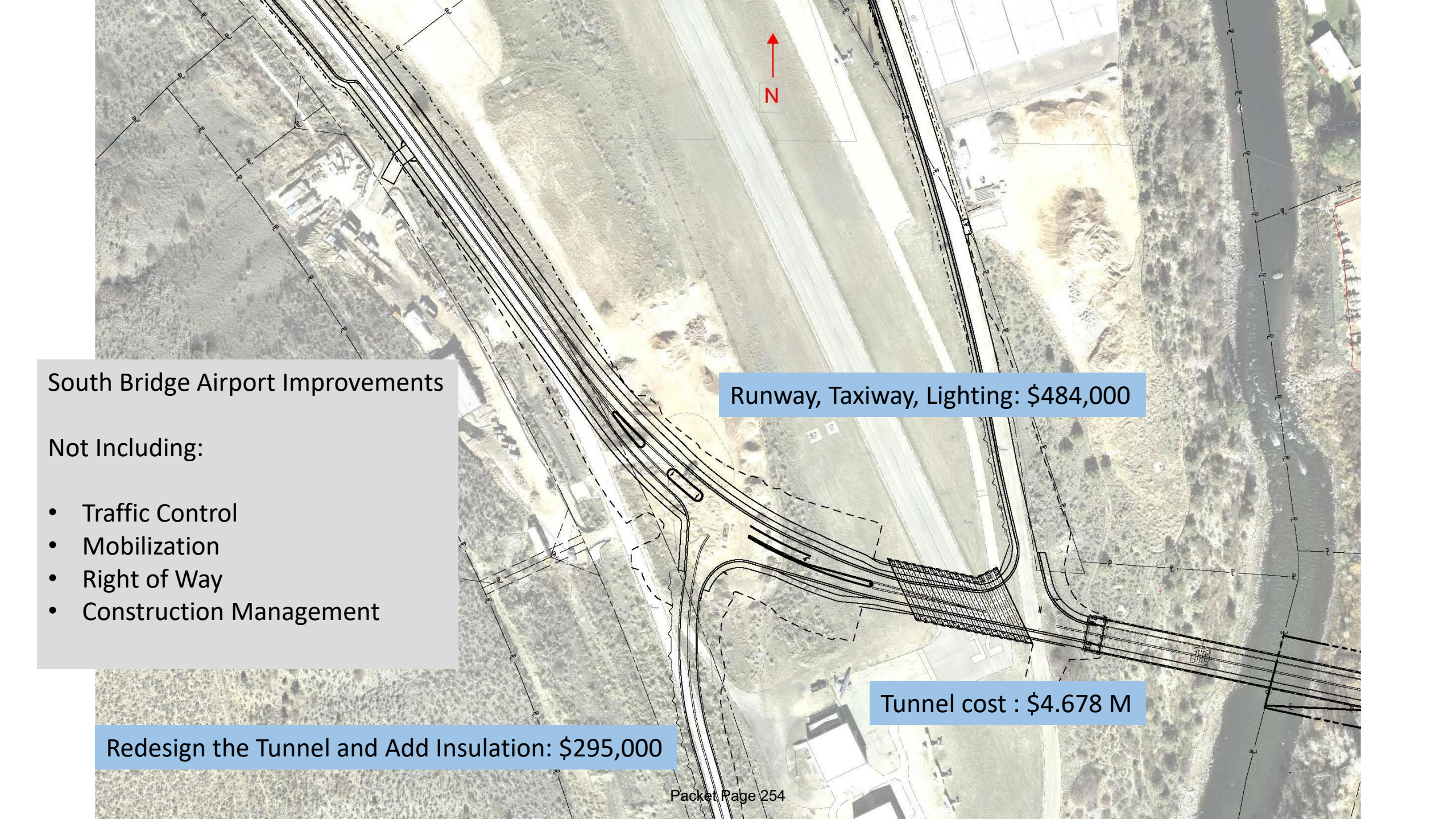
I am the Chair of the Glenwood Springs Airport Commission, and wish to address the proposed ballot initiative requesting a tax and a bond for "Airport" improvements. Other than a cursory discussion of a long term capital plan, the Airport Commission has had no discussion on this proposal, and certainly no discussion on placing this as a Tax and Bond issue for a vote. For its entire time, the Airport has operated as an Enterprise Fund, receiving no taxpayer monies, with the only revenues coming from lease and tie-down fees, fuel sales, grants from the State Aeronautics Division of CDOT, and most recently from the MLRB for the most recent repaving. In fact, the Commission and the airport users have long sought authorization from the City Council for additional long term leases for the construction of additional hangars at the airport, completely privately funded. Such authorization has not been granted. Classic Air Medical has indicated a desire to fund and construct a new hangar for their helicopters, a facility which could also include a new FBO and possibly "transient" accommodations for staff detailed to Glenwood for short periods. To make such a capital investment, they need a long term lease. I believe that we all agree that Classic Air Medical has been a valuable addition to this community.

To attempt to include the cost of the tunnel in this proposal is disingenuous at best. The tunnel under the airport is as much a cost of the South Bridge project as the connection to Highway 82. The EIS and the Record of Decision clearly call out the tunnel and its cost, and clearly state that other than during construction, there will be no impacts to the airport or its operation. There was an alternative dismissed that contemplated closure of the airport. Forcing a choice between a tax solely for the tunnel portion of the South Bridge Project or closing the Airport is an implicit closing of the airport.

The Glenwood Springs Airport continues to be a valuable resource to the community. There are many local pilots who base their planes at the Airport and fly for business around Western Colorado. We have seen all too often the need to base helicopters at the Airport for firefighting purposes, the ability to fly out of Glenwood Springs when either Glenwood Canyon or South Canyon is closed will continue to be of importance, and the services provided by Classic Air Medical in medical support are critical. Let's not jeopardize all that.

# Airport Improvements





## South Bridge Airport Improvements

### Not Including:

- Traffic Control
- Mobilization
- Right of Way
- Construction Management

Runway, Taxiway, Lighting: \$484,000

Redesign the Tunnel and Add Insulation: \$295,000

Tunnel cost : \$4.678 M



# CRITICAL SAFETY ISSUES

## **Jet A / Above Ground Tanks**

- Privately owned non-mobile trailer on private property/
- Must be covered, currently housed under a wooden shed
- Adjacent to vegetation (lawn)
- Close proximity, hose extended to adjacent residential housing

## **Grounds Conditions- Goat Heads**

- Getting picked up along taxi-way, causing flat tires, landing safety
- Abrupt grade changes – tipping hazard, plowing and mowing issues

## **Runway Lights**

- Needed for low visibility situations

## **UNICOM & AWOS**

- Needed for issuing NOTAMS
- Antiquated system that breaks down regularly

## **Perimeter Fencing**

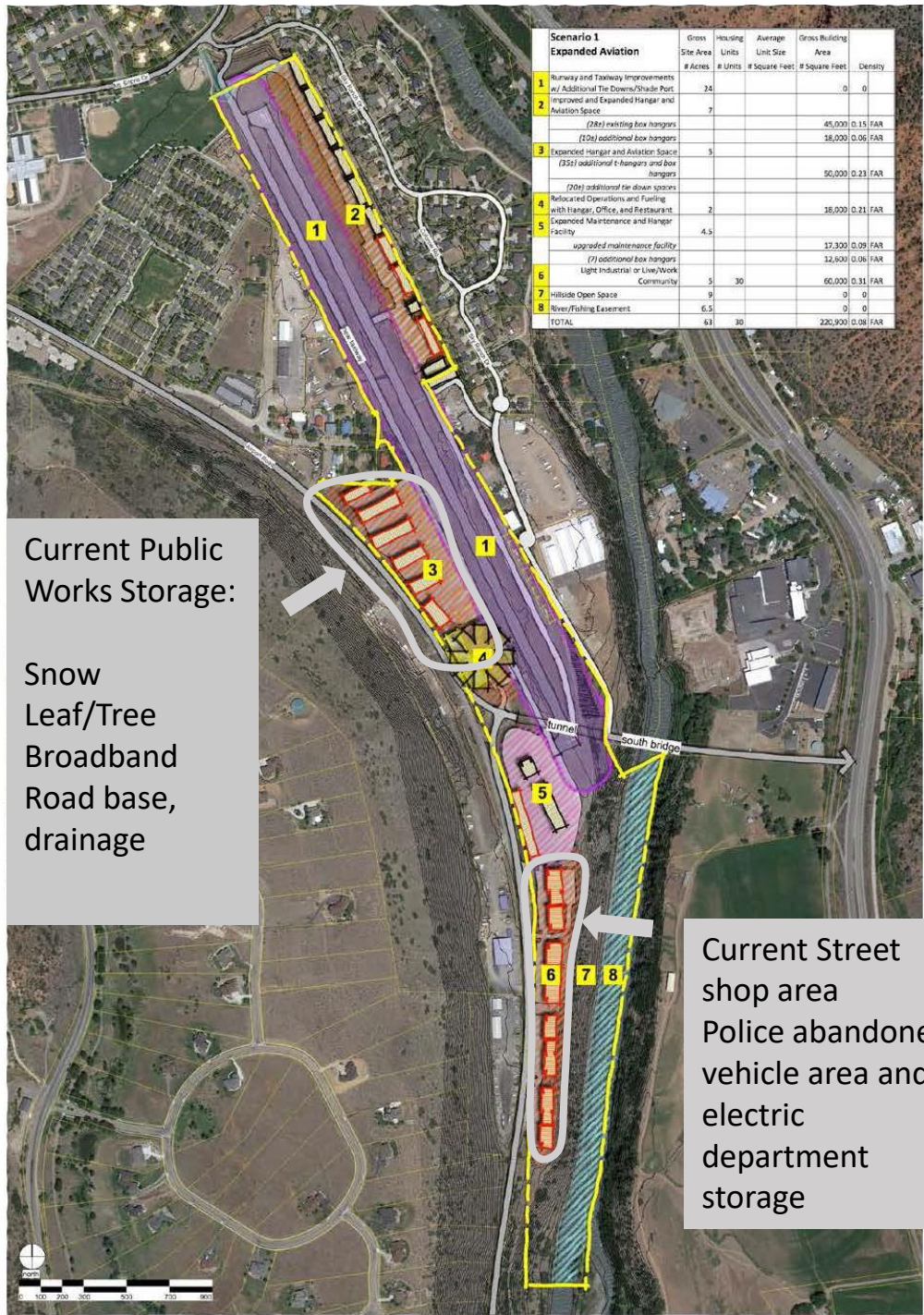
- Strikes- Raptor Birds, Mammals, Human Trespassing

## **De-Icing/Monitoring for Tunnel**

- Changes in surface coefficient







| Scenario 1 Expanded Aviation |                                                                      | Gross Site Area # Acres | Housing Units # Units | Average Unit Size # Square Feet | Gross Building Area # Square Feet | Density  |
|------------------------------|----------------------------------------------------------------------|-------------------------|-----------------------|---------------------------------|-----------------------------------|----------|
| 1                            | Runway and Taxiway Improvements w/ Additional Tie Downs/Shade Port   | 24                      |                       |                                 | 0                                 | 0        |
| 2                            | Improved and Expanded Hangar and Aviation Space                      | 7                       |                       |                                 | 45,000                            | 0.15 FAR |
| 3                            | Expanded Hangar and Aviation Space                                   | 5                       |                       |                                 | 18,000                            | 0.06 FAR |
| 4                            | Relocated Operations and Fueling with Hangar, Office, and Restaurant | 2                       |                       |                                 | 18,000                            | 0.21 FAR |
| 5                            | Expanded Maintenance and hangar facility                             | 4.5                     |                       |                                 | 17,300                            | 0.09 FAR |
| 6                            | Upgraded Maintenance Facility                                        |                         |                       |                                 | 12,600                            | 0.06 FAR |
| 7                            | Light Industrial or Live Work Community                              | 5                       | 30                    |                                 | 60,000                            | 0.31 FAR |
| 8                            | Hillside Open Space                                                  | 9                       |                       |                                 | 0                                 | 0        |
| 9                            | River/Fishing Easement                                               | 6.5                     |                       |                                 | 0                                 | 0        |
| TOTAL                        |                                                                      | 63                      | 30                    |                                 | 220,900                           | 0.08 FAR |

Current Public Works Storage:

Snow Leaf/Tree Broadband Road base, drainage

Current Street shop area  
Police abandoned vehicle area and electric department storage

| Scenario 1 Expanded Aviation |                                                                          | Gross Site Area # Acres | Housing Units # of Units | Gross Building Areas # of Square Feet |
|------------------------------|--------------------------------------------------------------------------|-------------------------|--------------------------|---------------------------------------|
| 1                            | Runway and Taxiway Improvements with Additional Tie Downs and Shade Port | 24                      |                          | 0                                     |
| 2                            | Improved and Expanded Hangar and Aviation Space                          | 7                       |                          |                                       |
|                              | 28 Existing Box Hangars                                                  |                         |                          | 45,000                                |
|                              | 10 Additional Box Hangars                                                |                         |                          | 18,000                                |
| 3                            | Expanded Hangar and Aviation Space                                       | 5                       |                          |                                       |
|                              | 35 Additional T Hangars and Box Hangars                                  |                         |                          | 50,000                                |
| 4                            | Relocated Operations and Fueling with Hangar, Office and Restaurant      | 2                       |                          | 18,000                                |
| 5                            | Expanded Maintenance and hangar facility                                 | 4.5                     |                          |                                       |
|                              | Upgraded Maintenance Facility                                            |                         |                          | 17,300                                |
|                              | 7 Additional Box Hangars                                                 |                         |                          | 12,600                                |
| 6                            | Light Industrial or Live Work                                            | 5                       | 30                       | 60,000                                |
| 7                            | Hillside Open Space                                                      | 9                       |                          | 0                                     |
| 8                            | River Fishing Easement                                                   | 6.5                     |                          | 0                                     |

**Safety Projects**  
that must be done regardless of new bonding:

- Fuel farm - \$450k
- Radios - \$185K
- Perimeter fencing - \$120K

Total - \$755K

| Capital Project                                               | Budget             |
|---------------------------------------------------------------|--------------------|
| Radios/UNICOM and New Weather Station                         | \$185,000          |
| Picnic/Camping Grounds Improvements                           | \$20,000           |
| Fuel Farm - Jet A and 100 LL Above Ground Tanks               | \$450,000          |
| New FBO                                                       | \$2,500,000        |
| Seal Coat runway/ New Painting and Striping (every 3-4 years) | \$150,000          |
| New City Owned Hangers (8)                                    | \$2,400,000        |
| Covered and Powered Tie Downs (5) South Side                  | \$675,000          |
| Bobcat or Maintenance/Inspection vehicle                      | \$30,000           |
| Power to all existing tie down areas                          | \$50,000           |
| Perimeter Fencing                                             | \$120,000          |
| City Owned Courtesy Car                                       | \$45,000           |
| <b>TOTAL</b>                                                  | <b>\$6,625,000</b> |



Existing Public Works Uses:

- Broadband
- Leaf/Tree Mulching
- Road Base
- Millings

Existing Public Works and Police Uses:

- Streets Shops
- Abandoned Vehicles
- Drainage and Electrical Storage



Parcel Boundary

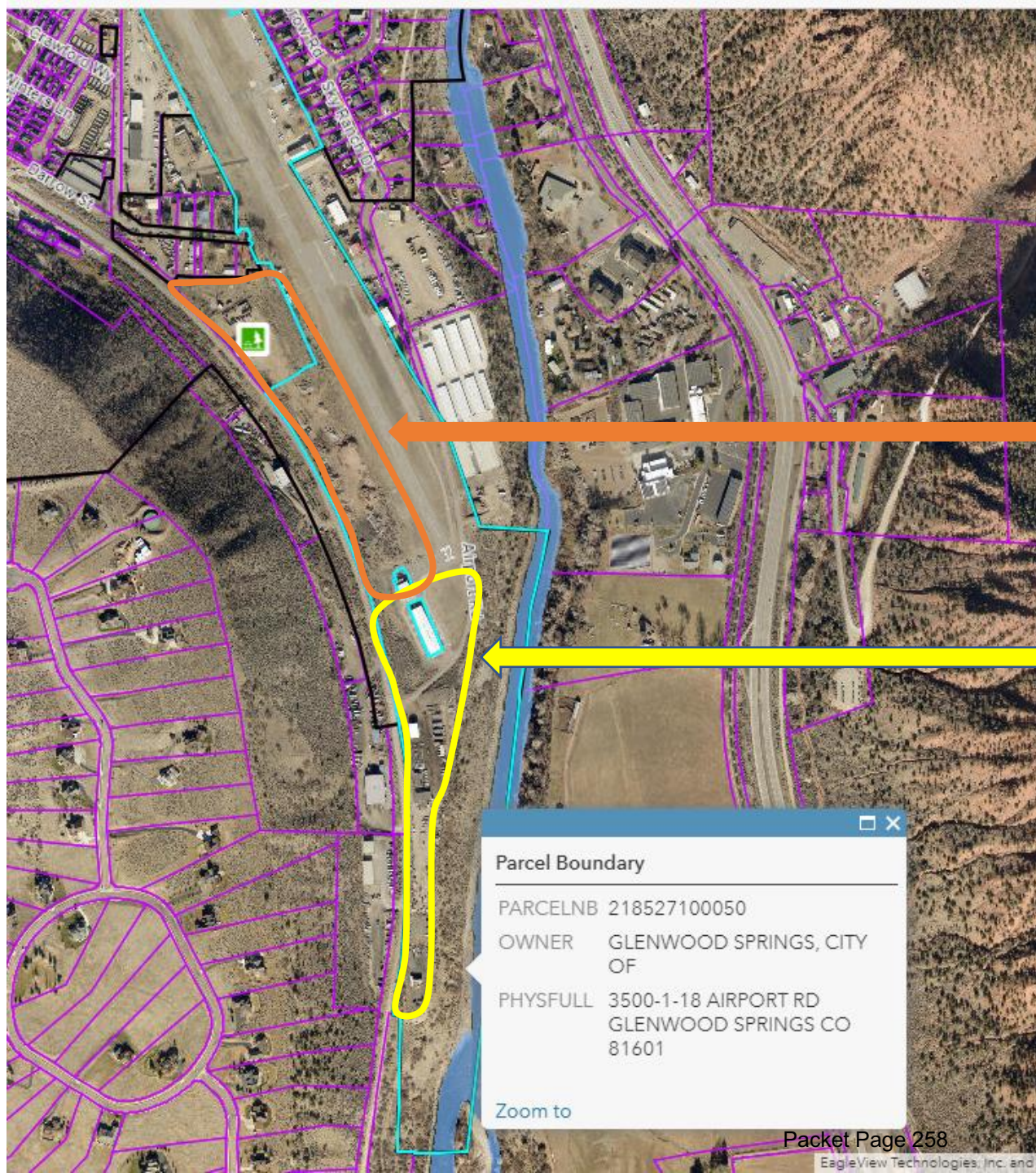
PARCELNB 218527100050

OWNER GLENWOOD SPRINGS, CITY OF

PHYSFULL 3500-1-18 AIRPORT RD  
GLENWOOD SPRINGS CO  
81601

Zoom to





Proposed Area for Airport Use

Proposed Area for Public Works/Police Use

- Potential move of the maintenance hangar/business (to the north)

Parcel Boundary

PARCELNB 218527100050

OWNER GLENWOOD SPRINGS, CITY OF

PHYSFULL 3500-1-18 AIRPORT RD  
GLENWOOD SPRINGS CO  
81601

Zoom to



# Airport Financial Scenarios

Aug-21

|                        |                                                                                                   |
|------------------------|---------------------------------------------------------------------------------------------------|
| Interest Rate          | 4.0%                                                                                              |
| Years Amortized        | 20                                                                                                |
| Bond Amount            | \$7,000,000 *Includes \$5.5 million in total tunnel cost and other expenses capitalized in year 1 |
| Number of Mills Passed | 4.0 \$30 *Cost to homeowner per \$100,000 of home value                                           |

| Year                |                    | 1                   | 2                   | 3                   | 4                   | 5                   | 6                   | 7                   | 8                   | 9                   | 10                  |
|---------------------|--------------------|---------------------|---------------------|---------------------|---------------------|---------------------|---------------------|---------------------|---------------------|---------------------|---------------------|
| <b>Revenues</b>     | <b>Growth Rate</b> |                     |                     |                     |                     |                     |                     |                     |                     |                     |                     |
| User Fees           | 15.0%              | \$21,700            | \$24,955            | \$28,698            | \$33,003            | \$37,953            | \$43,646            | \$50,193            | \$57,722            | \$66,381            | \$76,338            |
| Fuel Sales          | 15.0%              | \$164,000           | \$188,600           | \$216,890           | \$249,424           | \$286,837           | \$329,863           | \$379,342           | \$436,243           | \$501,680           | \$576,932           |
| Lease Income        | 15.0%              | \$63,724            | \$73,283            | \$84,275            | \$96,916            | \$111,454           | \$128,172           | \$147,397           | \$169,507           | \$194,933           | \$224,173           |
| Mill Levy Revenue   | 2.0%               | \$1,000,000         | \$1,020,000         | \$1,040,400         | \$1,061,208         | \$1,082,432         | \$1,104,081         | \$1,126,162         | \$1,148,686         | \$1,171,659         | \$1,195,093         |
|                     |                    |                     |                     |                     |                     |                     |                     |                     |                     |                     |                     |
|                     |                    |                     |                     |                     |                     |                     |                     |                     |                     |                     |                     |
|                     |                    |                     |                     |                     |                     |                     |                     |                     |                     |                     |                     |
| <b>Total Income</b> |                    | <b>\$ 1,249,424</b> | <b>\$ 1,306,838</b> | <b>\$ 1,370,263</b> | <b>\$ 1,440,551</b> | <b>\$ 1,518,676</b> | <b>\$ 1,605,762</b> | <b>\$ 1,703,095</b> | <b>\$ 1,812,158</b> | <b>\$ 1,934,653</b> | <b>\$ 2,072,535</b> |

|                       |                    |                   |                   |                     |                     |                     |                     |                     |                     |                     |                     |
|-----------------------|--------------------|-------------------|-------------------|---------------------|---------------------|---------------------|---------------------|---------------------|---------------------|---------------------|---------------------|
| <b>Expenditures</b>   | <b>Growth Rate</b> |                   |                   |                     |                     |                     |                     |                     |                     |                     |                     |
| Operating Expenses    | 15.0%              | \$355,100         | \$408,365         | \$469,620           | \$540,063           | \$621,072           | \$714,233           | \$821,368           | \$944,573           | \$1,086,259         | \$1,249,198         |
| Debt Service          | \$495,262          | \$495,262         | \$495,262         | \$495,262           | \$495,262           | \$495,262           | \$495,262           | \$495,262           | \$495,262           | \$495,262           | \$495,262           |
| Capital Expenditures  |                    |                   |                   | \$100,000           | \$100,000           | \$100,000           | \$100,000           | \$100,000           | \$100,000           | \$100,000           | \$100,000           |
| <b>Total Expenses</b> |                    | <b>\$ 850,362</b> | <b>\$ 903,627</b> | <b>\$ 1,064,882</b> | <b>\$ 1,135,324</b> | <b>\$ 1,216,334</b> | <b>\$ 1,309,495</b> | <b>\$ 1,416,630</b> | <b>\$ 1,539,835</b> | <b>\$ 1,681,521</b> | <b>\$ 1,844,460</b> |

|                                   |                   |                   |                   |                   |                   |                   |                   |                   |                   |                   |
|-----------------------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|
| <b>Net Change in Fund Balance</b> | <b>\$ 399,062</b> | <b>\$ 403,211</b> | <b>\$ 305,382</b> | <b>\$ 305,226</b> | <b>\$ 302,342</b> | <b>\$ 296,267</b> | <b>\$ 286,466</b> | <b>\$ 272,324</b> | <b>\$ 253,132</b> | <b>\$ 228,076</b> |
|-----------------------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|

|                          |                   |                     |                     |                     |                     |                     |                     |                     |                     |                     |
|--------------------------|-------------------|---------------------|---------------------|---------------------|---------------------|---------------------|---------------------|---------------------|---------------------|---------------------|
| <b>Beginning Balance</b> | <b>\$ 231,120</b> | <b>\$ 630,182</b>   | <b>\$ 1,033,393</b> | <b>\$ 1,338,775</b> | <b>\$ 1,644,001</b> | <b>\$ 1,946,343</b> | <b>\$ 2,242,610</b> | <b>\$ 2,529,076</b> | <b>\$ 2,801,399</b> | <b>\$ 3,054,532</b> |
| <b>Ending Balance</b>    | <b>\$ 630,182</b> | <b>\$ 1,033,393</b> | <b>\$ 1,338,775</b> | <b>\$ 1,644,001</b> | <b>\$ 1,946,343</b> | <b>\$ 2,242,610</b> | <b>\$ 2,529,076</b> | <b>\$ 2,801,399</b> | <b>\$ 3,054,532</b> | <b>\$ 3,282,607</b> |

| LEVEL 1<br>OBJECT     | LEVEL 2<br>DEPARTMENT | LEVEL 3<br>LOCATION/SECTION | LEVEL 4<br>ASSET/PROGRAM | DEFAULT GL OBJ | 2021 Budget<br>Airport | 2022 Budget Request | GL Total  |                                                                                                                             |
|-----------------------|-----------------------|-----------------------------|--------------------------|----------------|------------------------|---------------------|-----------|-----------------------------------------------------------------------------------------------------------------------------|
| REGEMPL               |                       |                             |                          |                | \$17,510               | \$100,899           |           | Full Time Projection w/benefits \$100,899                                                                                   |
| PTMP                  |                       |                             |                          |                | \$5,000                |                     |           | Part Time Projection w/ benefits \$51,401                                                                                   |
| FICACON               |                       |                             |                          |                | \$1,339                |                     |           |                                                                                                                             |
| UNEMPLMT              |                       |                             |                          |                | \$52                   |                     |           |                                                                                                                             |
| WORKRSCOMP            |                       |                             |                          |                | \$10                   |                     |           |                                                                                                                             |
| UTILITIES             | AIRPORT               | AIRPORT                     | COMMUNICAT               | 51410          | \$5,000                | \$2,500             | \$5,100   |                                                                                                                             |
| UTILITIES             | AIRPORT               | AIRPORT                     | ELECTRIC                 | 51410          |                        | \$2,000             |           |                                                                                                                             |
| UTILITIES             | AIRPORT               | AIRPORT                     | TRASH                    | 51410          |                        | \$600               |           | sent with lease invoices                                                                                                    |
| MTNCREPR              | AIRPORT               | AIRPORT                     | EQUIPMENT                | 51810          | \$5,000                | \$5,000             | \$11,000  | inspections, fire extinguishers, equipment repair                                                                           |
| MTNCREPR              | AIRPORT               | AIRPORT                     | LANDSCAPE                | 51810          |                        | \$1,000             |           | snow removal, mowing, wildlife assesment                                                                                    |
| MTNCREPR              | AIRPORT               | AIRPORT                     | MAINTENANC               | 51810          |                        | \$5,000             |           | crack seal, striping                                                                                                        |
| MTNCREPR              | AIRPORT               | AIRPORT                     | VEHICLE                  | 51810          |                        | \$1,000             |           | single vehicle?                                                                                                             |
| RENT/LEASE - BUILDING | AIRPORT               | FBO                         | OPERATING                | 51930          | \$6,600                | \$6,600             | \$6,600   |                                                                                                                             |
| SPECIAL EVENT POSTING |                       |                             |                          | 52130          | \$800                  |                     | \$-       | do to use in 2021, move to special event account                                                                            |
| SPECIAL EVENT         | AIRPORT               | EVENT                       | MARKETING                | 52860          |                        | \$300               | \$5,500   | marketing \$300                                                                                                             |
| SPECIAL EVENT         | AIRPORT               | EVENT                       | RENTALS                  | 52860          |                        | \$1,000             |           | portalets/trash \$1000                                                                                                      |
| SPECIAL EVENT         | AIRPORT               | EVENT                       | SERVICES                 | 52860          |                        | \$3,500             |           | security \$1000, band \$500, professional services \$2000                                                                   |
| SPECIAL EVENT         | AIRPORT               | EVENT                       | SUPPLIES                 | 52860          |                        | \$700               |           | volunteer relief \$200, swag \$500                                                                                          |
| CREDIT CAR            |                       |                             |                          | 52710          | \$3,000                | \$3,000             | \$3,000   | credit card processing fees                                                                                                 |
| OTHER OPER            |                       |                             |                          | 52810          | \$3,000                | \$-                 |           | split into logical accounts                                                                                                 |
| PROF DEV              | AIRPORT               | AIRPORT                     | TRAINING                 | 52210          | \$1,600                | \$500               | \$1,000   |                                                                                                                             |
| PROF DEV              | AIRPORT               | AIRPORT                     | TRAVEL                   | 52210          |                        | \$500               |           |                                                                                                                             |
| PROF DUE              |                       |                             |                          | 52410          |                        | \$300               | \$300     | CAOA, CDOT Aviation Program?                                                                                                |
| SUPPLIES              | AIRPORT               | AIRPORT                     | OFFCSUPPLY               | 51610          | \$400                  | \$100               | \$400     |                                                                                                                             |
| SUPPLIES              | AIRPORT               | AIRPORT                     | SMALLTOOLS               | 51610          |                        | \$100               |           |                                                                                                                             |
| SUPPLIES              | AIRPORT               | AIRPORT                     | PPE                      | 51610          |                        | \$100               |           |                                                                                                                             |
| SUPPLIES              | AIRPORT               | AIRPORT                     | JANITORIAL               | 51610          |                        | \$100               |           |                                                                                                                             |
| TECHNOLOGY            | AIRPORT               | AIRPORT                     | MNTAGREEMT               | 52610          |                        | \$950               | \$1,450   | QT Pod                                                                                                                      |
| TECHNOLOGY            | AIRPORT               | AIRPORT                     | SFTWRLICEN               | 52610          |                        | \$500               |           | Adobe Pro, When I Work, Registration/Fee Software (X1?)                                                                     |
| LIABILITY             |                       |                             |                          | 53520          | \$6,500                | \$7,370             | \$7,370   | \$400/month liability, \$570 Assured Partners Aerospace Airport Renewal for Polution, \$2000 Assured Aviation Renewal       |
| INTERFUND             |                       |                             |                          | 54310          | \$2,521                | \$2,580             | \$2,580   | \$210.08/month increase by 2% for 2022, paid to general fund for admin costs                                                |
| DEPRECIATI            |                       |                             |                          | 55610          | \$9,100                |                     |           | \$992/month, depreciation of the assest over its life                                                                       |
| AVIATION FUEL         |                       |                             |                          | 56110          | \$135,000              | \$120,000           | \$120,000 |                                                                                                                             |
| CAP OUTLAY            |                       |                             |                          | 59520          | \$41,500               | \$200,000           | \$200,000 | JetA Improvement                                                                                                            |
| CAPASSET              |                       |                             |                          | 59599          | \$-                    |                     | \$-       | Improvements over \$5000                                                                                                    |
|                       |                       |                             |                          |                | \$243,932              | \$466,199           |           |                                                                                                                             |
|                       |                       |                             |                          |                |                        | (\$200,000)         |           | removes capital outlay                                                                                                      |
|                       |                       |                             |                          |                |                        | \$266,199           |           |                                                                                                                             |
|                       |                       |                             |                          |                |                        | (\$243,932)         |           | 2021 expense budget                                                                                                         |
|                       |                       |                             |                          |                |                        | \$22,267            |           | over/(under <b>***In reserves, nothing is restricted. Goal is to keep some \$ in there - at least 20%-50% (30% ideal)</b> ) |
|                       |                       |                             |                          |                |                        | \$88,901            |           | Additional Staff/Supplies (Improved Operating Scenario)                                                                     |
|                       |                       |                             |                          |                |                        | \$355,100           |           |                                                                                                                             |

| Capital Project                                               | Budget      |
|---------------------------------------------------------------|-------------|
| Radios/UNICOM and New Weather Station                         | \$185,000   |
| Picnic/Camping Grounds Improvements                           | \$20,000    |
| Fuel Farm - Jet A and 100 LL Above Ground Tanks               | \$450,000   |
| New FBO                                                       | \$2,500,000 |
| Seal Coat runway/ New Painting and Striping (every 3-4 years) | \$150,000   |
| New City Owned Hangers (8)                                    | \$2,400,000 |
| Covered and Powered Tie Downs (5) South Side                  | \$675,000   |
| Bobcat or Maintenance/Inspection vehicle                      | \$30,000    |
| Power to all existing tie down areas                          | \$50,000    |
| Perimeter Fencing                                             | \$120,000   |
| City Owned Courtesy Car                                       | \$45,000    |
| TOTAL                                                         | \$6,625,000 |

| Additional - Do not include in bonding | Budget                |
|----------------------------------------|-----------------------|
| Expanded Maintenance Hangar            | Private Funded        |
| Runway Lights                          |                       |
| Overlay the taxi/apron                 | \$90,000 Grant        |
| Small work truck                       | Transfer from Parks   |
| Airport Maintenance Tech               | Included in Operating |
| FBO Guest Services                     | Included in Operating |

| Lease Revenue                       | 2019 Actuals | 2022 Projectio | 2021 Budgeted |
|-------------------------------------|--------------|----------------|---------------|
| 2019 building rev                   | \$9,200.00   | \$15,000       | \$9,200       |
| 2019 land rev                       | \$18,295.00  | \$48,724       | \$15,000      |
| @ \$475/sq. ft. (high end of range) | \$27,495.00  | \$63,724.00    | \$24,200.00   |
| Fuel/Tie Down Rev                   |              |                |               |
| 2019 Fuel Rev.                      | \$151,812.00 | \$164,000      | \$150,000     |
| 2019 long term Tie D                | \$11,865.00  | \$15,000       | \$12,000      |
| Runway User Fees                    | \$1,500.00   | \$3,000        | \$3,000       |
| 2019 transient tie do               | \$2,400.00   | \$3,000        | \$2,000       |
|                                     | \$167,577.00 | \$185,000.00   | \$167,000.00  |
| Airport Other Revenue               |              |                |               |
| Refund on something                 | \$500.00     | \$500          | \$200         |
| Interst                             | \$200.00     | \$200          | \$200         |
|                                     | \$700.00     | \$700.00       | \$400.00      |

# City of Glenwood Springs

## Lodging Tax Sensitivity

| Tax Rate | Hotel Nightly Rate               |           |           |
|----------|----------------------------------|-----------|-----------|
|          | \$ 150                           | \$ 250    | \$ 350    |
| 2.5%     | \$ 3.75                          | \$ 6.25   | \$ 8.75   |
| 3.5%     | \$ 5.25                          | \$ 8.75   | \$ 12.25  |
| 4.5%     | \$ 6.75                          | \$ 11.25  | \$ 15.75  |
| 5.5%     | \$ 8.25                          | \$ 13.75  | \$ 19.25  |
| 6.5%     | \$ 9.75                          | \$ 16.25  | \$ 22.75  |
| 7.0%     | \$ 10.50                         | \$ 17.50  | \$ 24.50  |
| Tax Rate | Room Cost with Local Lodging Tax |           |           |
|          | \$ 150                           | \$ 250    | \$ 350    |
| 2.5%     | \$ 153.75                        | \$ 256.25 | \$ 358.75 |
| 3.5%     | \$ 155.25                        | \$ 258.75 | \$ 362.25 |
| 4.5%     | \$ 156.75                        | \$ 261.25 | \$ 365.75 |
| 5.5%     | \$ 158.25                        | \$ 263.75 | \$ 369.25 |
| 6.5%     | \$ 159.75                        | \$ 266.25 | \$ 372.75 |
| 7.0%     | \$ 160.50                        | \$ 267.50 | \$ 374.50 |

\*Current rate is 2.5%

\*\*Note: This does not include 8.6% sales tax charged by the City, County, RFTA and State

## Attractions Tax Sensitivity

| Tax Rate | Attraction Ticket Price |          |          |
|----------|-------------------------|----------|----------|
|          | \$ 25                   | \$ 35    | \$ 45    |
| 1.7%     | \$ 0.43                 | \$ 0.60  | \$ 0.77  |
| 2.7%     | \$ 0.68                 | \$ 0.95  | \$ 1.22  |
| 3.7%     | \$ 0.93                 | \$ 1.30  | \$ 1.67  |
| 4.7%     | \$ 1.18                 | \$ 1.65  | \$ 2.12  |
| 5.7%     | \$ 1.43                 | \$ 2.00  | \$ 2.57  |
| 7.0%     | \$ 1.75                 | \$ 2.45  | \$ 3.15  |
| Tax Rate | Ticket Price with Tax   |          |          |
|          | \$ 25                   | \$ 35    | \$ 45    |
| 1.7%     | \$ 25.43                | \$ 35.60 | \$ 45.77 |
| 2.7%     | \$ 25.68                | \$ 35.95 | \$ 46.22 |
| 3.7%     | \$ 25.93                | \$ 36.30 | \$ 46.67 |
| 4.7%     | \$ 26.18                | \$ 36.65 | \$ 47.12 |
| 5.7%     | \$ 26.43                | \$ 37.00 | \$ 47.57 |
| 6.7%     | \$ 26.75                | \$ 37.45 | \$ 48.15 |

\*Sales Tax Rate is 3.7%

## Property Tax Sensitivity

| Residential Assessment Rate=> 7.15% |                  |              |              | Notes on Property Taxes:                                                                                                                                                                                                                                                                                                                                                                                                                                    |  |
|-------------------------------------|------------------|--------------|--------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|
| # Mills                             | Home Value       |              |              | 1. A "mill" is .001%.<br>2. Tax is calculated by taking the number of mills and multiplying by the assessed value of the property.<br>3. Assessed value of the property is the appraised value times the assessment rate.<br>4. Assessment rate for residential property is 7.15% and 29.0% for commercial property                                                                                                                                         |  |
|                                     | \$ 500,000       | \$ 1,000,000 | \$ 1,500,000 |                                                                                                                                                                                                                                                                                                                                                                                                                                                             |  |
| 2.0                                 | \$ 71.50         | \$ 143.00    | \$ 214.50    |                                                                                                                                                                                                                                                                                                                                                                                                                                                             |  |
| 3.0                                 | \$ 107.25        | \$ 214.50    | \$ 321.75    |                                                                                                                                                                                                                                                                                                                                                                                                                                                             |  |
| 4.0                                 | \$ 143.00        | \$ 286.00    | \$ 429.00    |                                                                                                                                                                                                                                                                                                                                                                                                                                                             |  |
| 5.0                                 | \$ 178.75        | \$ 357.50    | \$ 536.25    |                                                                                                                                                                                                                                                                                                                                                                                                                                                             |  |
| 6.0                                 | \$ 214.50        | \$ 429.00    | \$ 643.50    |                                                                                                                                                                                                                                                                                                                                                                                                                                                             |  |
| 7.0                                 | \$ 250.25        | \$ 500.50    | \$ 750.75    |                                                                                                                                                                                                                                                                                                                                                                                                                                                             |  |
| Commercial Assessment Rate=> 29.0%  |                  |              |              | Example:                                                                                                                                                                                                                                                                                                                                                                                                                                                    |  |
| # Mills                             | Commercial Value |              |              | A homeowner has her residence appraised at \$1,000,000 by the County. Voters approve a 5 mill property tax for City residents to defray the cost of operating a municipal golf course. The homeowner will pay an annual tax of .005% of the value of her property times the residential assessment rate of 7.15%; or $(\$1,000,000 * .0715) * .005 = \$357.50$<br>If the property was commercial instead of residential, the tax would increase to \$1,450. |  |
|                                     | \$ 500,000       | \$ 1,000,000 | \$ 1,500,000 |                                                                                                                                                                                                                                                                                                                                                                                                                                                             |  |
| 2.0                                 | \$ 290.00        | \$ 580.00    | \$ 870.00    |                                                                                                                                                                                                                                                                                                                                                                                                                                                             |  |
| 3.0                                 | \$ 435.00        | \$ 870.00    | \$ 1,305.00  |                                                                                                                                                                                                                                                                                                                                                                                                                                                             |  |
| 4.0                                 | \$ 580.00        | \$ 1,160.00  | \$ 1,740.00  |                                                                                                                                                                                                                                                                                                                                                                                                                                                             |  |
| 5.0                                 | \$ 725.00        | \$ 1,450.00  | \$ 2,175.00  |                                                                                                                                                                                                                                                                                                                                                                                                                                                             |  |
| 6.0                                 | \$ 870.00        | \$ 1,740.00  | \$ 2,610.00  |                                                                                                                                                                                                                                                                                                                                                                                                                                                             |  |
| 7.0                                 | \$ 1,015.00      | \$ 2,030.00  | \$ 3,045.00  |                                                                                                                                                                                                                                                                                                                                                                                                                                                             |  |

## RESOLUTION NO. 2021 - 22

### A RESOLUTION OF THE CITY OF GLENWOOD SPRINGS CALLING AN ELECTION ON NOVEMBER 2, 2021 AND CERTIFYING A BALLOT ISSUE TO AUTHORIZE A MILL LEVY TO PROVIDE THE OPERATIONAL AND CAPITAL COSTS OF PROVIDING, MAINTAINING AND EXPANDING THE MUNICIPAL AIRPORT; SETTING THE BALLOT TITLE AND CONTENT FOR THE BALLOT ISSUE; AND PROVIDING OTHER MATTERS RELATING TO THE ELECTION.

**WHEREAS**, the City of Glenwood Springs, Garfield County, Colorado (the “City”), is a home rule municipality of the State of Colorado (the “State”); and

**WHEREAS**, the City Council of the City has determined that the operational and capital costs of continuing to provide the operational and capital costs of providing, maintaining and expanding the municipal airport necessitate that the City to seek voter approval to enact a mill levy; and

**WHEREAS**, the election shall be conducted as a coordinated election in Garfield County in accordance with articles 1 to 13 of title 1, Colorado Revised Statutes, as amended (the “Uniform Election Code”); and

**WHEREAS**, the Clerk and Recorder of Garfield County (the “County Clerk”) is the coordinated election official for the election pursuant to the Uniform Election Code, and is responsible for mailing the notice of election required by Article X, Section 20(3)(b) of the Colorado Constitution (the “TABOR Notice”); and

**WHEREAS**, the City will assist the County Clerk in providing necessary information and notices for the conduct of the election; and

**WHEREAS**, the City Council has determined to set the ballot title and content for the ballot issue to be submitted at the election called by this Resolution.

NOW THEREFORE, BE IT RESOLVED BY THE CITY COUNCIL OF THE CITY OF GLENWOOD SPRINGS, COLORADO:

**Section 1.** An election shall be held on Tuesday, November 2, 2021 (the “Election Date”) at which there shall be submitted to the eligible electors of the City a ballot issue which shall be in substantially the form of Alternative \_\_\_\_\_ attached hereto in **Exhibit A**.

**Section 2.** For purposes of Section 1-11-203.5, C.R.S., this Resolution shall serve to set the ballot title and content for the ballot issue set forth in the Exhibit hereto. Alternative \_\_\_\_\_ of **Exhibit A** is hereby incorporated into this Resolution as if set forth in full herein. The ballot title for the ballot issue attached hereto as Exhibit A shall be the text of such ballot issue.

**Section 3.** If a majority of the votes cast on the ballot issue attached hereto as Alternative in **Exhibit A** submitted at the election shall be in favor of any such ballot issue, the City acting through the City Council shall be authorized to proceed with the necessary action to impose the mill levy rate in accordance with the approved ballot issue.

**Section 4.** The City Clerk, as the designated election official of the City, is hereby authorized and directed to take all action necessary or appropriate to hold an election on the Election Date and to effectuate the provisions of this Resolution.

**Section 5.** All actions not inconsistent with the provisions of this Resolution heretofore taken by the members of the City Council and the officers and employees of the City and directed toward holding the election for the purposes stated herein, including without limitation the execution of an intergovernmental agreement with the County Clerk in connection with the conduct of the election, are hereby ratified, approved and confirmed.

**Section 6.** All prior acts, orders or resolutions, or parts thereof, by the City in conflict with this Resolution are hereby repealed, except that this repealer shall not be construed to revive any act, order or resolution, or part thereof, heretofore repealed.

**Section 7.** If any section, paragraph, clause or provision of this Resolution shall be adjudged to be invalid or unenforceable, the invalidity or unenforceability of such section, paragraph, clause or provision shall not affect any of the remaining sections, paragraphs, clauses or provisions of this Resolution, it being the intention that the various parts hereof are severable.

**Section 8.** This Resolution shall take effect immediately upon its passage.

ADOPTED AND APPROVED this \_\_\_\_ day of September 2021.

By \_\_\_\_\_  
Jonathan Godes, Mayor

ATTEST:

By \_\_\_\_\_  
Ryan Muse, City Clerk

**EXHIBIT A  
FORM OF THE BALLOT ISSUE**

**Alternative 1 - Perpetual**

**Ballot Issue     :**

SHALL THE CITY OF GLENWOOD SPRINGS TAXES BE INCREASED \$1,200,000 MILLION (2022 ESTIMATE) ANNUALLY AND BY SUCH ADDITIONAL AMOUNTS RAISED ANNUALLY THEREAFTER BY AN AD VALOREM PROPERTY TAX IMPOSED AT A RATE OF FOUR (4) MILLS IN ORDER TO MEET OPERATIONAL AND CAPITAL COSTS OF PROVIDING A MUNICIPAL AIRPORT INCLUDING BUT NOT LIMITED TO MAINTAINING AND EXPANDING CURRENT FACILITIES, CONSTRUCTING A TUNNEL UNDER THE AIRPORT TO PROVIDE EMERGENCY EGRESS FROM SOUTH GLENWOOD WHILE MAINTAINING THE LENGTH OF THE RUNWAY, PERSONNEL, THE PAYMENT OF DEBT OR LEASE-PURCHASE OBLIGATIONS AND SUCH OTHER COSTS AS MAY BE REQUIRED; AND SHALL THE REVENUE FROM SUCH MILL LEVY CONSTITUTE A VOTER-APPROVED REVENUE CHANGE WITHIN THE MEANING OF ARTICLE X, SECTION 20 OF THE COLORADO CONSTITUTION?

**Alternative 2 - Twenty-year period**

**Ballot Issue\_\_\_:**

SHALL THE CITY OF GLENWOOD SPRINGS TAXES BE INCREASED \$1,200,000 MILLION (2022 ESTIMATE) ANNUALLY AND BY SUCH ADDITIONAL AMOUNTS RAISED ANNUALLY THEREAFTER FOR A LIMITED TWENTY-YEAR PERIOD ENDING IN COLLECTION YEAR 2042 BY AN AD VALOREM PROPERTY TAX IMPOSED AT A RATE OF FOUR (4) MILLS IN ORDER TO MEET OPERATIONAL AND CAPITAL COSTS OF PROVIDING A MUNICIPAL AIRPORT INCLUDING BUT NOT LIMITED TO MAINTAINING AND EXPANDING CURRENT FACILITIES, CONSTRUCTING A TUNNEL UNDER THE AIRPORT TO PROVIDE EMERGENCY EGRESS FROM SOUTH GLENWOOD WHILE MAINTAINING THE LENGTH OF THE RUNWAY, PERSONNEL, THE PAYMENT OF DEBT OR LEASE-PURCHASE OBLIGATIONS AND SUCH OTHER COSTS AS MAY

BE REQUIRED; AND SHALL THE REVENUE FROM SUCH MILL LEVY CONSTITUTE A VOTER-APPROVED REVENUE CHANGE WITHIN THE MEANING OF ARTICLE X, SECTION 20 OF THE COLORADO CONSTITUTION?

**Alternative 3 - Airport debt question:**

**Ballot Issue\_\_\_:**

SHALL THE CITY OF GLENWOOD SPRINGS DEBT BE INCREASED UP TO \$10,000,000 MILLION, WITH A MAXIMUM REPAYMENT COST OF UP TO \$17,000,000 MILLION, FOR THE PURPOSE OF FINANCING THE ACQUISITION, CONSTRUCTION, REPAIR, AND IMPROVEMENT OF ONE OR MORE OF THE FOLLOWING CAPITAL PROJECTS RELATED TO THE GLENWOOD SPRINGS MUNICIPAL AIRPORT:

- CONSTRUCTION OF A TUNNEL UNDER THE SOUTH END OF THE AIRPORT TO MAINTAIN THE CURRENT RUNWAY LENGTH;
- CONSTRUCTION OF A NEW FIXED BASE OF OPERATIONS FACILITY;
- CONSTRUCTION OF NEW HANGARS;
- CONSTRUCTION OF NEW FUELING FACILITIES THAT COMPLY WITH ALL SAFETY REGULATIONS.

SUCH DEBT TO CONSIST OF A LIMITED TAX GENERAL OBLIGATION OF THE CITY PAYABLE FROM PROPERTY TAXES, IF APPROVED BY SEPARATE BALLOT MEASURE, OR OTHER LEGALLY AVAILABLE REVENUES IN THE CITY'S AIRPORT IMPROVEMENT FUND, WITH SUCH DEBT TO BE ISSUED, DATED AND SOLD AT SUCH TIME, AND AT SUCH PRICES (AT, ABOVE OR BELOW PAR) AND TO CONTAIN SUCH TERMS, NOT INCONSISTENT HEREWITH, AS THE CITY COUNCIL MAY DETERMINE?



**City Council**  
**STAFF REPORT**  
**City of Glenwood Springs**  
**September 2, 2021**

**Agenda Item:** Ordinance #12 - Series of 2021 Enabling ballot measures and setting forth authorized uses of tax proceeds.

**Action Requested:** Determine whether Council passes an enabling Ordinance for a property tax, accommodations tax or admissions tax; or any combination thereof.

**Department:** Attorney

**Presented By:**

**Background Info:** This agenda contains action items for the three taxes listed above. After Council decides which and how much of each of these taxes will be on the November ballot an ordinance needs to be customized and passed by Council that governs the use of proceeds.

The ordinance will be added on Monday to the agenda packet.

**Issues:** NA

**Staff Recommendation:** Staff defers to Council.



## ORDINANCE NO. 12

Series of 2021

### AN ORDINANCE OF THE CITY OF GLENWOOD SPRINGS, COLORADO, AMENDING TITLE 040 OF THE GLENWOOD SPRINGS MUNICIPAL CODE TO PROVIDE FOR THE IMPLEMENTATION OF PROPOSED TAXING MEASURES REFERRED TO THE CITY'S ELECTORS.

**WHEREAS**, the City of Glenwood Springs ("Glenwood Springs" or the "City") is a home-rule municipality organized under Article XX of the Colorado Constitution and with the authority of the Glenwood Springs Home Rule Charter (the "Charter"); and

**WHEREAS**, 11.1 of the Charter provides for the levy of new taxes for municipal purposes; and

**WHEREAS**, Article X, Section 20 of the Colorado Constitution requires that any new tax be submitted to the electors of the district proposing the levy; and

**WHEREAS**, By Resolution No. 20, Resolution No. 21, and Resolution No. 22, Series 2021, the Glenwood Springs City Council (the "City Council") referred to the City's electorate ballot questions to levy a new tax of \_\_% on the cost of admissions and an additional tax of \_\_% on the cost of accommodations, and a property tax of \_\_ mills; and

**WHEREAS**, the City Council finds and declares that the adoption of a new article of Title 040 of the Glenwood Springs Municipal Code (the "Code") set forth in **Exhibit A**, hereto and incorporated herein by this reference, to implement the will of the City's electors by providing for the levy of such taxes in the event that the electors approve, is in the best interests of the City.

**NOW, THEREFORE, THE CITY COUNCIL OF THE CITY OF GLENWOOD SPRINGS, COLORADO, ORDAINS:**

**Section 1.**     **Recitals.** The foregoing recitals are incorporated herein as if set forth in full.

**Section 2.**     **Amendment of Article 040.010.** Article 040.010 of the Glenwood Springs Municipal Code is hereby amended by the adoption of a new article as set forth in **Exhibit A** attached hereto.

**Section 3.**     **Ratification of Municipal Code.** With the exception of the provisions of the Municipal Code of the City of Glenwood Springs which are modified as provided herein, all remaining provisions of the Municipal Code of the City of Glenwood Springs shall remain in full force and effect.

**Section 4.**     **Approval of Ballot Issues.** If a majority of the votes cast on any or all of the ballot issues submitted at the election shall be in favor of such ballot issues, the City acting through the City Council shall be authorized to proceed with the necessary actions in accordance with the ballot issue or ballot issues which have been so approved.

**Section 5.**     **Effective Date.** Upon passage of this Ordinance, the provisions hereof shall be effective ten days following the date of second publication; provided however, subject to the approval of Ballot Issue \_\_\_, Ballot Issue, \_\_\_, and Ballot Issue \_\_\_, at the election to be held on November 2, 2021, the provisions of Section 2 of this Ordinance shall become effective on January 1, 2022.

INTRODUCED, READ ON FIRST READING, PASSED AND ORDERED  
PUBLISHED BY TITLE ONLY THIS \_\_\_\_ DAY OF SEPTEMBER 2021.

CITY OF GLENWOOD SPRINGS, COLORADO

---

Jonathan Godes, Mayor

ATTEST:

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Ryan Muse, City Clerk

INTRODUCED, READ ON SECOND READING, AND ORDERED PUBLISHED BY  
TITLE ONLY TO BE EFFECTIVE TEN DAYS FOLLOWING THE DATE OF SECOND  
PUBLICATION THIS \_\_\_\_ DAY OF \_\_\_\_\_ 2021.

CITY OF GLENWOOD SPRINGS, COLORADO

---

Jonathan Godes, Mayor

ATTEST:

---

Ryan Muse, City Clerk

## EXHIBIT A

The following sections of the Municipal Code are amended as follows with double underlined text added and ~~strike through text deleted~~.

### **The following definitions will be added to 040.010.010 – Definitions**

For the purposes of this Title, the following terms shall have the meanings set forth below unless the context clearly indicates otherwise:

\* \* \*

Place or event open to the public, for the purposes of the admissions tax only, means any place or event, the admission or access to which is open to members of the public upon payment of a charge or fee. This term includes, without limitation, the following places and events when a charge or fee for admission to such places and events is imposed upon members of the public:

- (a) Any performance of a motion picture, stage show, play, concert or other manifestation of the performing arts;
- (b) Any sporting or athletic contest, exhibition or event, whether amateur or professional;
- (c) Any lecture, rally, speech or dissertation;
- (d) Any showing, display or exhibition of any type, such as an art exhibition; and
- (e) Any restaurant, tavern, lounge, bar or club, whether the admission is called a "cover charge," "door charge" or any other such term.

\* \* \*

### **040.010.030 Amount of sales and use tax levied.**

- (a) Sales tax. There is hereby imposed upon all sales of commodities and services specified in Article 040.020 a three and seventy one-hundredths (3.70) percent sales tax in accordance with schedules set forth in the Rules and Regulations of the Department of Revenue of the State of Colorado. There is hereby imposed an accommodations tax of two and one-half (2.5) percent upon the rent paid or charged for accommodations as defined in Article 040.010.010 provided by a vendor to a purchaser at a taxable premises.
- (b) Use tax. There is hereby levied and shall be collected from every entity subject to the business licensing requirements of Title 050 a tax or excise of three and seventy one-hundredths (3.70) percent of storage or acquisition charges or costs for the privilege of

storing, using or consuming in the City any articles of tangible personal property purchased at retail as specified in Article 040.030. Such tax shall be payable to and shall be collected by the Director of Finance in accordance with Schedules set forth in the Rules and Regulations of the Department or Revenue of the State of Colorado.

- (c) Other personal property. Every entity subject to the business licensing requirements of Title 050 shall become subject to the payment of a use tax upon the storage or acquisition charges or costs for the privilege of storing, using or consuming in the City any articles of tangible personal property purchased at retail, except as set forth in this article. Such entities shall file a return with the Department of Finance on or before the twentieth day of January following the year in which the purchase was made and shall pay to the City the full amount of such tax due thereon. Any undue delay or effort to evade the payment of such shall be a violation of this Title.
- (d) Retail marijuana sales tax. There is hereby imposed upon all sales of retail marijuana and retail marijuana products within the City a five (5) percent sales tax. Such tax shall be payable to and shall be collected by the Director of Finance in accordance with schedules set forth in the rules and regulations of the Department or Revenue of the State of Colorado.
- (e) Special cigarettes and tobacco products sales tax. There is hereby imposed upon all sales of cigarettes and tobacco products a twenty cents (\$0.20) per cigarette or four dollars (\$4.00) per pack of twenty (20) cigarettes sold, or forty (40) percent of the sale price upon all other tobacco products special sales tax. Such tax shall be payable to and shall be collected by the Director of Finance in accordance with C.R.S. § 39-28.5-109 or any schedules set forth in the rules and regulations of the Department or Revenue of the State of Colorado.
- (f) Admissions tax. There is hereby imposed upon all the price paid to gain admission to any place or event open to the public a \_\_\_\_\_ ( ) percent excise tax. Such tax shall be payable to and shall be collected by the Director of Finance in accordance with Schedules set forth in the Rules and Regulations of the Department of Revenue of the State of Colorado.
- (g) Accommodations Tax. There is hereby imposed an additional accommodations tax of \_\_\_\_\_ ( ) percent upon the rent paid or charged for accommodations as defined in Article 040.010.010 provided by a vendor to a purchaser at a taxable premises.

**040.010.040 Purpose of tax; use of proceeds.**

- (a) General sales and use tax. The City Council hereby declares that the purpose of the levy of two cents (\$0.02) of the tax imposed by the Tax Ordinance is for the production of revenue in order to defray the cost of municipal government in the

City; and in accordance with this purpose, the proceeds of two cents (\$0.02) of such tax shall be allocated and placed in the funds and in the priority as follows:

- (1) Seventy-five (75) percent in the general fund; and
  - (2) Twenty-five (25) percent in the capital project fund.
- (b) Additional sales and use tax. The City Council hereby declares the revenue from the levy of one cent (\$0.01) of the tax imposed by the Tax Ordinance shall be placed in the acquisition and improvement fund and shall be appropriated and distributed as determined by ordinance of the City Council as follows:
- (1) To defray the costs of operating and maintaining the Frontier Historical Museum, and at a minimum to help pay and/or defray the executive director's salary; subject, however, to annual appropriations at the discretion of the City Council.
  - (2) To defray the costs of operating and maintaining the Glenwood Springs Arts Center, and at a minimum to help pay and/or defray the executive director's salary; subject, however, to annual appropriations at the discretion of the City Council.
  - (3) To defray the costs of operating and maintaining human services program and special events in the City; subject, however, to annual appropriations at the discretion of the City Council.
  - (4) To defray the costs of capital improvements of every kind and nature which the City is, from time to time, authorized to undertake, including, without limiting the generality of the foregoing, maintenance and operation of a community center and municipal complex; acquisition of land, easements and rights-of-way; and acquisition, construction and installation of buildings, public works, storm drainage, treatment facilities, trails, broadband, and necessary appurtenances; provided, however, that such improvements shall not include improvements to the City's water system, wastewater system, or electrical system. Prior to making an appropriation for any improvements pursuant to this paragraph, the City Council shall conduct a public hearing and consider public comments on such improvements.
  - (5) Expenditures authorized pursuant to this section may include the principal of, premium, if any, and interest on securities issued or other forms of indebtedness incurred for the purpose of providing capital improvements.

Revenues described in this section shall be segregated and applied by the Director of Finance in accordance with this section or the provisions of any ordinance pursuant to which securities are issued or other forms of indebtedness are incurred and are payable from such revenues.

(c) Accommodations tax.

(1) Receipts; disposition. All accommodations tax monies collected or remitted pursuant to subsection (a) of section 040.010.030, shall be credited to the separate Tourism Promotion Fund (as described in Paragraph 2 below), and shall be kept separate and distinct from the General Fund or any other separate funds maintained by the City.

(2) Tourism Promotion Fund; creation, nature, purpose.

- a. There is hereby created a special separate fund to be known as the Glenwood Springs Tourism Promotion Fund. Said Fund shall be separate and distinct from any other funds or accounts used or maintained by the City for any other purposes. The monies of said fund shall be expended only for the purposes set forth herein and no other, and shall be expended as provided for herein.
- b. The Fund shall consist of:
  1. All monies deposited or transferred thereto in accordance with Paragraph (1) above;
  2. Contributions of money, property or services received for use in carrying out the purposes of the Fund from any state, state agency, county, municipality, federal agency, person, corporation or association; and
  3. All monies otherwise made available to the Fund from whatever source.
- c. Any monies not appropriated shall remain in the Fund and shall not be transferred to or revert to the General Fund of the City at the end of any fiscal year. Any interest earned on the investment or deposit of monies of the Fund shall also remain in the Fund and shall not be credited to the General Fund of the City.
- d. All appropriation of monies of the fund shall be made by the City Council.

- e. The monies of the Fund may be budgeted, appropriated and expended only for the following purposes:
  - 1. Planning and implementing the advertisement, promotion and development of tourism in the City;
  - 2. Tourism advertising, written and graphic materials and cooperative and matching promotional programs;
  - 3. Gathering and disseminating information on the tourist industries and attractions of the City;
  - 4. Purchasing such equipment, materials and supplies as shall be necessary to be used solely for tourist promotion;
  - 5. Contracting for those services and materials as may be incidental, necessary and appropriate to the accomplishment of the purposes of the Fund, including but not limited to administrative, secretarial, clerical or professional services deemed necessary;
  - 6. Attracting conferences, conventions and meetings of a commercial, cultural, educational or social nature to the Glenwood Springs area; and
  - 7. Defraying administrative and clerical costs of collecting and administering the tax.

(d) Admissions Tax

(1) Receipts; disposition. All admissions tax monies collected or remitted pursuant to subsection (f) of section 040.010.030, shall be credited to the separate Admissions Tax Fund (as described in Paragraph 2 below), and shall be kept separate and distinct from the General Fund or any other separate funds maintained by the City.

(2) Admissions Tax Fund; creation, nature, purpose.

- a. There is hereby created a special separate fund to be known as the Glenwood Springs Admissions Tax Fund. Said Fund shall be separate and distinct from any other funds or accounts used or maintained by the City for any other purposes. The monies of said

fund shall be expended only for the purposes set forth herein and no other, and shall be expended as provided for herein.

b. The Fund shall consist of:

1. All monies deposited or transferred thereto in accordance with Paragraph (1) above;
2. Contributions of money, property or services received for use in carrying out the purposes of the Fund from any state, state agency, county, municipality, federal agency, person, corporation or association; and
3. All monies otherwise made available to the Fund from whatever source.

c. Any monies not appropriated shall remain in the Fund and shall not be transferred to or revert to the General Fund of the City at the end of any fiscal year. Any interest earned on the investment or deposit of monies of the Fund shall also remain in the Fund and shall not be credited to the General Fund of the City.

d. All appropriation of monies of the fund shall be made by the City Council.

e. The monies of the Fund may be budgeted, appropriated and expended only for the following purposes:

1. Operational costs to cleaning and maintaining public facilities and trails;
2. Operation, maintenance and personnel cost of private entities to provide an alternative energy tourist circulator serving the greater downtown area;
3. Providing additional advertising during shoulder and off-peak seasons and emergencies;
4. Provide for a workforce housing program including but not limited to acquisition, construction management and operation of workforce housing developments, partnering with private entities and other governments and providing for matching funds for grants; and



5. Defraying administrative and clerical costs of collecting and administering the tax.

(e) Accommodations Tax Workforce Housing Fund

(1) Receipts; disposition. All accommodations tax monies collected or remitted pursuant to subsection (g) of section 040.010.030, shall be credited to the separate Accommodations Tax Workforce Housing Fund (as described in Paragraph 2 below), and shall be kept separate and distinct from the General Fund or any other separate funds maintained by the City.

(2) Accommodations Tax Workforce Housing Fund; creation, nature, purpose.

a. There is hereby created a special separate fund to be known as the Glenwood Springs Accommodations Tax Workforce Housing Fund. Said Fund shall be separate and distinct from any other funds or accounts used or maintained by the City for any other purposes. The monies of said fund shall be expended only for the purposes set forth herein and no other, and shall be expended as provided for herein.

b. The Fund shall consist of:

1. All monies deposited or transferred thereto in accordance with Paragraph (1) above;

2. Contributions of money, property or services received for use in carrying out the purposes of the Fund from any state, state agency, county, municipality, federal agency, person, corporation or association; and

3. All monies otherwise made available to the Fund from whatever source.

c. Any monies not appropriated shall remain in the Fund and shall not be transferred to or revert to the General Fund of the City at the end of any fiscal year. Any interest earned on the investment or deposit of monies of the Fund shall also remain in the Fund and shall not be credited to the General Fund of the City.

d. All appropriation of monies of the fund shall be made by the City Council.

e. The monies of the Fund may be budgeted, appropriated and expended only for the following purposes:

1. Acquisition, sale, design, construction, operation, and maintenance of city owned workforce housing;
2. Acquisition, design, construction, operation, and maintenance of workforce housing through public private partnerships;
3. Acquisition, sale, design, construction, operation, and maintenance of workforce housing in partnership with federal, state, and local governments and housing trusts;
4. Employee costs associated with acquisition, sale, design, construction, operation, and maintenance or workforce housing; and
5. Defraying administrative and clerical costs of collecting and administering the tax.

- (~~d~~e) Street Maintenance and Construction Tax. The City Council hereby levies a one-half cent (\$0.005) sales and use tax, which shall expire at midnight on December 31, 2026. The City Council hereby declares the revenue from the levy of such tax shall be placed in a special Street Maintenance and Construction Tax Fund and shall be used for street operations, maintenance, construction traffic efficiencies and related debt service.
- (e) Local bus service tax. The City Council hereby levies a two-tenths (0.2) percent sales and use tax. The City Council hereby declares the revenue from the levy of such tax imposed by the Tax Ordinance shall be placed in a special Local Bus Service Tax Fund and shall be distributed solely for the operation, maintenance and purchase of buses and other bus-related facilities. Such operation includes, but is not limited to: contracting for local bus services, hiring of bus employees., purchase of additional or replacement buses, repairing the buses and purchasing property and/or constructing bus-related improvements.
- (f) Retail marijuana sales tax. The City Council hereby levies a five cent (\$0.05) sales tax on the sale of retail marijuana within the City and declares the revenue from the tax imposed by the Tax Ordinance shall be used to fund the enforcement of regulations on the retail marijuana industry, other costs related to enforcement of marijuana laws, education and public health programs associated with marijuana

consumption including prevention of underage consumption, and other city expenses as determined by the City Council from time to time.

- (g) Retail marijuana excise tax. The City Council hereby levies an excise tax in the amount of five (5) percent of the market rate of retail marijuana, upon the sale or transfer of retail marijuana from a retail marijuana product manufacturing facility, cultivation facility, or testing facility to a retail marijuana store or another retail marijuana product manufacturing facility, cultivation facility, or testing facility or any other purchaser or transferee, within or without the City of Glenwood Springs; with the market rate of marijuana to equal, in any event, the average market rate for retail marijuana under C.R.S. § 39-28.8-101 et seq., as that code section may be amended; with the tax revenues being used to fund the enforcement of regulations on the retail marijuana industry, other costs related to enforcement of marijuana laws, education and public health programs associated with marijuana consumption including prevention of underage consumption, and other city expenses as determined by the City Council from time to time.
- (h) Special cigarette and tobacco products sales tax for substance abuse education, prevention, and treatment. The City Council hereby levies a twenty cents (\$0.20) per cigarette or four dollars (\$4.00) per pack of twenty (20) cigarettes sold, or forty (40) percent of the sale price upon all other tobacco products special sales tax, which shall expire at midnight on December 31, 2040. The City Council hereby declares the revenue from the levy of such tax shall be placed in a special cigarette and tobacco product tax fund and shall be used for drug, alcohol, and tobacco prevention, cessation, treatment, enforcement, youth mental health, and detox facilities.

\* \* \*

**Sec. 040.010.120 – Mill Levy.**

- (a) Airport Mill Levy. There is hereby levied an ad valorem property tax at a rate of \_\_\_\_ (\_\_\_\_) mills in order to meet operational and capital costs of providing a municipal airport including but not limited to maintaining and expanding current facilities, constructing a tunnel under the airport to provide emergency egress from South Glenwood while maintaining the length of the runway, personnel, payment of debt or lease-purchase obligations and such other costs as may be required.



**City Council**  
**STAFF REPORT**  
**City of Glenwood Springs**  
**September 2, 2021**

**Agenda Item:** Resolution 2021-23: A Resolution of the City of Glenwood Springs calling an election on November 2, 2021 and certifying a ballot issue to amend the Glenwood Springs City Charter Section 13.2.

**Action Requested:** Determine whether to approve Resolution 2021-23 to amend the Glenwood Springs City Charter Section 13.2.

**Department:** Attorney

**Presented By:** Glenwood Springs Legal, Legal

**Background Info:** At the Special Work Session on August 24, 2021 City Council requested that this potential Charter change be brought to City Council for consideration at the September 2 Council Meeting.

The potential Charter change involves parameters around keeping the Glenwood Springs Airport open.

**Issues:** NA

**Staff Recommendation:** Staff defers to Council.

## RESOLUTION NO. 2021 - 23

### A RESOLUTION OF THE CITY OF GLENWOOD SPRINGS CALLING AN ELECTION ON NOVEMBER 2, 2021 AND CERTIFYING A BALLOT ISSUE TO AUTHORIZE AN AMENDMENT TO THE GLENWOOD SPRINGS MUNICIPAL CHARTER SECTION 13.2; SETTING THE BALLOT TITLE AND CONTENT FOR THE BALLOT ISSUE; AND PROVIDING OTHER MATTERS RELATING TO THE ELECTION.

**WHEREAS**, the City of Glenwood Springs (“Glenwood Springs” or the “City”) is a home-rule municipality organized pursuant to Article XX of the Colorado Constitution and with the authority of the Glenwood Springs Home Rule Charter; and

**WHEREAS**, the City Council finds and believes that it is appropriate to propose to the qualified electors of the City at the November 2, 2021 election a ballot issue concerning whether to amend the Glenwood Springs Municipal Charter regarding the municipal airport; and

**WHEREAS**, the election shall be conducted as a coordinated election in Garfield County in accordance with articles 1 to 13 of title 1, Colorado Revised Statutes, as amended (the “Uniform Election Code”); and

**WHEREAS**, the Clerk and Recorder of Garfield County (the “County Clerk”) is the coordinated election official for the election pursuant to the Uniform Election Code; and

**WHEREAS**, the City will assist the County Clerk in providing necessary information and notices for the conduct of the election.

NOW THEREFORE, BE IT RESOLVED BY THE CITY COUNCIL OF THE CITY OF GLENWOOD SPRINGS, COLORADO:

**Section 1.** An election shall be held on Tuesday, November 2, 2021 (the “Election Date”) at which there shall be submitted to the eligible electors of the City a ballot issue which shall be in substantially the form attached hereto in **Exhibit A**.

**Section 2.** For purposes of Section 1-11-203.5, C.R.S., this Resolution shall serve to set the ballot title and content for the ballot issue set forth in the exhibit hereto. **Exhibit A** is hereby incorporated into this Resolution as if set forth in full herein. The ballot title for the ballot issue attached hereto as **Exhibit A** shall be the text of such ballot issue.

**Section 3.** The City Clerk, as the designated election official of the City, is hereby authorized and directed to take all action necessary or appropriate to hold an election on the Election Date and to effectuate the provisions of this Resolution.

**Section 4.** All actions not inconsistent with the provisions of this Resolution heretofore taken by the members of the City Council and the officers and employees of the City and directed toward holding the election for the purposes stated herein, including without limitation the execution of an intergovernmental agreement with the County Clerk in connection with the conduct of the election, are hereby ratified, approved and confirmed.

**Section 5.** All prior acts, orders or resolutions, or parts thereof, by the City in conflict with this Resolution are hereby repealed, except that this repealer shall not be construed to revive any act, order or resolution, or part thereof, heretofore repealed.

**Section 6.** If any section, paragraph, clause or provision of this Resolution shall be adjudged to be invalid or unenforceable, the invalidity or unenforceability of such section, paragraph, clause or provision shall not affect any of the remaining sections, paragraphs, clauses or provisions of this Resolution, it being the intention that the various parts hereof are severable.

**Section 7.** This Resolution shall take effect immediately upon its passage.

ADOPTED AND APPROVED this \_\_\_\_ day of September 2021.

By \_\_\_\_\_  
Jonathan Godes, Mayor

ATTEST:

By \_\_\_\_\_  
Ryan Muse, City Clerk

**EXHIBIT A**  
**FORM OF THE BALLOT ISSUE**

**Ballot Issue:** \_\_\_\_\_

Shall the Glenwood Springs Municipal Charter Section 13.2 be amended as follows:

Neither lands owned and used by the City for park, airport, or governmental purposes, nor water rights, shall be sold or conveyed without an affirmative vote of a majority of the qualified electors. Nothing in this provision, however, shall prohibit the City from exchanging, or changing point of diversion of water rights without such vote.

Alternative 1:

The City Council shall not close the airport without the affirmative vote of a majority of the qualified electors of the City except for temporary closures for emergencies or construction so long as the Glenwood Springs airport operates solely as an enterprise fund and provides for all necessary maintenance, capital improvements and operational expenses from user fees, leases, fuel sales, grants and other airport revenue. Such capital improvements shall include maintaining the airport in at least its general condition and configuration as of January 1, 2021, including paying for a tunnel under the airport to maintain the current runway length. Nothing in this section shall prohibit the City Council from permanently closing the Glenwood Springs airport for safety reasons nor require the City to expend any revenues except those generated by the airport for its maintenance, operations or capital improvements.

Alternative 2:

The City Council shall not close the airport to helicopters for firefighting and medical use without the affirmative vote of a majority of the qualified electors of the City except for temporary closures for emergencies or construction.

Alternative 3:

The City Council shall not close the airport without the affirmative vote of a majority of the qualified electors of the City except for temporary closures for emergencies or construction so long as the Glenwood Springs airport operates solely as an enterprise fund and provides for all necessary maintenance, capital improvements and operational expenses from user fees, leases, fuel sales, grants and other airport revenue. Such capital improvements shall include maintaining the airport in at least its general condition and configuration as of January 1, 2021, including paying for a tunnel under the airport to maintain the current runway length. Nothing in this section shall prohibit the City Council from keeping the airport open to helicopters for firefighting and medical use nor from permanently closing the Glenwood Springs airport for safety reasons nor require the City to expend any revenues except those generated by the airport for its maintenance, operations or capital improvements.





**City Council**  
**STAFF REPORT**  
**City of Glenwood Springs**  
**September 2, 2021**

**Agenda Item:** VALE Board Appointments

**Action Requested:** VALE Board Appointments

**Department:** City Administration

**Presented By:**

**Background Info:** Cindy Svatos and Joyce Jenkins were interviewed on August 9, 2021. They were deemed eligible for appointment to the VALE Board with terms ending 2024.

**Issues:** None.

**Staff Recommendation:** Staff defers to City Council.

## VALE Board Application

Thank you for your interest in serving your community. Please answer all questions on this application.

### Personal Information

1. Name \*

Cindy Svatos

2. Home Address \*

318 Park Drive Glenwood Springs

3. Mailing Address \*

Same

4. Home Phone \*

970-618-3650

5. Work Phone \*

same

6. Mobile Phone \*

same

7. Email Address \*

cmsvatos@gmail.com

8. Occupation \*

Retired Full time volunteer

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## Personal and Professional Interests

9. Describe any experience with maintaining confidential information. \*

Worked in the hospital for 30 y ears.

10. Have you ever been a victim of a crime? \*

Yes

11. Have you ever been convicted of a crime? If so, what was the violation? \*

No

12. Have you, a close family member, or friend ever been employed in the law enforcement or criminal justice system? \*

No

13. Do you have any experience working with people on a board, commission, committee, or as part of some other decision making group? \*

Yes

14. The VALE Board meetings typically occur one morning a month. Will you be sufficiently available to participate? \*

Yes

15. Please enter today's date \*

7/21/2021



16. Have you previously served on the VALE Board? \*

☐ No

☒ Yes

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Reappointment Applicants

17. Why do you think you should be reappointed? \*

na

18. Have you served more than two full terms on the VALE Board? \*

na

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## Composition of the VALE Board

(as defined in Title 020 of the Glenwood Springs Municipal Code)

Composition of the VALE Board

(8) Victim's and Witnesses Assistance and Law Enforcement Board:

- a. Five (5) citizens, at least four (4) who are residents of the City and one (1) who may reside outside of the City but within the 81601 zip code area or own real property or a business within the City.
- b. (R 20-05 §2)
- c. The Chief of Police as an advisory member, but a nonvoting member of the Board. Powers and Duties:

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## Powers and Duties of the VALE Board

(as defined in Title 020 of the Glenwood Springs Municipal Code)

(h) Powers and duties of the Victim's and Witnesses Assistance and Law Enforcement Board.

(1) The Board shall designate one (1) of its members as chairman, shall establish rules of procedure and order and shall hold meetings as it might deem necessary.

(2) A surcharge equal to twenty-five percent (25%) of the fine imposed for violation of all municipal ordinances, including ordinance violations under the Model Traffic Code, is hereby levied on each Municipal Court action resulting in a conviction, plea of guilty or no contest or in a deferred judgment and sentence, which municipal ordinance violation is charged pursuant to City ordinances. All calculated surcharge amounts resulting in dollars and cents shall be rounded to the nearest whole dollar. In the event a portion of the fine is suspended, the surcharge levied shall be computed based upon the original fine, regardless of whether a portion of said fine has been suspended. Said surcharges shall be paid to the Clerk of the Court by the defendant, and said Clerk

shall deposit the money so received in the fund hereinafter created. (A 33-05,§2)

(3) The Victim's and Witnesses Assistance and Law Enforcement Fund, hereinafter referred to as the "Fund," consist of all monies paid as a surcharge as provided in Subsection (2) above. All monies deposited in the Fund shall be deposited in an interest-bearing account, and all interest earned by monies in the Fund shall be credited to the Fund. The City Manager, by and through the Finance Director, shall be responsible for establishing a separate fund for purposes of accounting for the revenues and expenditures. At the conclusion of each fiscal year, all monies remaining in the Fund shall remain in the Fund for allocation as hereinafter set forth.

(4) The Board shall disburse monies from the Fund in the following manner:

a. First, to the payment of all reasonable and necessary expenses and costs incurred by the Board in the performance of its duties, including but not limited to professional fees, office supplies and meeting expenses.

b. Second, not less than fifty percent (50%) of the monies remaining in the Fund after the deduction of reasonable expenses and costs shall be allocated for the purchase of victims and witnesses services and reimbursements, as hereinafter set forth. No funds shall be paid except in those specific instances where a police report has been filed by the Police Department for an alleged violation of a municipal ordinance, regardless of whether the perpetrator has been identified, arrested or prosecuted.

c. Third, any remaining monies may be allocated to the Police Department for the following purposes, including, but not limited to: equipment purchases, training programs for personnel and the employment of additional personnel. Such funds shall not be used by the Police Department for defraying the costs of routine and ongoing operating expenses. No disbursement within this category of expenditure shall be made without the approval of the City Council following a written recommendation by the Board.

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## Powers and Duties of the VALE Board - Continued

(5) Disbursement of funds by the Board on behalf of the victim's and witnesses assistance services may be used for the following purposes:

a. Provision of services for early crisis intervention;

b. Assistance in prompt return of victims' property;

c. Assistance to victims and witnesses in arranging transportation to and from court;

d. Provision of translator services;

e. Protection from threats of harm and other forms of intimidation

f. Reasonable medical and hospital expenses and expenses incurred for dentures, eyeglasses, hearing aids or other prosthetic or medically necessary devices; and

g. Losses resulting from property damage, including repair or replacement of property damaged as a result of crime or payment of the deductible amount on a residential insurance policy in an amount not to exceed five hundred dollars (\$500.00). Victims' recovery due to property damage shall not exceed five hundred dollars (\$500.00) for any crime, but in no case shall a loss be compensable if the aggregate property damages are less than twenty-five dollars (\$25.00).

(6) The Board is authorized to accept and evaluate all applications for disbursement of funds, whether emanating from victims, witnesses or law enforcement agencies. Applications for disbursement shall be made upon forms prescribed by the Board, and made available by the Municipal Court and the Police Department. The Board shall establish its own criteria for evaluating applications for disbursement, and nothing herein contained shall obligate the Board to make disbursement of any funds available to it. Upon a finding by the Board that a disbursement shall be made from the Fund, the Board shall submit a written request for payment to the Finance Department, which shall then remit payment in accordance with the request.

(7) The Board is required to submit minutes of its meetings to the City Council at the next regular Council meeting following the Board's meeting.

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## Appointment, Removal, Term and Vacancies of Boards and Commissions

Glenwood Springs, CO Municipal Code 020.020.040

(a) Appointment and term of members. Except as otherwise provided, all appointments to the boards and commissions shall be by the City Council for terms of three (3) years each, and each member shall serve until his/her successor is appointed and takes office; provided, however, that the initial terms of office may be shortened by the City Council so as to provide overlapping terms of office. Appointments shall expire the day before the first regular meeting of the City Council in each month according to the following schedule:

(1) February:

Planning and Zoning Commission;  
Finance Advisory Board;  
Tourism Promotion Board;  
Building Board of Appeals.

(2) March:

Transportation Commission;  
Arts and Culture Board;  
Parks and Recreation Commission;  
Airport Board;  
River Commission.

(3) April:

Local Liquor Licensing Authority;  
Victim's Witnesses Assistance and Law Enforcement Board;  
Historic Preservation Commission;  
Glenwood Springs Housing Commission.

(b) Alternate members. The City Council at its discretion may appoint up to three (3) persons as alternate members for each board or commission. If a regular member of a board or commission is to be absent from a meeting, the presiding officer for the meeting may select an alternate member to fill such absence and to attend and serve at the meeting. The alternate member may exercise all powers at the meeting which the absent regular member could exercise, and the alternate's powers and privileges shall terminate at the end of the meeting attended. The presiding officer may at his/her discretion select the same alternate to serve at successive meetings in the absence of any member.

(c) Limit to term of members. No Board member shall serve more than two (2) terms on the same board or commission.

(d) Removal of members. All appointed members of a board or commission shall be subject to removal, at any time, by the City Council. In the event an appointed member of a board or commission ceases to qualify for membership, his or her appointment is immediately terminated.

(e) Vacancies. The City Council shall fill all vacancies on boards and commissions by appointment for the unexpired term.

(Code 1971 §§ 2-63, 2-64, 2-67; 6-95 § 1; 10-07 § 2; Ord. No. 9-2018 , § 2, 4-20-2018)



## VALE Board Application

Thank you for your interest in serving your community. Please answer all questions on this application.

### Personal Information

1. Name \*

Joyce Jenkins

2. Home Address \*

340 13th St., #3; Glenwood Springs, CO. 81601

3. Mailing Address \*

same

4. Home Phone \*

n/a

5. Work Phone \*

n/a

6. Mobile Phone \*

720-431-2547

7. Email Address \*

joycejenkins@msn.com

8. Occupation \*

retired attorney

---

## Personal and Professional Interests

9. Describe any experience with maintaining confidential information. \*

practice of law, 1985-2011 Youth Zone volunteer, 2019

10. Have you ever been a victim of a crime? \*

no

11. Have you ever been convicted of a crime? If so, what was the violation? \*

no

12. Have you, a close family member, or friend ever been employed in the law enforcement or criminal justice system? \*

no

13. Do you have any experience working with people on a board, commission, committee, or as part of some other decision making group? \*

President, League of Women Voters of Mesa County, 1970's and 1980's In-house Counsel for employment and litigation, Intrado, Inc., Longmont CO, 2004-2011

14. The VALE Board meetings typically occur one morning a month. Will you be sufficiently available to participate? \*

yes

15. Please enter today's date \*

8/2/2021



16. Have you previously served on the VALE Board? \*

☒ No

☐ Yes

---

## Composition of the VALE Board

(as defined in Title 020 of the Glenwood Springs Municipal Code)

#### Composition of the VALE Board

##### (8) Victim's and Witnesses Assistance and Law Enforcement Board:

- a. Five (5) citizens, at least four (4) who are residents of the City and one (1) who may reside outside of the City but  
within the 81601 zip code area or own real property or a business within the City.
- b. (R 20-05 §2)
- c. The Chief of Police as an advisory member, but a nonvoting member of the Board. Powers and Duties:

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## Powers and Duties of the VALE Board

(as defined in Title 020 of the Glenwood Springs Municipal Code)

##### (h) Powers and duties of the Victim's and Witnesses Assistance and Law Enforcement Board.

- (1) The Board shall designate one (1) of its members as chairman, shall establish rules of procedure and order and shall hold meetings as it might deem necessary.
- (2) A surcharge equal to twenty-five percent (25%) of the fine imposed for violation of all municipal ordinances, including ordinance violations under the Model Traffic Code, is hereby levied on each Municipal Court action resulting in a conviction, plea of guilty or no contest or in a deferred judgment and sentence, which municipal ordinance violation is charged pursuant to City ordinances. All calculated surcharge amounts resulting in dollars and cents shall be rounded to the nearest whole dollar. In the event a portion of the fine is suspended, the surcharge levied shall be computed based upon the original fine, regardless of whether a portion of said fine has been suspended. Said surcharges shall be paid to the Clerk of the Court by the defendant, and said Clerk shall deposit the money so received in the fund hereinafter created. (A 33-05,§2)
- (3) The Victim's and Witnesses Assistance and Law Enforcement Fund, hereinafter referred to as the "Fund," consist of all monies paid as a surcharge as provided in Subsection (2) above. All monies deposited in the Fund shall be deposited in an interest-bearing account, and all interest earned by monies in the Fund shall be credited to the Fund. The City Manager, by and through the Finance Director, shall be responsible for establishing a separate fund for purposes of accounting for the revenues and expenditures. At the conclusion of each fiscal year, all monies remaining in the Fund shall remain in the Fund for allocation as hereinafter set forth.
- (4) The Board shall disburse monies from the Fund in the following manner:
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alleged violation of a municipal ordinance, regardless of whether the perpetrator has been identified, arrested or prosecuted.

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## Powers and Duties of the VALE Board - Continued

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- a. Provision of services for early crisis intervention;
- b. Assistance in prompt return of victims' property;
- c. Assistance to victims and witnesses in arranging transportation to and from court;
- d. Provision of translator services;
- e. Protection from threats of harm and other forms of intimidation
- f. Reasonable medical and hospital expenses and expenses incurred for dentures, eyeglasses, hearing aids or other prosthetic or medically necessary devices; and
- g. Losses resulting from property damage, including repair or replacement of property damaged as a result of crime or payment of the deductible amount on a residential insurance policy in an amount not to exceed five hundred dollars (\$500.00). Victims' recovery due to property damage shall not exceed five hundred dollars (\$500.00) for any crime, but in no case shall a loss be compensable if the aggregate property damages are less than twenty-five dollars (\$25.00).

(6) The Board is authorized to accept and evaluate all applications for disbursement of funds, whether emanating from victims, witnesses or law enforcement agencies. Applications for disbursement shall be made upon forms prescribed by the Board, and made available by the Municipal Court and the Police Department. The Board shall establish its own criteria for evaluating applications for disbursement, and nothing herein contained shall obligate the Board to make disbursement of any funds available to it. Upon a finding by the Board that a disbursement shall be made from the Fund, the Board shall submit a written request for payment to the Finance Department, which shall then remit payment in accordance with the request.

(7) The Board is required to submit minutes of its meetings to the City Council at the next regular Council meeting following the Board's meeting.

# Appointment, Removal, Term and Vacancies of Boards and Commissions

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(a) Appointment and term of members. Except as otherwise provided, all appointments to the boards and commissions shall be by the City Council for terms of three (3) years each, and each member shall serve until his/her successor is appointed and takes office; provided, however, that the initial terms of office may be shortened by the City Council so as to provide overlapping terms of office. Appointments shall expire the day before the first regular meeting of the City Council in each month according to the following schedule:

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Finance Advisory Board;  
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Building Board of Appeals.

(2) March:

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Arts and Culture Board;  
Parks and Recreation Commission;  
Airport Board;  
River Commission.

(3) April:

Local Liquor Licensing Authority;  
Victim's Witnesses Assistance and Law Enforcement Board;  
Historic Preservation Commission;  
Glenwood Springs Housing Commission.

(b) Alternate members. The City Council at its discretion may appoint up to three (3) persons as alternate members for each board or commission. If a regular member of a board or commission is to be absent from a meeting, the presiding officer for the meeting may select an alternate member to fill such absence and to attend and serve at the meeting. The alternate member may exercise all powers at the meeting which the absent regular member could exercise, and the alternate's powers and privileges shall terminate at the end of the meeting attended. The presiding officer may at his/her discretion select the same alternate to serve at successive meetings in the absence of any member.

(c) Limit to term of members. No Board member shall serve more than two (2) terms on the same board or commission.

(d) Removal of members. All appointed members of a board or commission shall be subject to removal, at any time, by the City Council. In the event an appointed member of a board or commission ceases to qualify for membership, his or her appointment is immediately terminated.

(e) Vacancies. The City Council shall fill all vacancies on boards and commissions by appointment for the unexpired term.

(Code 1971 §§ 2-63, 2-64, 2-67; 6-95 § 1; 10-07 § 2; Ord. No. 9-2018 , § 2, 4-20-2018)





## **CITY OF GLENWOOD SPRINGS**

VICTIM AND WITNESS ASSISTANCE  
AND LAW ENFORCEMENT BOARD  
c/o Glenwood Springs Police Department  
101 West 8<sup>th</sup> Street  
Glenwood Springs, Colorado 81601  
Telephone: (970) 384-6500

# **Memo**

Glenwood Springs VALE Board

To: Ryan Muse – City Clerk  
From: Katie Mulkey- VALE Board Secretary  
CC: Sara Weigel – Executive Admin.  
Assistant

Tony Hershey – City Council Liaison

Date: August 9, 2021  
Re: VALE Board Member Appointments

Comments : During the August 9, 2021 VALE Board Meeting, Cindy Svatos and Joyce Jenkins were interviewed for appointment to the VALE Board.

Both Cindy and Joyce were deemed eligible for appointment with a term ending 2024.

Please include VALE Board appointment considerations on the agenda for the next City Council Meeting. Currently, the VALE Board cannot meet quorum so we cannot hold meetings as we normally would.





**City Council**  
**STAFF REPORT**  
**City of Glenwood Springs**  
**September 2, 2021**

|                              |                                                                                                                                                                                                                                                                                                                                                             |
|------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Agenda Item:</b>          | Ordinance 2021-15 Updating Boards and Commissions                                                                                                                                                                                                                                                                                                           |
| <b>Action Requested:</b>     | Approve Ordinance 2021-15 updating the Powers and Duties of the Airport Board, Finance Advisory Board, Parks and Recreation Commission, River Commission, Transportation Commission, Housing Commission, Historic Preservation Commission, and the Tourism Promotion Board.                                                                                 |
| <b>Department:</b>           | City Administration                                                                                                                                                                                                                                                                                                                                         |
| <b>Presented By:</b>         | Debra Figueroa, City Manager                                                                                                                                                                                                                                                                                                                                |
| <b>Background Info:</b>      | Many of the Boards and Commission were set up before the City of Glenwood Springs had an extensive professional staff. City Council members have requested the ability to update the Powers of Duties of the Boards and Commissions to reflect more of a general advisor role rather than the provision of technical expertise from Boards and Commissions. |
| <b>Issues:</b>               | NA. Staff will schedule work sessions with all Boards and Commissions in early 2022 to further explore how and what type of advise City Council wants to receive from its Boards and Commissions.                                                                                                                                                           |
| <b>Staff Recommendation:</b> | Staff recommends the approval of Ordinance 2021-15.                                                                                                                                                                                                                                                                                                         |

**ORDINANCE NO. \_\_\_\_**

Series of 2021

**AN ORDINANCE OF THE CITY OF GLENWOOD SPRINGS,  
COLORADO, AMENDING SECTION 020.020.030 OF THE GLENWOOD  
SPRINGS MUNICIPAL CODE.**

**WHEREAS**, the City of Glenwood Springs (“Glenwood Springs” or the “City”) is a home-rule municipality organized under Article XX of the Colorado Constitution and with the authority of the Glenwood Springs Home Rule Charter; and

**WHEREAS**, Section 020.020.030 of the Municipal Code addresses the powers and duties of boards and commissions of the City Council; and

**WHEREAS**, the City Council finds and declares that the amendments to Section 020.020.030 set forth in **Exhibit A**, hereto and incorporated herein by this reference, are in the best interest of the City.

**NOW, THEREFORE, THE CITY COUNCIL OF THE CITY OF GLENWOOD  
SPRINGS, COLORADO, ORDAINS:**

**Section 1.** The foregoing recitals are incorporated herein as if set forth in full.

**Section 2.** Section 020.020.030 the Glenwood Springs Municipal Code is hereby amended as set forth in **Exhibit A** attached hereto.

**Section 3.** Any ordinances or resolutions or parts thereof, which are in conflict with this ordinance, are hereby repealed to the extent of such conflict only.

**Section 4.** With the exception of the provisions of the Municipal Code of the City of Glenwood Springs which are modified as provided herein, all remaining provisions of the Municipal Code of the City of Glenwood Springs shall remain in full force and effect.

INTRODUCED, READ ON FIRST READING, PASSED AND ORDERED  
PUBLISHED BY TITLE ONLY THIS \_\_\_\_ DAY OF SEPTEMBER 2021.

CITY OF GLENWOOD SPRINGS, COLORADO

---

Jonathan Godes, Mayor

ATTEST:

---

Ryan Muse, City Clerk

INTRODUCED, READ ON SECOND READING, AND ORDERED PUBLISHED BY  
TITLE ONLY TO BE EFFECTIVE TEN DAYS FOLLOWING THE DATE OF SECOND  
PUBLICATION THIS \_\_\_\_ DAY OF \_\_\_\_\_ 2021.

CITY OF GLENWOOD SPRINGS, COLORADO

---

Jonathan Godes, Mayor

ATTEST:

---

Ryan Muse, City Clerk

## EXHIBIT A

The following sections of the Municipal Code are amended as follows with double underlined text added and ~~strike through text deleted~~.

### **020.020.030 Powers and duties of boards and commissions.**

\*\*\*\*

- (b) ~~*Powers and Duties of Airport Board.*~~ The powers and duties of the Airport Board shall be: to investigate, study and report to the City Council all matters concerning the airport facilities of the City and other matters concerning the subject of aviation which may be pertinent to the City as shall be requested of the Airport Board by the City Council; and such Board may investigate, study and report to the City Council on such other matters concerning the Municipal Airport as the Board may deem for the best interests of the City.
  - (1) To advise and assist the City Manager or their designee concerning airport matters.
  - (2) Such other duties as may be requested by the City Council.
  - (3) To meet annually with the City Council to have Council set the Board's goals and priorities for the year.
- (c) ~~*Powers and Duties of Building Board of Appeals.*~~ The powers and duties of the Building Board of Appeals shall be to hear appeals in accordance with the International Building Code, International Residential Code, International Fire Code, and the other adopted codes from the International Code Council, as adopted or amended by Title 060 of this Code. Such power shall not include matters of interpretation arising under the Code.
- (d) ~~*Powers and Duties of Finance Advisory Board.*~~ The duties of the Finance Advisory Board shall be: advise and assist the City Manager and Finance Director in the preparation of the City budget, the establishment of accounting systems for the City, the planning of expenses, the projection of revenues and the analysis of the other fiscal matters presented to the Board by the City Council. The Finance Advisory Board shall also be responsible for making recommendations to City Council regarding grants from the City's various grant programs as Council may establish from time to time. No decision of the Finance Advisory Board shall be binding upon the City or anyone acting on its behalf.
  - (1) To advise and assist the City Manager and the Finance Director concerning the City's financial matters.
  - (2) Such other duties as may be requested by the City Council.
  - (3) To meet annually with the City Council to have Council set the Board's goals and priorities for the year.
- (e) ~~*Powers and duties of Parks and Recreation Commission.*~~ The powers and duties of the Parks and Recreation Commission shall be:
  - (1) ~~To investigate, study and report to the City Council all matters concerning City parks and recreation within the City and other matters concerning the subject of parks and recreation which may be pertinent to the City and requested of such Commission by the City Council.~~

- ~~(2) To investigate, study and report to the City Council on such other matters concerning parks and recreation within the City as the Commission may deem in the best interests of the City.~~
  - ~~(3) To provide technical assistance, advice and planning support to the Parks and Recreation Director and City Council regarding tree planting and maintenance needs in the City.~~
  - ~~(4) To provide recommendations from time to time regarding the administration and implementation of Article 090.050 of this Code.~~
  - ~~(5) To investigate, study and report to City Council all matters concerning the burial and internment facilities of the City and other such matters as may be requested by City Council from time to time.~~
  - ~~(6) To investigate, study and report to City Council on such other matters concerning burial and internment facilities and such other similar matters as the Commission may deem in the best interests of the City.~~
  - ~~(7) To investigate, study and report to City Council any and all matters concerning the use and operation of the City's Community Center.~~
  - ~~(8) To coordinate with other City boards and commissions on any aspect of the Community Center that may relate to the powers and duties of such other boards and commissions.~~
  - ~~(9) To investigate, study and report to City Council on grants, donations and other forms of funding to assist in the operation of the Community Center, and to otherwise advise City Council on budgetary needs related to the operation of the Community Center.~~
  - (1) To advise and assist the Parks and Recreation Director and City Manager concerning parks, recreation, and the City Cemetery.
  - (2) Such other duties as may be requested by the City Council
  - (3) To meet annually with the City Council to have Council set the Commission's goals and priorities for the year.
- (f) ~~*Powers and duties of Planning and Zoning Commission.*~~ The powers and duties of the Planning and Zoning Commission shall be:

*[no changes to remaining text regarding powers and duties of the Planning and Zoning Commission]*

\*\*\*\*

- (g) ~~*Powers and duties of River Commission.*~~ The powers and duties of the River Commission shall be:
- (1) ~~To investigate, study, and report to the~~ advise City Council any and all matters concerning the use, enjoyment, conservation of the, rivers and streams in the City and its environs and the open space adjacent thereto, including water quality issues, the protection of valuable riparian ecosystems, and water rights matters.
  - (2) To advise the City Council on public access to and use of rivers and streams in the City and the adjacent environs and maintain and update a map related thereto as necessary.
  - (3) To advise the City Council on the use of municipally owned property adjacent to the rivers and City construction projects in the rivers or adjacent open space.

- (4) To promote and celebrate riverfront cleanup efforts and public awareness of non-point source water pollution.
- ~~(5) To investigate, study and report to the City Council on grants, donations and other forms of funding to assist in the acquisition and improvement of the rivers and adjacent open space, and to otherwise advise the City Council on budgetary needs related to preservation of open space and river improvement.~~
- ~~(6) To appoint subcommittees as necessary to carry out the foregoing functions.~~
- (7) To coordinate with the Parks and Recreation Commission, Roaring Fork Conservancy, Middle Colorado Watershed Council, and other organizations, stakeholders groups, and property owners as is necessary to carry out the foregoing functions.
- (8) At the request of City Council hold an annual work session with the City Council to review the actions taken by the River Commission regarding the foregoing functions and discuss future plans.

(h) ~~*Powers and duties of the Victim's and Witnesses Assistance and Law Enforcement Board.*~~

*[no changes to remaining text regarding powers and duties of the Victim's and Witnesses Assistance and Law Enforcement Board]*

\*\*\*\*

(i) ~~*Powers and duties of Transportation Commission.*~~ The powers and duties of the Transportation Commission shall be:

- ~~(1) To investigate, study and report to the City Council any and all matters concerning transportation issues which directly affect the City.~~
- ~~(2) To investigate, study and report to the City Council on other intergovernmental committees, boards or commissions working on transportation issues in the Tri-County (Pitkin, Garfield and Eagle) area.~~
- ~~(3) To meet with the City Council on an annual basis to identify which transportation issues require priority attention.~~
- ~~(4) To investigate, study and report to the City Council on grants, donations and other forms of funding to assist in meeting the transportation needs of the City.~~
- ~~(5) To perform functions concerning oversight of transportation issues or functions as delegated by the City Council.~~
- ~~(6) To appoint subcommittees as necessary to carry out the foregoing functions subject to the approval of the City Council.~~
- (1) To advise and assist the City Manager or their designee concerning transportation matters.
- (2) Such other duties as may be requested by the City Council.
- (3) To meet annually with the City Council to have Council set the Commission's goals and priorities for the year.

\*\*\*\*

- (k) ~~*Powers and duties of Glenwood Springs Housing Commission.*~~ The powers and duties of the Housing Commission shall be:
- ~~(1) To investigate, study and report to the City Council any and all matters concerning housing issues which directly affect the City, including the preparation of a Comprehensive Housing Affordability Strategy (CHAS).~~
  - ~~(2) To assist City Council in defining the nature and scope of housing opportunities in the City.~~
  - ~~(3) To meet with the City Council on an annual basis to identify which housing issues require priority attention.~~
  - ~~(4) To investigate, study and report to the City Council on grants, donations and other forms of funding to assist in meeting the housing needs of the City.~~
  - ~~(5) To perform functions concerning oversight of housing issues or functions as delegated by the City Council, including monitoring the implementation of activities as described in the CHAS.~~
  - ~~(6) To appoint subcommittees as necessary to carry out the foregoing functions subject to the approval of the City Council.~~
- (1) To advise and assist the City Manager or their designee concerning housing matters.
  - (2) Such other duties as may be requested by the City Council.
  - (3) To meet annually with the City Council to have Council set the Commission's goals and priorities for the year.
- (l) ~~*Powers and duties of Historic Preservation Commission.*~~ The powers and duties of the Historic Preservation Commission shall be:
- ~~(1) To recommend to City Council methods for the protection and preservation of the City's historic and cultural heritage, including, but not limited to, the designation of historic landmarks and districts by appropriate regulations.~~
  - ~~(2) To recommend to City Council methods for enhancing property values and the stabilization of historic neighborhoods.~~
  - ~~(3) To recommend to City Council methods for increasing economic and financial benefits, including, but not limited to, City attractions.~~
  - ~~(4) To provide educational opportunities to increase public appreciation of the City's unique heritage.~~
  - ~~(5) To do any other tasks related to the historic preservation of resources in the community of Glenwood Springs.~~
- (1) To advise and assist the City Manager or their designee concerning historic preservation matters.
  - (2) Such other duties as may be requested by the City Council.
  - (3) To meet annually with the City Council to have Council set the Commission's goals and priorities for the year.
- (m) ~~*Powers and duties of Tourism Promotion Board.*~~ The powers and duties of the Tourism Promotion Board shall be:

*[no changes to remaining text regarding powers and duties of the Tourism Promotion Board]*



**City Council**  
**STAFF REPORT**  
**City of Glenwood Springs**  
**September 2, 2021**

**Agenda Item:** Planning File 58-20-Consideration of a Major Site Architectural Plan review for the construction of a 36-unit multifamily building.

**Action Requested:**

|                              |                                                                                                                 |
|------------------------------|-----------------------------------------------------------------------------------------------------------------|
| <b>REQUEST</b>               | Consideration of a Major Site Architectural Plan review for the construction of a 36-unit multifamily building. |
| <b>APPLICANT</b>             | Stoneleigh Companies LLC                                                                                        |
| <b>OWNER</b>                 | Weingarten Miller Glenwood LLC                                                                                  |
| <b>LOCATION</b>              | 405 E Meadows Drive                                                                                             |
| <b>ZONE</b>                  | M2                                                                                                              |
| <b>SURROUNDING LAND USES</b> | Commercial, High Density Residential                                                                            |
| <b>LOT SIZE</b>              | 1 acre                                                                                                          |

**Department:** Planning Department

**Presented By:** Hannah Klausman, Assistant Director, Economic & Community Development

**Background Info:** The proposed development includes the construction of 36 multi-family units in a four-story (with a lower level parking garage) building located on the north side of Wulfsohn Road in Glenwood Meadows immediately to the east of Lofts Phase III which is currently being constructed. This project is the fourth phase and the 7th building of the Lofts multi-family apartments complex. The proposed development includes the review and consideration of the following:

1. Major Site/Architectural Plan Review for the construction of 36 multi-family units;
2. Variance from the Glenwood Meadows Zoning and Development Plan (GMZDP);
3. Special Use Permit to exceed the maximum 40 foot building height in the central core M2 zoning district.

Per Section 070.060.020/Table 060.1 of the Glenwood Springs Municipal Code (Code), the Planning and Zoning Commission (Commission) reviews and provides a recommendation to City Council for all Major Site/Architectural Plan review applications which include 25 or more new dwelling units and/or more than 30,000 gross square feet of nonresidential space. License to Encroach applications are reviewed solely by City Council. The Commission reviews and decides all Special Use Permit and Variance requests and voted unanimously 7-0 to approve the former and 4-3 to approve the latter on July 27, 2021.

For a complete summary and analysis of the proposed project, please refer to the attached Commission July 27, 2021 staff report and draft minutes, reviewing agency comments, and application materials associated with the current proposal.

**Issues:**

**Planning and Zoning Commission Discussion**

The Commission discussed various issues related to the current proposal such as building length and height impact, whether the applicant had considered deed restricting a percentage of units, and tenant demography from past Lofts phases. The bulk of the conversation centered around the variance request to exceed maximum building length of 125 feet outlined in Section V.D.3.c of the GMZDP, and the Special Use request to exceed the 40 foot building height maximum in the M2 Mixed



Use Central Core zoning district.

**Staff Recommendation:** **Action Alternatives**

Section 070.060.030(g)(1)d of the Code outlines the review and decision procedures for applications being considered by City Council stating, "The applicable review body shall approve, approve with conditions, or deny the application based on the applicable approval criteria listed in the application specific procedures. The body may also continue the hearing or refer the application to another authority as provided in 070.060.050(a)(2)c, Referral and Call- Up Procedures."

A City Council list of motions is included as the final attachment to this report.

Action 1 - Major Site/Architectural Plan to allow for the construction of a 36 unit multi family apartment building.

**Planning and Zoning Commission Recommendation**

After discussing the various issues outlined above, the Commission voted 5-2 to recommend approval of the Major Site Architectural Plan to City Council.

Staff recommends approval of the Major Site/Arch Plan with findings and conditions below:

**Recommended Findings:**

1. The site/architectural plan is consistent with general purpose and intent of the Code;
2. The site/architectural plan is consistent with dimensional, design, development, and all other standards of this Code;
3. The site/architectural plan is not in conflict with precedent land use approvals; and
4. The site/architectural plan is consistent with goals and objectives of the Comprehensive Plan.

**Suggested Conditions:**

1. The development shall comply with the requirements of the Code. Any future physical changes or improvements to the property or buildings are subject to the review and approval of the Community Development Director for compliance with applicable requirements of the Glenwood Springs Municipal Code.
2. The owner shall comply with all verbal representations made in the public hearings, as outlined in all application materials, and/or as revised per conditions herein and approved by the Community Development Director.
3. Irrigation shall be provided for a minimum of one year for the native seed area of the future pad site in order to establish the landscaping.
4. Prior to submitting a building and/or grading permit application, the owner shall -
  1. Submit a Final Plans application in accordance with Municipal Code section 070.060.050(c).
    2. Provide plans for all 2023 recommended improvements as indicated in the Traffic Study.
    3. Include design for a 4-way stop at the intersection of Wulfsohn and East Meadows.
    4. Submit an Engineer's Estimate of all public improvements and provide security for completing said improvements per requirements of the Engineering Standards.
    5. Enter into a Development Agreement that memorializes the development approvals.
    5. At the time of Construction Plans review the owner shall submit all required civil and architectural plans and related reports that demonstrate compliance with Code requirements and the Engineering Standards, including applicable comments provided by the City's Engineering Department in a memo dated April 30, 2021.
  6. Prior to issuance of the building permit, the owner shall pay all required system improvement fees including but not limited to water, sewer, parkland, school land, and

Fire/EMS.

7. Developer shall pay a surcharge of \$814/EQR to offset the costs of necessary lift station upgrades to accommodate the development.
8. Prior to issuance of the Certificate of Occupancy, owner shall
1. Provide as-built plans and an Improvement Survey Plat per the Engineering Standards.

**Glenwood Springs Office**  
901 Grand Avenue, Suite 201  
Glenwood Springs, Colorado 81601  
Telephone (970) 947-1936  
Facsimile (970) 947-1937

**GARFIELD & HECHT, P.C.**

ATTORNEYS AT LAW  
Since 1975

[www.garfieldhecht.com](http://www.garfieldhecht.com)

Haley Carmer  
[hcarmer@garfieldhecht.com](mailto:hcarmer@garfieldhecht.com)

August 17, 2021

**VIA E-MAIL**

Karl Hanlon, City Attorney  
City of Glenwood Springs  
E-mail: [kjh@mountainlawfirm.com](mailto:kjh@mountainlawfirm.com)

RE: Stoneleigh Companies – Lofts at Red Mountain Phase IV Application

Dear Karl:

As you know, we represent Stoneleigh Companies, LLC (“Stoneleigh”). Stoneleigh submitted a major site architectural review application (the “Application”) and related special use permit and variance applications concerning the fourth phase of the Lofts at Red Mountain development in Glenwood Meadows. The Planning and Zoning Commission considered the Application at its June 22 and July 27, 2021, meetings and recommend approval. It also approved the special use permit and variance. The Commission’s recommendation on the Application included a condition that Stoneleigh design and construct the 2023 traffic improvements recommended in Stoneleigh’s traffic study. The same condition appears in the staff report to City Council. As we’ve discussed, Stoneleigh will be requesting that City Council, at a minimum, replace that condition with one requiring payment of traffic impact fee of up to \$500 per unit consistent with the Memorandum of Understanding (“MOU”) the City recently reached with Glenwood Meadows, LLC (“GM”). A copy of the MOU is enclosed for ease of reference.

The basis for Stoneleigh’s request is three-fold. First and foremost, the Annexation and Development Agreement (“ADA”) for the Glenwood Meadows PUD (the “PUD”) established the full extent of on- and off-site traffic improvements required for development of the PUD. Specifically, Section 3(a)(1) of the ADA provides that, through the ADA, the City and the original developer “established the full and complete obligations. . .with respect to on-site and off-site traffic/transportation improvements and financial contributions as set forth by Section 12.” The traffic improvements described in Section 12 of the ADA have been constructed or otherwise addressed since the ADA was approved in 2002. Additionally, Section 12(a) of the ADA contemplates only that traffic counts associated with the future development of a lot or parcel in the PUD be submitted at the time of development,<sup>1</sup> not that any new traffic improvements be made.

---

<sup>1</sup> While Stoneleigh requested a variance to allow the proposed building to be 15 feet longer than maximum allowed under the PUD development standards, the additional length was added to accommodate the underground parking garage, terrace, and other amenities for Lofts residents, not the desired number of units. In any event, the request for a variance doesn’t alter or expand the ADA’s traffic infrastructure requirements.

Seeing as the City and Stoneleigh's predecessor previously negotiated the extent of the traffic improvements that would be required for full buildout of the PUD, the Application should not be conditioned upon the construction of additional improvements.

Second, requiring a per-unit traffic impact fee would be a more consistent and more fair condition considering the City's recent agreement with GM. As explained in the MOU, if residential development is approved on GM's retained lots, an impact fee of up to \$500 will be assessed against each permitted unit. Those fees would be used to fund the traffic improvements recommended in the City's 2021 Glenwood Meadows area traffic study. While Stoneleigh does not concede that even a traffic impact fee is appropriate against its development in light of the provisions of the ADA and the City's interpretation of the same, Stoneleigh is willing to pay those fees in lieu of constructing new traffic improvements for the sake of consistency within the PUD. Stoneleigh believes that all future development in the PUD should be treated the same,<sup>2</sup> and, in this case, that means payment of impact fees, not construction of improvements.

Finally, the cost to design and construct the improvements is disproportionate to the infrastructure impact costs that may be associated with the proposed residential use. The traffic study included in the Application addresses the projected traffic associated with both the proposed residential and conceivable commercial<sup>3</sup> uses for the subject property. It is clear from the study that the majority of the future traffic is associated with the commercial use, not the residential units. Moreover, regardless of whether the 36 residential units independently trigger the need for the recommended improvements, Stoneleigh's engineer has advised that the units will contribute just 7% of the peak hour traffic (only 3 car trips) at the point in time (2023) when the improvements may be needed. To require Stoneleigh to pay the full cost of the recommended traffic improvements when its development would only contribute 7% of the traffic using the improvements is far out of proportion to the burdens created by the development. *See* C.R.S. 29-20-203(1). *Dolan v. City of Tigard*, 512 U.S. 374 (1994) (an exaction must have a rational nexus and be "related both in nature and extent to the impact of the proposed development...").

Stoneleigh has enjoyed working with the City to date and is not opposed to mitigating the impact of its proposed development on City infrastructure. Stoneleigh simply wishes to contribute on a fair and proportionate basis in a manner consistent with governing law and future development in other areas of the PUD. We look forward to discussing this matter further with City Council at the August 19, 2021, hearing. Thank you.

Sincerely,



Haley Carmer

---

<sup>2</sup> Notably, while the City was negotiating the MOU, Stoneleigh requested by letter dated April 22, 2021, that it be included in any negotiation and resolution of the dispute that culminated in the MOU.

<sup>3</sup> In addition to the development of 36 residential units, the Application proposes setting aside a 6,000 square-foot pad at the north end of the lot for future commercial development. There are no immediate plans or anticipated uses for the commercial pad. The impacts of the commercial use will be addressed at the time it is developed.

**MEMORANDUM OF UNDERSTANDING  
REGARDING RESIDENTIAL DEVELOPMENT WITHIN RH DISTRICT OF  
GLENWOOD MEADOWS**

The following Memorandum of Understanding ("MOU" or "Agreement") sets forth the terms and conditions upon which the City of Glenwood Springs, Colorado, a Colorado municipal corporation (the "City") and Glenwood Meadows, LLC, a Colorado limited liability company ("GM") agree to resolve certain infrastructure issues related to future development in Glenwood Meadows as related to future development on lots retained by GM.

**RECITALS**

WHEREAS, GM originally annexed approximately three hundred and forty-five (345) acres of real property within the City of Glenwood Springs, which Property is commonly known as "Glenwood Meadows" pursuant to that certain Ordinance No. 17, Series of 2002, and Ordinance No. 18, Series of 2002; and

WHEREAS, on September 18, 2002, the City and Owner entered into an Annexation and Development Agreement to set forth their agreements in writing concerning the terms and conditions of annexation of the Property to the City, the zoning of the Property under the City's Municipal Code and the adopted and incorporated Zoning and Development Plan, as well as the other conditions of the development of the Property, which Annexation and Development Agreement was recorded in the records of the Garfield County Clerk and Recorder on December 6, 2002 as Reception No. 616083 (the "Original ADA"); and

WHEREAS, the City and Owner have since entered into: (i) the First Amendment to the Original ADA, which First Amendment was recorded May 6, 2004, as Reception No. 651648, and (ii) the Second Amendment to the Original ADA, which Second Amendment was recorded July 26, 2004 as Reception No. 656670, and (iii) the Third Amendment to the Original ADA, which Third Amendment was recorded December 2, 2010 as Reception No. 795138, and (iv) the Amended and Restated Third Amendment to the Original ADA, which Amended and Restated Third Amendment was recorded August 16, 2011 as Reception No. 806719; (v) the Fourth Amendment to the Original ADA, recorded April 10, 2015 as Reception No. 861345; (the Original ADA, together with all subsequent, recorded amendments thereto is hereafter referenced to as the "ADA"); and

WHEREAS, the City and Owner entered into a Memorandum of Understanding dated July 16, 2013; and

WHEREAS, Glenwood Meadows, LLC is the present owner of certain vacant, undeveloped lots within Glenwood Meadows: (i) Lots 12 and 13 of GM #2 Plat; (ii) Lot 10C of GM #3 Plat; (iii) Lot 11C-B of GM #6 Plat; and (vi) Lot 11C-C of GM #6 Plat (collectively, "GM Retained Lots"); and

WHEREAS, BLD Group, LLC is under contract to purchase portions of Lot 11C-B and 11C-C of GM #6 Plat and has submitted a Major Architectural Review and Minor Subdivision Application with the City of Glenwood Springs on December 29, 2020 and January 26, 2021 respectively (the "Applications"); and

WHEREAS; on March 1, 2021 the City's Assistant City Manager issued a letter to BLD and GM ("Interpretation Letter") that the City is unable to process the Applications because it would exceed the residential unit limits established for the Glenwood Meadows Development based on the City's interpretation of the ADA, as amended; and

WHEREAS, BLD and GM dispute such interpretation, but have agreed to enter into this MOU to resolve the difference of opinion and to expedite the processing of the Applications.

## **AGREEMENT**

**1. Contribution Towards Lift Station Upgrades.** In the event BLD's Applications are approved for at least 300 multi-family units and BLD or its successor is issued a building permit pursuant to such approvals, GM will, in addition to City standard system improvement fees including Sewer System Improvement fees, make a payment of \$475,000 to the City at the time of issuance of a building permit which funds shall be used directly for the necessary upgrade of the Midland Sewer lift station to an estimated capacity sufficient to serve all future development within all of Glenwood Meadows. The parties agree that this contribution represents 50% of the estimated costs to upgrade the lift station to such capacity and that the City will fund the balance of the actual costs required and commits to completion of the necessary lift station upgrades and any other necessary sewer system work prior to BLD's request for a certificate of occupancy. In the event the costs required to upgrade the lift station are less than \$950,000, the City shall promptly reimburse GM's pro rata for its excess contribution. In the event such costs exceed \$950,000, GM shall not be required to contribute any additional funds.

**2. Cost Reimbursement.** GM shall be entitled to cost recovery from any future impact or other fees paid by any future development within Glenwood Meadows, including on the GM Retained Lots, at a rate of \$814 per EQR which amount shall increase annually with CPI. The City shall make payment to GM at the time a building permit is issued for such development. This obligation shall expire 20 years after the GM payment.

**3. Traffic Impact Fee.** In the event BLD's application and/or other residential development is approved on GM's Lot 12 of GM #2, Plat Lot 11C-B and/or Lot 11C-C of GM #6 Plat and a building permit is issued for the same, GM will fund an equitable share attributable to 415 additional residential units pursuant to the City's 2021 Glenwood Meadows area traffic study of improving Glenwood Meadows' Midland Avenue intersections, not to exceed \$500.00 per fully permitted residential unit. Such funding will occur at the later of issuance of a building permit or at time the City contracts for design of such intersection improvements.

**4. Interpretation of ADA.** The City agrees that, upon the execution of this Agreement, its interpretation of the ADA is that the ADA remains in full force and effect, including but not limited to Section I. A. of the Fourth Amendment to the Original ADA, recorded April 10, 2015 as Reception No. 861345 and therefore 415 additional residential units,

of which 300 may be commercial apartments, are permitted within the RH zoned Lot 12 of GM #2 and Lot 11C-B and Lot 11C-C of GM #6 Plat and these 415 residential units, of which 300 may be commercial apartments, are independent of residential development completed or permitted on other lots and zone districts within Glenwood Meadows, the capacity of which is defined by the zoning of such lots. City agrees that this interpretation shall be binding upon the City for future applications within the GM Retained Lots.

**5. Withdrawal of Interpretation.** Concurrent with execution of this MOU, the City formally withdraws the Interpretation Letter and shall continue to or begin formally processing the Applications, and any other heretofore submitted Glenwood Meadows development applications, pursuant to the City's standard development review process. GM and BLD shall request a continuance of their appeal of the Interpretation Letter and the Planning and Zoning Commission Appeal hearing scheduled for May 10, 2021. Upon ratification of this Agreement by City Council, GM and BLD shall formally withdraw their appeal and cancel the agenda item. The parties understand that the City cannot guarantee approval of the Applications or other pending development applications, but rather such applications shall be subject to the approval of City Council according to the criteria set forth in the Glenwood Springs Land Use Code.

**6. Contingency.** The Paragraph 1 Contribution and Paragraph 2 Cost Reimbursement of this Agreement is contingent upon approval of the Applications for at least 300 multi-family units. In the event the Applications are withdrawn, denied, or approved but the Final Plat is never recorded, or approved but such approvals expire, and no building permit and corresponding payment is made, then Paragraph 1 Contribution and Paragraph 2 Cost Reimbursement provision of this Agreement shall be null and void and terminate automatically. In the event any building permits for any other residential units are issued for all or portions of RH zoned Lot 12 of GM #2 and Lot 11C-B and Lot 11C-C of GM #6 Plat, such residential units shall, in addition to City standard Sewer System Improvement fees, fund Lift Station improvements at a rate \$814 per EQR, which amount shall increase annually with CPI.

**7. No Further Exactions.** Consistent with Paragraph 3(a) of the ADA, The City shall not charge any future impact fee, surcharge, special permit fees, special taxes or assessments, development fees or tap fees, or any other item against the GM Retained Lots unless the same is exacted uniformly and non-discriminatorily throughout the City, except as otherwise set forth in this MOU.

**8. Recordation of Final Agreement.** The terms of this Agreement shall be memorialized in a written agreement between GM, or its successor owners, recorded against all of the GM Retained Lots within the RH zone - Lot 12 of GM #2, Lot 11C-B and Lot 11C-C of GM #6 Plat. Such recordation shall occur at the time a Subdivision Improvements or Development Agreement is recorded.

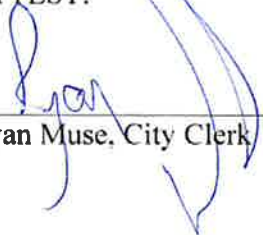
**9. Ratification.** This MOU shall be presented for ratification by the City Council on the next meeting following execution. In the event this MOU is not ratified by the City Council by May 21, 2021, this Agreement shall be null and void.

Executed this 6<sup>th</sup> day of May 2021.

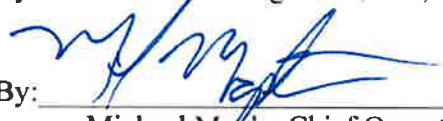
CITY OF GLENWOOD SPRINGS, COLORADO

By:   
Debra Figueroa, City Manager

ATTEST:

  
Ryan Muse, City Clerk

GLENWOOD MEADOWS, LLC,  
a Colorado limited liability company  
By: Dunrene Management, Inc., Manager

By:   
Michael Maple, Chief Operating Officer





## LAND USE APPLICATION

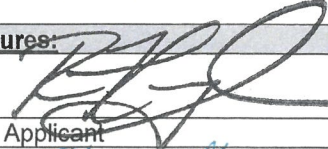
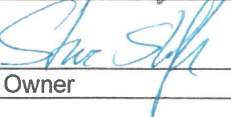
City of Glenwood Springs  
Economic and Community Development Dept.  
101 West 8<sup>th</sup> Street  
Glenwood Springs, CO 81601  
970-384-6411

| Ordinance Amendments               |                                            | Development Permits                      |                                   |
|------------------------------------|--------------------------------------------|------------------------------------------|-----------------------------------|
| <input type="checkbox"/>           | Rezoning                                   | <input type="checkbox"/>                 | Site/Architectural Plan Review    |
| <input type="checkbox"/>           | Rezoning to Planned Unit Development (PUD) | <input type="checkbox"/>                 | Administrative                    |
| <input type="checkbox"/>           | Annexation                                 | <input type="checkbox"/>                 | Minor                             |
| <input type="checkbox"/>           | Condominiumization                         | <input checked="" type="checkbox"/>      | Major                             |
| <input type="checkbox"/>           | Annexation                                 | <input type="checkbox"/>                 | Master Plan                       |
| <input type="checkbox"/>           | Street Vacation                            | <input type="checkbox"/>                 | Construction Plans                |
| <input type="checkbox"/>           |                                            | <input type="checkbox"/>                 | Location & Extent                 |
| <b>Subdivisions</b>                |                                            | <input type="checkbox"/>                 | Right of Way Encroachment License |
| <input type="checkbox"/>           | Minor Subdivision                          | <input type="checkbox"/>                 | Floodplain Development Permit     |
| <input type="checkbox"/>           | Preliminary Plat                           | <input type="checkbox"/>                 | Special Use Permit                |
| <input type="checkbox"/>           | Final Plat                                 | <b>Flexibility and Relief Procedures</b> |                                   |
| <input type="checkbox"/>           | Vacation of Right-of-Way                   | <input type="checkbox"/>                 | Variance                          |
| <input type="checkbox"/>           |                                            | <input type="checkbox"/>                 | Administrative Adjustment         |
| <b>Other Land Use Applications</b> |                                            | <input type="checkbox"/>                 | Appeal                            |
| <input type="checkbox"/>           | Outdoor Seating                            | <input type="checkbox"/>                 |                                   |

| Applicant/Property Owner Information: |                                            |                                 |                                      |
|---------------------------------------|--------------------------------------------|---------------------------------|--------------------------------------|
| Applicant                             |                                            | Owner                           |                                      |
| STONELEIGH COMPANIES, LLC             |                                            | WEINGARTEN MILLER GLENWOOD, LLC |                                      |
| Relationship to Owner                 |                                            | Owner                           |                                      |
| PURCHASER                             |                                            | STEVEN SHOFICK                  |                                      |
| Applicant Address                     |                                            | Owner Address                   |                                      |
| 760 W MAIN STREET, STE 140            | Barrington, IL 60010                       | 6900 E. Belleview Ave. Ste 300  | Greenwood Village, CO 80111          |
| Phone 224-588-9556                    | Email Address arodriguez@stoneleighcos.com | Phone 303-996-1328              | Email Address sshoflick@millerre.com |

| Property Information: |                                                                           |
|-----------------------|---------------------------------------------------------------------------|
| Address               | Parcel Number                                                             |
| 405 E Meadows Drive   | 218508138008                                                              |
| Subdivision           | Lot and Block Number                                                      |
| Glenwood Meadows No 2 | Section: 8 Township: 6 Range: 89 Subdivision: Glenwood Meadows No 2 Lot 8 |
| Zone District M2      | Existing Land Use Vacant                                                  |

| General Project Description:                                                                                                                                                                                                                                                                                                                                                                       |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Phase IV of the Lofts at Red Mountain. Adjacent to Phase III, construction will consist of a 4 story, 1 building structure of 36 for rent units above a 1 story parking garage with 19 stalls. Phase III and IV will be separated by a raised amenity deck which is proposed to include a swimming pool. Phase IV will also include a retail outparcel up to 6,000 sq. ft. with 30 parking stalls. |

| Signatures:                                                                                                                                                                                                                                                                                                                                |                                                                                                                                                                                                     |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| The owner or applicant must be present at the hearing. All public hearings must be properly noticed according to G.S.M.C. Section 070.010.030. Signatures of all owners of the property must appear before the application is accepted. Partnerships or corporations may have the authorized general partner or corporate officer sign the | <div>  </div> <div>  </div> |
| Applicant                                                                                                                                                                                                                                                                                                                                  | Date 2/24/2021                                                                                                                                                                                      |
| Owner                                                                                                                                                                                                                                                                                                                                      | Date 2/24/2021                                                                                                                                                                                      |



657443 08/09/2004 08:58A B1611 P534 M ALSDORF  
1 of 4 R 21.00 D 468.00 GARFIELD COUNTY CO

**SPECIAL WARRANTY DEED**

[STATUTORY FORM – C.R.S. § 38-30-115]

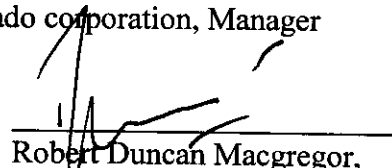
GLENWOOD MEADOWS WMG, LLC, a Colorado limited liability company (“Grantor”), whose street address is 1315 Sage Court, Aspen, Colorado, 81611, for TEN DOLLARS (\$10.00) and other good and valuable consideration, in hand paid, hereby sells and conveys to WEINGARTEN MILLER GLENWOOD, LLC, a Colorado limited liability Company (“Grantee”), whose address is 850 Englewood Parkway, Suite 200, Englewood, Colorado 80110-2304, the real property in the County of Garfield and State of Colorado that is legally described on Exhibit A attached hereto, with all its appurtenances and warrants the title against all persons claiming under Grantor, subject to the matters set forth on Exhibit B attached hereto.

Signed as of this 6 day of August, 2004.

GLENWOOD MEADOWS WMG, a Colorado  
limited liability company

By: Glenwood Meadows, LLC, a Colorado  
limited liability company, its sole member

By: Dunrene Management, Inc., a  
Colorado corporation, Manager

By:   
Robert Duncan Macgregor,  
President

**[ACKNOWLEDGEMENT ON FOLLOWING PAGE]**



657443 08/09/2004 08:58A B1611 P535 M ALSDORF  
2 of 4 R 21.00 D 468.00 GARFIELD COUNTY CO

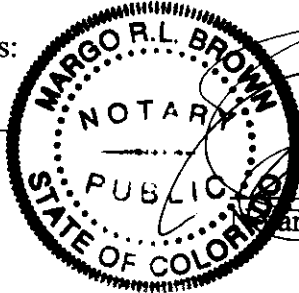
STATE OF COLORADO )  
CITY AND )  
COUNTY OF DENVER )

The foregoing instrument was acknowledged before me this 6<sup>th</sup> day of AUGUST, 2004, by Robert Duncan Macgregor, as President of Dunrene Management, Inc., a Colorado corporation, Manager of Glenwood Meadows, LLC, a Colorado limited liability company, sole Member of Glenwood Meadows WMG, a Colorado limited liability company.

Witness my hand and official seal.

My commission expires:

12-3-07





657443 08/09/2004 08:58A B1611 P536 M ALSDORF  
3 of 4 R 21.00 D 468.00 GARFIELD COUNTY CO

EXHIBIT A

LEGAL DESCRIPTION

PARCEL A:

LOT 1, GLENWOOD MEADOWS NO. 2, AS RECORDED 8-9-04 UNDER  
RECEPTION NO. 657439, CITY OF GLENWOOD SPRINGS, COUNTY OF  
GARFIELD, STATE OF COLORADO.

PARCEL B:

LOTS 2 THROUGH 6, 8 AND 9, GLENWOOD MEADOWS NO. 2, AS RECORDED  
8-9-04 UNDER RECEPTION NO. 657439, CITY OF  
GLENWOOD SPRINGS, COUNTY OF GARFIELD, STATE OF COLORADO.



**EXHIBIT B**

**PERMITTED ENCUMBRANCES**

1. TAXES AND ASSESSMENTS FOR THE YEAR 2004 AND SUBSEQUENT YEARS, A LIEN NOT YET DUE AND PAYABLE.
2. RIGHT OF PROPRIETOR OF A VEIN OR LODE TO EXTRACT AND REMOVE HIS ORE THEREFROM SHOULD THE SAME BE FOUND TO PENETRATE OR INTERSECT THE PREMISES AS RESERVED IN UNITED STATES PATENT RECORDED SEPTEMBER 30, 1949, IN BOOK 245 AT PAGE 268.
3. RIGHT OF PROPRIETOR OF A VEIN OR LODE TO EXTRACT AND REMOVE HIS ORE THEREFROM SHOULD THE SAME BE FOUND TO PENETRATE OR INTERSECT THE PREMISES AS RESERVED IN UNITED STATES PATENT RECORDED SEPTEMBER 30, 1949, IN BOOK 245 AT PAGE 269.
4. RIGHT OF PROPRIETOR OF A VEIN OR LODE TO EXTRACT AND REMOVE HIS ORE THEREFROM SHOULD THE SAME BE FOUND TO PENETRATE OR INTERSECT THE PREMISES AS RESERVED IN UNITED STATES PATENT RECORDED SEPTEMBER 30, 1949, IN BOOK 245 AT PAGE 270.
5. EASEMENTS AND RIGHTS OF WAY AS GRANTED TO THE MOUNTAIN STATES TELEPHONE AND TELEGRAPH COMPANY IN INSTRUMENTS RECORDED JUNE 25, 1936 IN BOOK 183 AT PAGE 430.
6. EASEMENT AS GRANTED TO ROCKY MOUNTAIN NATURAL GAS COMPANY, INC., IN INSTRUMENT RECORDED JANUARY 31, 1962 IN BOOK 339 AT PAGE 88.
7. TERMS, CONDITIONS AND PROVISIONS OF RIGHT OF WAY ACQUISITION AGREEMENT RECORDED SEPTEMBER 26, 1994 IN BOOK 916 AT PAGE 864.
8. TERMS, CONDITIONS AND PROVISIONS OF ANNEXATION AGREEMENT RECORDED DECEMBER 21, 2002 IN BOOK 1414 AT PAGE 526 AND AMENDED MAY 6, 2004 IN BOOK 1585 AT PAGE 438 AND SECOND AMENDMENT RECORDED IN BOOK 1607 AT PAGE 895.
9. EASEMENTS, NOTES, AND RESTRICTIONS AS SHOWN ON THE PLAT FOR GLENWOOD MEADOWS NO. 1, RECORDED 8-9-04 UNDER RECEPTION NO. 657438.
10. EASEMENTS, NOTES, AND RESTRICTIONS AS SHOWN ON THE PLAT FOR GLENWOOD MEADOWS NO. 2, RECORDED 8-9-04 UNDER RECEPTION NO. 657439.

From: support@www.colorado.gov <support@www.colorado.gov>

Sent: Wednesday, February 24, 2021 12:11 PM

Subject: City of Glenwood Springs Receipt

## Payment Receipt Confirmation

Your payment was successfully processed.

### Transaction Summary

| Description                          | Amount     |
|--------------------------------------|------------|
| City of Glenwood Springs Transaction | \$3,200.00 |
| Service Fee                          | \$1.00     |
| TOTAL                                | \$3,201.00 |

### Transaction Detail

The following amounts will be remitted back to the agency.

| SKU      | Description | Unit Price | Quantity | Amount     |
|----------|-------------|------------|----------|------------|
| Planning | Planning    | \$3,200.00 | 1        | \$3,200.00 |
|          | Service Fee | \$1.00     |          | \$1.00     |
|          |             |            |          | \$3,201.00 |

This online service is provided by a 3rd party working in partnership with the state of Colorado. The price includes a service fee of \$.75 plus 2.25% of the order total for credit card payments or \$1 for electronic check payments.

### Customer Information

**Customer Name** Anthony Rodriguez  
**Company Name** Glenwood IV in care of  
Stoneleigh Companies  
**Local Reference ID** bcbcd244-4e2e-4ff9-99e8-  
0db94ba0a56b  
**Receipt Date** 2/24/2021  
**Receipt Time** 11:10:53 AM MST

### Payment Information

**Payment Type** Electronic Check  
**Account Number** \*\*\*\*\*8736  
**Order ID** 161579440  
**Billing Name** Stoneleigh Companies

### Billing Information

**Billing Address** 760 W Main Street Suite  
140  
**Billing City, State** Barrington, IL  
**ZIP/Postal Code** 60010  
**Country** US  
**Phone Number** 2245889556

This receipt has been emailed to the address  
below.

**Email Address** [arodriguez@stoneleighcos.com](mailto:arodriguez@stoneleighcos.com)



CITY OF GLENWOOD SPRINGS  
101 W. 8th Street  
Glenwood Springs, CO 81601  
(970) 384-6411

## PAYMENT REQUEST

Date: \_\_\_\_\_  
Name: Bob Moore  
Address: 909 Lake Carolyn Parkway, Suite 150  
Irving, Texas 75039  
BMoore@RealtyCapital.com  
469-533-4100 – Main  
469-533-4142 – Direct

Received By: \_\_\_\_\_  
Company: Realty Capital Management  
Permit #: \_\_\_\_\_  
Plan Review #: \_\_\_\_\_  
Contractor #: \_\_\_\_\_  
Planning Item: #58-20

| Amount | <u>Engineering</u>         |
|--------|----------------------------|
| _____  | 01.1410 Maps               |
| _____  | 01.1410 Plans/Specs        |
| _____  | 01.1410 Excavation/Grading |
| _____  | 01.1410 ROW Permit         |
| _____  | TBD Block Party Permit     |

|       | <u>Building</u>                  |
|-------|----------------------------------|
| _____ | 01.1240 Building Permit          |
| _____ | 01.1240 Plan Review              |
| _____ | 01.1240 Roofing Permit           |
| _____ | 01.1240 Plumbing/Gas Permit      |
| _____ | 01.1240 Mechanical Permit        |
| _____ | 01.1240 Demolition/Moved Bldg    |
| _____ | 21.4758 Water Imp. Fee           |
| _____ | 21.4759 Sewer Imp. Fee           |
| _____ | 01.1240 PV Solar                 |
| _____ | 01.1240 Window Replacement       |
| _____ | 21.2160 Water Meter/ Size _____  |
| _____ | 01.1140 Use Tax                  |
| _____ | 01.0479 TCO Deposit (Refundable) |
| _____ | 01.1240 TCO Fee (Non-refundable) |
| _____ | 31.2250 Parkland Dedication Fee  |
| _____ | 01.0404 School Land Dedication   |
| _____ | 01.1200 Contractor's License Fee |
| _____ | 01.1200 Contractor's Testing Fee |
| _____ | 70.1400 FIRE IMPACT FEE          |
| _____ | 01.1240 Change of Use            |
| _____ | 01.3345 Sidewalk Fee-in-lieu     |
| _____ | 01.3346 Parking Fee in lieu      |

| Amount | <u>Miscellaneous</u>     |
|--------|--------------------------|
| _____  | 01.1240 Reinspection Fee |
| _____  | 01.3130 Copies           |
| _____  | 01.0407 Sales Tax        |
| _____  | Other: Explain           |
| _____  |                          |

| Amount | <u>Planning</u>                       |
|--------|---------------------------------------|
| _____  | 01.1415 Rezoning                      |
| _____  | 01.1415 Rezoning to PUD               |
| _____  | 01.1415 PUD Plan Amendment            |
| _____  | 01.1415 Annexation-Enclave            |
| _____  | 01.1415 Annexation-Non-Enclave        |
| _____  | 01.1415 Site/Arch Plan-Administrative |
| _____  | 01.1415 Site/Arch Plan-Minor          |
| _____  | 01.1415 Site/Arch Plan-Major          |
| _____  | 01.1415 Master Plan                   |
| _____  | 01.1415 Construction Plans            |
| _____  | 01.1415 Special Use Permit            |
| _____  | 01.1415 Special Use Permit-Amend      |
| _____  | 01.1415 ROW Encroachment-Admin        |
| _____  | 01.1415 ROW Encroachment-Council      |
| _____  | 01.1415 ROW Encroachment-Vendor       |
| _____  | 01.1415 Floodplain Permit             |
| _____  | 01.1415 Minor Subdivision             |
| _____  | 01.1415 Lot Boundary Adjustment       |
| _____  | 01.1415 Preliminary Plat              |
| _____  | 01.1415 Final Plat                    |
| _____  | 01.1415 Condominiumization            |
| _____  | 01.1240 Vacation of ROW               |
| _____  | 01.1415 Variance                      |
| _____  | 01.1415 Administrative Adjustment     |
| _____  | 01.1415 Appeal                        |
| _____  | 01.1415 Parking Fee in lieu           |
| _____  | 01.1415 Zoning Capability Letter      |
| _____  | 01.1415 Home Occupation Permit        |
| _____  | 01.1240 Chicken Permit                |
| _____  | 01.1240 Vacation Rental Permit        |
| _____  | 01.1415 Off-Premises Sign Permit      |
| _____  | 01.1415 Sign Permit                   |
| _____  | 01.1240 Outdoor Dining Permit         |
| _____  | 01.1260 Temporary Sales               |
| _____  | 01.1415 Recording Fees                |
| _____  | Other: Explain                        |

### Total Amount Received

Check - Check #: \_\_\_\_\_  
Cash: Deposit at Finance Dept.  
Credit Card # \_\_\_\_\_

Updated 01/2021

### **Neighborhood Meeting Narrative**

Date Held: 6:00pm on 2/24/2021

Location: Lofts at Red Mountain Leasing Office

All property owners within 300 feet of the project were mailed public notices with return receipt requested mailings via USPS.

A notarized Proof of Public Notice, a copy of the notice, a list of landowners, copies of the mailed envelopes, and copies of the return receipts are attached. Also attached is an informational handout that was prepared for those attending.

Richard Myers attended the meeting on behalf of the Lofts at Red Mountain. A Lofts staff member was present to greet attendees and answer any questions. Richard and the staff remained at the location until 8:00pm but unfortunately, no one showed up for the meeting.



## ATTENDANCE ROSTER

LOFTS AT RED MOUNTAIN PHASE IV NEIGHBORHOOD MEETING

FEB 24, 2021 6:00 PM

NO ONE CAME TO THE MEETING.

**PROOF OF PUBLIC NOTICE  
PRE-APPLICATION NEIGHBORHOOD MEETING**

I hereby affirm that Public Notice requirements of the Municipal Code of Glenwood Springs have been met for the Pre-Application Neighborhood Meeting held:

at LOFTS AT RED MOUNTAIN LEASING OFFICE  
300 WOLFSON ROAD (Location)

on FEBRUARY 24, 2021  
(Date)

Attached are:

1. A list of names and addresses of owners of record of all property within 300 feet of the subject property and registered neighborhood groups that have boundaries including the proposed project site.

Date mailed: FEBRUARY 08, 2021;

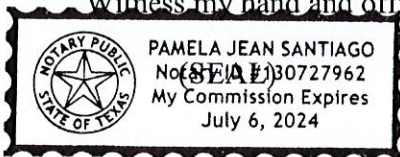
2. A list of the meeting attendees;
3. A summary of the meeting.

Name: *[Signature]*  
Applicant

Date: FEB 24, 2021

Subscribed and sworn to before me, a notary public in and for the County of  
Dallas, State of Texas, this 24<sup>th</sup> day of  
February 2021, A.D.

Witness my hand and official seal



*[Signature]*  
Notary Public

My commission expires: July 6<sup>th</sup> 2024

# Garfield County Land Explorer

| Parcel       | Physical Address                     | Owner                                | Account Num | Mailing Address                                                     |
|--------------|--------------------------------------|--------------------------------------|-------------|---------------------------------------------------------------------|
| 218508138005 | 150 W MEADOWS DR<br>GLENWOOD SPRINGS | WEINGARTEN MILLER<br>GLENWOOD LLC    | R041492     | 6900 EAST BELLEVIEW AVENUE SUITE 300<br>GREENWOOD VILLAGE, CO 80111 |
| 218508138006 | Not available<br>GLENWOOD SPRINGS    | WEINGARTEN MILLER<br>GLENWOOD LLC    | R041493     | 6900 EAST BELLEVIEW AVENUE SUITE 300<br>GREENWOOD VILLAGE, CO 80111 |
| 218508138007 | 253 WULFSOHN RD<br>GLENWOOD SPRINGS  | SC GLENWOOD III LLC                  | R041494     | 760 W MAIN STREET SUITE 140<br>BARRINGTON, IL 60010                 |
| 218508138008 | 405 E MEADOWS DR<br>GLENWOOD SPRINGS | WEINGARTEN MILLER<br>GLENWOOD LLC    | R041495     | 6900 EAST BELLEVIEW AVENUE SUITE 300<br>GREENWOOD VILLAGE, CO 80111 |
| 218508138009 | 205 E MEADOWS DR<br>GLENWOOD SPRINGS | WEINGARTEN MILLER<br>GLENWOOD LLC    | R041496     | 6900 EAST BELLEVIEW AVENUE SUITE 300<br>GREENWOOD VILLAGE, CO 80111 |
| 218508139001 | 125 WULFSOHN RD<br>GLENWOOD SPRINGS  | SOPRIS SUITES, LLC                   | R045782     | 4949 S NIAGARA STREET, SUITE 300<br>DENVER, CO 80237                |
| 218508139003 | Not available<br>GLENWOOD SPRINGS    | GLENWOOD MEADOWS,<br>LLC             | R045784     | 710 E DURANT AVENUE, SUITE W6<br>ASPEN, CO 81611                    |
| 218508141001 | FLAT TOP VIEW DR<br>GLENWOOD SPRINGS | GLENWOOD MEADOWS<br>APARTMENTS I LLC | R083218     | 6875 EAST EVANS AVENUE DENVER, CO<br>80224                          |
| 218508141004 | 150 WULFSOHN RD<br>GLENWOOD SPRINGS  | GLENWOOD MEADOWS,<br>LLC             | R083221     | 710 E DURANT AVENUE, SUITE W6<br>ASPEN, CO 81611                    |
| 218508141005 | Not available<br>GLENWOOD SPRINGS    | GLENWOOD MEADOWS<br>APARTMENTS I LLC | R083222     | 6795 E TENNESSEE AVENUE 5TH FLOOR<br>DENVER, CO 80224               |
| 218508142002 | Not available<br>GLENWOOD SPRINGS    | SC GLENWOOD II LLC                   | R084014     | 760 W MAIN STREET, STE 140<br>BARRINGTON, IL 60010                  |
| 218508238018 | 130 WULFSOHN RD<br>GLENWOOD SPRINGS  | GLENWOOD SPRINGS,<br>CITY OF         | R041505     | 101 W 8TH STREET GLENWOOD<br>SPRINGS, CO 81601                      |
| ROW          | Not available null                   |                                      |             |                                                                     |
| ROW          | Not available null                   |                                      |             |                                                                     |



LOFTS

# LOFTS

AT RED MOUNTAIN

Phase IV  
36 Units  
Glenwood Springs, CO

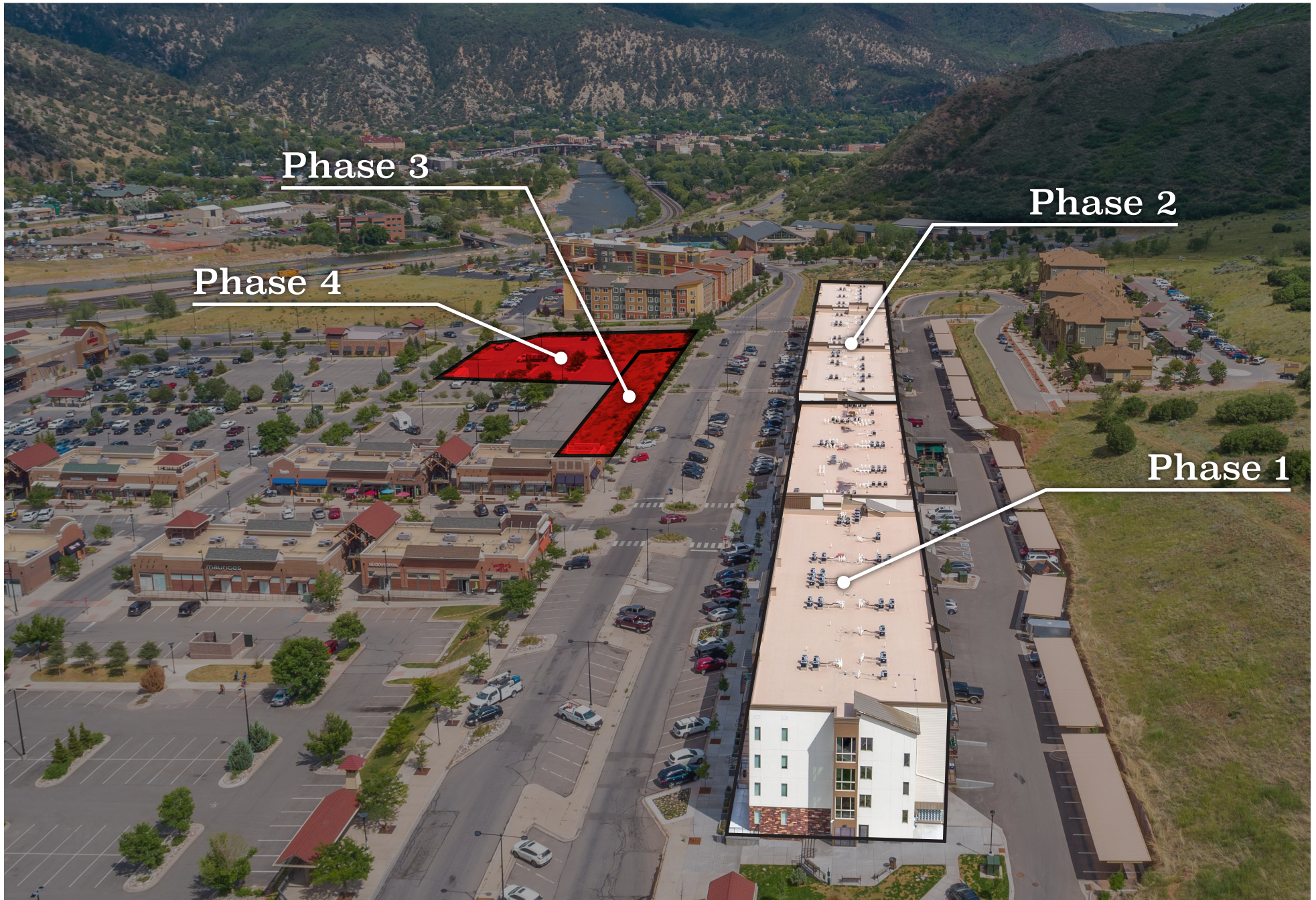
Neighborhood  
Meeting  
Handout



2021

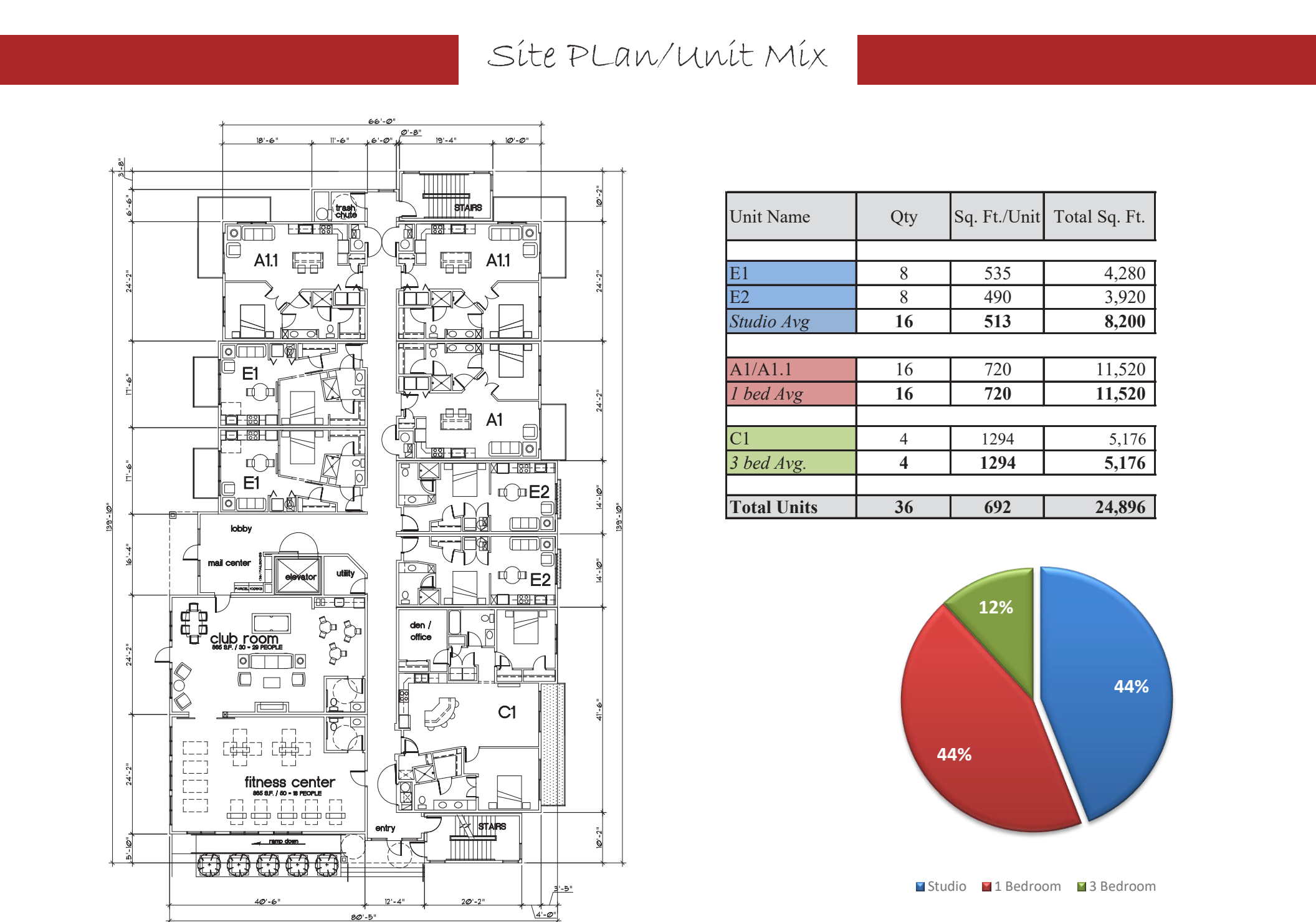


# Location





# Site Plan/Unit Mix



## Site Plan/Unit Mix

The site plan illustrates a rectangular building footprint with overall dimensions of 66'-0" by 139'-10". The plan is divided into several sections:

- Top Section:** Contains two A1.1 units, a central staircase, and a trash chute.
- Middle Section:** Features three E1 units on the left, a central A1 unit, and two E2 units on the right.
- Bottom Section:** Includes a lobby, mail center, elevator, utility room, club room (866 SF, 30-35 people), fitness center (866 SF, 30-35 people), a den/office, and a large C1 unit.
- Entrance:** Located at the bottom center, with stairs leading up and a ramp down.

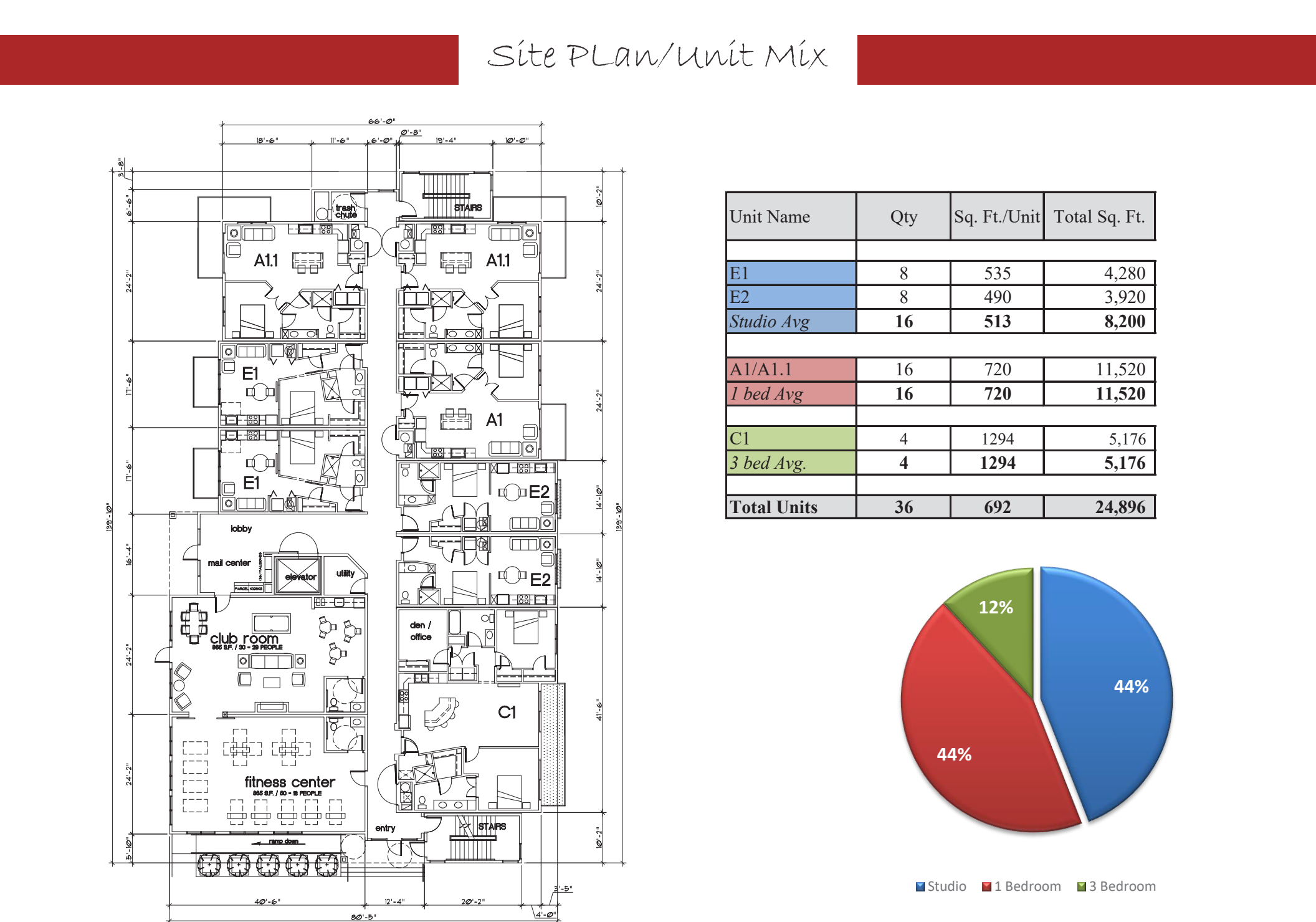
Dimensions are provided for various sections and the overall building footprint.

| Unit Name          | Qty       | Sq. Ft./Unit | Total Sq. Ft. |
|--------------------|-----------|--------------|---------------|
| E1                 | 8         | 535          | 4,280         |
| E2                 | 8         | 490          | 3,920         |
| <b>Studio Avg</b>  | <b>16</b> | <b>513</b>   | <b>8,200</b>  |
| A1/A1.1            | 16        | 720          | 11,520        |
| <b>1 bed Avg</b>   | <b>16</b> | <b>720</b>   | <b>11,520</b> |
| C1                 | 4         | 1294         | 5,176         |
| <b>3 bed Avg.</b>  | <b>4</b>  | <b>1294</b>  | <b>5,176</b>  |
| <b>Total Units</b> | <b>36</b> | <b>692</b>   | <b>24,896</b> |

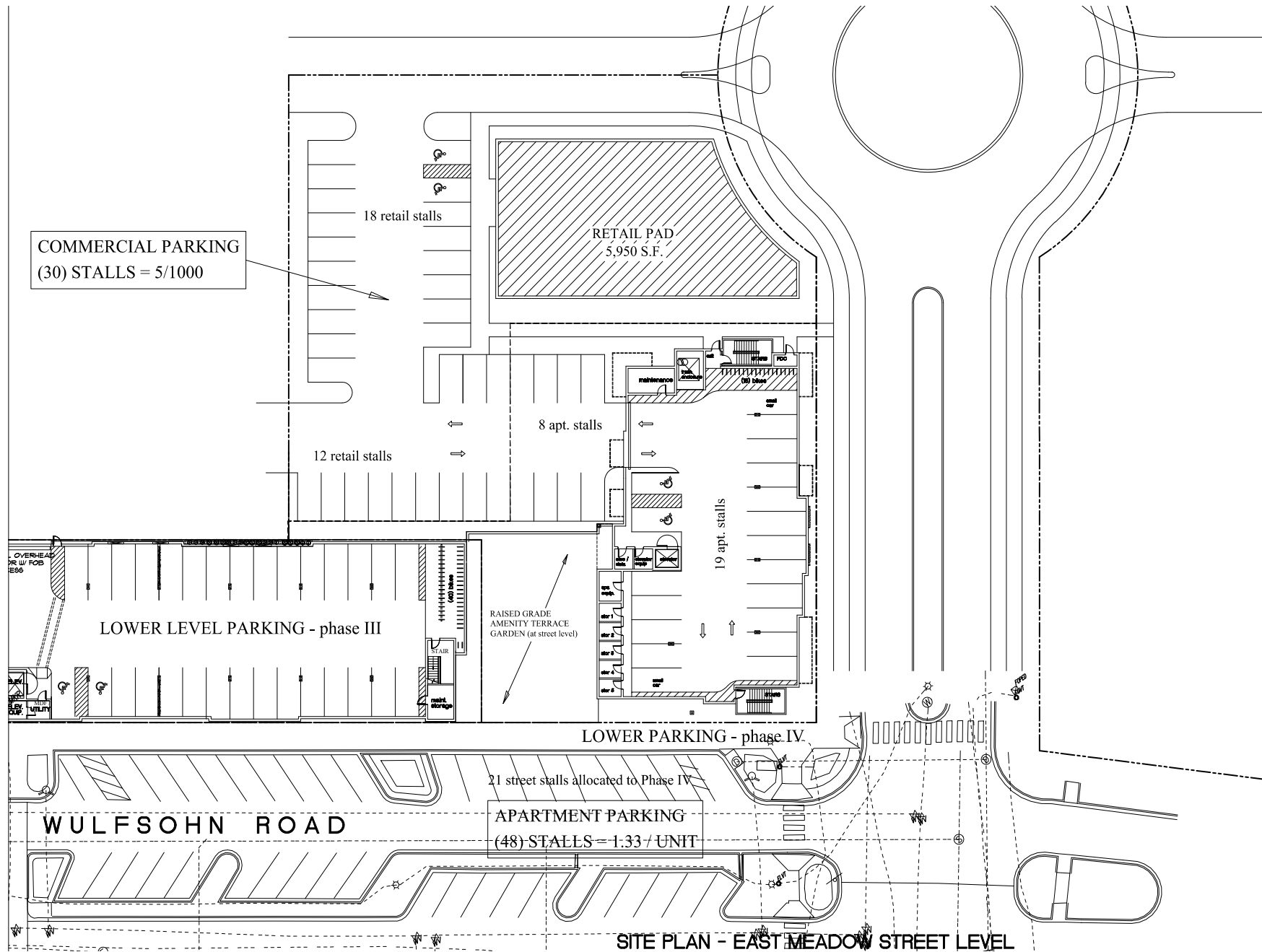
The pie chart displays the distribution of unit types in the development:

- Studio:** 44% (Blue)
- 1 Bedroom:** 44% (Red)
- 3 Bedroom:** 12% (Green)

■ Studio ■ 1 Bedroom ■ 3 Bedroom



# Parking Plan



One lower level parking garage for (19) apartment spaces. Street level parking will also be provided.

# Amenities

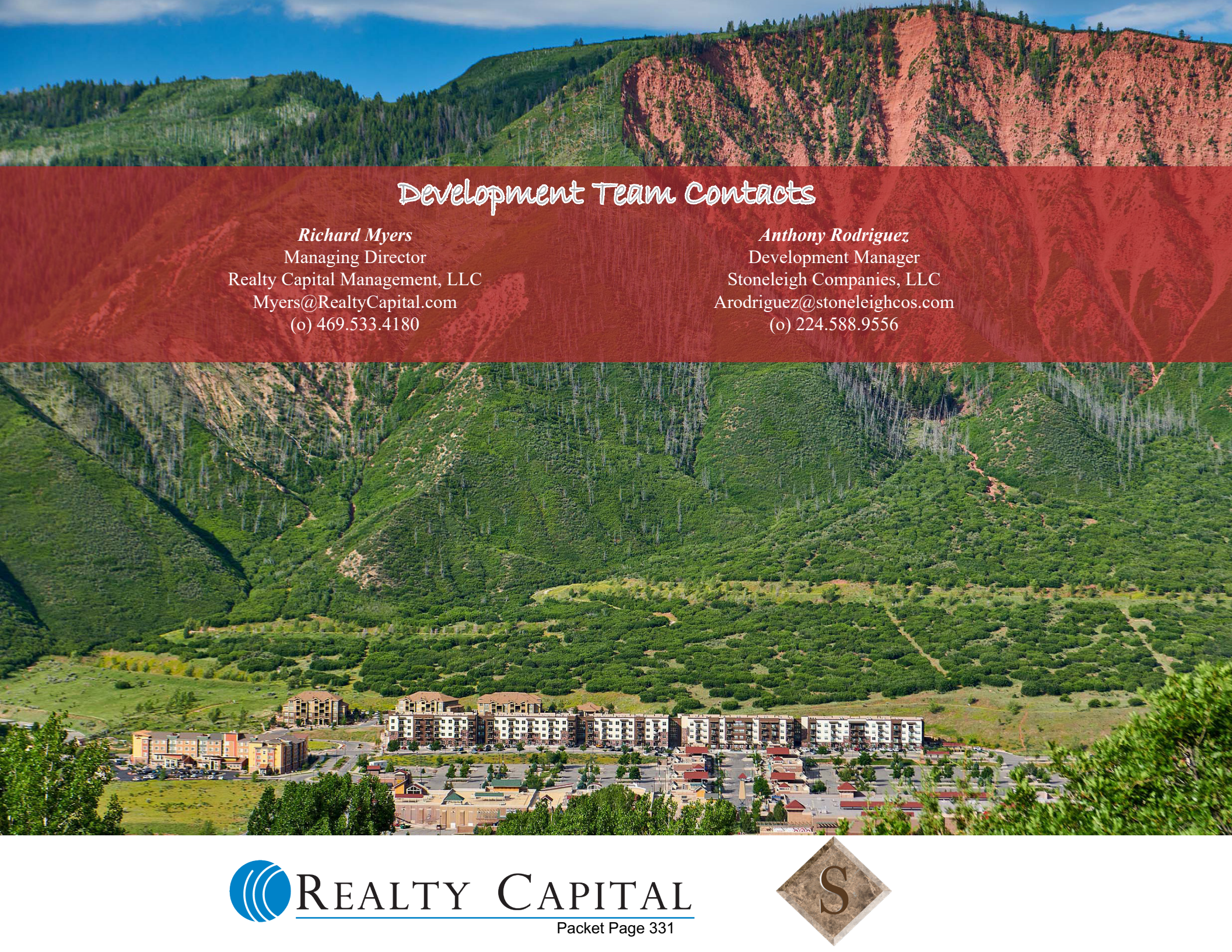
## COMMUNITY AMENITIES

- Club Room
- Fitness Center
- Amenity Terrace and Spa
- Roof Amenity Deck with Fire Pits
- BBQ Pavilion
- Zen Lounge with Hanging Swings and Daybeds
- Bicycle Storage
- Parcel Pending



- High Speed Internet
- 5-star Management Team
- 24-Hour Emergency Maintenance Service
- Monthly Resident Events
- Salto Keyless Access throughout Community
- ButterflyMX Video Intercom
- Underground parking garage
- Electric Car Charging Station
- Walking Distance to Glenwood Meadows Mall and RFTA Bus Stop





## Development Team Contacts

*Richard Myers*  
Managing Director  
Realty Capital Management, LLC  
Myers@RealtyCapital.com  
(o) 469.533.4180

*Anthony Rodriguez*  
Development Manager  
Stoneleigh Companies, LLC  
Arodriguez@stoneleighcos.com  
(o) 224.588.9556





## LOFTS AT RED MOUNTAIN PHASE IV

### Narrative Description

Stoneleigh Companies is in the process of purchasing Lot 8 in Glenwood Meadows No 2. The plan is to continue with Phase IV of the Lofts at Red Mountain by constructing one 36-unit, 4 story apartment building with 1 level of underground parking. Phase III and IV will be separated by a raised grade amenity deck area. The units will be market rate rental only units. The unit mix of the apartments will be approximately eight (8) 490 sf efficiency units, eight (8) 535 sf efficiency units, sixteen (16) 720 sf one-bedroom units and four (4) 1,294 sf two-bedroom units. Phase IV will include its own club room, fitness area and outdoor terrace which is currently designed to include a swimming pool. We propose to share the existing Phase I and II leasing office with Phase IV. We plan to have an underground parking garage with 19 stalls and 8 surface stalls. 21 street parking spaces are assigned to lot 8 within Wulfsohn road right of way. An additional 14 spaces will be accommodated in the existing parking lot in the northwest corner of the property for a total of 62 residential parking spaces.

The exterior facade will be the same as Phase I, II, and III. Assuming all necessary approvals are in place, we anticipate beginning construction on Phase IV in late spring of 2021.

Phase IV will also include a retail pad up to 6,000 sq. ft.. Stoneleigh is not proposing to construct a commercial building on the pad at this time, the potential commercial use of the pad is currently

## Application for Special Use Permit

### **Project Description**

Stoneleigh Companies is submitting an Application for a Special Use Permit for The Lofts at Red Mountain Phase IV. We are proposing to construct one 36-unit multifamily building and create a 6,000 sq. ft. commercial pad just Northwest of Wulfsohn Road and East Market St. that is part of the larger Glenwood Meadows Master Plan. Also included as part of this application, to be reviewed concurrently, are a Major Development Application and applications for variances from the City Code's requirements related to parking and building length.

The Lofts at Red Mountain, is a new multi-family mixed use community to Glenwood Springs, CO. Located along Wulfsohn Road, across from the Glenwood Meadows shopping area. Phases 1 and 2 of The Lofts sit on the South side of Wulfsohn Road at the base of Red Mountain. Phase III, now under construction, will be a single building directly across and on the North side of Wulfsohn Road. Phase IV will be a 36-unit multifamily building with an underground parking structure adjacent to Phase III. The Lofts at Red Mountain is a great pedestrian community within walking distance of Glenwood Springs Community Center, Ride Glenwood Springs bus system, Glenwood Meadows Market Street retail, and downtown.

The purpose of this request for a special review permit is to allow The Lofts at Red Mountain Phase IV to exceed the current building height restriction of 40 ft. in the C/2 Commercial District.

*070.020.020 Table 20.3 Maximum height of buildings: forty (40) feet without special review use permit, or up to sixty (60) feet with special review use permit.*

**Request:** Applicant requests a height different from the standard 40 feet in building height in the C/2 Commercial Zone to 60 ft. The highest part of the building from existing Wulfsohn Road and East Market Street grades will be less than 40 ft. However, due to the sharp grade change, the highest part of the West wall facing the Glenwood Meadows parking lot will exceed 40 ft. We request a variance for the West wall up to 60 ft.

The project currently meets the criteria for building height review as follows:

- a.) The proposed structure will have some impact on light and shadow patterns but not in a significant way to adversely impact the surrounding area or preclude solar energy use or create snow and ice buildup on adjacent properties.
- b.) The proposed structure will not alter the opportunity for quality views from public property. Glenwood Green is located to the south of the proposed development and will remain at a greater height than the proposed development. The same is true of the Wulfsohn trail system. Therefore cross valley views will remain unaffected by the proposed building.
- c.) The proposed structure will not affect the existing level of privacy in the neighborhood with the additional height. The original plans for Glenwood Meadows call for residential units in this location with buildings over 2 stories in height at a minimum. The building design for The Lofts at Red Mountain meets the intended use for the site. Furthermore, as stated above, the proposed development would be adjacent to similar residential buildings with similar heights, helping to create visual continuity as contemplated in the Glenwood Meadows Master Plan.
- d.) The scale of the proposed structure is compatible with the overall neighborhood. The Lofts at Red Mountain is surrounded by the Glenwood Meadows retail corridor, Courtyard Marriott,

Residence Inn, Glenwood Springs Community Center, and Glenwood Green Apartments. All of those buildings are similar in height and scale to the proposed building.

- e.) As illustrated in the narrative to the Major Development Application, the proposed structure is in compliance with the GSMC and City plans and policies where applicable.

This special use in height follows the strategies in the Comprehensive Plan for Compact Form: Infill Development (p34). Due to the largely topographic constraints the City likes to focus development inward and upward. Directing the residential development upward allows for the accommodation of the commercial pad and related parking, which, once developed, will bring sales tax revenue, commercial amenities, and jobs to the City. Focusing compact urban form where infrastructure already exists allows efficient service delivery while preserving small town character and cultural and natural resources.

It also follows the intent of the Comprehensive Plan to encourage housing variety and affordability throughout the community. Projects located near transit and job centers offer greater savings to individual households, the community and the City.

Not only does the extension of building height not harm the public good, it directly correlates to the intent of the GSMC and its goals and policies to create more quality affordable housing in Glenwood Springs. The Glenwood Meadows retail corridor will benefit by getting the much needed residential density originally intended for the area. Visually the valley views will not be harmed as Red Mountain will still be seen from all directions.

- f.) Not Applicable. Inclusionary housing requirements are for-sale housing. Furthermore, Glenwood Green has fulfilled/qualified for all housing requirements for the Glenwood Meadows subdivision.

The project currently meets the special review criteria as follows:

- a.) Per the Major Development Application and the initial design of the Glenwood Meadows master planned community, pedestrian walkways and access points are incorporated across the site. The overall design of The Lofts at Red Mountain highlights walkability and new urban design.
- b.) Per the Major Development Application and the initial design of the Glenwood Meadows master planned community, vehicular access, vehicular circulation, and vehicular parking are all designed to code or slight variances to code.
- c.) The overall character of the Glenwood Meadows neighborhood is defined by the retail corridor and walkability of the area. The proposed development has been the intended use of the site since its inception. The extension in height helps the project meet the Glenwood Springs goal of creating more quality housing in the area.
- d.) Per the Major Development Application, the proposal for the development of Phase IV completely mitigates any negative impacts of the extension of building height by creating quality housing in Glenwood Springs and by being consistent with surrounding buildings, including the other Lofts buildings and the hotel structures across the street. The proposed mix of uses add to the character of the surrounding properties and will increase the viability of the area while providing much needed workforce housing for the community at large. All design requirements have been thoughtfully considered to mitigate any negative impacts brought on by the extension of building height.

By limiting height in the C/2 Commercial Zone in the Glenwood Meadows master planned community on a lot bound by natural impediments, it would limit the amount of multifamily units that could be constructed. In practical terms, it would limit the original intentions of the City and the Glenwood Meadows community.

## **Design Variance #1 – Building Length**

### **Building Length - Glenwood Meadows Zoning & Development Standards**

*The maximum length on multi-family buildings shall be 125 feet.*

The building length exceeds the maximum 125' design standard.

**Request:** We are requesting the allowance of a building up to 140' in length on east side of the lot.

- 1.) First, the overall layout of the development along Wulfsohn and Market Street encourages pedestrian orientation at street level. Breaking up the buildings into two smaller units would only separate and decrease the walkability of the site. Secondly, if the development was held to the 125' standards it would create a greater number of smaller buildings, thus losing the efficiency gained by shared space. It would also reduce the amount of open space available on the property and encroach into the area being reserved for commercial use. Two smaller buildings would also result in a decrease in the number of underground parking spaces which would be a detriment to the future residents and further complicate code compliance.
- 2.) The soils in this area are unstable and will require deep pile foundations up to 65 feet. Uniformity of the weight of the parking structure and building above these piles needs to be loaded across the site equally, making separated buildings infeasible. The varying elevations of the lot also complicate construction. Applicant did not create this hardship by its own actions. Those conditions are natural and have existed long before Applicant submitted its application.
- 3.) At the adoption of the ADA and Zoning and Development Design Guidelines, it is likely the 125' standard was intended for condo or townhome residential portions of Glenwood Meadows because buildings across Wulfsohn, in the C-2 commercial zone, already exceed 125' in length as does the Phase III building. A variance for that building was approved in 2020, allowing it to be 330 feet in length. Applicant is requesting this variance to allow for the maximum number of much needed housing units to be constructed on this lot. We consider this plan for a single building to be the best and highest use for this lot, and the minimal 15-foot extension of the building length is needed to make that happen.
- 4.) By providing one building on the lot, it allows the site to be provided with greater common open space, an amenity deck, large spa, fire pit etc. and connections with Phase III via an amenity terrace. Two buildings would force the elimination of the amenity terrace and open space since the site would be all buildings. We have chosen this plan to allow the residents of Phase III and IV to share this amenity and open space. Splitting the building may also create narrow passageways at unusable grades between the buildings. These passageways would be shaded resulting in accumulations of snow and ice in the winter, resulting in potential pedestrian hazards. A single building would eliminate these narrow passageways and eliminate a potential safety hazard to the residents and the public.
- 5.) This variance request does not harm the public nor impair the Development Code outlined in Section 070.020.030 in any way. Rather, by granting this limited variance, the "intent of providing a variety of housing and neighborhood types and densities at a range of housing costs," will be enhanced in that this will allow for the maximum number of housing units for this lot.

Furthermore, this will help address the Glenwood Springs housing shortages identified in the January 2019 Roaring Fork Valley Regional Housing Study by infusing an additional 36 rental units into the tight rental market. The requested variance is also consistent with those granted to the other apartment buildings along Wulfsohn Road, creating continuity and consistency in the area. The fact that the short end of the proposed building will present along Wulfsohn will help break up the massing along the road, while maintaining continuity with it.

- 6.) This variance will not violate building or fire code requirements in any way. All codes and requirements will be fully complied with.
- 7.) This variance request is the minimum required to allow for feasible multifamily construction on this lot. Due to parking requirements, a full underground parking facility will be required. Additionally, reducing the length of the building means reducing the number of units constructed and that result is not consistent with the Community need for additional housing. The requested variance of 140 feet in length is the minimum needed to make this residential development meet its full potential and is negligible compared to other variances granted in the immediate vicinity.
- 8.) In summary: Understanding the concern of a long building not having articulation of the façade and massing, the architectural details of this building show cantilevered balconies, and articulation of massing both horizontally and vertically (varying parapet heights, etc.) and in materials and colors. The end result is not the straight monolithic mass that is undesirable, but a well-developed and articulated massing that breaks up the length. Overall, it will appear very similar to what has already been approved across Wulfsohn and on the adjacent lots.



# THE LOFTS AT RED MOUNTAIN - PHASE 4

## MAJOR SITE/ARCHITECTURAL PLAN

LOT 8, GLENWOOD MEADOWS NO. 2

LOCATED IN THE NORTHEAST QUARTER OF SECTION 8, TOWNSHIP 6 SOUTH, RANGE 89 WEST OF THE SIXTH PRINCIPAL MERIDIAN,  
CITY OF GLENWOOD SPRINGS, COUNTY OF GARFIELD, STATE OF COLORADO.

### PROJECT TEAM

#### DEVELOPER

Stoneleigh Companies, LLC  
760 W. Main St., Suite 140  
Barrington, Illinois 60010  
Phone: 224.770.4600  
Contact: Anthony Rodriguez

#### DEVELOPER

Realty Capital Management  
909 Lake Carolyn Pkwy, Suite 150  
Irving, Texas 75039  
Phone: 469.533.4100  
Contact: Bob Moore

#### ARCHITECT

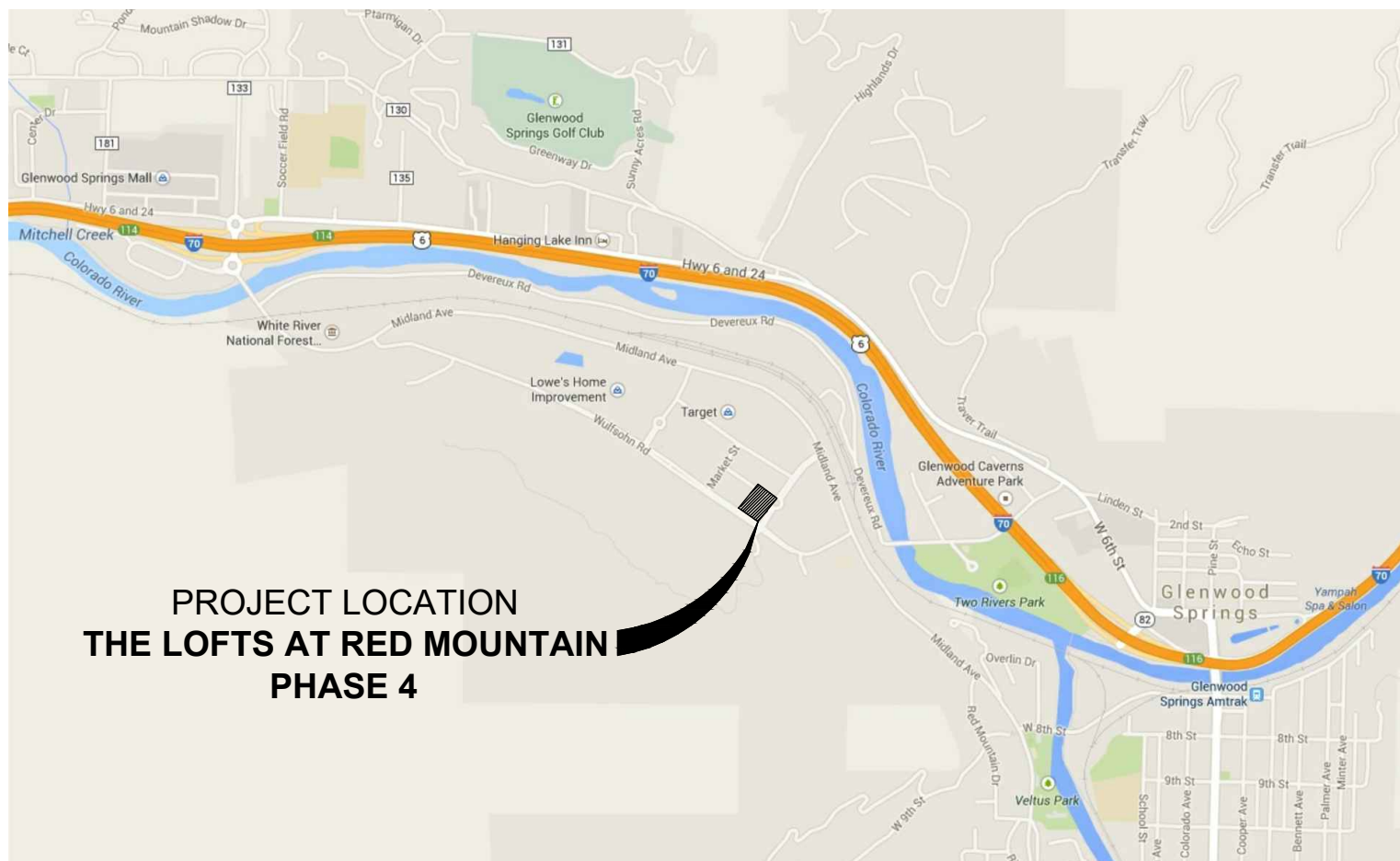
KCB Architecture  
2033 Dan Drive  
Layton, Utah 84040  
Phone: 801.593.9338  
Contact: Keith Bennett

#### CIVIL ENGINEER

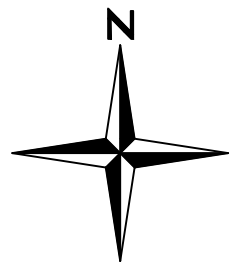
Redland  
1500 W. Canal Ct.  
Littleton, Colorado 80120  
Phone: 720.283.6783  
Contact: Mark Cevaai, P.E.  
Email: mcevaai@redland.com

#### LANDSCAPE ARCHITECT

Redland  
1500 W. Canal Ct.  
Littleton, Colorado 80120  
Phone: 720.283.6783  
Contact: Brice Bradley, PLA, CLARB  
Email: bbradley@redland.com



VICINITY MAP  
1" = 2000'



| Sheet List Table |                            |
|------------------|----------------------------|
| Sheet Number     | Sheet Title                |
| CO               | COVER SHEET                |
| C1               | SITE PLAN                  |
| C2               | PRELIMINARY GRADING PLAN   |
| L1               | PRELIMINARY LANDSCAPE PLAN |
| A1.0             | PARKING SITE               |
| A1.1             | SITE WULFSON RD LEVEL      |
| A2.0             | PARKING LEVEL              |
| A2.1             | MAINFL                     |
| A2.2             | 2NDFL                      |
| A2.3             | 3RDFL                      |
| A2.4             | 4THFL                      |
| A3.1             | ELEVATIONS                 |
| A3.2             | ELEVATIONS                 |
| A3.3             | SITE SECTION               |
| A4.1             | UNITS                      |
| A4.2             | UNITS                      |

| PROJECT SUMMARY DESCRIPTION                                                                                               |                         |                           |            |                                               |                               |                         |           |
|---------------------------------------------------------------------------------------------------------------------------|-------------------------|---------------------------|------------|-----------------------------------------------|-------------------------------|-------------------------|-----------|
| LOT SIZE INFORMATION                                                                                                      | AREA                    | SQUARE FT.                |            | LOT COVERAGE                                  | EXISTING<br>(SQ FT & %)       | PROPOSED<br>(SQ FT & %) |           |
|                                                                                                                           | 0.956 AC.               | 41,655                    |            |                                               | 0 0%                          | 12,683 30.4%            |           |
| LIMITS OF DISTURBANCE                                                                                                     |                         | PROPOSED<br>(SQ. FT. & %) |            | AVERAGE SLOPE WITHIN LIMITS<br>OF DISTURBANCE | PERCENTAGE %                  |                         |           |
|                                                                                                                           |                         | 29,745 100%               |            |                                               | 8.70 %                        |                         |           |
| PARKING SPACES<br>(PARKING REQUIRED:<br>36 UNITS AT 1.7 SPACES/UNITS =<br>62 SPACES<br>WITH 30% REDUCTION = 44<br>SPACES) | GARAGE                  |                           |            | BICYCLE PARKING                               | EXISTING #<br>SPACES          | PROPOSED #<br>SPACES    |           |
|                                                                                                                           | 2 (ACCESSIBLE)          | 17 (REGULAR)              |            |                                               | 0                             | 10 (GARAGE)             |           |
|                                                                                                                           | OFF-SITE WULFSOHN RD    |                           |            | NON-RESIDENTIAL USES                          | TYPE OF USE(S)                |                         |           |
|                                                                                                                           | 3 (ACCESSIBLE)          | 18 (REGULAR)              |            |                                               | GROSS FLOOR<br>AREA (SQ. FT.) |                         |           |
|                                                                                                                           | AT-GRADE PARKING        |                           |            | TOTAL LANDSCAPED AREA                         | NONE                          |                         |           |
|                                                                                                                           | 0                       | 8 (REGULAR)               |            |                                               | 0                             |                         |           |
|                                                                                                                           | TOTAL                   |                           |            | TOTAL IMPERVIOUS AREA                         | EXISTING<br>(SQ FT & %)       | PROPOSED<br>(SQ FT & %) |           |
| 5 (ACCESSIBLE)                                                                                                            | 43 (REGULAR)            |                           | 15,900 38% |                                               | 11,225 27%                    |                         |           |
| RESIDENTIAL UNITS                                                                                                         | # EXISTING<br>UNITS     | # PROPOSED<br>UNITS       |            | OTHER                                         | EXISTING<br>(SQ FT & %)       | PROPOSED<br>(SQ FT & %) |           |
|                                                                                                                           | 0                       | 36                        |            |                                               |                               |                         | 3,005 13% |
| OPEN SPACE *                                                                                                              | EXISTING<br>(SQ FT & %) | PROPOSED<br>(SQ FT & %)   |            |                                               |                               |                         |           |
|                                                                                                                           | 0                       | 0                         |            |                                               |                               |                         |           |
| BUILDING HEIGHT<br>(SEE BUILDING ELEVATIONS)                                                                              | EXISTING                | PROPOSED<br>(MAXIMUM)     |            |                                               |                               |                         |           |
|                                                                                                                           | 0                       | 58" - 2"                  |            |                                               |                               |                         |           |
| SNOW STORAGE                                                                                                              | REQUIRED<br>(SQ FT)     | PROPOSED<br>(SQ FT)       |            |                                               |                               |                         |           |
|                                                                                                                           | 0                       | 265                       |            |                                               |                               |                         |           |

#### BASIS OF BEARINGS

BEARINGS SHOWN HEREON ARE GRID BEARINGS DERIVED FROM RTK FAST STATIC GPS OBSERVATIONS AND ARE BASED UPON THE COLORADO COORDINATE SYSTEM OF 1983 CENTRAL ZONE (NAD 83, 1992), ALONG THE SOUTHWESTERLY LINE OF LOT 7, GLENWOOD MEADOWS NO. 2, WHICH BEARS NORTH 55° 33' 44" WEST, BETWEEN THE MONUMENTS SHOWN HEREIN.

#### BENCHMARK

GLENWOOD SPRINGS BENCHMARK #199 BEING A CHISELED SQUARE ON A HEADWALL OF A PEDESTRIAN TUNNEL LOCATED IN THE SOUTH CORNER OF THE INTERSECTION OF WULFSOHN ROAD AND MIDLAND AVENUE.

ELEVATION = 5761.63 (NAVD 88)



#### GEOLOGICAL HAZARDS DISCLOSURE

THIS PROPERTY IS SUBJECT TO GEOLOGIC HAZARDS PER THE ADOPTED MAPPING BY THE CITY OF GLENWOOD SPRINGS. HAZARDS TO NOTE ARE SEVERE HYDRO COMPACTIVE SOILS AND SEVERE ANCIENT DEBRIS FLOW, MUD FLOW AND LANDSLIDE DEPOSITS. ADDITIONAL INFORMATION REGARDING GEOLOGICAL HAZARDS AT THIS SITE CAN BE FOUND IN THE GEOTECHNICAL ENGINEERING STUDY, PROPOSED LOFTS AT RED MOUNTAIN PHASE 3 BUILDING, PROJECT NO. 19-7-521, DATED OCTOBER 10, 2019, PREPARED BY KUMAR & ASSOCIATES. A FINAL GEOLOGIC HAZARD REPORT WILL BE SUBMITTED UPON APPLICATION OF A BUILDING PERMIT.

#### FEMA FLOODPLAIN STATEMENT

THE SITE LIES WITHIN FEMA FLOOD ZONE D, ACCORDING TO FEMA MAP NO. 0802051432B, JANUARY 3, 1986. ZONE D IS DESCRIBED AS AREAS OF UNDETERMINED, BUT POSSIBLE, FLOOD HAZARDS.



THE LOFTS AT RED MOUNTAIN  
PHASE 4

COVER SHEET

CO

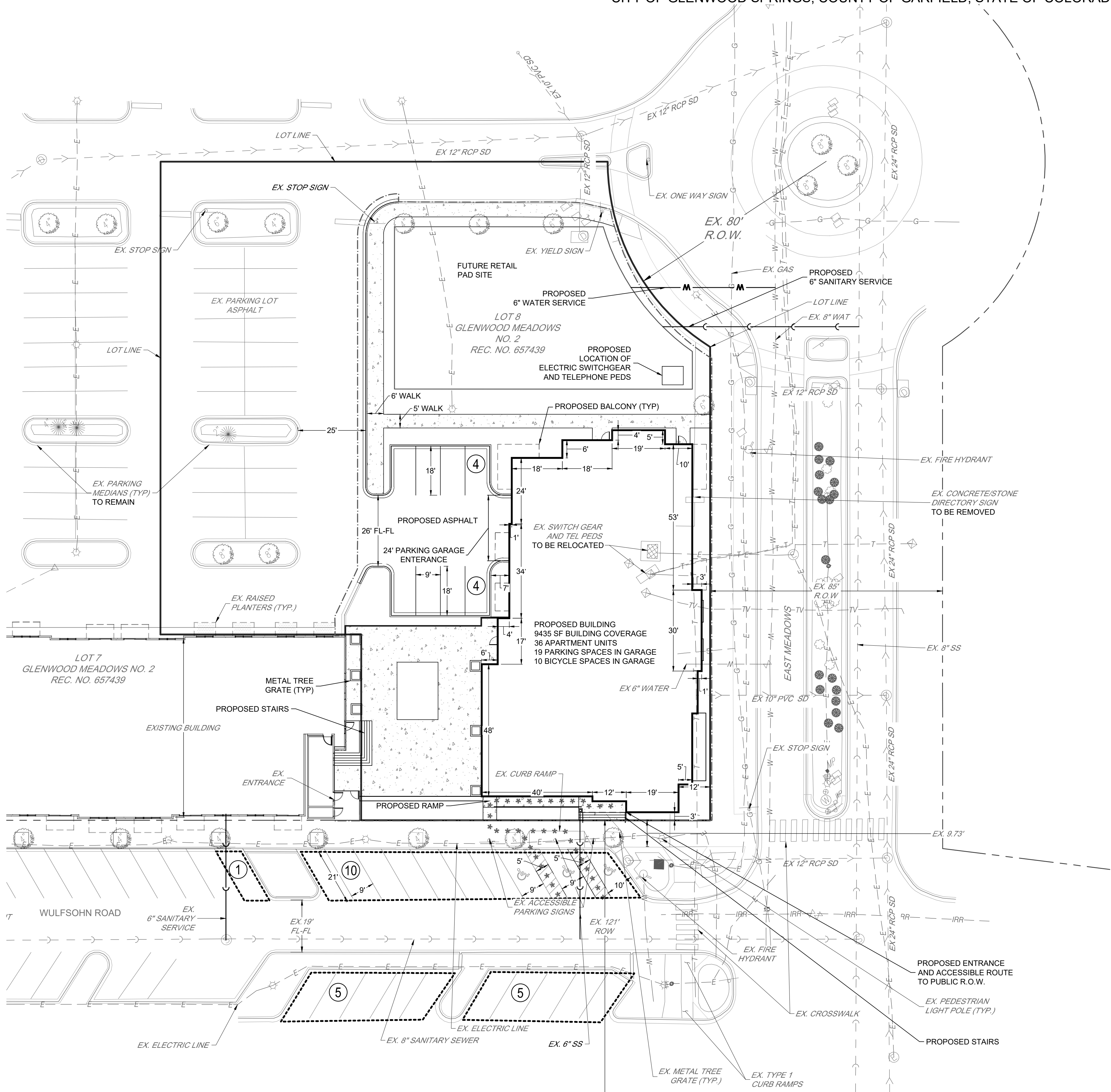


# THE LOFTS AT RED MOUNTAIN - PHASE 4

## MAJOR SITE/ARCHITECTURAL PLAN

LOT 8, GLENWOOD MEADOWS NO. 2

LOCATED IN THE NORTHEAST QUARTER OF SECTION 8, TOWNSHIP 6 SOUTH, RANGE 89 WEST OF THE SIXTH PRINCIPAL MERIDIAN,  
CITY OF GLENWOOD SPRINGS, COUNTY OF GARFIELD, STATE OF COLORADO.



### PROPOSED LEGEND

|  |                                 |
|--|---------------------------------|
|  | PROPERTY LINE                   |
|  | R.O.W.                          |
|  | LOT LINE                        |
|  | SETBACK                         |
|  | EASEMENT                        |
|  | ROAD CENTERLINE                 |
|  | CURB AND GUTTER                 |
|  | SIDEWALK                        |
|  | LIMITS OF CONSTRUCTION / SAWCUT |
|  | SANITARY SEWER                  |

### EXISTING LEGEND

|  |                        |
|--|------------------------|
|  | PROPERTY LINE          |
|  | R.O.W.                 |
|  | LOT LINE               |
|  | EASEMENT LINE          |
|  | SECTION LINE           |
|  | ROAD CENTERLINE        |
|  | EDGE OF PAVEMENT       |
|  | CURB AND GUTTER        |
|  | FENCE                  |
|  | WATER LINE             |
|  | RAW WATER LINE         |
|  | IRRIGATION LINE        |
|  | SANITARY SEWER         |
|  | STORM SEWER            |
|  | ELECTRIC LINE          |
|  | GAS LINE               |
|  | TELEPHONE LINE         |
|  | FIBER OPTICS LINE      |
|  | OVERHEAD ELECTRIC LINE |
|  | CABLE TELEVISION       |

### BICYCLE PARKING SUMMARY

BICYCLE PARKING SPACES: 10 SPACES IN GARAGE

### PARKING SUMMARY PHASE 4

PARKING REQUIRED:  
36 UNITS AT 1.7 SPACES/UNIT = 62 SPACES  
WITH 30% REDUCTION = 44 SPACES

PARKING PROVIDED:  
GARAGE: 17 REGULAR; 2 ACCESSIBLE  
OFF-SITE WULFSOHN RD: 18 REGULAR; 3 ACCESSIBLE  
PAYMENT IN LIEU: 8 REGULAR

TOTAL: 43 REGULAR; 5 ACCESSIBLE

DESIGNATES OFF-SITE PARKING  
SPACE ALLOCATED TO THE  
LOFTS AT RED MOUNTAIN PHASE 4

### NOTE:

- TRASH DUMPSTER LOCATION WILL BE IN GARAGE.
- ACCESS AND DRAINAGE EASEMENTS FOR THE BENEFIT OF LOT 8 ARE DESCRIBED IN THE EASEMENT CONDITIONS AND RESTRICTIONS AGREEMENT FOUND AT BOOK 1611 PAGE 606.

### DEVELOPER

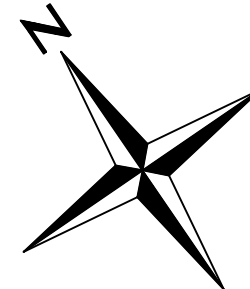
Stoneleigh Companies, LLC  
760 W. Main St., Suite 140  
Barrington, Illinois 60010  
Phone: 224.770.4600  
Contact: Josh Wohleirich

### DEVELOPER

Realty Capital Management  
909 Lake Carolyn Pkwy, Suite 150  
Irving, Texas 75039  
Phone: 469.533.4100



Know what's below.  
Call before you dig.



0 10 20 40  
SCALE: 1" = 20'

THE LOFTS AT RED MOUNTAIN  
PHASE 4

SITE PLAN

SHEET

C1

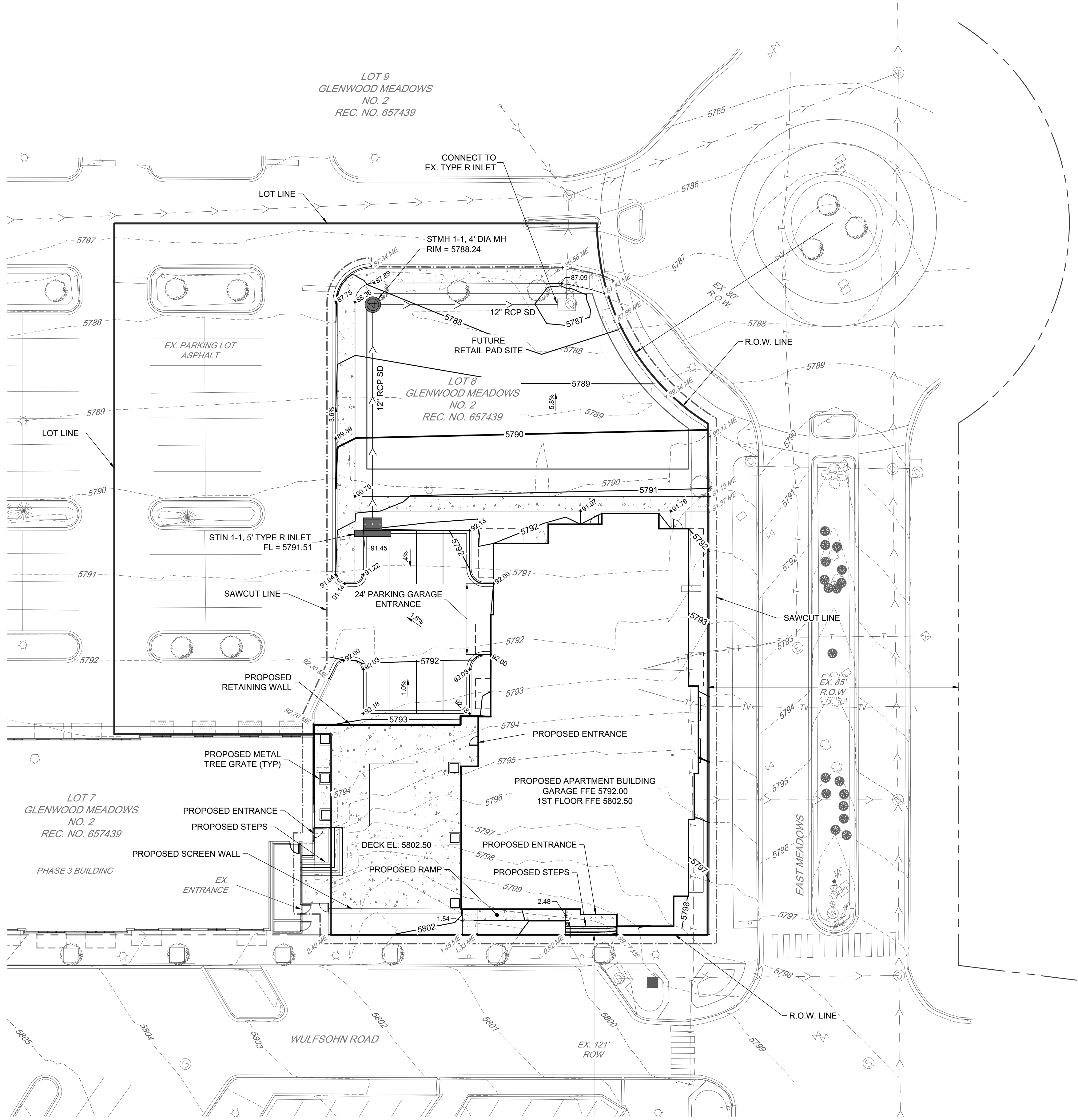
**Redland**  
WHERE GREAT PLACES BEGIN  
720.283.6793 Office  
720.283.6793 Cell  
Littleton, Colorado 80120  
REDLAND.COM



THE LOFTS AT RED MOUNTAIN - PHASE 4  
MAJOR SITE/ARCHITECTURAL PLAN

LOT 8, GLENWOOD MEADOWS NO. 2

LOCATED IN THE NORTHEAST QUARTER OF SECTION 8, TOWNSHIP 6 SOUTH, RANGE 89 WEST OF THE SIXTH PRINCIPAL MERIDIAN,  
CITY OF GLENWOOD SPRINGS, COUNTY OF GARFIELD, STATE OF COLORADO.



PROPOSED LEGEND

- PROPERTY LINE
- R.O.W.
- LOT LINE
- SETBACK
- EASEMENT
- ROAD CENTERLINE
- CURB AND GUTTER
- SIDEWALK
- LIMITS OF CONSTRUCTION / SAWCUT
- CONTOUR MAJOR
- CONTOUR MINOR
- SPOT ELEVATION
- SLOPE ARROW (4:1 MAX UNLESS NOTED OTHERWISE)

EXISTING LEGEND

- PROPERTY LINE
- R.O.W.
- LOT LINE
- EASEMENT LINE
- SECTION LINE
- EDGE OF PAVEMENT
- CURB AND GUTTER
- CONCRETE
- IRRIGATION LINE
- CONTOUR MAJOR
- CONTOUR MINOR

DEVELOPER

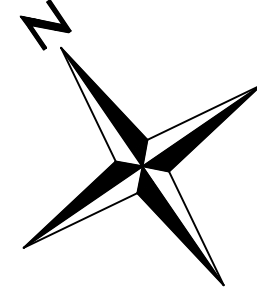
Stoneleigh Companies, LLC  
760 W. Main St., Suite 140  
Barrington, Illinois 60010  
Phone: 224.770.4600  
Contact: Josh Wohlrreich

DEVELOPER

Realty Capital Management  
909 Lake Carolyn Pkwy, Suite 150  
Irving, Texas 75039  
Phone: 469.533.4100



Know what's below.  
Call before you dig.



0 10 20 40  
SCALE: 1" = 20'

THE LOFTS AT RED MOUNTAIN  
PHASE 4  
PRELIMINARY GRADING PLAN

SHEET

C2

**Redland**  
WHERE GREAT PLACES BEGIN  
720.283.6783 Office  
720.283.6783 Cell  
Littleton, Colorado 80120  
REDLAND.COM

|              |          |
|--------------|----------|
| DRAWN        | WSBDW    |
| CHECKED      | MDC      |
| APPROVED     | MDC      |
| PROJECT NO.  | 12013.12 |
| HORIZ. SCALE |          |
| VERT. SCALE  |          |

NOTES

NO.

DATE

DATE

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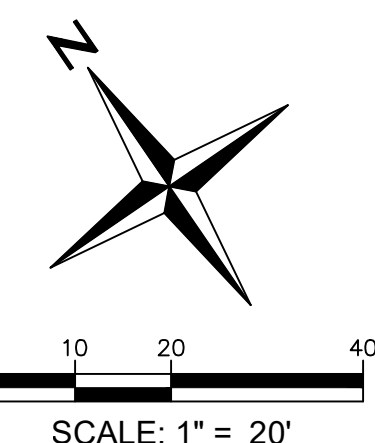
|                          |                                      |
|--------------------------|--------------------------------------|
| DISTURBED AREAS:         |                                      |
| BUILDING FOOTPRINT       | 9,433.20 SF (EXCLUDES OUTDOOR PATIO) |
| OPEN SPACE AREA          | <u>0.0%</u>                          |
| TOTAL PHASE IV LAND AREA | 0.956 AC / 41,655 SF                 |
| LANDSCAPE AREA           | 11,225 SF                            |

LOT 8, GLENWOOD MEADOWS NO. 2

## SUBMITTAL NOTES

1. **ORGANIC SOIL AMENDMENTS:** CONTRACTOR WILL TILL FOUR (4) CUBIC YARDS OF ORGANIC SOIL AMENDMENT, TO A MINIMUM DEPTH OF SIX (6) INCHES, FOR EACH 1,000 SQUARE FEET OF SOIL PREPARATION IN ALL LANDSCAPE AREAS INCLUDING ALL TURF, NATIVE SEED, TREE, SHRUB PLANTING BEDS IN THEIR ENTIRETY, ANNUAL, VINE, AND GROUNDCOVER AREAS (IF APPLICABLE), AS WELL AS ALL TREE LAWNS AND RIGHT-OF-WAYS ADJACENT TO THE PROPERTY.  
  
RECOMMENDED PRODUCT: A1 ORGANICS (EATON, CO, 970-454-3492) BIOCOMP CLASS 1 COMPOST OR APPROVED EQUAL.
2. **ORGANIC FERTILIZER AND SOIL CONDITIONERS:** CONTRACTOR WILL UTILIZE GRABBLER ENDO MYCORRHIZAE, MIENEFEE GRANULAR HUMATE AND BIOSOL FORMTE (7-2-1) OR APPROVED EQUAL, AS PART OF THE PLANTING PROCESS FOR ALL TREES, SHRUBS, AND SEEDED AREAS.  
  
RECOMMENDED SUPPLIER: ROCKY MOUNTAIN BIO PRODUCTS, 10801 E. 54TH AVENUE, DENVER, CO 80239 (303-696-8960)
3. **TURF SOD:** TURF SOD TO BE A BLUEGRASS BLAND WITH RECOGNIZED DROUGHT TOLERANCE AND COLD HARDINESS.  
  
RECOMMENDED SUPPLIER: RIVENDELL SOD FARM, 3961 CR 114, GLENWOOD SPRINGS, CO 81601, 970-945-2568.
4. **WOOD MULCH:** TO BE SMALL BARK MULCH. INSTALL TO A DEPTH OF 3".
5. **COBBLE MULCH:** REMOVE EXISTING RIVER COBBLE, STOCKPILE, AND REUSE IN PARKING LOT ISLANDS ALONG WULFSOHN ROAD WHERE SHOWN IN THE PLANS SET OVER WEED BARRIER FABRIC.
6. **WEED BARRIER FABRIC:** TO BE A NONWOVEN GEOTEXTILE COMPOSED OF POLYPROPYLENE FIBERS.
7. **CUT X-SHAPES INTO THE FABRIC TO ALLOW FOR PLANT MATERIAL.** EDGES SHOULD BE BURIED AND OVERLAPPED BY A MINIMUM OF 12".  
  
RECOMMENDED SUPPLIER: MIRAFI 140N, TERRATEX N04.5 (HANES GEO COMPANIES), OR SIMILAR NONWOVEN GEOTEXTILE.
8. **TRASH DUMPSTER** WILL BE IN GARAGE.
9. **IT IS ASSUMED THAT MOST, IF NOT ALL, OF THE EXISTING RIGHT-OF-WAY TREES AND ORNAMENTAL GRASSES ALONG WULFSOHN ROAD WILL REQUIRE REPLACEMENT.** THE PLANT SCHEDULE ABOVE INCLUDES THIS PROPOSED NEW PLANT MATERIAL.
10. **SALVAGE, STORE, AND REUSE EXISTING TREE GRATES IN NEW TREE WELLS ALONG WULFSOHN ROAD.** ASSUME NEW FRAMES TO SUPPORT THE TREE GRATES WILL NEED TO BE INSTALLED.

|                                                                                       |                                             |
|---------------------------------------------------------------------------------------|---------------------------------------------|
|  | EXISTING PROPERTY LINE                      |
|  | EXISTING RIGHT OF WAY                       |
|  | EXISTING STORM LINE                         |
|  | EXISTING SANITARY LINE                      |
|  | EXISTING ELECTRIC LINE                      |
|  | EXISTING WATERLINE                          |
|  | EXISTING NON-POTABLE WATERLINE (IRRIGATION) |

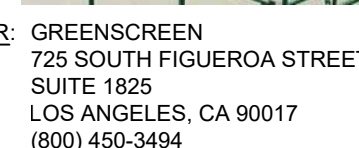


| <u>DECIDUOUS TREES</u>    |    | <u>BOTANICAL NAME</u>                       | <u>COMMON NAME</u>              | <u>SIZE</u> | <u>CONTAINER</u> | <u>HEIGHT</u> | <u>SPREAD</u> |
|---------------------------|----|---------------------------------------------|---------------------------------|-------------|------------------|---------------|---------------|
| SHA                       | 1  | Gleditsia triacanthos inermis 'Shademaster' | Shademaster Locust              | 2.5' Cal.   | B&B              | 50'           | 35'           |
| <u>EVERGREEN TREES</u>    |    | <u>BOTANICAL NAME</u>                       | <u>COMMON NAME</u>              | <u>SIZE</u> | <u>CONTAINER</u> | <u>HEIGHT</u> | <u>SPREAD</u> |
| SBB                       | 1  | Picea pungens 'Baby Blue Eyes'              | Baby Blue Eyes Spruce           | 6' Ht.      | B&B              | 18'           | 8'            |
| WOW                       | 10 | Juniperus scopulorum 'Woodward'             | Woodward Juniper                | 6' Ht.      | Pot              | 20'           | 3'            |
| <u>ORNAMENTAL TREES</u>   |    | <u>BOTANICAL NAME</u>                       | <u>COMMON NAME</u>              | <u>SIZE</u> | <u>CONTAINER</u> | <u>HEIGHT</u> | <u>SPREAD</u> |
| CCP                       | 3  | Pyrus calleryana 'Chanticleer'              | Chanticleer Pear                | 1.5' Cal.   | B&B              | 35'           | 15'           |
| <u>DECIDUOUS SHRUBS</u>   |    | <u>BOTANICAL NAME</u>                       | <u>COMMON NAME</u>              | <u>SIZE</u> | <u>CONTAINER</u> | <u>HEIGHT</u> | <u>SPREAD</u> |
| AFD                       | 24 | Cornus sericea 'Farrow'                     | Arctic Fire Dogwood             | #5          | Pot              | 4'            | 4'            |
| CEC                       | 14 | Viburnum opulus 'Compactum'                 | Compact European Cranberry Bush | #5          | Pot              | 5'            | 5'            |
| CGM                       | 6  | Ribes alpinum 'Green Mound'                 | Green Mound Currant             | #5          | Pot              | 3'            | 3'            |
| PDS                       | 35 | Potentilla fruticosa 'Fargo'                | Dakota Sunspot Potentilla       | #5          | Pot              | 3'            | 3'            |
| URC                       | 7  | Aronia arbutifolia 'Erecta'                 | Upright Red Chokeberry          | #5          | Pot              | 8'            | 4'            |
| <u>EVERGREEN SHRUBS</u>   |    | <u>BOTANICAL NAME</u>                       | <u>COMMON NAME</u>              | <u>SIZE</u> | <u>CONTAINER</u> | <u>HEIGHT</u> | <u>SPREAD</u> |
| BCH                       | 18 | Juniperus horizontalis 'Blue Chip'          | Blue Chip Juniper               | #5          | Pot              | 0.75'         | 6'            |
| <u>ORNAMENTAL GRASSES</u> |    | <u>BOTANICAL NAME</u>                       | <u>COMMON NAME</u>              | <u>SIZE</u> | <u>CONTAINER</u> | <u>HEIGHT</u> | <u>SPREAD</u> |
| AVG                       | 69 | Helictotrichon sempervirens                 | Blue Avena                      | #1          | Pot              | 2.5'          | 2.5'          |
| LBG                       | 9  | Schizachyrium scoparium                     | Little Bluestem                 | #1          | Pot              | 3'            | 2'            |
| <u>PERENNIALS</u>         |    | <u>BOTANICAL NAME</u>                       | <u>COMMON NAME</u>              | <u>SIZE</u> | <u>CONTAINER</u> | <u>HEIGHT</u> | <u>SPREAD</u> |
| CLT                       | 41 | Nepeta 'Psfiker'                            | Little Trudy Catmint            | #1          | Pot              | 0.75'         | 1.25'         |
| DDY                       | 21 | Hemerocallis 'Stella d'Oro'                 | Stella d'Oro Daylily            | #1          | Pot              | 1.25'         | 1.25'         |
| ENG                       | 14 | Parthenocissus quinquefolia engelmannii     | Engelmann Virginia Creeper      | #1          | Pot              | 25'           | 4'            |
| POM                       | 15 | Callirhoe involucrata                       | Purple Poppymallow              | #1          | Pot              | 1'            | 2'            |

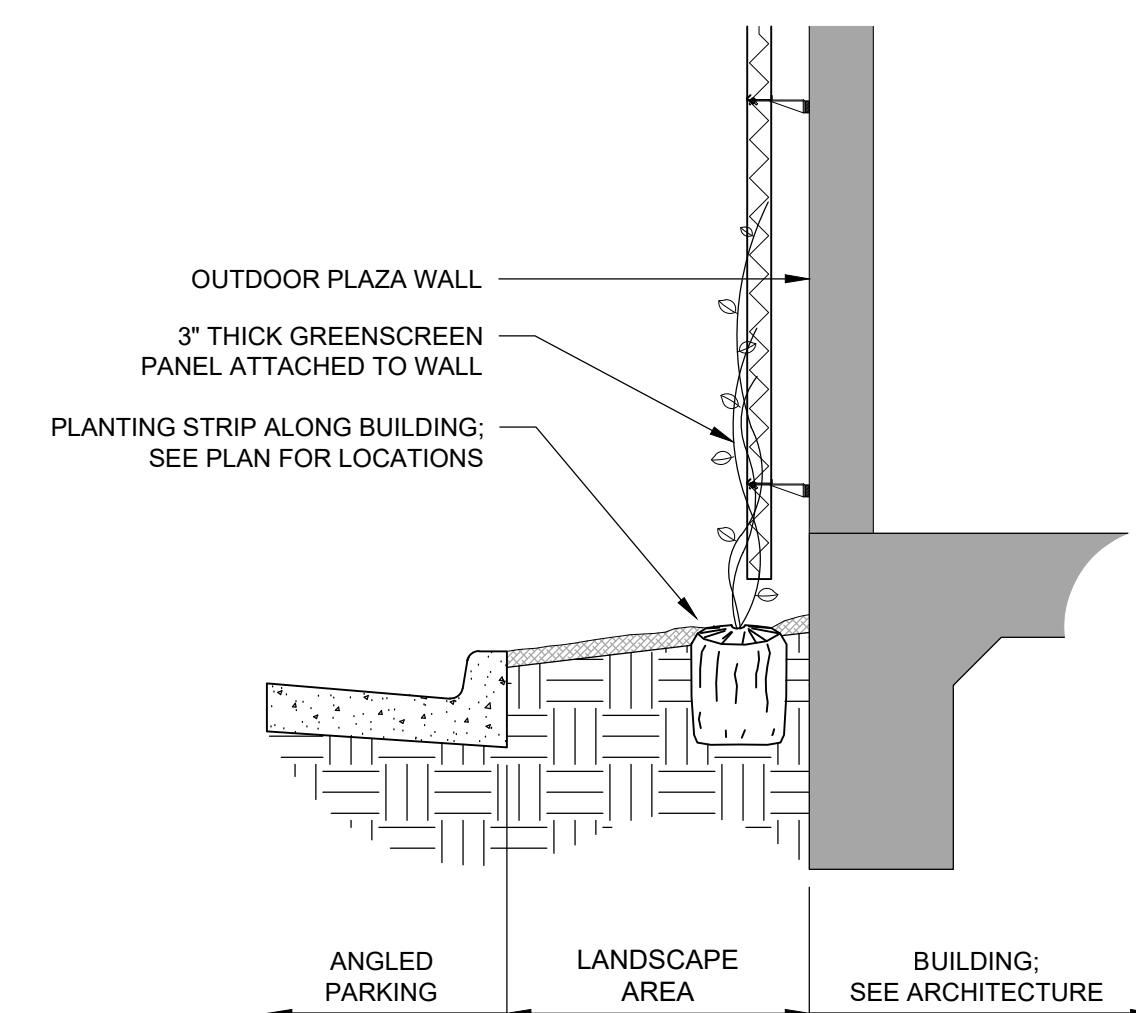
Redland  
1500 W. Canal Ct.  
Littleton, Colorado 80120  
Phone: 720.283.6783  
Contact: Brice J. Bradley, PLA  
Email: [bbradley@redland.com](mailto:bbradley@redland.com)



3 SCALE: 1/2"=1'-0"

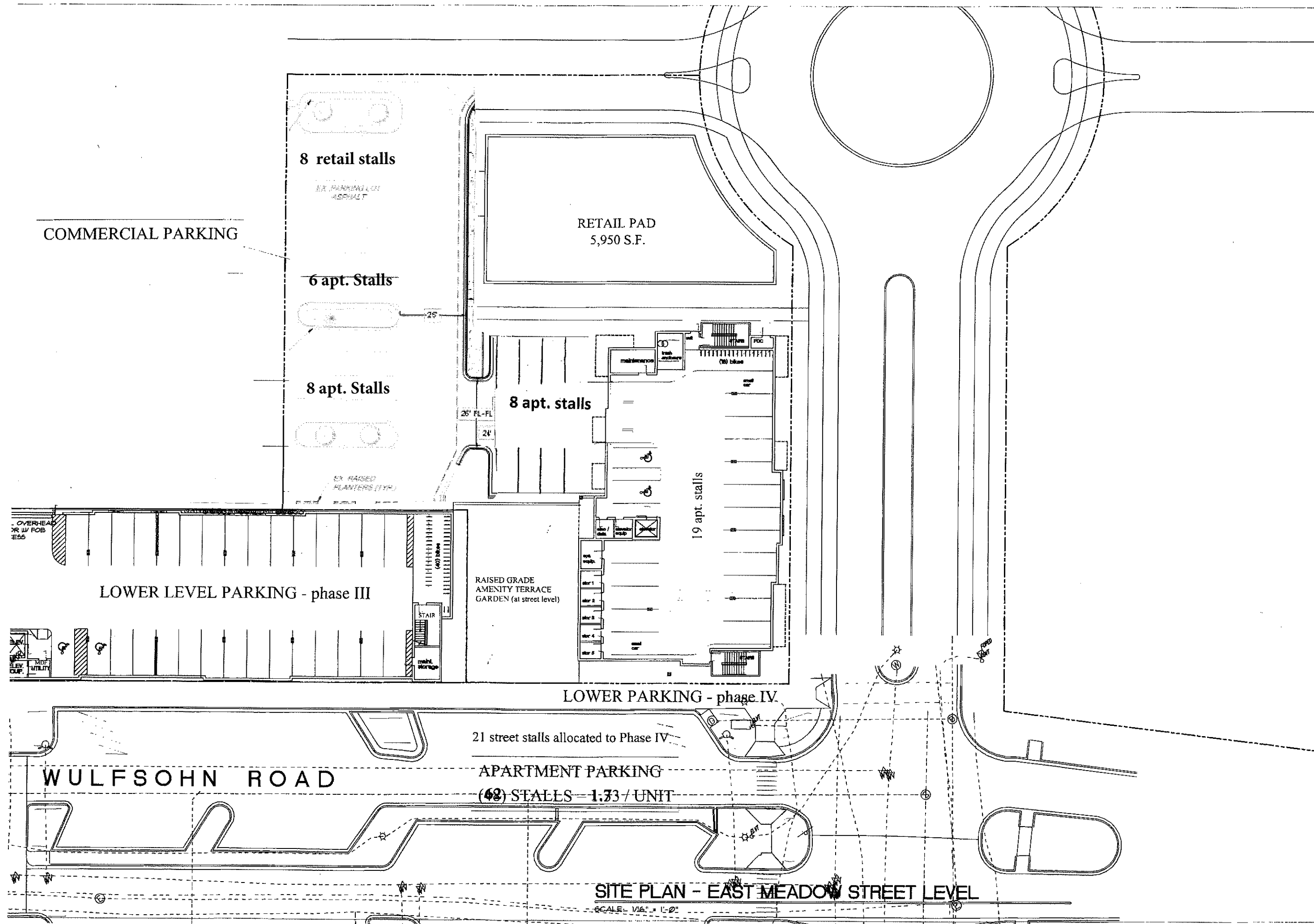


2 WALL T  
SCALE: N.T.S.



SCALE: 1/2"=1'-0"





PROJECT NUMBER  
20-029

SHEET TITLE  
SITE PLAN  
STREET LEVEL (WULFSOHN RD)  
SCALE: 1/16" = 1'-0"

PROJECT OWNER

LOFTS AT RED MOUNTAIN  
PHASE IV  
WULFSOHN ROAD / EAST MEADOWS  
LOT 8  
GLENWOOD SPRINGS, CO  
STONELEIGH COMPANIES, LLC

ARCHITECT

architecture  
2033 don drive  
layton, utah 84040  
(801) 593-9338  
(801) 593-9328 FAX



REVISION DATE

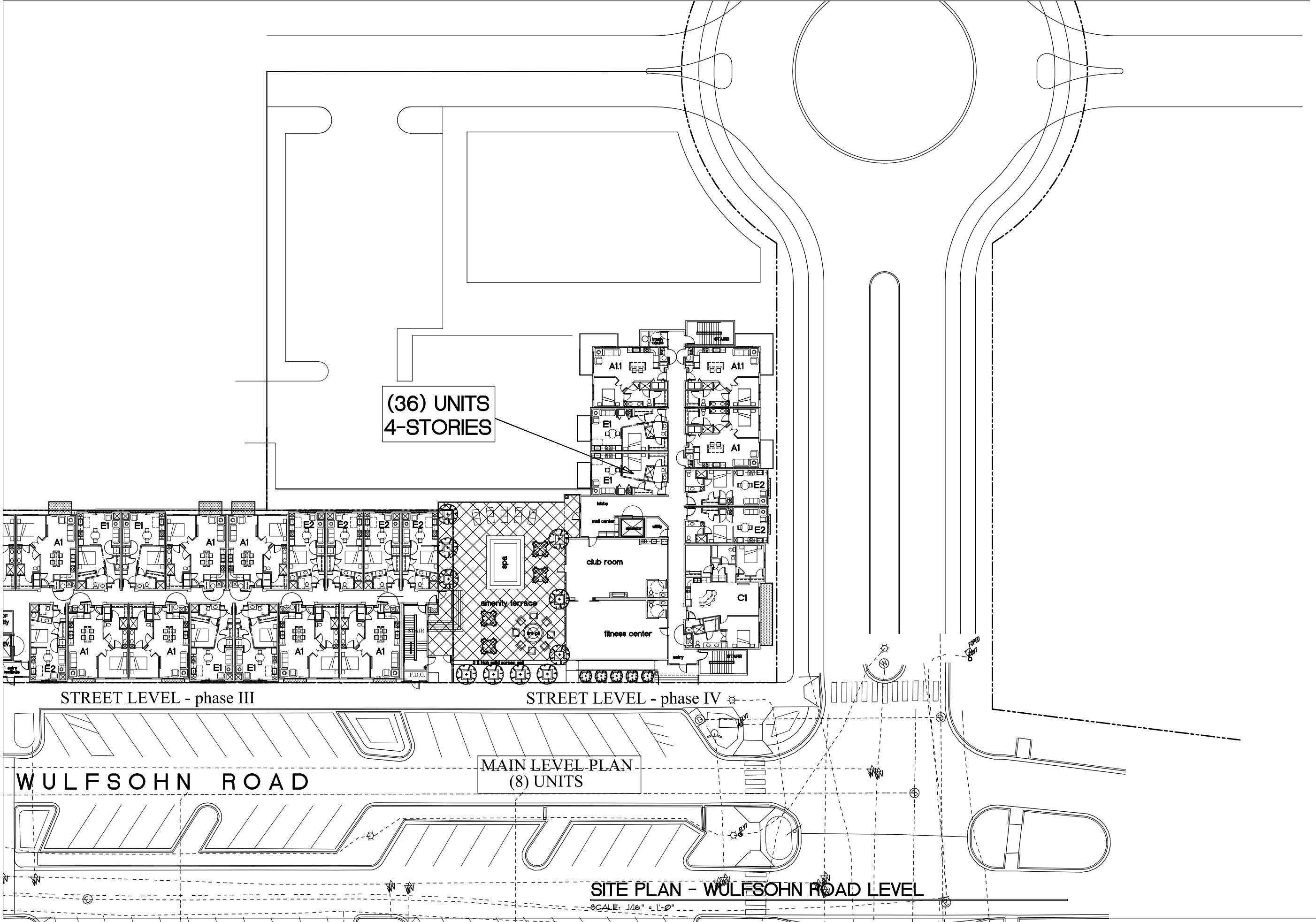
XX

DATE

15 FEB 2021

SHEET NUMBER

A1.0



PROJECT NUMBER

20-029

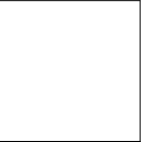
SHEET TITLE

SITE PLAN  
STREET LEVEL (WULFSOHN RD)  
SCALE: 1/16" = 1'-0"

PROJECT/OWNER

LOFTS AT RED MOUNTAIN  
PHASE IV  
WULFSOHN ROAD / EAST MEADOWS  
LOT 8  
GLENWOOD SPRINGS, CO  
STONELEIGH COMPANIES, LLC

ARCHITECT



architecture  
2033 dan drive  
layton, utah 84040  
(801) 593-9338  
(801) 593-9328 FAX



REVISION DATE

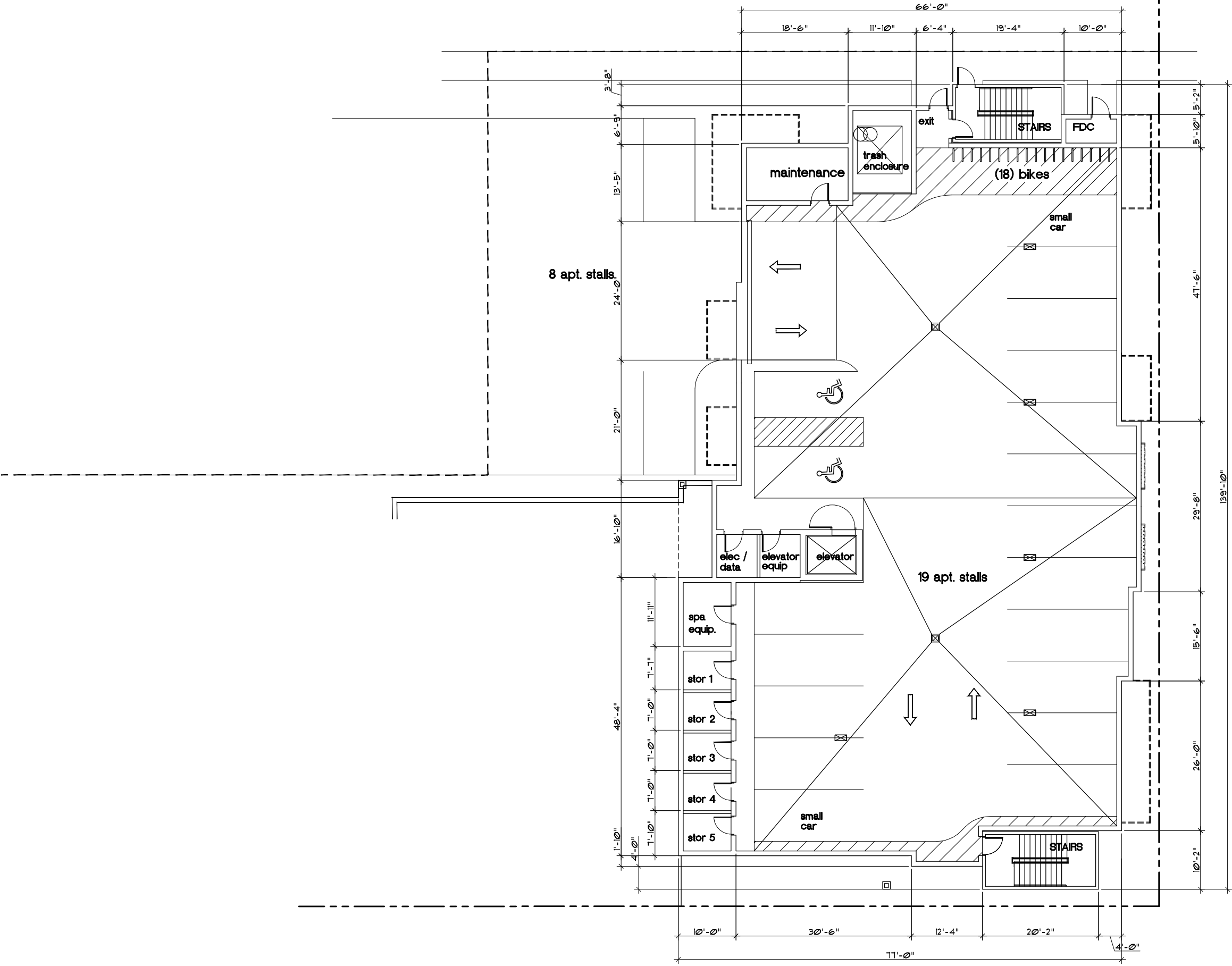
XX

DATE

15 FEB 2021

SHEET NUMBER

A1.1



FLOOR PLAN - PARKING LEVEL

SCALE: 1/8" = 1'-0"

PROJECT NUMBER

20-029

SHEET TITLE

PARKING LEVEL PLAN

SCALE: 1/8" = 1'-0"

PROJECT/OWNER

LOFTS AT RED MOUNTAIN  
PHASE IV  
WULFSOHN ROAD / EAST MEADOWS  
LOT 8  
GLENWOOD SPRINGS, CO  
STONELEIGH COMPANIES, LLC

ARCHITECT

architecture  
2033 dan drive  
layton, utah 84040  
(801) 593-9338  
(801) 593-9328 FAX

REVISION DATE

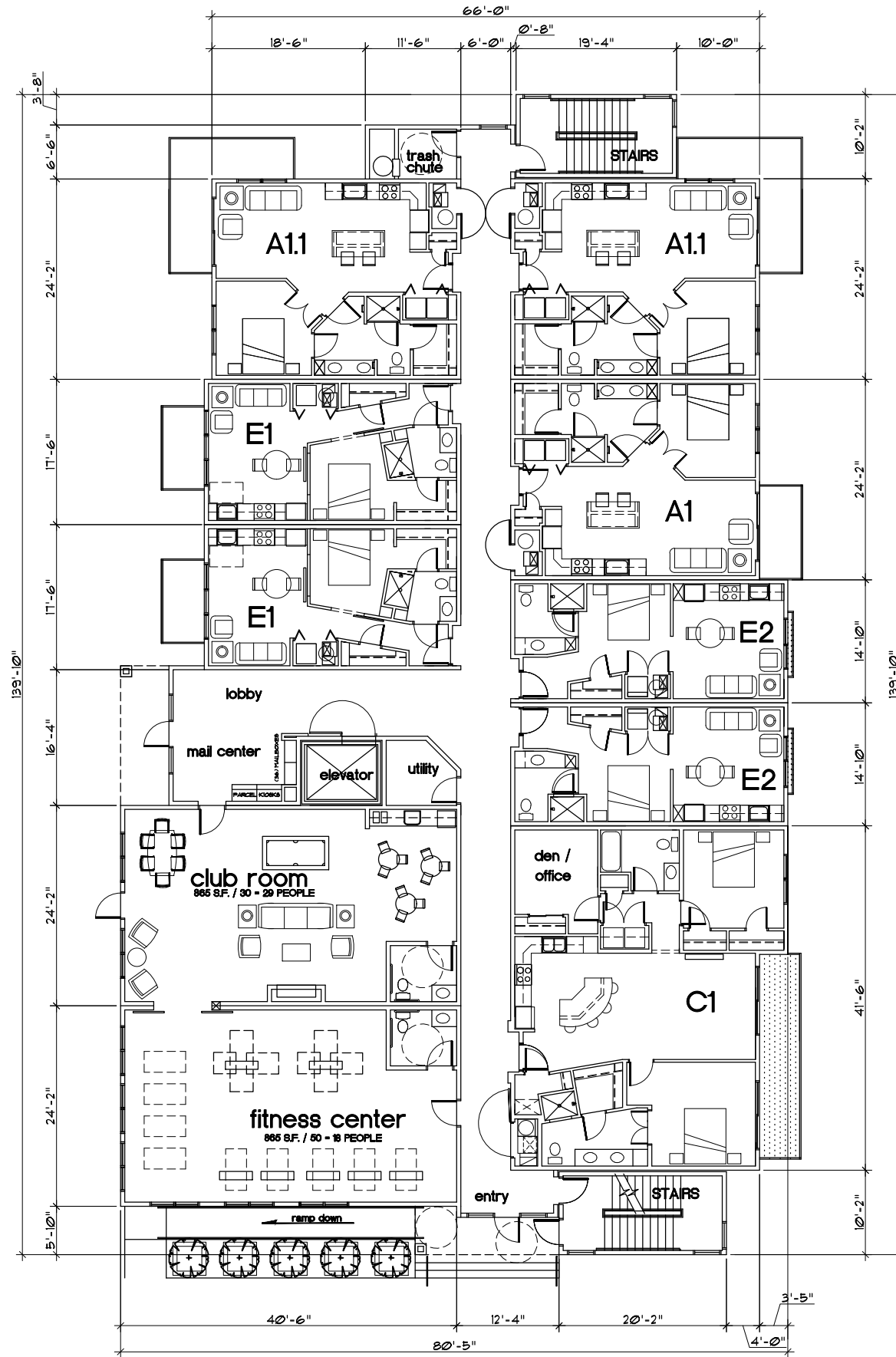
XX

DATE

15 FEB 2021

SHEET NUMBER

A2.0



| UNIT MIX THIS FLOOR: |         |
|----------------------|---------|
| A1                   | 1 UNIT  |
| A1.1                 | 2 UNITS |
| E1                   | 2 UNITS |
| E2                   | 2 UNITS |
| C1                   | 1 UNIT  |
| TOTAL:               | 8 UNITS |

FLOOR PLAN - MAIN LEVEL (STREET LEVEL)

SCALE: 1/8" = 1'-0"

PROJECT NUMBER

20-029

SHEET TITLE

MAIN FLOOR PLAN

SCALE: 1/8" = 1'-0"

PROJECT/OWNER

LOFTS AT RED MOUNTAIN  
PHASE IV  
WILFBOHN ROAD / EAST MEADOWS  
LOT 8  
GLENWOOD SPRINGS, CO  
STONELEIGH COMPANIES, LLC

ARCHITECT

architecture  
2033 dan drive  
layton, utah 84040  
(801) 593-9338  
(801) 593-9328 FAX

REVISION DATE

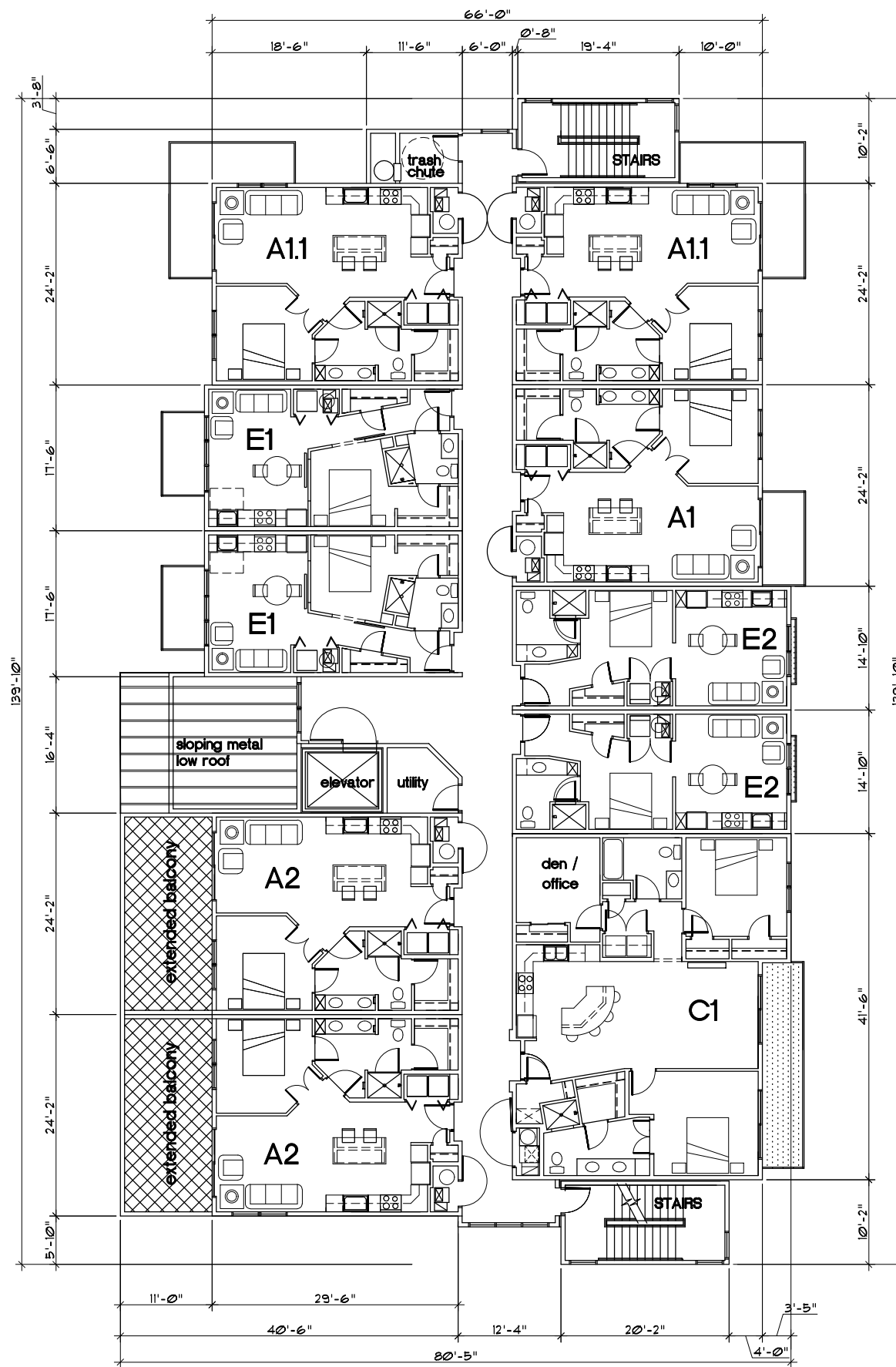
XX

DATE

15 FEB 2021

SHEET NUMBER

A2.1



| UNIT MIX THIS FLOOR: |          |
|----------------------|----------|
| A1                   | 1 UNIT   |
| A1.1                 | 2 UNITS  |
| A2                   | 2 UNITS  |
| E1                   | 2 UNITS  |
| E2                   | 2 UNITS  |
| C1                   | 1 UNIT   |
| TOTAL:               | 10 UNITS |

## FLOOR PLAN - 2ND LEVEL

SCALE: 1/8" = 1'-0"

PROJECT NUMBER

20-029

SHEET TITLE

2ND FLOOR PLAN

SCALE: 1/8" = 1'-0"

PROJECT/OWNER

LOFTS AT RED MOUNTAIN  
PHASE IV

WILFBOHN ROAD / EAST MEADOWS  
LOT 8  
GLENWOOD SPRINGS, CO  
STONELEIGH COMPANIES, LLC

ARCHITECT

architecture

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layton, utah 84040  
(801) 593-9338  
(801) 593-9328 FAX



REVISION DATE

XX

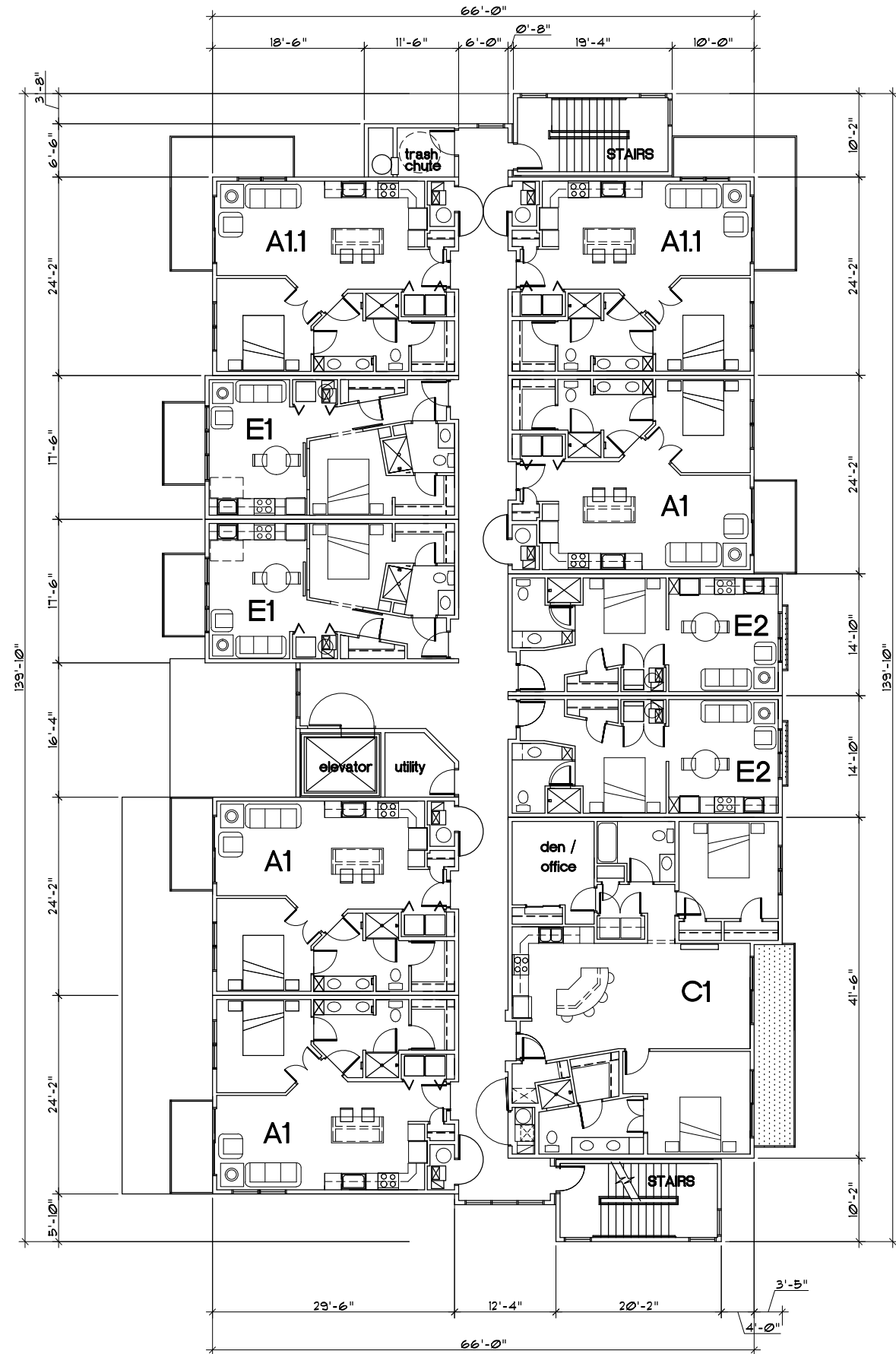
DATE

15 FEB 2021

SHEET NUMBER

A2.2





FLOOR PLAN - 3RD LEVEL  
SCALE: 1/8" = 1'-0"

| UNIT MIX THIS FLOOR: |          |
|----------------------|----------|
| A1                   | 3 UNIT   |
| A1.1                 | 2 UNITS  |
| E1                   | 2 UNITS  |
| E2                   | 2 UNITS  |
| C1                   | 1 UNIT   |
| TOTAL:               | 10 UNITS |

PROJECT NUMBER

20-029

SHEET TITLE

3RD FLOOR PLAN  
SCALE: 1/8" = 1'-0"

PROJECT/OWNER

LOFTS AT RED MOUNTAIN  
PHASE IV  
WULFSOHN ROAD / EAST MEADOWS  
LOT 8  
GLENWOOD SPRINGS, CO  
STONELEIGH COMPANIES, LLC

ARCHITECT

architecture  
2033 dan drive  
layton, utah 84040  
(801) 593-9338  
(801) 593-9328 FAX

REVISION DATE

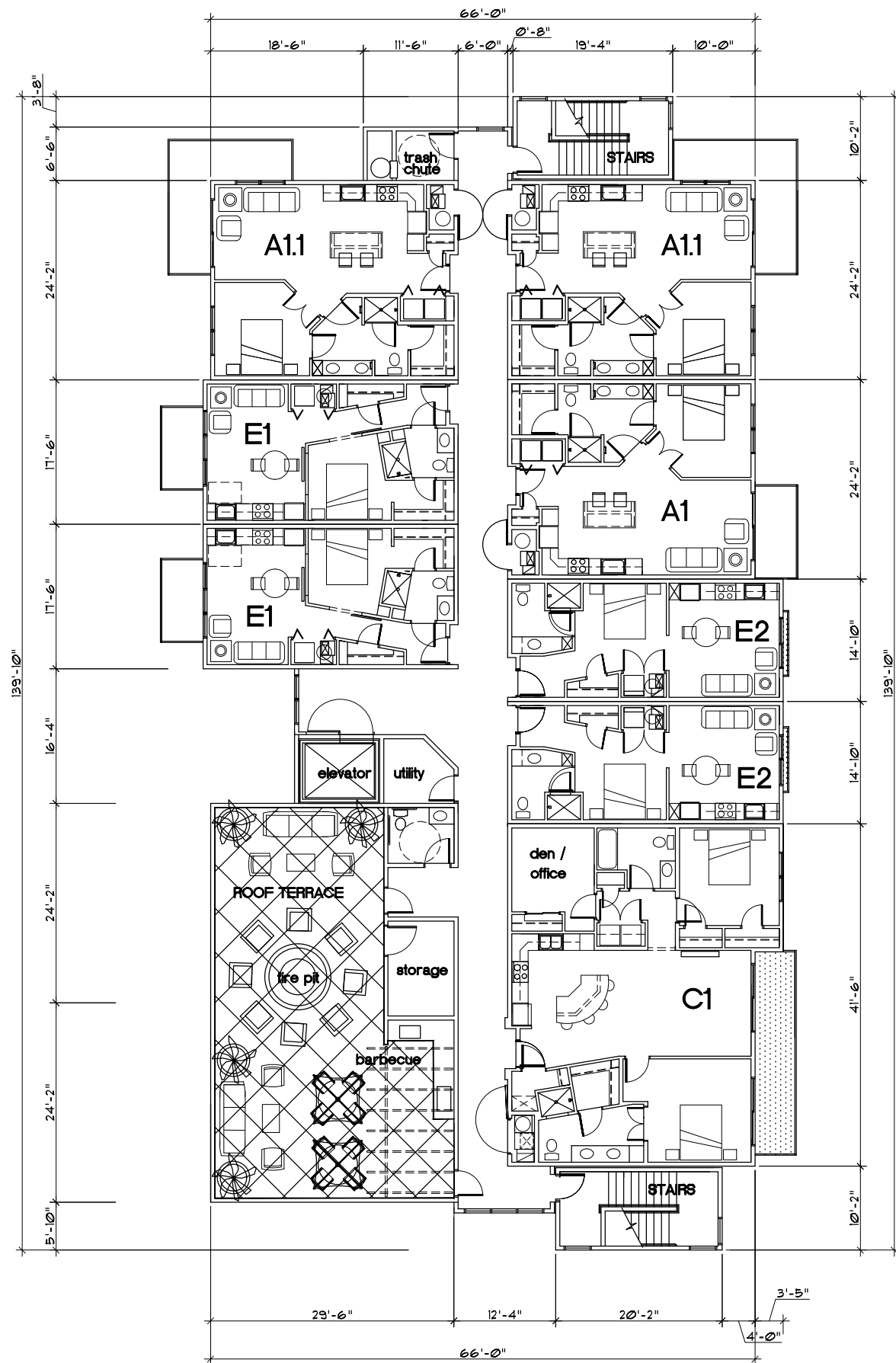
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DATE

15 FEB 2021

SHEET NUMBER

A2.3



FLOOR PLAN - 4TH LEVEL

SCALE: 1/8" = 1'-0"

| UNIT MIX THIS FLOOR: |         |
|----------------------|---------|
| A1                   | 1 UNIT  |
| A1.1                 | 2 UNITS |
| E1                   | 2 UNITS |
| E2                   | 2 UNITS |
| C1                   | 1 UNIT  |
| TOTAL:               | 8 UNITS |

PROJECT NUMBER

20-029

SHEET TITLE

4TH FLOOR PLAN  
SCALE: 1/8" = 1'-0"

PROJECT/OWNER

LOFTS AT RED MOUNTAIN  
PHASE IV  
WULFGOHN ROAD / EAST MEADOWS  
LOT 8  
GLENWOOD SPRINGS, CO  
STONELEIGH COMPANIES, LLC

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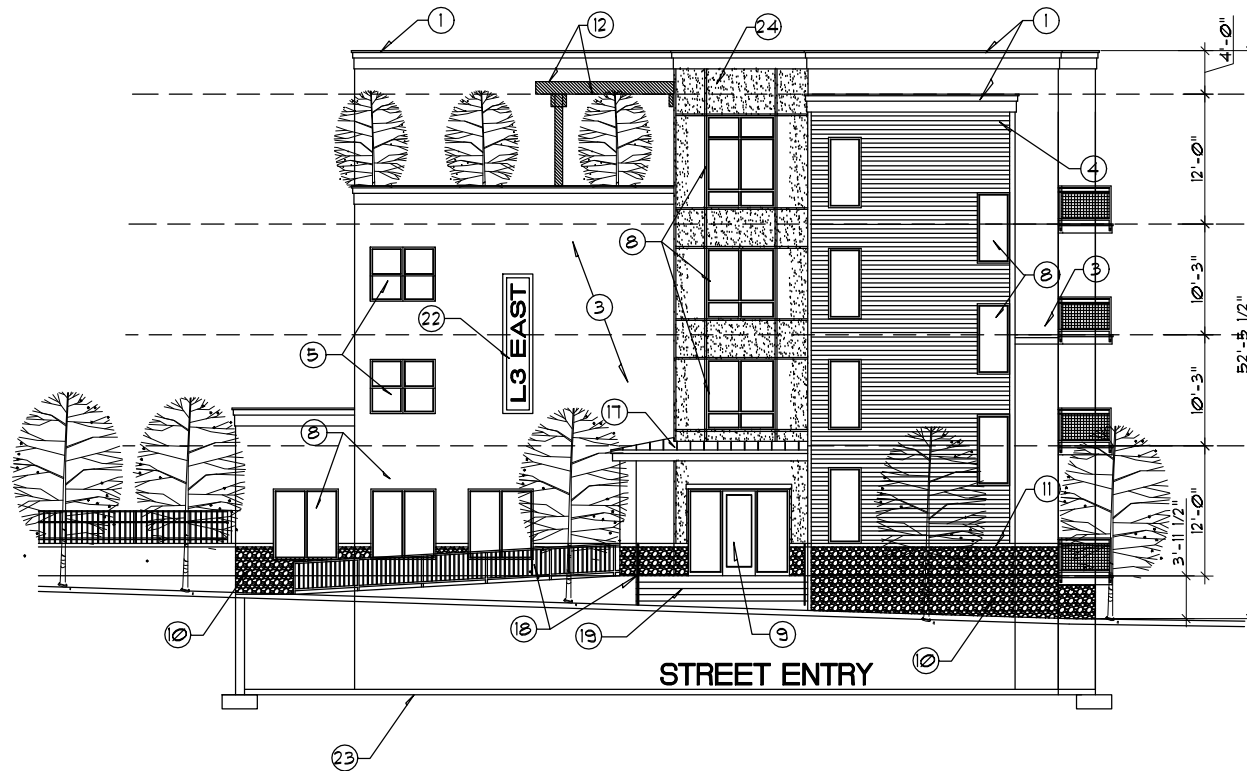
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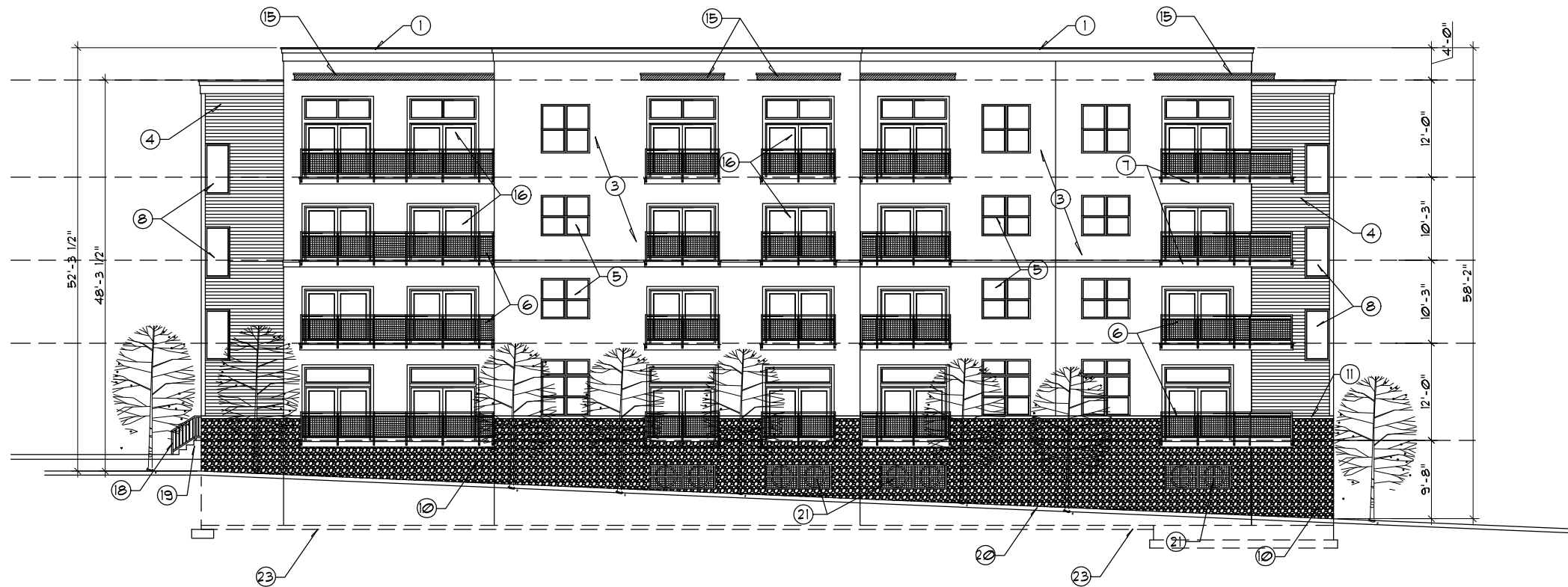
A2.4



**SOUTH ELEVATION**  
WULFSOHN ROAD

**EXTERIOR ELEVATION KEYED NOTES:**

1. METAL PARAPET CAP FLASHING.
2. STEPPED FASCIA AT TOP OF PARAPET.
3. HARD COAT STUCCO
4. CEMENT BOARD SIDING
5. VINYL WINDOWS
6. ALUMINUM BALCONY RAILING
7. METAL FASCIA AND VENTED ALUM SOFFIT AT BALCONIES
8. ALUMINUM STOREFRONT WINDOWS
9. ALUMINUM STOREFRONT ENTRY DOORS
10. SYNTHETIC STONE VENEER
11. LEDGESTONE CAP AT TOP OF STONE WAINSCOT.
12. STEEL TUBE TRELLIS - PAINTED.
13. CONC. RETAINING WALL AT RAISED TERRACE
14. OVERHEAD RAPID OPEN PARKING ENTRY ACCESS.
15. METAL FASCIA AND SOFFIT EYEBROW ELEMENT ABOVE 4TH FLOOR BALCONY DOORS.
16. VINYL BALCONY DOORS AND SIDELIGHTS.
17. STANDING SEAM METAL ROOF AT LOW SHED ROOF ELEMENTS.
18. WROUGHT IRON RAILING AT STEPS - PAINTED.
19. CONCRETE STEPS AND RAMP AT ENTRY.
20. STREET SIDEWALK
21. STEEL TUBE GRILL AT PARKING STRUCTURE OPENING - PAINTED.
22. FIN SIGN PER SEPARATE SIGN PACKAGE.
23. FTG AND FND AT PARKING STRUCTURE LEVEL.
24. FLAT PANEL CEMENT BOARD W/ BATTENS. - PAINTED.



**EAST ELEVATION**  
EAST MEADOWS

PROJECT NUMBER

20-029

SHEET TITLE

EXTERIOR ELEVATIONS

SCALE: 1/8" = 1'-0"

PROJECT/OWNER

LOFTS AT RED MOUNTAIN  
PHASE IV  
WULFSOHN ROAD / EAST MEADOWS  
LOT 8  
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REVISION DATE

XX

DATE

26 FEB 2021

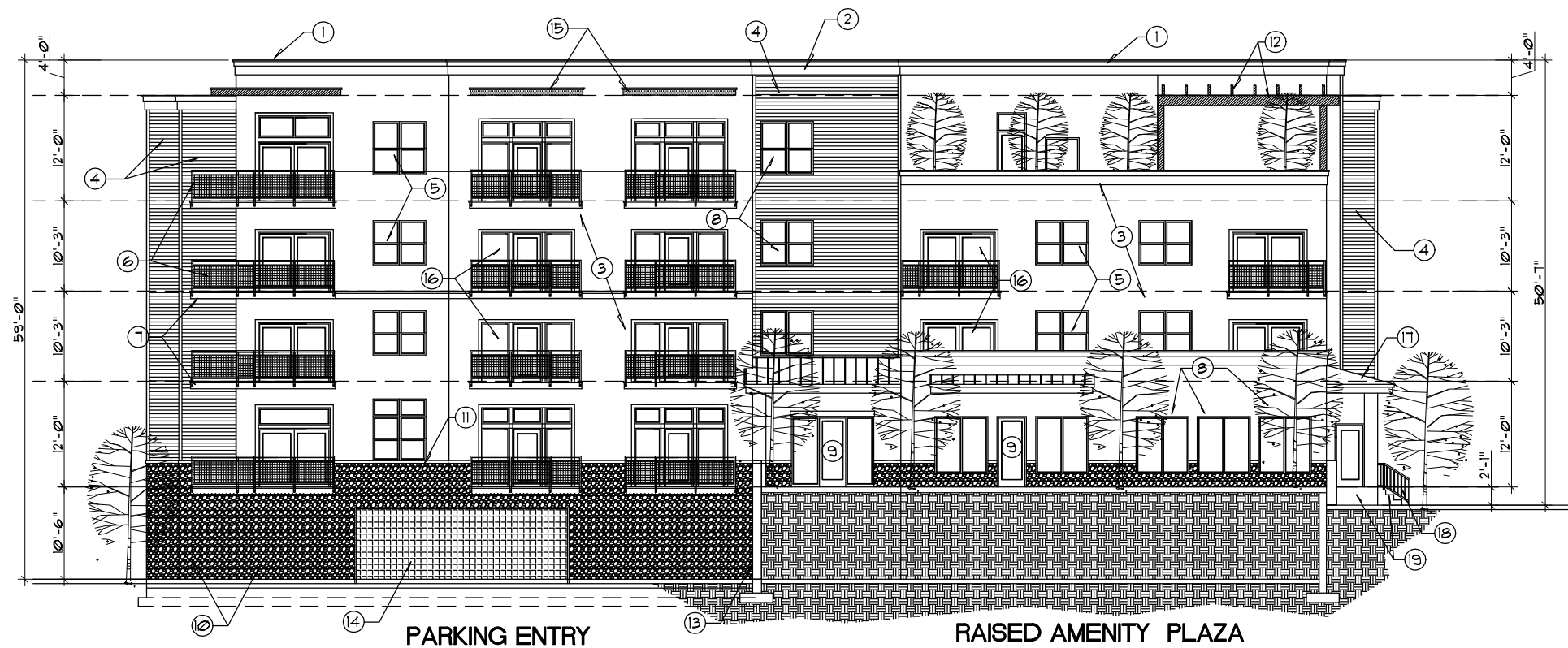
SHEET NUMBER

A3.1



**NORTH ELEVATION**

- EXTERIOR ELEVATION KEYED NOTES:**
1. METAL PARAPET CAP FLASHING.
  2. STEPPED FASCIA AT TOP OF PARAPET.
  3. HARD COAT STUCCO
  4. CEMENT BOARD SIDING
  5. VINYL WINDOWS
  6. ALUMINUM BALCONY RAILING
  7. METAL FASCIA AND VENTED ALUM SOFFIT AT BALCONIES
  8. ALUMINUM STOREFRONT WINDOWS
  9. ALUMINUM STOREFRONT ENTRY DOORS
  10. SYNTHETIC STONE VENEER
  11. LEDGESTONE CAP AT TOP OF STONE WAINSCOT.
  12. STEEL TUBE TRELLIS - PAINTED.
  13. CONC. RETAINING WALL AT RAISED TERRACE
  14. OVERHEAD RAPID OPEN PARKING ENTRY ACCESS.
  15. METAL FASCIA AND SOFFIT EYEBROW ELEMENT ABOVE 4TH FLOOR BALCONY DOORS.
  16. VINYL BALCONY DOORS AND SIDELIGHTS.
  17. STANDING SEAM METAL ROOF AT LOW SHED ROOF ELEMENTS.
  18. WROUGHT IRON RAILING AT STEPS - PAINTED.
  19. CONCRETE STEPS AND RAMP AT ENTRY.



**PARKING ENTRY**

**RAISED AMENITY PLAZA**

**WEST ELEVATION**

PROJECT NUMBER

20-029

SHEET TITLE

EXTERIOR ELEVATIONS

SCALE: 1/8" = 1'-0"

PROJECT/OWNER

LOFTS AT RED MOUNTAIN  
PHASE IV  
WULFSOHN ROAD / EAST MEADOWS  
LOT 8  
GLENWOOD SPRINGS, CO  
STONELEIGH COMPANIES, LLC

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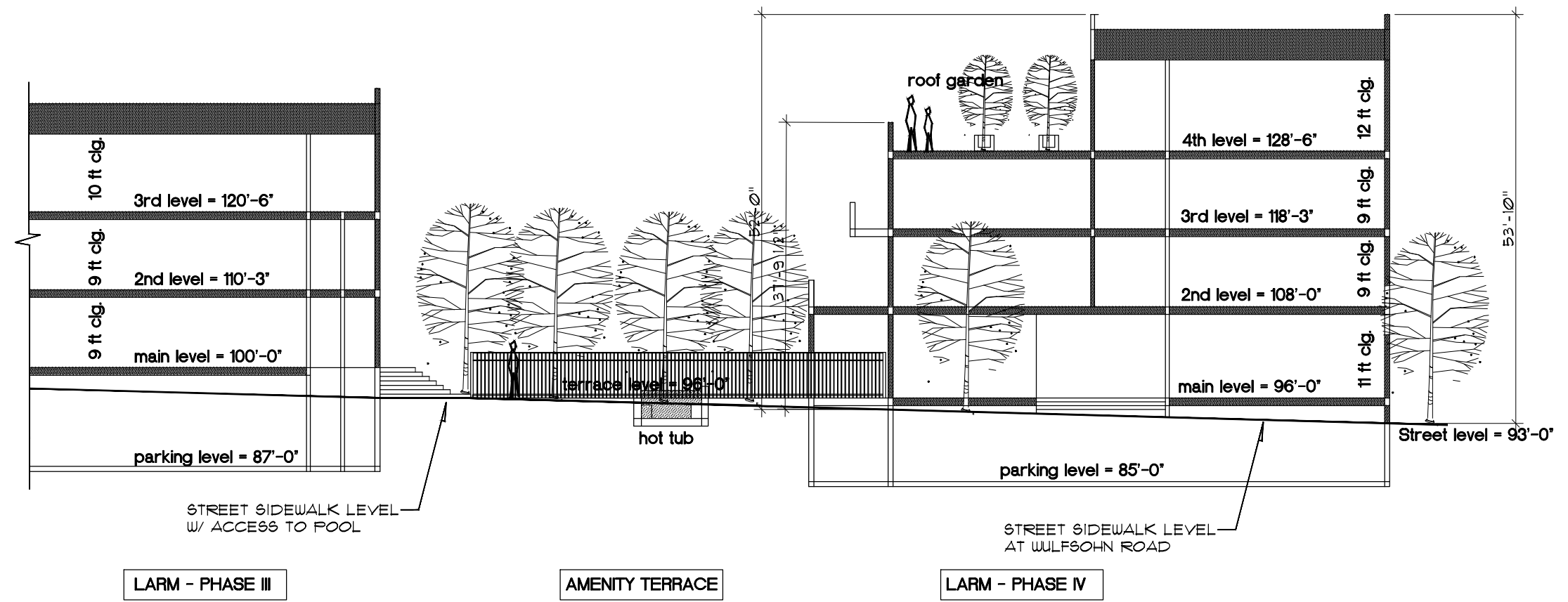
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DATE

26 FEB 2021

SHEET NUMBER

A3.2



SITE SECTION

SCALE: 1/8" = 1'-0"

PROJECT NUMBER

20-029

SHEET TITLE

SITE SECTION

SCALE: 1/8" = 1'-0"

PROJECT/OWNER

LOFTS AT RED MOUNTAIN  
PHASE IV

WULFSOHN ROAD / EAST MEADOWS  
LOT 8  
GLENWOOD SPRINGS, CO  
STONELEIGH COMPANIES, LLC

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REVISION DATE

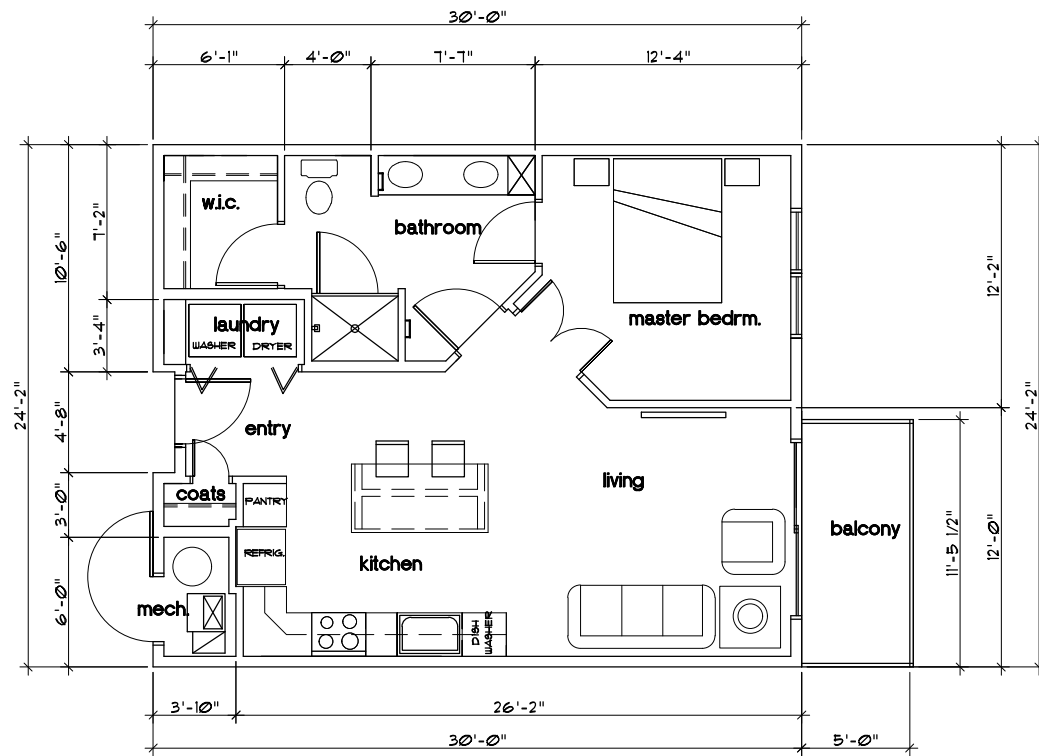
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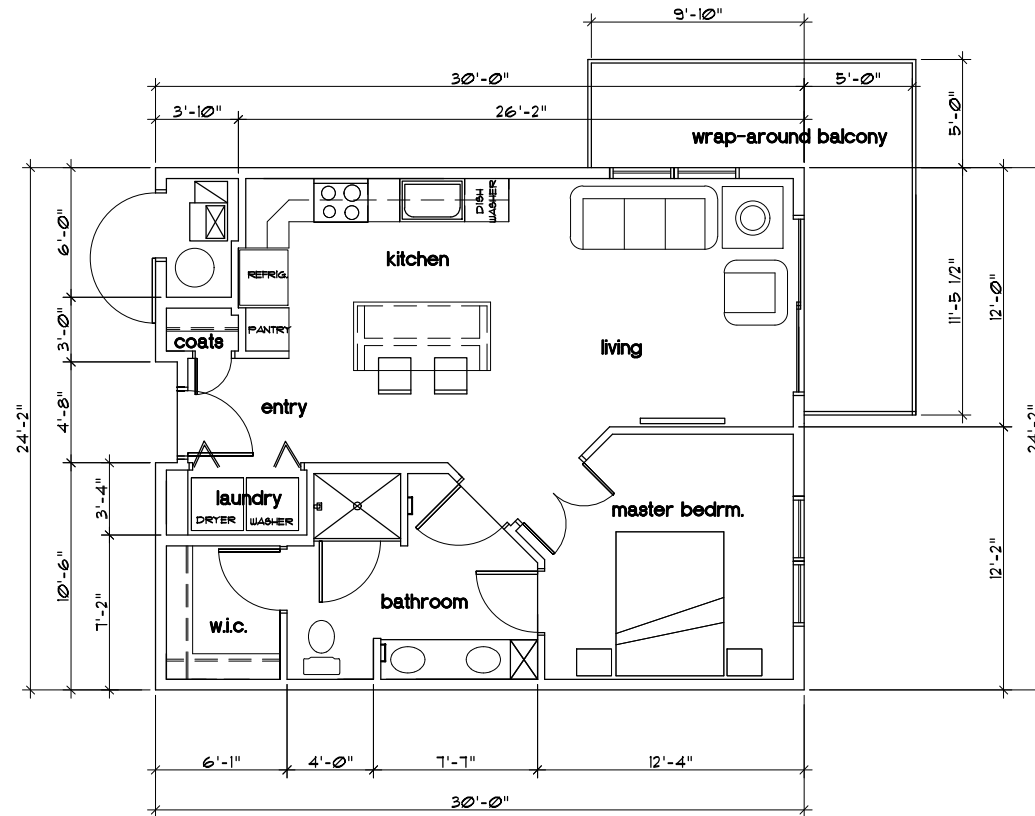
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SHEET NUMBER

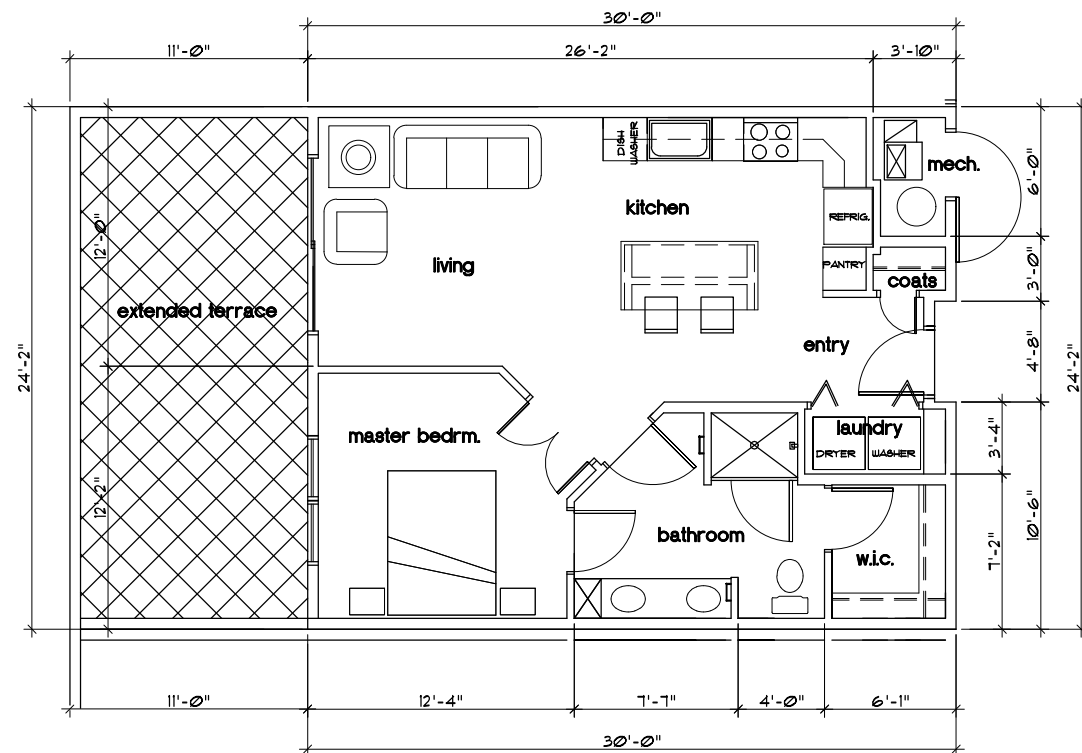
A3.3



**UNIT PLAN - A1** 720 s.f.  
 SCALE: 1/4" = 1'-0" **1-bed**



**UNIT PLAN - A1.1** 720 s.f.  
 SCALE: 1/4" = 1'-0" **1-bed w/ wrap-around balcony**



**UNIT PLAN - A2** 720 s.f.  
 SCALE: 1/4" = 1'-0" **1-bed w/ extended terrace**

PROJECT NUMBER

**20-029**

SHEET TITLE

UNIT PLANS

SCALE: 1/4" = 1'-0"

PROJECT/OWNER

LOFTS AT RED MOUNTAIN  
 PHASE IV  
 WILFSON ROAD / EAST MEADOWS  
 LOT 8  
 GLENWOOD SPRINGS, CO  
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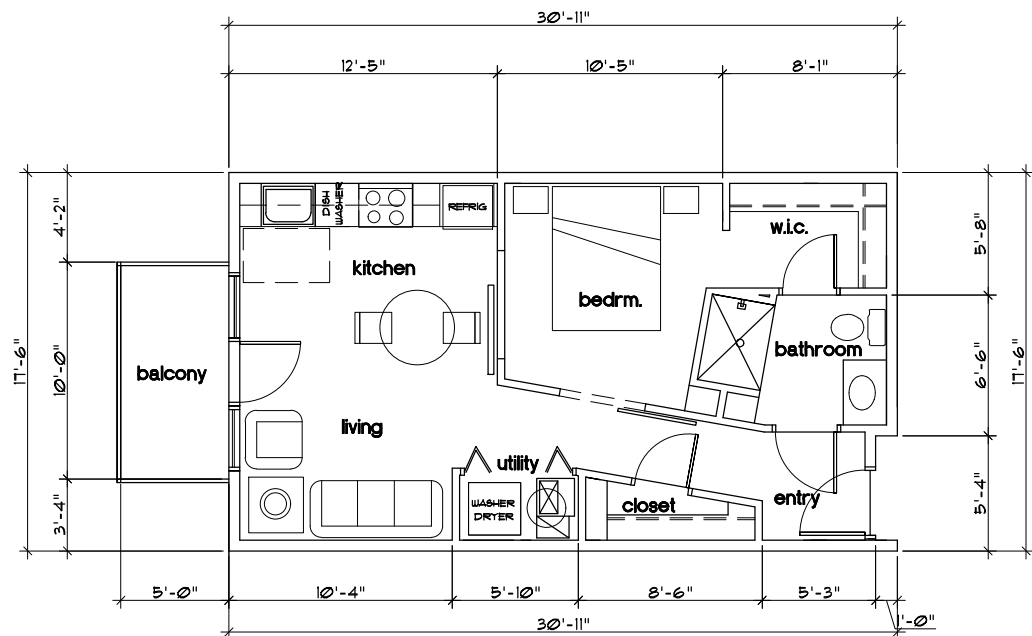
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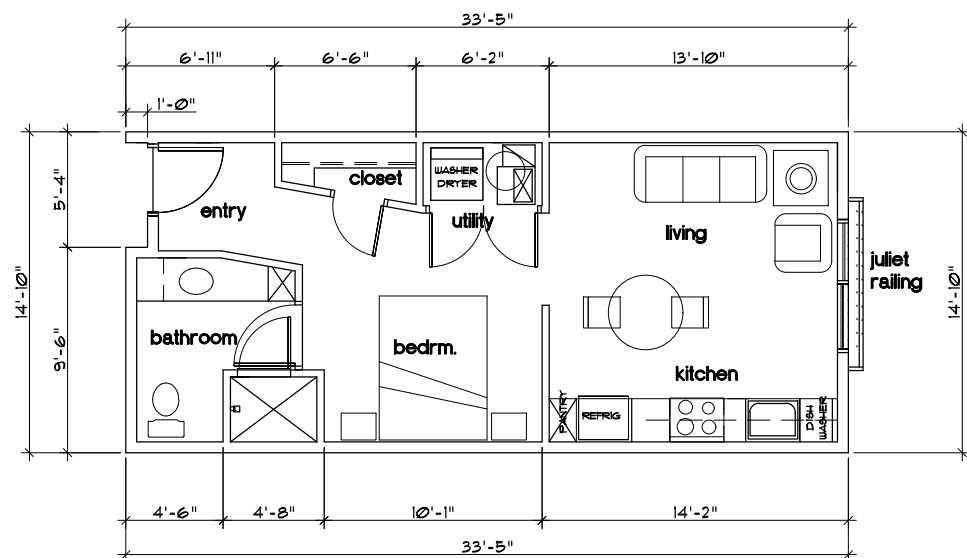
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**A4.1**

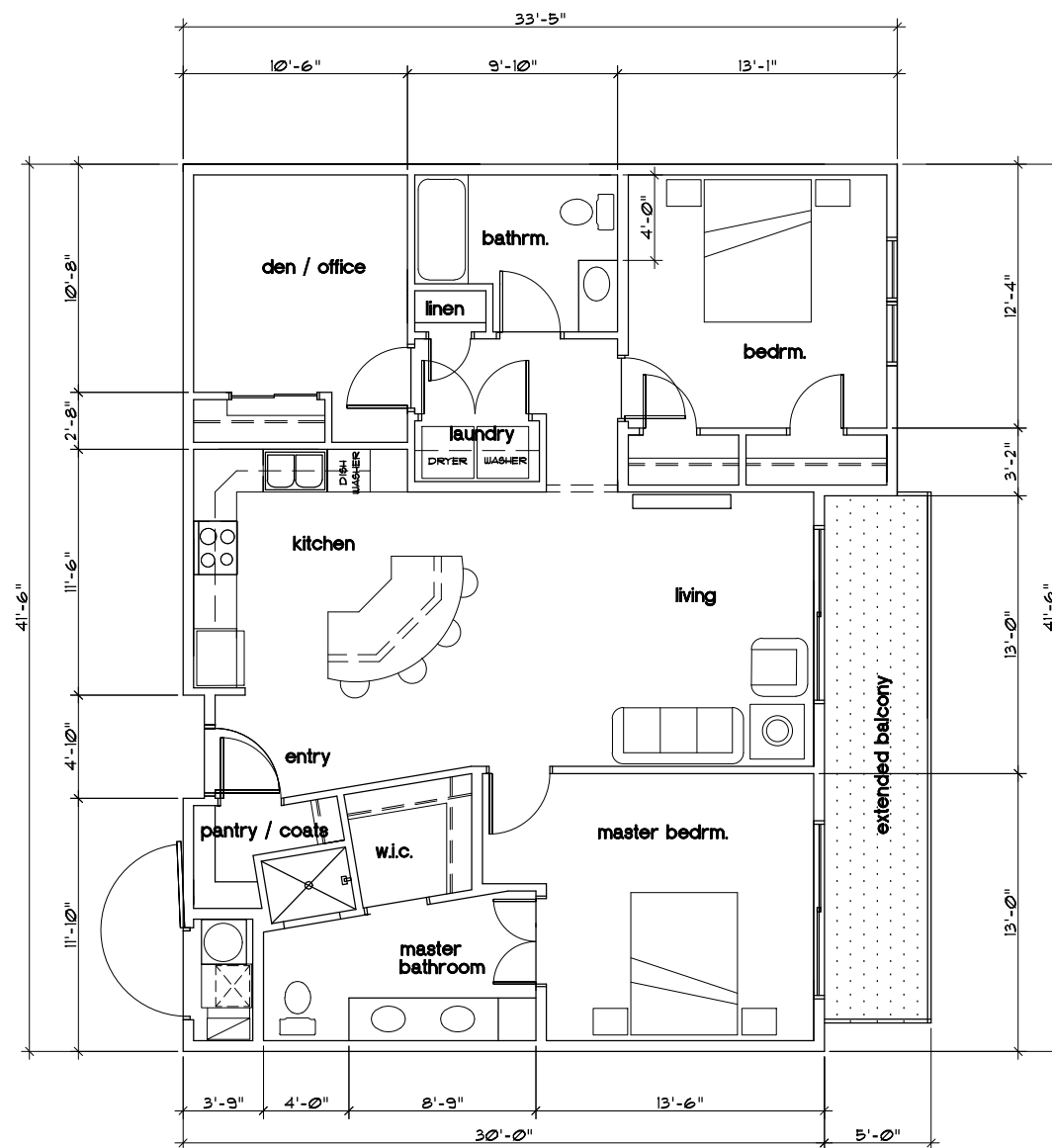




**UNIT PLAN - E1** 535 s.f.  
 SCALE: 1/4" = 1'-0" efficiency 1-bed



**UNIT PLAN - E2** 490 s.f.  
 SCALE: 1/4" = 1'-0" studio



**UNIT PLAN - C1** 1,294 s.f.  
 SCALE: 1/4" = 1'-0" 2-bed + den

PROJECT NUMBER

20-029

SHEET TITLE

UNIT PLANS

SCALE: 1/4" = 1'-0"

PROJECT/OWNER

LOFTS AT RED MOUNTAIN  
 PHASE IV  
 WILFSON ROAD / EAST MEADOWS  
 LOT 8  
 GLENWOOD SPRINGS, CO  
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REVISION DATE

XX

DATE

15 FEB 2021

SHEET NUMBER

A4.2







Traffic Impact Study

# Lofts at Red Mountain Phase IV Glenwood Springs, Colorado

Prepared for:  
Realty Capital Management

**Kimley»Horn**

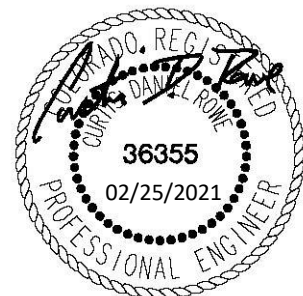
# T R A F F I C   I M P A C T   S T U D Y

## Lofts at Red Mountain – Phase IV

Glenwood Springs, Colorado

**Prepared for**  
**Realty Capital Management**  
909 Lake Carolyn Parkway  
Suite 150  
Irving, TC 75039

**Prepared by**  
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Denver, Colorado 80237  
(303) 228-2300



February 2021

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## TABLE OF CONTENTS

|                                                  |    |
|--------------------------------------------------|----|
| TABLE OF CONTENTS .....                          | i  |
| LIST OF TABLES .....                             | ii |
| LIST OF FIGURES .....                            | ii |
| 1.0 EXECUTIVE SUMMARY .....                      | 1  |
| 2.0 INTRODUCTION.....                            | 3  |
| 3.0 EXISTING AND FUTURE CONDITIONS .....         | 5  |
| 3.1 Existing Study Area .....                    | 5  |
| 3.2 Existing Roadway Network .....               | 5  |
| 3.3 Existing Traffic Volumes .....               | 7  |
| 3.4 Unspecified Development Traffic Growth ..... | 11 |
| 4.0 PROJECT TRAFFIC CHARACTERISTICS .....        | 14 |
| 4.1 Trip Generation.....                         | 14 |
| 4.2 Trip Distribution .....                      | 15 |
| 4.3 Traffic Assignment.....                      | 15 |
| 4.4 Total (Background Plus Project) Traffic..... | 15 |
| 5.0 TRAFFIC OPERATIONS ANALYSIS .....            | 20 |
| 5.1 Analysis Methodology .....                   | 20 |
| 5.2 Key Intersection Operational Analysis .....  | 21 |
| 5.3 Vehicle Queuing Analysis .....               | 26 |
| 5.4 Bicycle and Pedestrian Access .....          | 26 |
| 5.5 Improvement Summary .....                    | 27 |
| 6.0 CONCLUSIONS AND RECOMMENDATIONS .....        | 30 |

## APPENDICES

- Appendix A – Intersection Count Sheets
- Appendix B – CDOT OTIS Information and Projections
- Appendix C – Trip Generation Worksheets
- Appendix D – Intersection Analysis Worksheets
- Appendix E – Queue Analysis Worksheets
- Appendix F – Conceptual Site Plan

## LIST OF TABLES

|                                                                     |    |
|---------------------------------------------------------------------|----|
| Table 1 – Lofts at Red Mountain – Phase IV Traffic Generation ..... | 14 |
| Table 2 – Level of Service Definitions .....                        | 20 |
| Table 3 – Midland Avenue and W Meadows LOS Results .....            | 21 |
| Table 4 – Wulfsohn Road and E Meadows Drive LOS Results .....       | 22 |
| Table 5 –E Meadows Drive Roundabout LOS Results .....               | 23 |
| Table 6 –E Meadows Drive and Midland Avenue LOS Results .....       | 24 |
| Table 7 – Wulfsohn Road and Midland Avenue LOS Results .....        | 25 |
| Table 8 – Turn Lane Queuing Analysis Results.....                   | 26 |

## LIST OF FIGURES

|                                                                    |    |
|--------------------------------------------------------------------|----|
| Figure 1 – Vicinity Map.....                                       | 4  |
| Figure 2 – Site Area .....                                         | 6  |
| Figure 3 – Existing Lane Configurations and Control.....           | 8  |
| Figure 4 – 2021 Existing Traffic Volumes .....                     | 9  |
| Figure 5 – Existing Adjusted Traffic Volumes .....                 | 10 |
| Figure 6 – 2023 Background Traffic Volumes.....                    | 12 |
| Figure 7 – 2040 Background Traffic Volumes.....                    | 13 |
| Figure 8 – Project Trip Distribution .....                         | 16 |
| Figure 9 – Project Traffic Assignment .....                        | 17 |
| Figure 10 – 2023 Background Plus Project Traffic Volumes.....      | 18 |
| Figure 11 – 2040 Background Plus Project Traffic Volumes.....      | 19 |
| Figure 12 – 2023 Recommended Lane Configurations and Control ..... | 28 |
| Figure 13 – 2040 Recommended Lane Configurations and Control ..... | 29 |

## 1.0 EXECUTIVE SUMMARY

---

The Lofts at Red Mountain – Phase IV is proposed to be located on the northwest corner of the intersection of Wulfsohn Road and E Meadows Drive within the Glenwood Meadows development in Glenwood Springs, Colorado. The Lofts at Red Mountain – Phase IV development is anticipated to include 36 multifamily dwelling units and a 5,950 square foot retail pad, assumed as a fast-casual restaurant for purposes of this traffic study. It is expected that the project will be completed within the next couple of years; therefore, analysis was completed for the 2023 short term and 2040 long term horizons.

The purpose of this study is to identify project traffic generation characteristics, to identify potential project traffic related impacts on the local street system, and to develop mitigation measures required for identified impacts. The following intersections were incorporated into this traffic study in accordance with the City of Glenwood Springs standards:

- Midland Avenue and W Meadows
- Wulfsohn Road and E Meadows Drive
- E Meadows Drive Roundabout
- Midland Avenue and E Meadows Drive
- Midland Avenue and Wulfsohn Road

Regional access to the project will be provided by Interstate 70 (I-70) and State Highway 82 (SH-82). Primary access will be provided by Midland Avenue and Wulfsohn Road. Direct access to the site will be provided by diagonal parking along Wulfsohn Road and the northeast leg of the E Meadows Drive Roundabout.

Lofts at Red Mountain – Phase IV is expected to generate approximately 2,072 weekday trips, with 25 of these trips occurring during the morning peak hour and 101 of these trips occurring during the afternoon peak hour.

Distribution of project traffic on the street system was based on the area street system characteristics, existing traffic patterns and volumes, demographic information, and the proposed access system for the project. Assignment of project traffic was based upon the trip generation described previously and the distributions developed.

Based on the analysis presented in this report, Kimley-Horn believes the Lofts at Red Mountain – Phase IV will be successfully incorporated into the existing and future roadway network. The proposed project development resulted in the following recommendations and conclusions:

- At the Midland Avenue and E Meadows Drive intersection, a 150-foot plus 120-foot taper eastbound acceleration lane is recommended along Midland Avenue, so the northbound right turn operates with free turning movements. This will likely require reconstruction of the existing channelized median island in the E Meadows Drive throat of the intersection.
- It is recommended that the existing free northbound right turn movement at the intersection of Midland Avenue and Wulfsohn Road be better designated to fully operate as a “FREE” lane. To accomplish this, it is recommended that improved channelized striping or a median be provided designating the left edge for the right turning vehicles.
- If future 2040 volumes are realized, Midland Avenue may need to be widened to four-lanes to accommodate the increase in traffic. If this occurs, all of the eastbound right turn acceleration and deceleration lanes could be absorbed at the study intersections with exception of the eastbound right turn acceleration lane from the northbound right turn at the Midland Avenue and Wulfsohn Road intersection which would need to be reconstructed. Existing counts were conducted during the COVID-19 pandemic and a conservatively high 40 percent pandemic factor was applied to traffic in this area to represent normal traffic conditions. Once the pandemic is over, it is recommended that new counts be conducted in the area and that an overall transportation master plan be conducted for this area to confirm the full extent of improvements needed to accommodate traffic by the long term horizon.
- Any on-site or offsite improvements should be incorporated into the Civil Drawings and conform to the standards of the City of Glenwood Springs and the Manual on Uniform Traffic Control Devices (MUTCD) – 2009 Edition.

## 2.0 INTRODUCTION

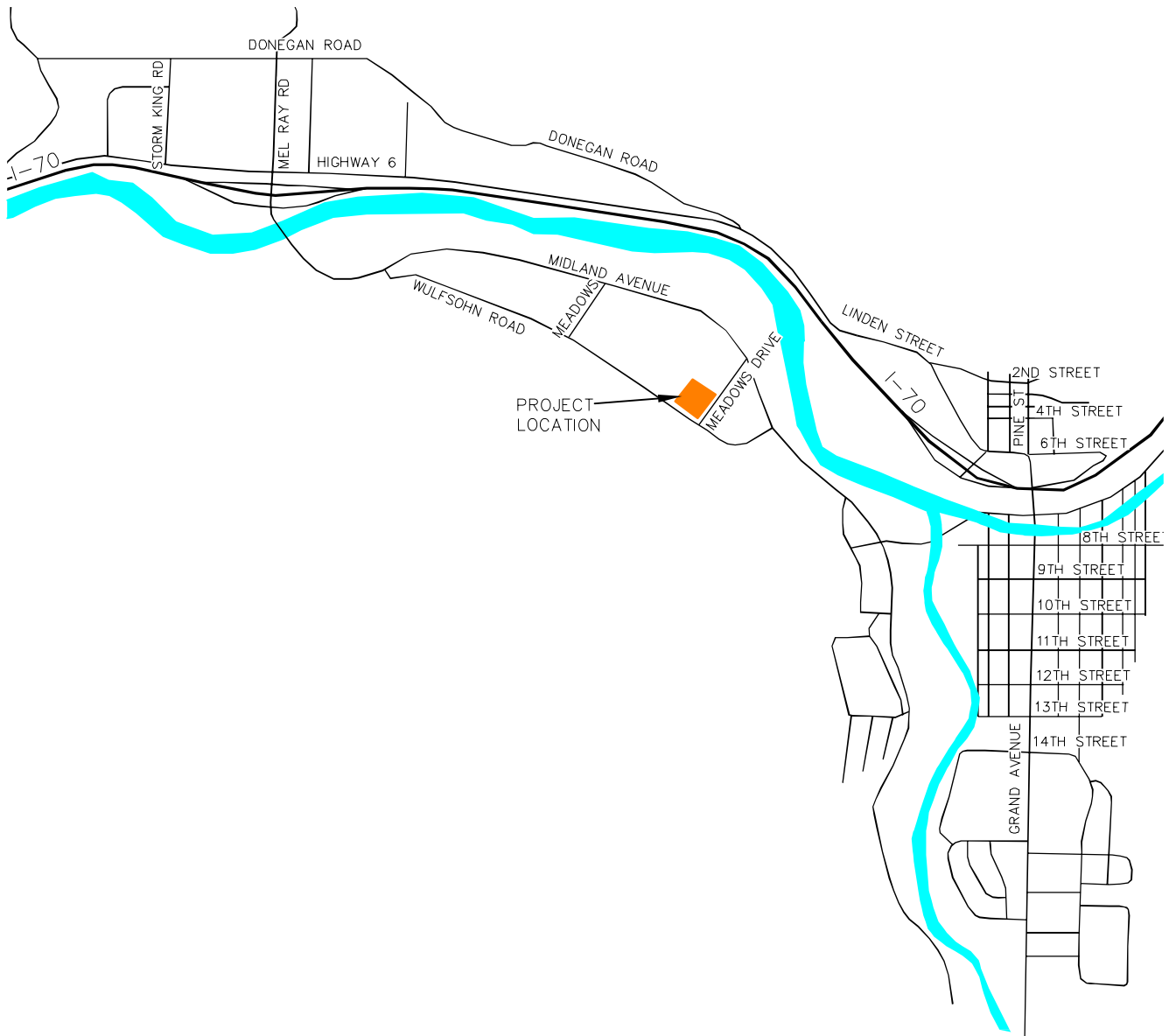
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Kimley-Horn and Associates, Inc. has prepared this report to document the results of a Traffic Impact Study of future traffic conditions associated with a new mixed-use project named Lofts at Red Mountain – Phase IV that is proposed to be located on the northwest corner of the intersection of Wulfsohn Road and E Meadows Drive within the Glenwood Meadows development in Glenwood Springs, Colorado. A vicinity map illustrating the project site location is shown in **Figure 1**. The Lofts at Red Mountain – Phase IV development is anticipated to include 36 multifamily dwelling units and a 5,950 square foot retail pad, assumed as a fast-casual restaurant for purposes of this traffic study. Conceptual site plans are shown in **Appendix F**. It is expected that the project will be completed within the next couple of years; therefore, analysis was completed for the 2023 short term and 2040 long term horizons.

The purpose of this study is to identify project traffic generation characteristics, to identify potential project traffic related impacts on the local street system, and to develop mitigation measures required for identified impacts. The following intersections were incorporated into this traffic study in accordance with the City of Glenwood Springs standards:

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LOFTS AT RED MOUNTAIN – PHASE IV  
 GLENWOOD SPRINGS, COLORADO  
 VICINITY MAP

FIGURE 1



### 3.0 EXISTING AND FUTURE CONDITIONS

---

#### 3.1 Existing Study Area

The existing site is vacant land. To the west of the site is Phase III of the Lofts at Red Mountain development. Phase III is currently under construction and Phase I and Phase II to the south is already built and occupied. To the northwest of the site are mixed uses of retail and restaurant buildings. The area to the south of Glenwood Meadows is vacant land. The land uses and roadway network surrounding the site within the study area are shown in the aerial of **Figure 2**.

#### 3.2 Existing Roadway Network

Midland Avenue is a two-lane roadway with one through lane in each direction that runs east-west. The roadway has a posted speed limit of 35 miles per hour in the vicinity of the site. Wulfsohn Road connects to Midland Avenue to the east and west on the south end of the Glenwood Meadows property with a posted speed limit of 25 miles per hour. Between W Meadows and E Meadows Drive, Wulfsohn Road provides on-street diagonal parking. W Meadows connects Wulfsohn Road and Midland Avenue on the northwest end of the Glenwood Meadows property and E Meadows Drive connects Wulfsohn Road and Midland Avenue on the southeast end of the Glenwood Meadows property.

The intersection of Midland Avenue and W Meadows is a signalized three-leg T-intersection with the westbound left turn operating under protected-permissive phasing. The eastbound approach consists of a right turn lane and a through lane while the westbound approach consists of a left turn lane and a through lane. The northbound approach consists of separate left and right turn lanes.

The unsignalized intersection of Wulfsohn Road and E Meadows Drive operates with stop control on the north-south approaches of E Meadows Drive. The northbound approach consists of a left turn lane and a share through/right turn lane. The eastbound, westbound, and southbound approaches consist of one lane for shared movements.

The E Meadows Drive roundabout operates under yield conditions for the northbound, southbound, eastbound, and westbound approaches. The intersection consists of single lanes for all movements at each approach.



LOFTS AT RED MOUNTAIN — PHASE IV  
GLENWOOD SPRINGS, COLORADO  
SITE AREA

FIGURE 2

The unsignalized T-intersection of E Meadows Drive and Midland Avenue operates with stop control on the northbound approach of E Meadows Drive. The westbound approach consists of a left turn lane and a through lane while the eastbound approach consists of a right turn lane and a through lane. The northbound approach consists of a right-turn lane only, as this intersection is restricted to three-quarter movements with left turns prohibited from the minor street approach.

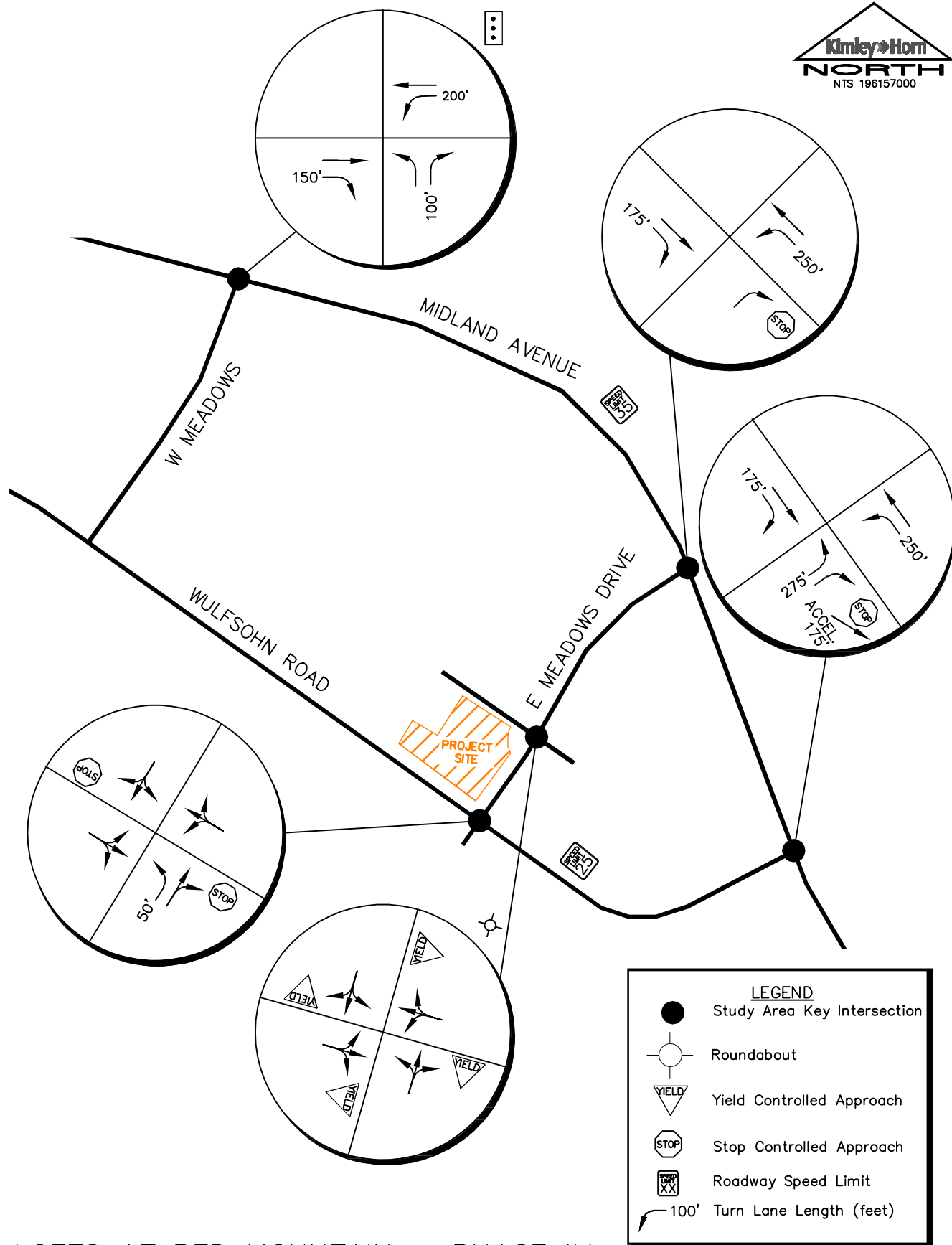
The unsignalized T-intersection of Wulfsohn Road and Midland Avenue operates with stop control on the northbound approach of Wulfsohn Road. The westbound approach consists of a left turn lane and a through lane while the eastbound approach consists of a right turn lane and a through lane. The northbound approach consists of separate right and left turn lanes. In addition, an acceleration lane has been provided for the northbound right turn movement.

The intersection lane configuration and control for the study area intersections are shown in **Figure 3**.

### **3.3 Existing Traffic Volumes**

The existing morning peak hour turning movement counts were conducted at the intersections on Thursday, February 18, 2021 while the existing afternoon peak hour turning movement counts were conducted at the intersections on Wednesday, February 17, 2021. The counts were conducted during the morning and afternoon peak hours of adjacent street traffic in 15-minute intervals from 7:00 AM to 9:00 AM and 4:00 PM to 6:00 PM. The existing intersection traffic volumes are shown in **Figure 4** with count sheets provided in **Appendix A**.

To account for the traffic volumes being collected during the COVID-19 Pandemic an adjustment factor was applied to represent normal traffic conditions. Historical count data in the immediate area could not be obtained to adjust existing traffic volumes due to the COVID-19 pandemic; therefore, existing traffic volumes were increased by 40 percent during the morning and afternoon peak hours to be consistent with CDOT data along US-6. Existing traffic volumes on SH-6 west of SH-82 were compared to historical counts from CDOT to calculate a COVID-19 adjustment factor. These adjusted turning movement counts are shown in **Figure 5**.



LOFTS AT RED MOUNTAIN – PHASE IV  
GLENWOOD SPRINGS, COLORADO  
EXISTING LANE CONFIGURATION

FIGURE 3

February 17-18, 2021  
8:00-9:00AM (4:30-5:30PM)

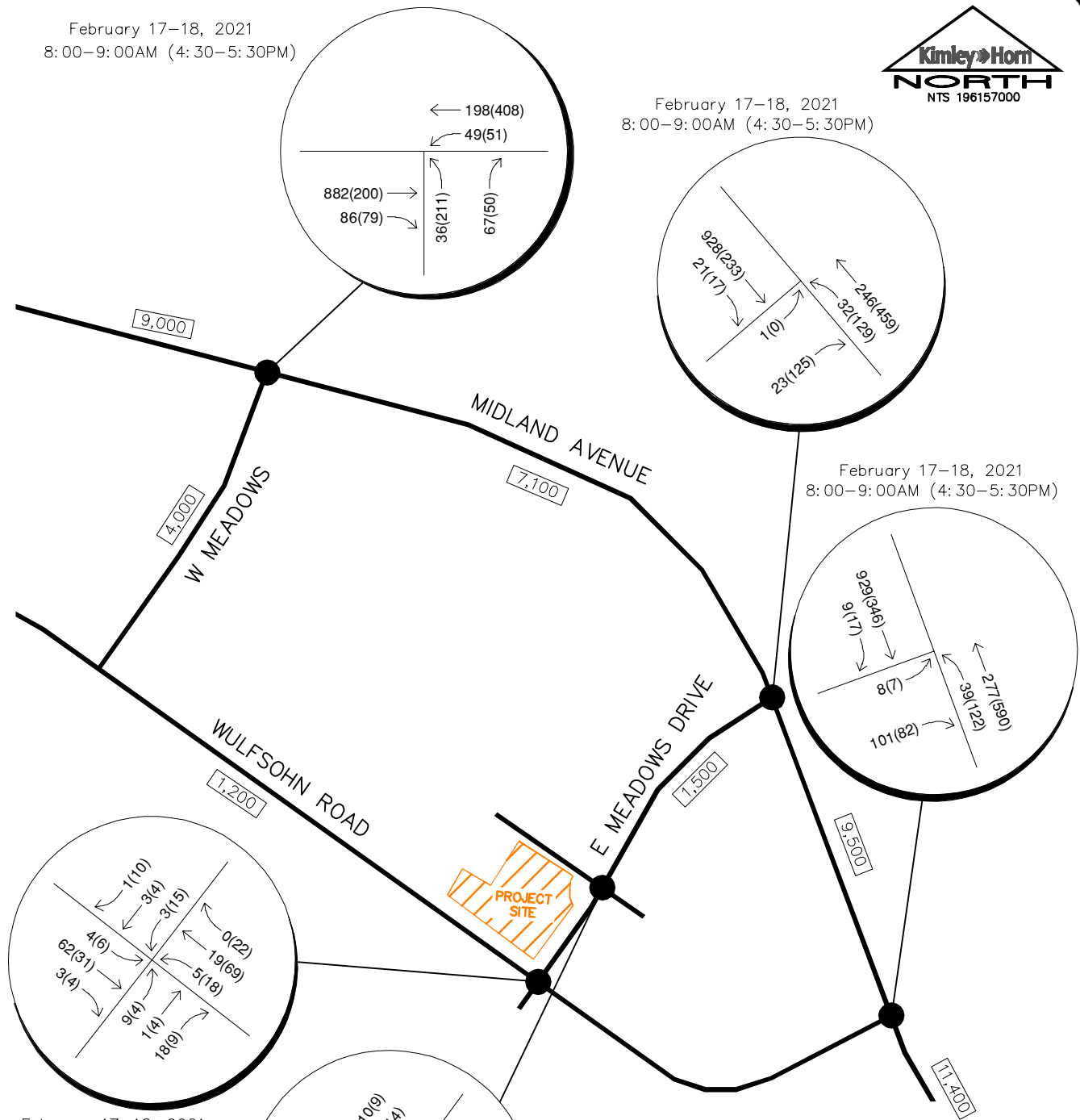


February 17-18, 2021  
8:00-9:00AM (4:30-5:30PM)

February 17-18, 2021  
8:00-9:00AM (4:30-5:30PM)

February 17-18, 2021  
8:00-9:00AM (4:00-5:00PM)

February 17-18, 2021  
8:00-9:00AM (4:00-5:00PM)



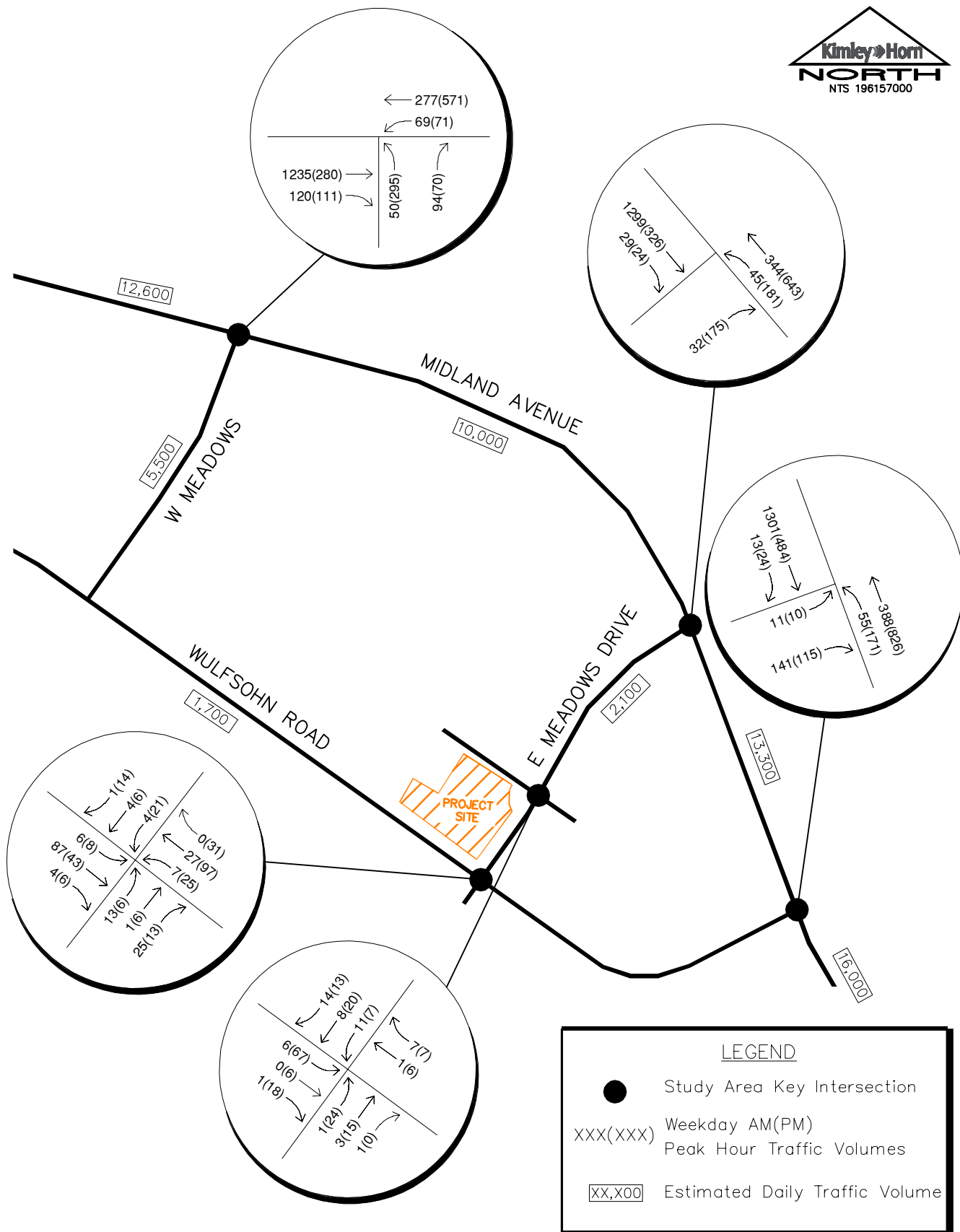
**LEGEND**

- Study Area Key Intersection
- xxx(xxx) Weekday AM(PM)  
Peak Hour Traffic Volumes
- xx,x00 Estimated Daily Traffic Volume

LOFTS AT RED MOUNTAIN – PHASE IV  
GLENWOOD SPRINGS, COLORADO  
2021 EXISTING TRAFFIC VOLUMES

FIGURE 4





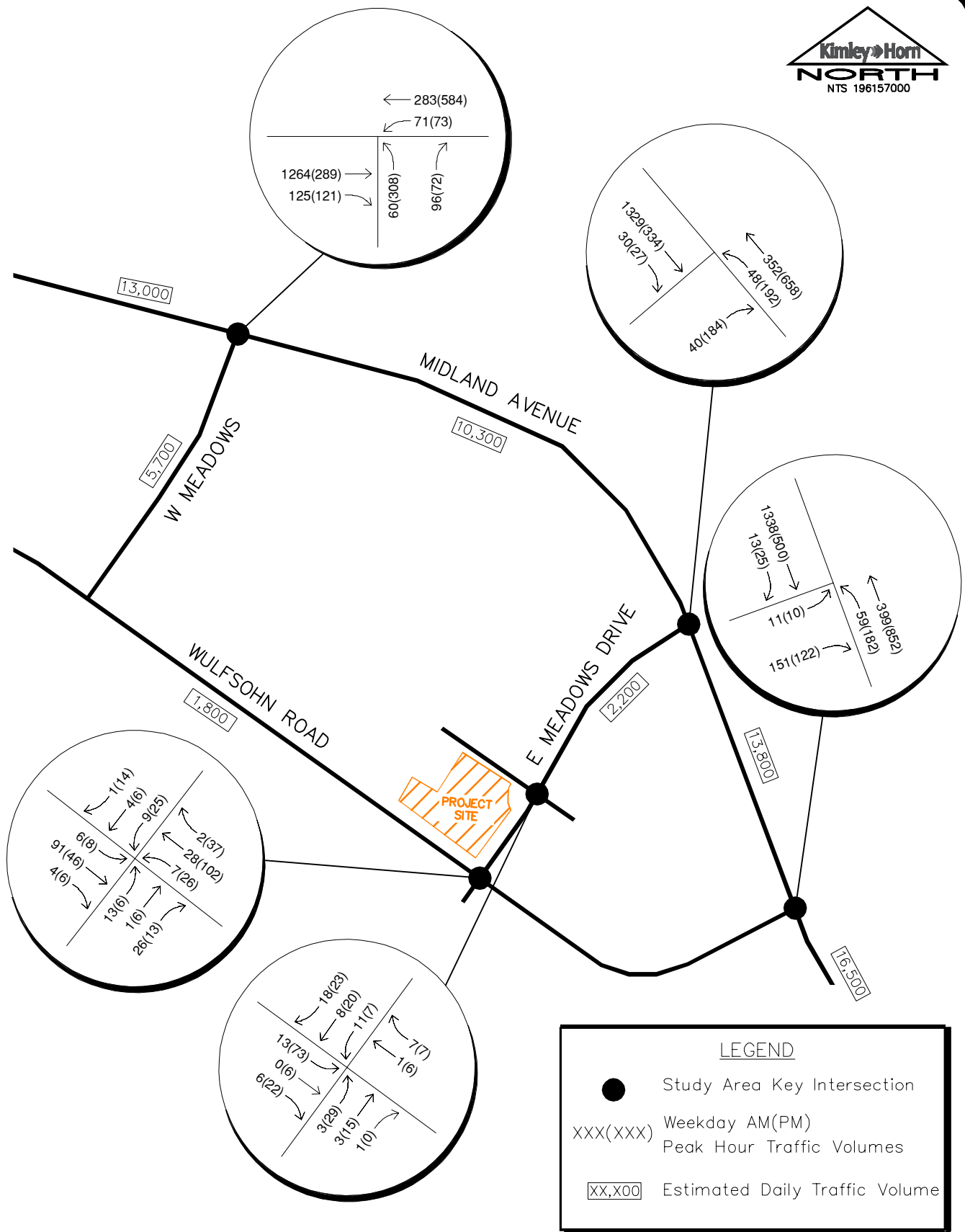
LOFTS AT RED MOUNTAIN – PHASE IV  
 GLENWOOD SPRINGS, COLORADO  
 2021 ADJUSTED TRAFFIC VOLUMES

FIGURE 5

### 3.4 Unspecified Development Traffic Growth

According to traffic projections provided by CDOT OTIS, I-70 is expected to have a 20-year growth factor between 1.24 and 1.27. This equates to an average annual growth rate of approximately 1.14 percent. Therefore, an annual growth rate of 1.15 percent was used to calculate short term 2023 and long term 2040 background traffic projections for the key intersections and roadways in the study area.

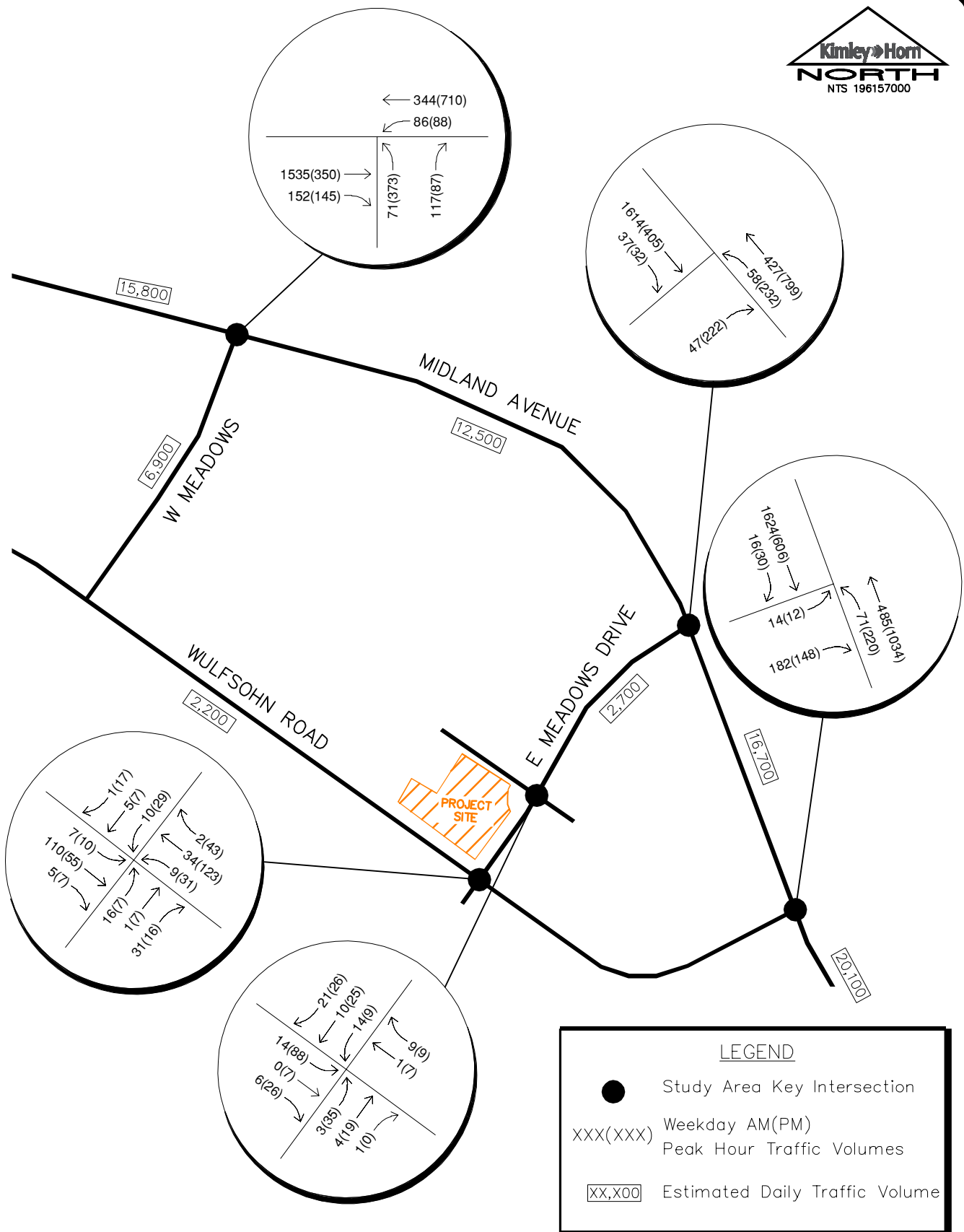
Phase III of the Lofts at Red Mountain multifamily units to the west of the proposed site are currently under construction and will be built by the project's buildout year. Therefore, trip estimates for the 89 units currently under construction are included as background traffic in 2023 and 2040. CDOT OTIS traffic information is included in **Appendix B**. Background traffic volumes for 2023 and 2040 are shown in **Figure 6** and **Figure 7**, respectively.



LOFTS AT RED MOUNTAIN – PHASE IV  
 GLENWOOD SPRINGS, COLORADO  
 2023 BACKGROUND TRAFFIC VOLUMES

FIGURE 6





LOFTS AT RED MOUNTAIN – PHASE IV  
 GLENWOOD SPRINGS, COLORADO  
 2040 BACKGROUND TRAFFIC VOLUMES

FIGURE 7

## 4.0 PROJECT TRAFFIC CHARACTERISTICS

### 4.1 Trip Generation

Site-generated traffic estimates are determined through a process known as trip generation. Rates and equations are applied to the proposed land use to estimate traffic generated by the development during a specific time interval. The acknowledged source for trip generation rates is the *Trip Generation Manual*<sup>1</sup> published by the Institute of Transportation Engineers (ITE). ITE has established trip rates in nationwide studies of similar land uses. For this study, Kimley-Horn used the ITE Trip Generation Report fitted curve equation that applies to Mid-Rise Multifamily Housing (ITE Land Use Code 221) and average rates that applied to Fast Casual Restaurant (ITE Land Use Code 930) for traffic associated with the development.

Lofts at Red Mountain – Phase IV is expected to generate approximately 2,072 weekday trips, with 25 of these trips occurring during the morning peak hour and 101 of these trips occurring during the afternoon peak hour. Calculations were based on the procedure and information provided in the ITE *Trip Generation Manual, 10<sup>th</sup> Edition – Volume 1: User's Guide and Handbook*, 2017. **Table 1** summarizes the estimated trip generation for the proposed development. The trip generation worksheet is included in **Appendix C**.

**Table 1 – Lofts at Red Mountain – Phase IV Traffic Generation**

| Land Use                                                    | Vehicle Trips |              |           |           |              |           |            |
|-------------------------------------------------------------|---------------|--------------|-----------|-----------|--------------|-----------|------------|
|                                                             | Daily         | AM Peak Hour |           |           | PM Peak Hour |           |            |
|                                                             |               | In           | Out       | Total     | In           | Out       | Total      |
| Multifamily Housing (Mid-Rise) (221) –<br>36 Dwelling Units | 196           | 3            | 10        | 13        | 10           | 7         | 17         |
| Fast Casual Restaurant (930) –<br>5,950 Square Feet         | 1,876         | 8            | 4         | 12        | 46           | 38        | 84         |
| <b>Total Project Trips</b>                                  | <b>2,072</b>  | <b>11</b>    | <b>14</b> | <b>25</b> | <b>56</b>    | <b>45</b> | <b>101</b> |

<sup>1</sup> Institute of Transportation Engineers, *Trip Generation Manual*, Tenth Edition, Washington DC, 2017.

#### **4.2 Trip Distribution**

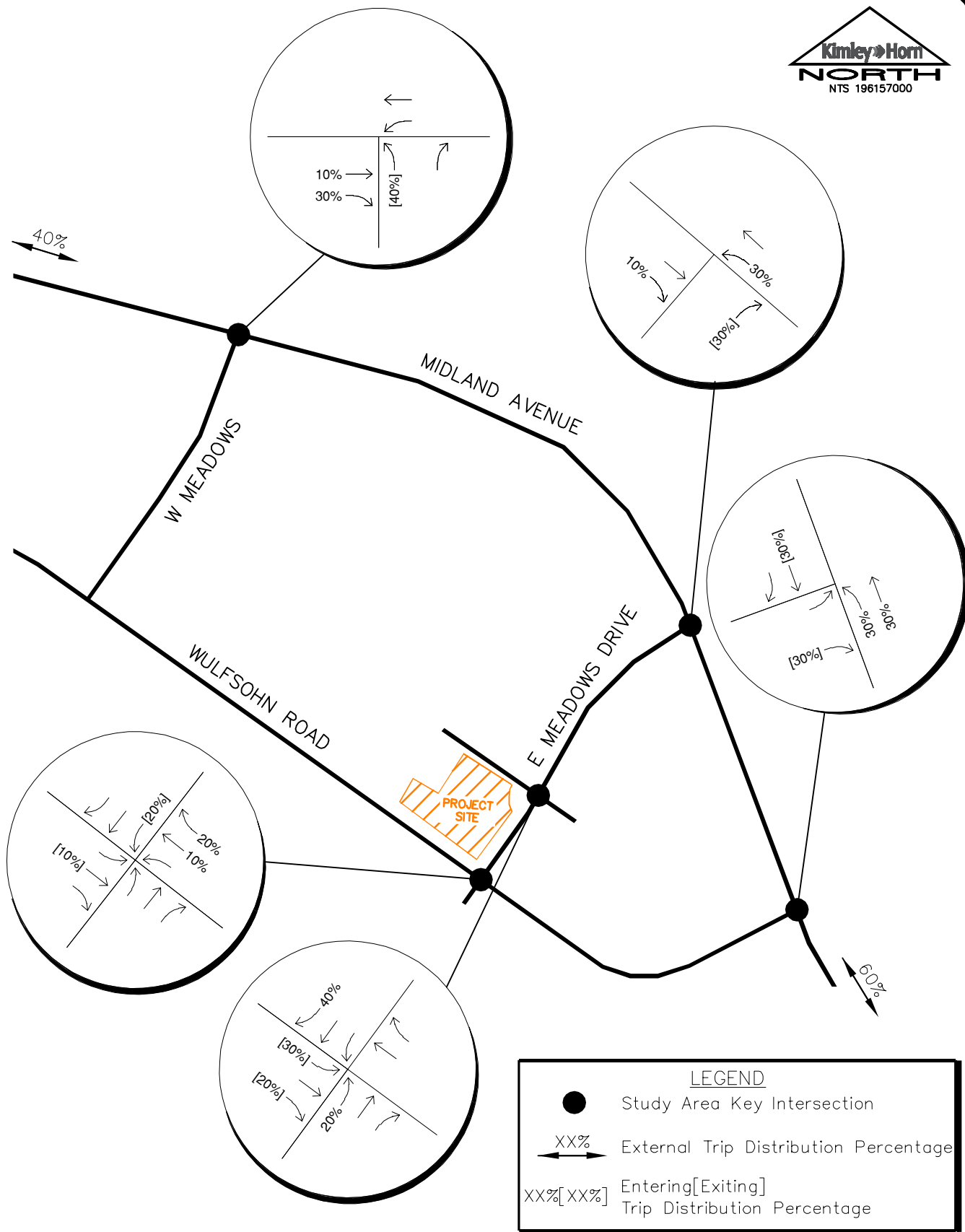
Distribution of site traffic was based on the area street system characteristics, existing traffic patterns and volumes, existing demographic information, and the proposed access system for the project. The directional distribution of traffic is a means to quantify the percentage of site-generated traffic that approaches the site from a given direction and departs the site back to the original source. The project trip distribution is illustrated in **Figure 8**.

#### **4.3 Traffic Assignment**

Project traffic assignment was obtained by applying the project trip distribution to the estimated traffic generation of the development shown in **Table 1**. Project traffic assignment is shown in **Figure 9**.

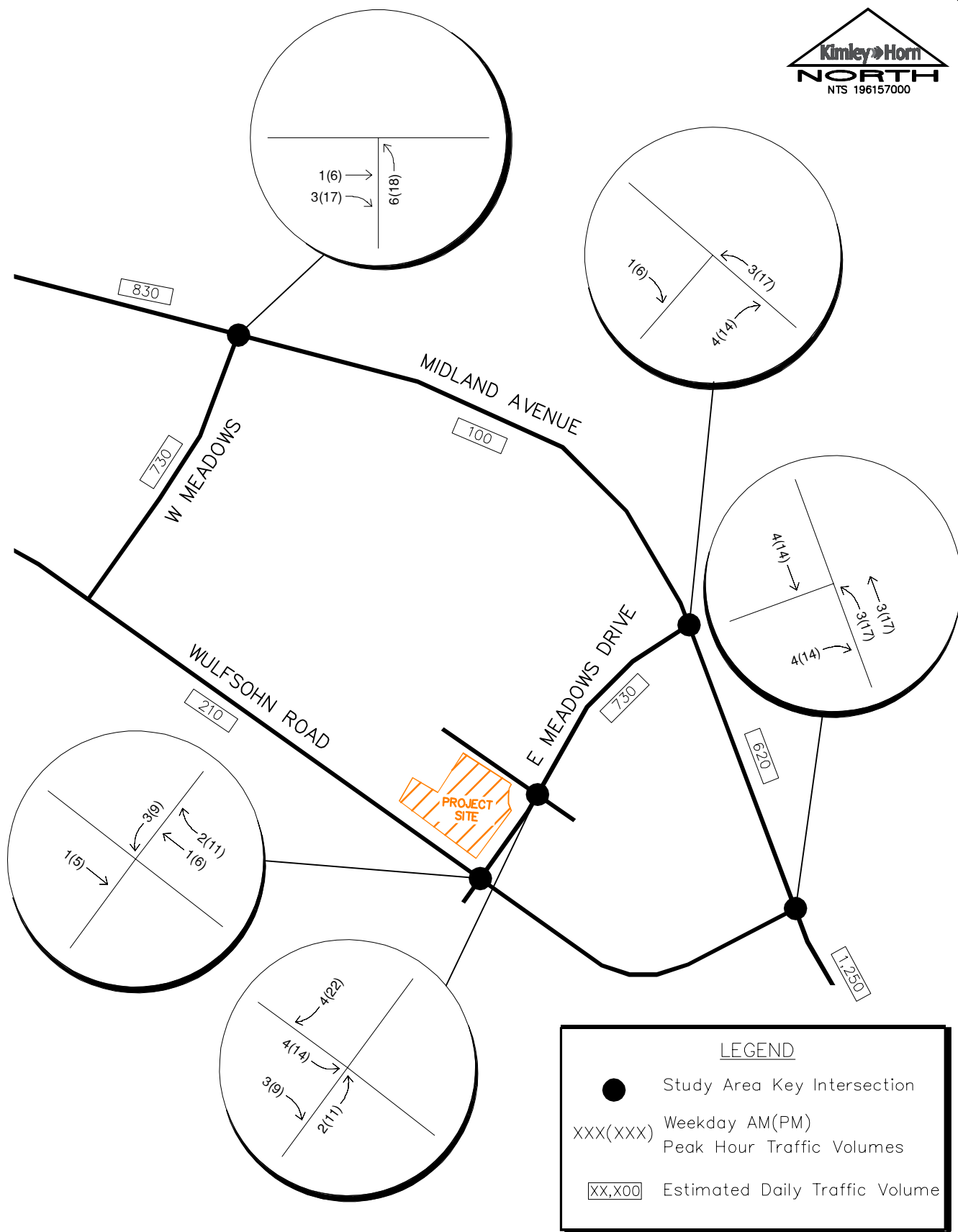
#### **4.4 Total (Background Plus Project) Traffic**

Site traffic volumes were added to the background volumes to represent estimated traffic conditions for the short term 2023 horizon and long term 2040 horizon. These total traffic volumes for the project study area are illustrated for the 2023 and 2040 horizon years in **Figures 10** and **11**, respectively.



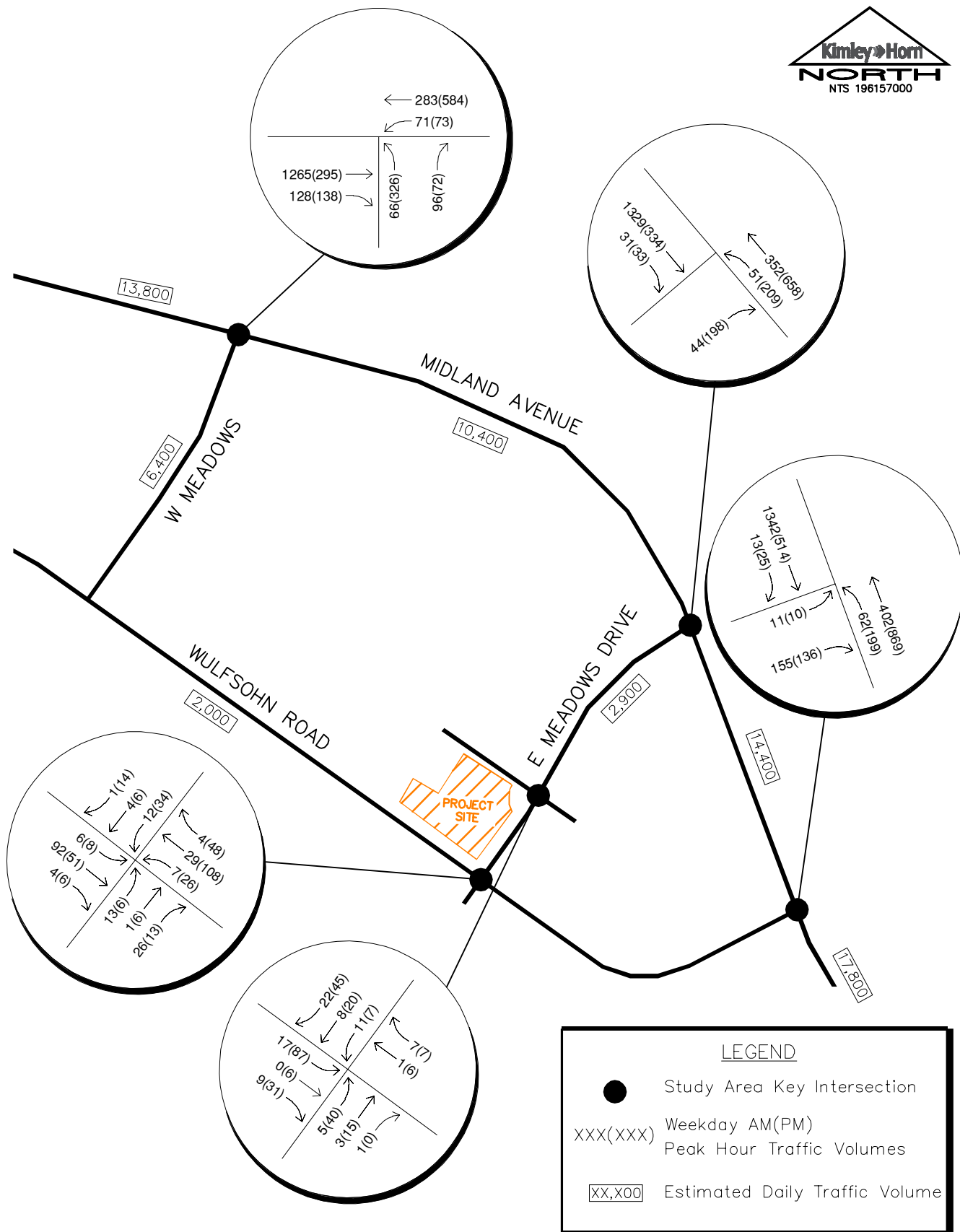
LOFTS AT RED MOUNTAIN – PHASE IV  
 GLENWOOD SPRINGS, COLORADO  
 PROJECT TRIP DISTRIBUTION

FIGURE 8



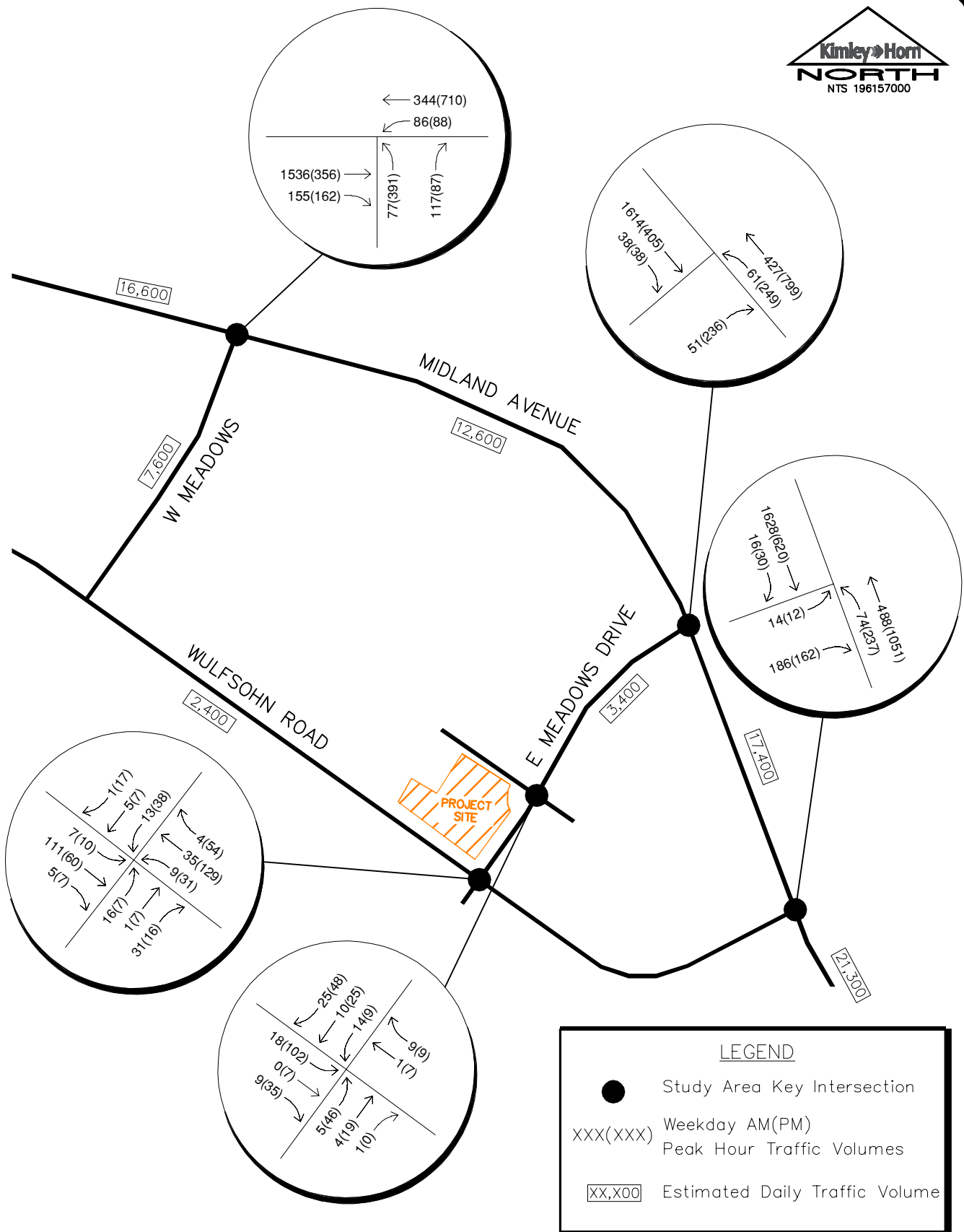
LOFTS AT RED MOUNTAIN – PHASE IV  
 GLENWOOD SPRINGS, COLORADO  
 PROJECT TRAFFIC ASSIGNMENT

FIGURE 9



LOFTS AT RED MOUNTAIN – PHASE IV  
 GLENWOOD SPRINGS, COLORADO  
 2023 TOTAL TRAFFIC VOLUMES

FIGURE 10



LOFTS AT RED MOUNTAIN – PHASE IV  
GLENWOOD SPRINGS, COLORADO  
2040 TOTAL TRAFFIC VOLUMES

FIGURE 11

## 5.0 TRAFFIC OPERATIONS ANALYSIS

Kimley-Horn's analysis of traffic operations in the site vicinity was conducted to determine potential capacity deficiencies in the 2023 and 2040 development horizons at the identified key intersections and access driveways. The acknowledged source for determining overall capacity is the current edition of the *Highway Capacity Manual (HCM)*<sup>2</sup>.

### 5.1 Analysis Methodology

Capacity analysis results are listed in terms of Level of Service (LOS). LOS is a qualitative term describing operating conditions a driver will experience while traveling on a particular street or highway during a specific time interval. It ranges from A (very little delay) to F (long delays and congestion). The City of Glenwood Springs has adopted LOS D as the minimum acceptable level of service for all movements and approaches when evaluating intersection operations. **Table 2** shows the definition of level of service for signalized and unsignalized intersections.

**Table 2 – Level of Service Definitions**

| Level of Service | Signalized Intersection<br>Average Total Delay<br>(sec/veh) | Unsignalized Intersection<br>Average Total Delay<br>(sec/veh) |
|------------------|-------------------------------------------------------------|---------------------------------------------------------------|
| A                | ≤ 10                                                        | ≤ 10                                                          |
| B                | > 10 and ≤ 20                                               | > 10 and ≤ 15                                                 |
| C                | > 20 and ≤ 35                                               | > 15 and ≤ 25                                                 |
| D                | > 35 and ≤ 55                                               | > 25 and ≤ 35                                                 |
| E                | > 55 and ≤ 80                                               | > 35 and ≤ 50                                                 |
| F                | > 80                                                        | > 50                                                          |

Definitions provided from the Highway Capacity Manual, Sixth Edition, Transportation Research Board, 2016.

Study area intersections were analyzed based on average total delay analysis for signalized and unsignalized intersections. Under the unsignalized analysis, the level of service (LOS) for a two-way stop-controlled intersection is determined by the computed or measured control delay and is defined for each minor movement. Level of service for a two-way stop-controlled intersection is not defined for the intersection as a whole. Level of service for signalized, all-way stop controlled, and roundabout intersections is defined for each approach and for the overall intersection.

<sup>2</sup> Transportation Research Board, *Highway Capacity Manual*, Sixth Edition, Washington DC, 2016.



## 5.2 Key Intersection Operational Analysis

Calculations for the level of service at the key intersections for the study area are provided in **Appendix D**. The existing year analysis is based on the lane geometry and intersection control shown in **Figure 3**. The existing peak hour factors were utilized in the existing and short-term horizon (2023) analysis while the recommended HCM peak hour factor of 0.92 was used for the 2040 horizon analysis. Synchro traffic analysis software was used to analyze the signalized, roundabout, and unsignalized key intersections for level of service.

### Midland Avenue and W Meadows

The intersection of Midland Avenue and W Meadows is a signalized three-leg T-intersection with the westbound left turn operating under protected-permissive phasing. This intersection currently operates acceptably with LOS D during the morning peak hour and LOS C during the afternoon peak hour. With the existing lane configuration and control, this intersection is anticipated to continue to operate acceptably with LOS D during the morning peak hour and LOS C during the afternoon peak hour with the addition of project traffic.

If future 2040 traffic volumes are realized, Midland Avenue may need to be widened to four-lanes to accommodate the increase in traffic. If this occurs, the eastbound right turn deceleration lane could be absorbed into the outside through lane. However, existing counts were conducted during the COVID-19 pandemic and a conservatively high 40 percent growth factor was applied to traffic in this area. Once the pandemic is over, it is recommended that new counts be conducted in the area and that an overall transportation master plan be conducted for this area to confirm the full extent of improvements needed to accommodate traffic by the long term horizon. **Table 3** shows the level of service results at this intersection.

**Table 3 – Midland Avenue and W Meadows LOS Results**

| Scenario                       | AM Peak Hour    |     | PM Peak Hour    |     |
|--------------------------------|-----------------|-----|-----------------|-----|
|                                | Delay (sec/veh) | LOS | Delay (sec/veh) | LOS |
| 2021 Existing                  | 36.4            | D   | 22.1            | C   |
| 2023 Background                | 40.8            | D   | 22.9            | C   |
| 2023 Background Plus Project   | 41.0            | D   | 23.6            | C   |
| 2040 Background                | 96.8            | F   | 24.7            | C   |
| 2040 Background #              | 17.8            | B   | 27.7            | C   |
| 2040 Background Plus Project # | 17.9            | B   | 28.1            | C   |

# = Midland Ave widened to 4-lanes

### Wulfsohn Road and E Meadows Drive

The unsignalized intersection of Wulfsohn Road and E Meadows Drive operates with stop control on the north-south approaches of E Meadows Drive. All movements at this intersection currently operate acceptably with LOS B or better during the morning and afternoon peak hours. With construction of this project, the movements at this intersection are anticipated to continue operating acceptably throughout 2040 buildout with LOS B or better during both peak hours. **Table 4** shows the level of service results at this intersection.

**Table 4 – Wulfsohn Road and E Meadows Drive LOS Results**

| Scenario                            | AM Peak Hour    |     | PM Peak Hour    |     |
|-------------------------------------|-----------------|-----|-----------------|-----|
|                                     | Delay (sec/veh) | LOS | Delay (sec/veh) | LOS |
| <b>2021 Existing</b>                |                 |     |                 |     |
| Northbound Left                     | 10.6            | B   | 10.7            | B   |
| Northbound Through/Right            | 9.4             | A   | 9.5             | A   |
| Eastbound Approach                  | 7.3             | A   | 7.5             | A   |
| Westbound Approach                  | 7.6             | A   | 7.4             | A   |
| Southbound Approach                 | 10.6            | B   | 10.5            | B   |
| <b>2023 Background</b>              |                 |     |                 |     |
| Northbound Left                     | 10.7            | B   | 10.9            | B   |
| Northbound Through/Right            | 9.5             | A   | 9.6             | A   |
| Eastbound Approach                  | 7.3             | A   | 7.5             | A   |
| Westbound Approach                  | 7.6             | A   | 7.4             | A   |
| Southbound Approach                 | 10.9            | B   | 10.7            | B   |
| <b>2023 Background Plus Project</b> |                 |     |                 |     |
| Northbound Left                     | 10.7            | B   | 11.0            | B   |
| Northbound Through/Right            | 9.5             | A   | 9.7             | A   |
| Eastbound Approach                  | 7.3             | A   | 7.6             | A   |
| Westbound Approach                  | 7.6             | A   | 7.4             | A   |
| Southbound Approach                 | 11.1            | B   | 11.1            | B   |
| <b>2040 Background</b>              |                 |     |                 |     |
| Northbound Left                     | 9.9             | A   | 11.1            | B   |
| Northbound Through/Right            | 9.1             | A   | 9.6             | A   |
| Eastbound Approach                  | 7.3             | A   | 7.6             | A   |
| Westbound Approach                  | 7.5             | A   | 7.4             | A   |
| Southbound Approach                 | 10.1            | B   | 10.9            | B   |
| <b>2040 Background Plus Project</b> |                 |     |                 |     |
| Northbound Left                     | 10.0            | B   | 11.3            | B   |
| Northbound Through/Right            | 9.1             | A   | 9.6             | A   |
| Eastbound Approach                  | 7.3             | A   | 7.6             | A   |
| Westbound Approach                  | 7.5             | A   | 7.4             | A   |
| Southbound Approach                 | 10.2            | B   | 11.3            | B   |

### E Meadows Drive Roundabout

The E Meadows Drive single lane roundabout operates under yield conditions for all approaches. The intersection consists of single approach lanes. All approaches at this intersection currently operate acceptably with LOS A during the morning and afternoon peak hours. With construction of this project, the approaches at this intersection are anticipated to operate acceptably throughout 2040 buildout with LOS A or better during both peak hours. **Table 5** shows the level of service results at this intersection.

**Table 5 –E Meadows Drive Roundabout LOS Results**

| Scenario                            | AM Peak Hour       |          | PM Peak Hour       |          |
|-------------------------------------|--------------------|----------|--------------------|----------|
|                                     | Delay<br>(sec/veh) | LOS      | Delay<br>(sec/veh) | LOS      |
| <b>2021 Existing</b>                | <b>2.8</b>         | <b>A</b> | <b>3.3</b>         | <b>A</b> |
| Eastbound Approach                  | 2.7                | A        | 3.5                | A        |
| Westbound Approach                  | 2.8                | A        | 3.2                | A        |
| Northbound Approach                 | 2.8                | A        | 3.3                | A        |
| Southbound Approach                 | 2.9                | A        | 3.1                | A        |
| <b>2023 Background</b>              | <b>2.9</b>         | <b>A</b> | <b>3.4</b>         | <b>A</b> |
| Eastbound Approach                  | 2.9                | A        | 3.6                | A        |
| Westbound Approach                  | 2.8                | A        | 3.3                | A        |
| Northbound Approach                 | 2.8                | A        | 3.4                | A        |
| Southbound Approach                 | 2.9                | A        | 3.2                | A        |
| <b>2023 Background Plus Project</b> | <b>3.0</b>         | <b>A</b> | <b>3.6</b>         | <b>A</b> |
| Eastbound Approach                  | 3.0                | A        | 3.8                | A        |
| Westbound Approach                  | 2.8                | A        | 3.4                | A        |
| Northbound Approach                 | 2.8                | A        | 3.5                | A        |
| Southbound Approach                 | 3.0                | A        | 3.4                | A        |
| <b>2040 Background</b>              | <b>2.8</b>         | <b>A</b> | <b>3.4</b>         | <b>A</b> |
| Eastbound Approach                  | 2.8                | A        | 3.6                | A        |
| Westbound Approach                  | 2.7                | A        | 3.2                | A        |
| Northbound Approach                 | 2.8                | A        | 3.4                | A        |
| Southbound Approach                 | 2.9                | A        | 3.2                | A        |
| <b>2040 Background Plus Project</b> | <b>2.9</b>         | <b>A</b> | <b>3.6</b>         | <b>A</b> |
| Eastbound Approach                  | 2.9                | A        | 3.7                | A        |
| Westbound Approach                  | 2.8                | A        | 3.3                | A        |
| Northbound Approach                 | 2.8                | A        | 3.5                | A        |
| Southbound Approach                 | 3.0                | A        | 3.4                | A        |

### E Meadows Drive and Midland Avenue

The unsignalized three-quarter T-intersection of E Meadows Drive and Midland Avenue operates with stop control on the northbound approach of E Meadows Drive. All movements at this intersection currently operate acceptably with LOS D or better during the morning and afternoon peak hours. With construction of this project, the northbound right movement may operate at LOS E with 35.4 seconds of delay for 44 vehicles. Therefore, the City of Glenwood Springs may require construction of an acceleration lane along eastbound Midland Avenue. This acceleration lane will need to provide a length of 150 feet plus 120-foot taper. This will likely require reconstruction of the existing channelized median island in the E Meadows Drive throat of the intersection. If 2040 volumes are realized, Midland Avenue may need to be improved to provide two through lanes in each direction. If this occurs, the separate eastbound right turn deceleration lane and possible eastbound acceleration lane could be absorbed into the outside through lane. It is recommended that this configuration be further studied in the future by the City of Glenwood Springs. **Table 6** shows the level of service results at this intersection.

**Table 6 –E Meadows Drive and Midland Avenue LOS Results**

| Scenario                               | AM Peak Hour    |     | PM Peak Hour    |     |
|----------------------------------------|-----------------|-----|-----------------|-----|
|                                        | Delay (sec/veh) | LOS | Delay (sec/veh) | LOS |
| <b>2021 Existing</b>                   |                 |     |                 |     |
| Northbound Right                       | 30.6            | D   | 12.6            | B   |
| Westbound Left                         | 13.2            | B   | 8.8             | A   |
| <b>2023 Background</b>                 |                 |     |                 |     |
| Northbound Right                       | 34.1            | D   | 12.9            | B   |
| Westbound Left                         | 13.5            | B   | 8.9             | A   |
| <b>2023 Background Plus Project</b>    |                 |     |                 |     |
| Northbound Right                       | 35.4            | E   | 13.2            | B   |
| Westbound Left                         | 13.6            | B   | 9.1             | A   |
| <b>2023 Background Plus Project #</b>  |                 |     |                 |     |
| Northbound Right                       | 0.0             | A   | 0.0             | B   |
| Westbound Left                         | 13.6            | B   | 9.1             | A   |
| <b>2040 Background</b>                 |                 |     |                 |     |
| Northbound Right                       | 57.7            | F   | 14.5            | B   |
| Westbound Left                         | 16.8            | C   | 9.3             | A   |
| <b>2040 Background ##</b>              |                 |     |                 |     |
| Northbound Right                       | 19.5            | C   | 11.9            | B   |
| Westbound Left                         | 16.9            | C   | 9.3             | A   |
| <b>2040 Background Plus Project ##</b> |                 |     |                 |     |
| Northbound Right                       | 19.8            | C   | 12.1            | B   |
| Westbound Left                         | 17.1            | C   | 9.5             | A   |

# = Northbound to Eastbound Free Right Turn with Acceleration Lane

## = Midland Ave widened to 4-lanes

### Wulfsohn Road and Midland Avenue

The unsignalized T-intersection of Wulfsohn Road and Midland Avenue operates with stop control on the eastbound approach of Wulfsohn Road. Of note, it is recommended that the existing free northbound right turn movement at the intersection of Midland Avenue and Wulfsohn Road be better designated to fully operate as a “FREE” lane. To accomplish this, it is recommended that improved channelized striping or a median be provided designating the left edge for the right turning vehicles. All movements at this intersection currently operate acceptably with LOS D or better during the morning and afternoon peak hours. By 2023, the northbound left turn may operate at LOS E with 38.6 seconds of delay for 10 projected left turning vehicles. If drivers choose to re-route, the signalized intersection of Midland Avenue and W Meadows has additional capacity for these volumes. Again, if future 2040 traffic volumes are realized, Midland Avenue may need to be a four-lane roadway to provide acceptable traffic operations. If this occurs, the separate eastbound right turn deceleration lane could be absorbed into the outside through lane. However, the eastbound acceleration lane along Midland Avenue from the northbound right turn would need to be replaced. It is recommended that this configuration be further studied in the future by the City of Glenwood Springs. **Table 7** shows the level of service results at this intersection.

**Table 7 – Wulfsohn Road and Midland Avenue LOS Results**

| Scenario                              | AM Peak Hour       |     | PM Peak Hour       |     |
|---------------------------------------|--------------------|-----|--------------------|-----|
|                                       | Delay<br>(sec/veh) | LOS | Delay<br>(sec/veh) | LOS |
| <b>2021 Existing</b>                  |                    |     |                    |     |
| Northbound Left                       | 26.9               | D   | 34.4               | D   |
| Westbound Left                        | 12.9               | B   | 9.5                | A   |
| <b>2023 Background</b>                |                    |     |                    |     |
| Northbound Left                       | 28.0               | D   | 37.6               | E   |
| Westbound Left                        | 13.3               | B   | 9.7                | A   |
| <b>2023 Background Plus Project</b>   |                    |     |                    |     |
| Northbound Left                       | 28.3               | D   | 41.1               | E   |
| Westbound Left                        | 13.4               | B   | 9.9                | A   |
| <b>2040 Background</b>                |                    |     |                    |     |
| Northbound Left                       | 39.0               | E   | 43.7               | E   |
| Westbound Left                        | 16.8               | C   | 10.4               | B   |
| <b>2040 Background #</b>              |                    |     |                    |     |
| Northbound Left                       | 42.9               | E   | 29.5               | D   |
| Westbound Left                        | 16.9               | C   | 10.4               | B   |
| <b>2040 Background Plus Project #</b> |                    |     |                    |     |
| Northbound Left                       | 43.3               | E   | 31.7               | D   |
| Westbound Left                        | 17.1               | C   | 10.7               | B   |

# = Midland Ave widened to 4-lanes

### 5.3 Vehicle Queuing Analysis

A vehicle queuing analysis was conducted for the study area intersections. The queuing analysis was performed using Synchro presenting the results of the 95<sup>th</sup> percentile queue lengths. Results are shown in the following **Table 8** with calculations provided within the level of service operational sheets of **Appendix D** for unsignalized intersections and **Appendix E** for signalized intersections.

**Table 8 – Turn Lane Queuing Analysis Results**

| Intersection Turn Lane               | Existing Turn Lane Length (feet) | 2023 Calculated Queue (feet) | 2023 Recommended Length (feet) | 2040 Calculated Queue (feet) | 2040 Recommended Length (feet) |
|--------------------------------------|----------------------------------|------------------------------|--------------------------------|------------------------------|--------------------------------|
| <b>W Meadows &amp; Midland Ave</b>   |                                  |                              |                                |                              |                                |
| Eastbound Right                      | 150'                             | 34'                          | 150'                           | #                            | #                              |
| Westbound Left                       | 200'                             | 69'                          | 200'                           | 79'                          | 200'                           |
| Northbound Right                     | 100'                             | 32'                          | 100'                           | 54'                          | 100'                           |
| <b>Wulfsohn Rd &amp; E Meadows</b>   |                                  |                              |                                |                              |                                |
| Northbound Left                      | 50'                              | 25'                          | 50'                            | 25'                          | 50'                            |
| <b>Midland Ave &amp; E Meadows</b>   |                                  |                              |                                |                              |                                |
| Westbound Left                       | 250'                             | 25'                          | 250'                           | 25'                          | 250'                           |
| <b>Midland Ave &amp; Wulfsohn Rd</b> |                                  |                              |                                |                              |                                |
| Northbound Left                      | 275'                             | 25'                          | 275'                           | 25'                          | 275'                           |
| Westbound Left                       | 250'                             | 25'                          | 250'                           | 50'                          | 250'                           |

# Separate Eastbound Right Turn Deceleration Lane Removed when Midland Avenue widened to two-through lanes in each direction

As shown in the table representing the queuing results, none of the queues are projected to extend past the provided storage bays available during the short-term or long-term study horizons. Therefore, no modifications to turn lane lengths are anticipated to be needed.

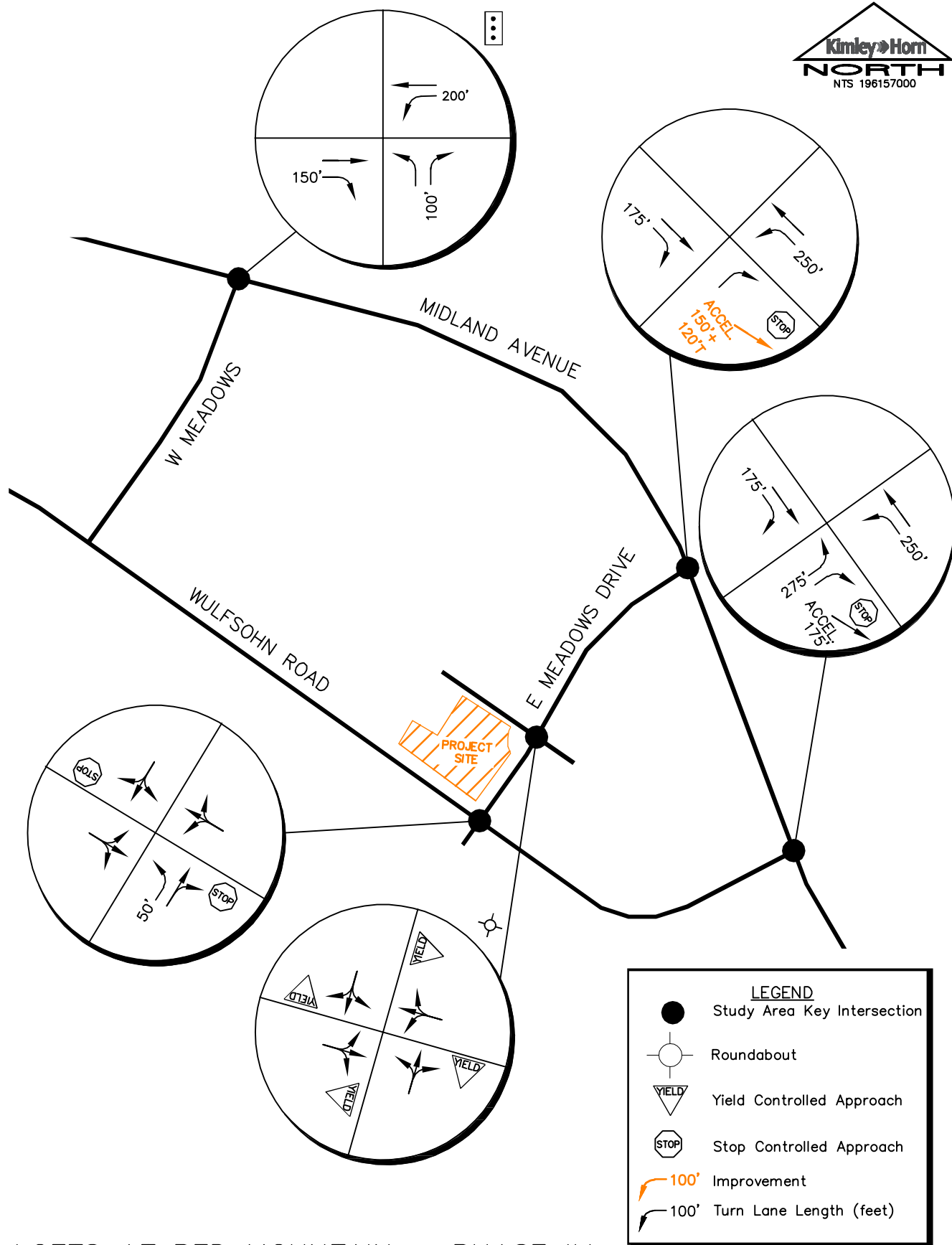
### 5.4 Bicycle and Pedestrian Access

Bicycle and pedestrian access evaluations were conducted for the area surrounding the proposed project site. There are no designated bicycle lanes on either side of Midland Avenue or Wulfsohn Road. There is a 12-foot sidewalk that is a multi-use trail along the south side of Midland Avenue from the east and west connections to Wulfsohn Road. There is a sidewalk on the north side of Wulfsohn Road from the east and west connections to Midland Avenue. There are sidewalks on the east and west sides of W Meadow and E Meadows Drive, in addition, there are crosswalks provided at the roundabout along E Meadows Drive. At the intersection of Midland Avenue and W Meadows, Midland Avenue and E Meadows Drive, and Midland Avenue

and Wulfsohn Road, there are at-grade crosswalks and below-grade crossings/trails. In the future, the Glenwood Spring's Long Rang Transportation Master Plan identifies Midland Avenue as providing on-street bike facilities. No additional offsite pedestrian or bicycle improvements are anticipated to be needed with the addition of the Lofts at Red Mountain – Phase IV project.

### **5.5 Improvement Summary**

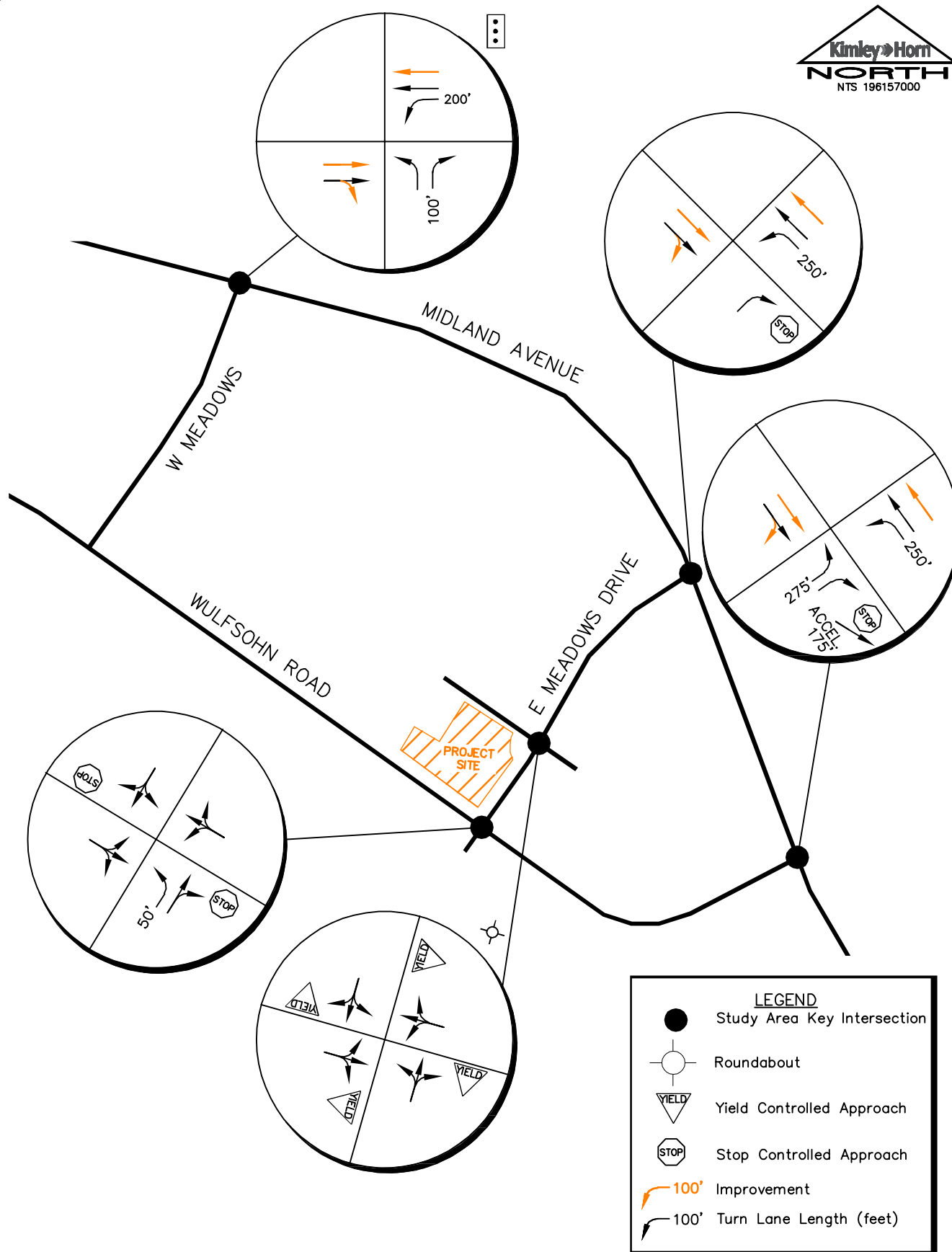
Based on the results of the intersection operational and vehicle queuing analysis, the key intersection recommended improvements and control for the 2023 build out and 2040 long-term horizon years are shown in **Figures 12** and **13**, respectively.



LOFTS AT RED MOUNTAIN – PHASE IV  
 GLENWOOD SPRINGS, COLORADO  
 2023 RECOMMENDATIONS

FIGURE 12





LOFTS AT RED MOUNTAIN – PHASE IV  
GLENWOOD SPRINGS, COLORADO  
2040 RECOMMENDATIONS

FIGURE 13

## 6.0 CONCLUSIONS AND RECOMMENDATIONS

---

Based on the analysis presented in this report, Kimley-Horn believes the Lofts at Red Mountain – Phase IV will be successfully incorporated into the existing and future roadway network. The proposed project development resulted in the following recommendations and conclusions:

- At the Midland Avenue and E Meadows Drive intersection, a 150-foot plus 120-foot taper eastbound acceleration lane is recommended along Midland Avenue, so the northbound right turn operates with free turning movements. This will likely require reconstruction of the existing channelized median island in the E Meadows Drive throat of the intersection.
- It is recommended that the existing free northbound right turn movement at the intersection of Midland Avenue and Wulfsohn Road be better designated to fully operate as a “FREE” lane. To accomplish this, it is recommended that improved channelized striping or a median be provided designating the left edge for the right turning vehicles.
- If future 2040 volumes are realized, Midland Avenue may need to be widened to four-lanes to accommodate the increase in traffic. If this occurs, all of the eastbound right turn acceleration and deceleration lanes could be absorbed at the study intersections with exception of the eastbound right turn acceleration lane from the northbound right turn at the Midland Avenue and Wulfsohn Road intersection which would need to be reconstructed. Existing counts were conducted during the COVID-19 pandemic and a conservatively high 40 percent pandemic factor was applied to traffic in this area to represent normal traffic conditions. Once the pandemic is over, it is recommended that new counts be conducted in the area and that an overall transportation master plan be conducted for this area to confirm the full extent of improvements needed to accommodate traffic by the long term horizon.
- Any on-site or offsite improvements should be incorporated into the Civil Drawings and conform to the standards of the City of Glenwood Springs and the Manual on Uniform Traffic Control Devices (MUTCD) – 2009 Edition.

# APPENDICES

# APPENDIX A

## Intersection Count Sheets



Ridgeview Data  
Collection

Glenwood Springs, CO  
Lofts at Red Mountain  
AM Peak  
E Meadows Dr & Wolfsohn Rd

File Name : E Meadows and Wulfsohn AM  
Site Code : IPO 526  
Start Date : 2/18/2021  
Page No : 1

Groups Printed- Automobiles - Bicycle and Pedestrian

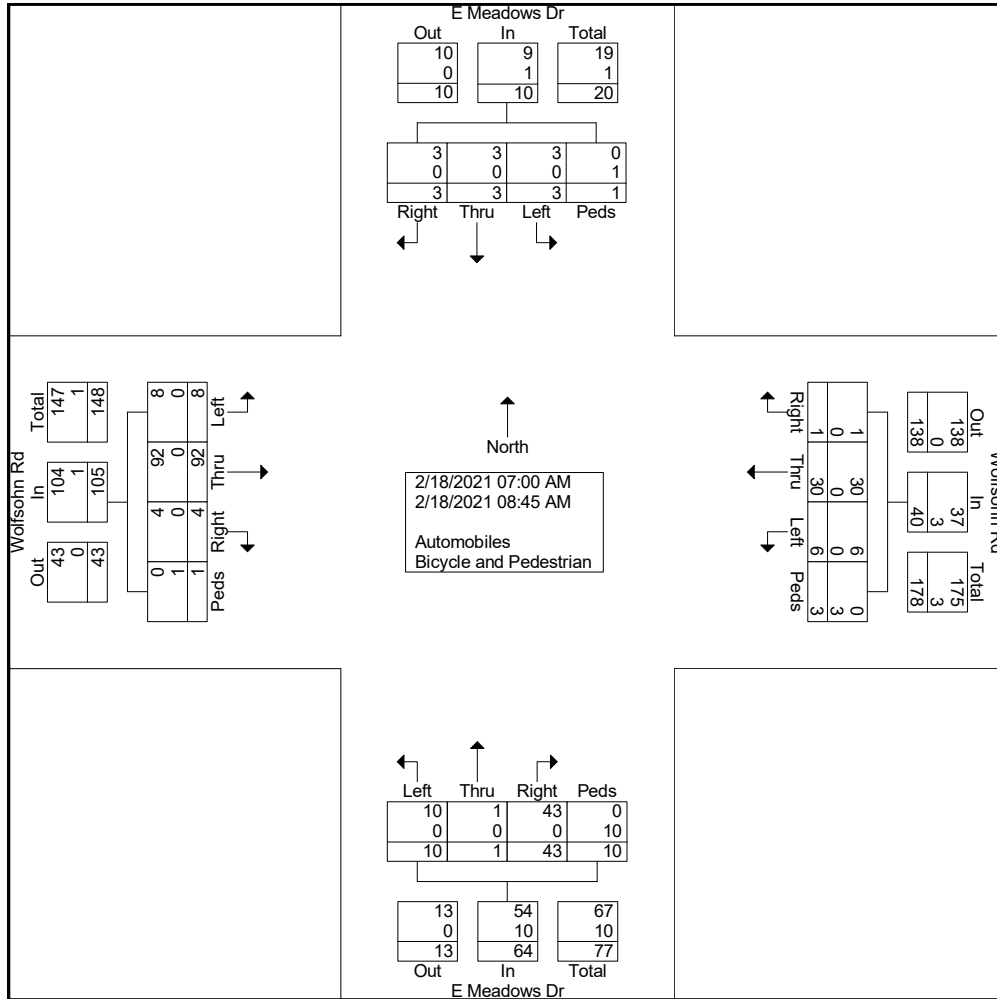
|                          | Wolfsohn Rd Eastbound |      |       |      |            | Wolfsohn Rd Westbound |      |       |      |            | E Meadows Dr Northbound |      |       |      |            | E Meadows Dr Southbound |      |       |      |            |            |
|--------------------------|-----------------------|------|-------|------|------------|-----------------------|------|-------|------|------------|-------------------------|------|-------|------|------------|-------------------------|------|-------|------|------------|------------|
| Start Time               | Left                  | Thru | Right | Peds | App. Total | Left                  | Thru | Right | Peds | App. Total | Left                    | Thru | Right | Peds | App. Total | Left                    | Thru | Right | Peds | App. Total | Int. Total |
| 07:00 AM                 | 1                     | 5    | 0     | 0    | 6          | 1                     | 1    | 1     | 0    | 3          | 1                       | 0    | 4     | 2    | 7          | 0                       | 0    | 0     | 0    | 0          | 16         |
| 07:15 AM                 | 1                     | 9    | 0     | 0    | 10         | 0                     | 1    | 0     | 0    | 1          | 0                       | 0    | 4     | 2    | 6          | 0                       | 0    | 0     | 0    | 0          | 17         |
| 07:30 AM                 | 1                     | 10   | 1     | 1    | 13         | 0                     | 2    | 0     | 0    | 2          | 0                       | 0    | 17    | 1    | 18         | 0                       | 0    | 2     | 1    | 3          | 36         |
| 07:45 AM                 | 1                     | 6    | 0     | 0    | 7          | 0                     | 7    | 0     | 0    | 7          | 0                       | 0    | 0     | 2    | 2          | 0                       | 0    | 0     | 0    | 0          | 16         |
| Total                    | 4                     | 30   | 1     | 1    | 36         | 1                     | 11   | 1     | 0    | 13         | 1                       | 0    | 25    | 7    | 33         | 0                       | 0    | 2     | 1    | 3          | 85         |
| 08:00 AM                 | 0                     | 8    | 0     | 0    | 8          | 2                     | 5    | 0     | 0    | 7          | 3                       | 1    | 3     | 0    | 7          | 2                       | 1    | 0     | 0    | 3          | 25         |
| 08:15 AM                 | 0                     | 6    | 0     | 0    | 6          | 0                     | 8    | 0     | 3    | 11         | 4                       | 0    | 6     | 3    | 13         | 1                       | 1    | 0     | 0    | 2          | 32         |
| 08:30 AM                 | 3                     | 29   | 2     | 0    | 34         | 1                     | 3    | 0     | 0    | 4          | 1                       | 0    | 4     | 0    | 5          | 0                       | 1    | 0     | 0    | 1          | 44         |
| 08:45 AM                 | 1                     | 19   | 1     | 0    | 21         | 2                     | 3    | 0     | 0    | 5          | 1                       | 0    | 5     | 0    | 6          | 0                       | 0    | 1     | 0    | 1          | 33         |
| Total                    | 4                     | 62   | 3     | 0    | 69         | 5                     | 19   | 0     | 3    | 27         | 9                       | 1    | 18    | 3    | 31         | 3                       | 3    | 1     | 0    | 7          | 134        |
| Grand Total              | 8                     | 92   | 4     | 1    | 105        | 6                     | 30   | 1     | 3    | 40         | 10                      | 1    | 43    | 10   | 64         | 3                       | 3    | 3     | 1    | 10         | 219        |
| Apprch %                 | 7.6                   | 87.6 | 3.8   | 1    |            | 15                    | 75   | 2.5   | 7.5  |            | 15.6                    | 1.6  | 67.2  | 15.6 |            | 30                      | 30   | 30    | 10   |            |            |
| Total %                  | 3.7                   | 42   | 1.8   | 0.5  | 47.9       | 2.7                   | 13.7 | 0.5   | 1.4  | 18.3       | 4.6                     | 0.5  | 19.6  | 4.6  | 29.2       | 1.4                     | 1.4  | 1.4   | 0.5  | 4.6        |            |
| Automobiles              | 8                     | 92   | 4     | 0    | 104        | 6                     | 30   | 1     | 0    | 37         | 10                      | 1    | 43    | 0    | 54         | 3                       | 3    | 3     | 0    | 9          | 204        |
| % Automobiles            | 100                   | 100  | 100   | 0    | 99         | 100                   | 100  | 100   | 0    | 92.5       | 100                     | 100  | 100   | 0    | 84.4       | 100                     | 100  | 100   | 0    | 90         | 93.2       |
| Bicycle and Pedestrian   | 0                     | 0    | 0     | 1    | 1          | 0                     | 0    | 0     | 3    | 3          | 0                       | 0    | 0     | 10   | 10         | 0                       | 0    | 0     | 1    | 1          | 15         |
| % Bicycle and Pedestrian | 0                     | 0    | 0     | 100  | 1          | 0                     | 0    | 0     | 100  | 7.5        | 0                       | 0    | 0     | 100  | 15.6       | 0                       | 0    | 0     | 100  | 10         | 6.8        |



Ridgeview Data  
Collection

Glenwood Springs, CO  
Lofts at Red Mountain  
AM Peak  
E Meadows Dr & Wolfsohn Rd

File Name : E Meadows and Wulfsohn AM  
Site Code : IPO 526  
Start Date : 2/18/2021  
Page No : 2



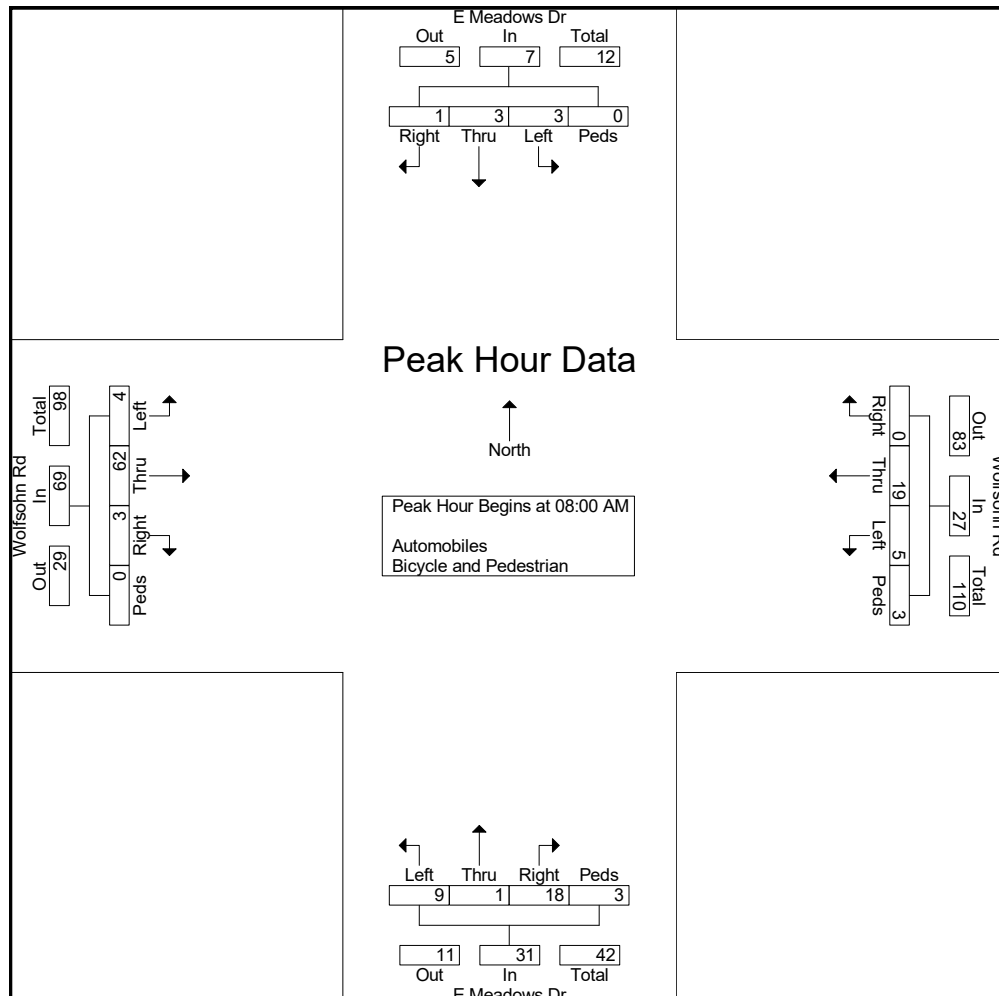


Ridgeview Data  
Collection

Glenwood Springs, CO  
Lofts at Red Mountain  
AM Peak  
E Meadows Dr & Wolfsohn Rd

File Name : E Meadows and Wulfsohn AM  
Site Code : IPO 526  
Start Date : 2/18/2021  
Page No : 3

|                                                            | Wolfsohn Rd Eastbound |      |       |      |            | Wolfsohn Rd Westbound |      |       |      |            | E Meadows Dr Northbound |      |       |      |            | E Meadows Dr Southbound |      |       |      |            |            |
|------------------------------------------------------------|-----------------------|------|-------|------|------------|-----------------------|------|-------|------|------------|-------------------------|------|-------|------|------------|-------------------------|------|-------|------|------------|------------|
| Start Time                                                 | Left                  | Thru | Right | Peds | App. Total | Left                  | Thru | Right | Peds | App. Total | Left                    | Thru | Right | Peds | App. Total | Left                    | Thru | Right | Peds | App. Total | Int. Total |
| Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1 |                       |      |       |      |            |                       |      |       |      |            |                         |      |       |      |            |                         |      |       |      |            |            |
| Peak Hour for Entire Intersection Begins at 08:00 AM       |                       |      |       |      |            |                       |      |       |      |            |                         |      |       |      |            |                         |      |       |      |            |            |
| 08:00 AM                                                   | 0                     | 8    | 0     | 0    | 8          | 2                     | 5    | 0     | 0    | 7          | 3                       | 1    | 3     | 0    | 7          | 2                       | 1    | 0     | 0    | 3          | 25         |
| 08:15 AM                                                   | 0                     | 6    | 0     | 0    | 6          | 0                     | 8    | 0     | 3    | 11         | 4                       | 0    | 6     | 3    | 13         | 1                       | 1    | 0     | 0    | 2          | 32         |
| 08:30 AM                                                   | 3                     | 29   | 2     | 0    | 34         | 1                     | 3    | 0     | 0    | 4          | 1                       | 0    | 4     | 0    | 5          | 0                       | 1    | 0     | 0    | 1          | 44         |
| 08:45 AM                                                   | 1                     | 19   | 1     | 0    | 21         | 2                     | 3    | 0     | 0    | 5          | 1                       | 0    | 5     | 0    | 6          | 0                       | 0    | 1     | 0    | 1          | 33         |
| Total Volume                                               | 4                     | 62   | 3     | 0    | 69         | 5                     | 19   | 0     | 3    | 27         | 9                       | 1    | 18    | 3    | 31         | 3                       | 3    | 1     | 0    | 7          | 134        |
| % App. Total                                               | 5.8                   | 89.9 | 4.3   | 0    |            | 18.5                  | 70.4 | 0     | 11.1 |            | 29                      | 3.2  | 58.1  | 9.7  |            | 42.9                    | 42.9 | 14.3  | 0    |            |            |
| PHF                                                        | .333                  | .534 | .375  | .000 | .507       | .625                  | .594 | .000  | .250 | .614       | .563                    | .250 | .750  | .250 | .596       | .375                    | .750 | .250  | .000 | .583       | .761       |





Ridgeview Data  
Collection

Glenwood Springs, CO  
Lofts at Red Mountain  
PM Peak  
E Meadows Dr & Wolfsohn Rd

File Name : E Meadows and Wulfsohn PM  
Site Code : IPO 526  
Start Date : 2/17/2021  
Page No : 1

Groups Printed- Automobiles - Bicycle and Pedestrian

|                          | Wolfsohn Rd Eastbound |      |       |      |            | Wolfsohn Rd Westbound |      |       |      |            | E Meadows Dr Northbound |      |       |      |            | E Meadows Dr Southbound |      |       |      |            |            |
|--------------------------|-----------------------|------|-------|------|------------|-----------------------|------|-------|------|------------|-------------------------|------|-------|------|------------|-------------------------|------|-------|------|------------|------------|
| Start Time               | Left                  | Thru | Right | Peds | App. Total | Left                  | Thru | Right | Peds | App. Total | Left                    | Thru | Right | Peds | App. Total | Left                    | Thru | Right | Peds | App. Total | Int. Total |
| 04:00 PM                 | 1                     | 6    | 0     | 0    | 7          | 4                     | 21   | 5     | 0    | 30         | 1                       | 1    | 1     | 1    | 4          | 4                       | 2    | 3     | 0    | 9          | 50         |
| 04:15 PM                 | 1                     | 12   | 1     | 1    | 15         | 4                     | 14   | 6     | 0    | 24         | 0                       | 1    | 1     | 2    | 4          | 5                       | 1    | 0     | 1    | 7          | 50         |
| 04:30 PM                 | 3                     | 8    | 1     | 0    | 12         | 5                     | 16   | 6     | 2    | 29         | 2                       | 1    | 4     | 2    | 9          | 2                       | 0    | 2     | 0    | 4          | 54         |
| 04:45 PM                 | 1                     | 5    | 2     | 0    | 8          | 5                     | 18   | 5     | 0    | 28         | 1                       | 1    | 3     | 0    | 5          | 4                       | 1    | 5     | 0    | 10         | 51         |
| Total                    | 6                     | 31   | 4     | 1    | 42         | 18                    | 69   | 22    | 2    | 111        | 4                       | 4    | 9     | 5    | 22         | 15                      | 4    | 10    | 1    | 30         | 205        |
| 05:00 PM                 | 1                     | 8    | 3     | 0    | 12         | 3                     | 14   | 1     | 0    | 18         | 0                       | 1    | 2     | 1    | 4          | 1                       | 2    | 2     | 0    | 5          | 39         |
| 05:15 PM                 | 3                     | 8    | 0     | 0    | 11         | 7                     | 20   | 4     | 2    | 33         | 0                       | 0    | 1     | 1    | 2          | 4                       | 1    | 1     | 0    | 6          | 52         |
| 05:30 PM                 | 2                     | 5    | 0     | 0    | 7          | 2                     | 20   | 2     | 1    | 25         | 3                       | 0    | 3     | 1    | 7          | 2                       | 0    | 3     | 0    | 5          | 44         |
| 05:45 PM                 | 1                     | 9    | 1     | 0    | 11         | 8                     | 13   | 5     | 0    | 26         | 1                       | 0    | 2     | 2    | 5          | 3                       | 0    | 3     | 1    | 7          | 49         |
| Total                    | 7                     | 30   | 4     | 0    | 41         | 20                    | 67   | 12    | 3    | 102        | 4                       | 1    | 8     | 5    | 18         | 10                      | 3    | 9     | 1    | 23         | 184        |
| Grand Total              | 13                    | 61   | 8     | 1    | 83         | 38                    | 136  | 34    | 5    | 213        | 8                       | 5    | 17    | 10   | 40         | 25                      | 7    | 19    | 2    | 53         | 389        |
| Apprch %                 | 15.7                  | 73.5 | 9.6   | 1.2  |            | 17.8                  | 63.8 | 16    | 2.3  |            | 20                      | 12.5 | 42.5  | 25   |            | 47.2                    | 13.2 | 35.8  | 3.8  |            |            |
| Total %                  | 3.3                   | 15.7 | 2.1   | 0.3  | 21.3       | 9.8                   | 35   | 8.7   | 1.3  | 54.8       | 2.1                     | 1.3  | 4.4   | 2.6  | 10.3       | 6.4                     | 1.8  | 4.9   | 0.5  | 13.6       |            |
| Automobiles              | 13                    | 60   | 8     | 0    | 81         | 38                    | 136  | 34    | 0    | 208        | 8                       | 4    | 17    | 0    | 29         | 25                      | 7    | 19    | 0    | 51         | 369        |
| % Automobiles            | 100                   | 98.4 | 100   | 0    | 97.6       | 100                   | 100  | 100   | 0    | 97.7       | 100                     | 80   | 100   | 0    | 72.5       | 100                     | 100  | 100   | 0    | 96.2       | 94.9       |
| Bicycle and Pedestrian   | 0                     | 1    | 0     | 1    | 2          | 0                     | 0    | 0     | 5    | 5          | 0                       | 1    | 0     | 10   | 11         | 0                       | 0    | 0     | 2    | 2          | 20         |
| % Bicycle and Pedestrian | 0                     | 1.6  | 0     | 100  | 2.4        | 0                     | 0    | 0     | 100  | 2.3        | 0                       | 20   | 0     | 100  | 27.5       | 0                       | 0    | 0     | 100  | 3.8        | 5.1        |

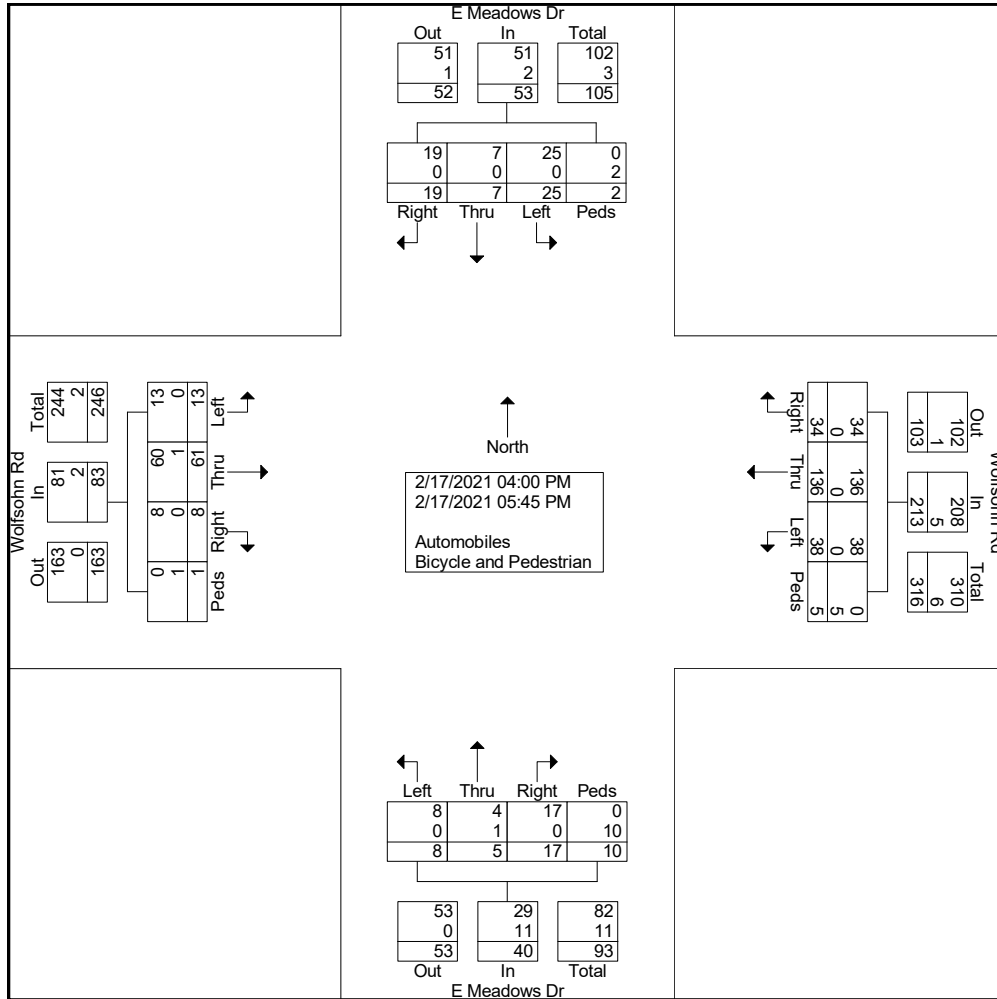




Ridgeview Data  
Collection

Glenwood Springs, CO  
Lofts at Red Mountain  
PM Peak  
E Meadows Dr & Wolfsohn Rd

File Name : E Meadows and Wulfsohn PM  
Site Code : IPO 526  
Start Date : 2/17/2021  
Page No : 2



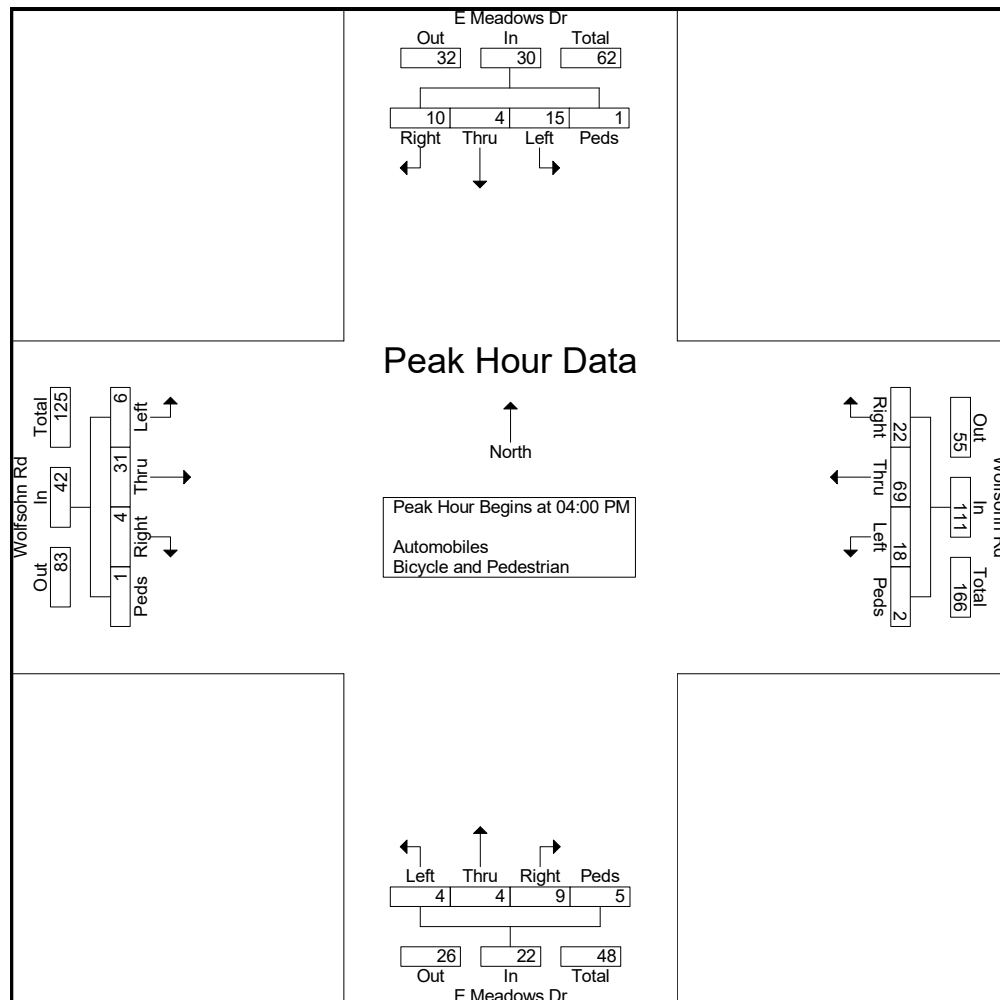


Ridgeview Data  
Collection

Glenwood Springs, CO  
Lofts at Red Mountain  
PM Peak  
E Meadows Dr & Wolfsohn Rd

File Name : E Meadows and Wulfsohn PM  
Site Code : IPO 526  
Start Date : 2/17/2021  
Page No : 3

|                                                            | Wolfsohn Rd Eastbound |      |       |      |            | Wolfsohn Rd Westbound |      |       |      |            | E Meadows Dr Northbound |          |       |      |            | E Meadows Dr Southbound |      |       |      |            |            |
|------------------------------------------------------------|-----------------------|------|-------|------|------------|-----------------------|------|-------|------|------------|-------------------------|----------|-------|------|------------|-------------------------|------|-------|------|------------|------------|
| Start Time                                                 | Left                  | Thru | Right | Peds | App. Total | Left                  | Thru | Right | Peds | App. Total | Left                    | Thru     | Right | Peds | App. Total | Left                    | Thru | Right | Peds | App. Total | Int. Total |
| Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1 |                       |      |       |      |            |                       |      |       |      |            |                         |          |       |      |            |                         |      |       |      |            |            |
| Peak Hour for Entire Intersection Begins at 04:00 PM       |                       |      |       |      |            |                       |      |       |      |            |                         |          |       |      |            |                         |      |       |      |            |            |
| 04:00 PM                                                   | 1                     | 6    | 0     | 0    | 7          | 4                     | 21   | 5     | 0    | 30         | 1                       | 1        | 1     | 1    | 4          | 4                       | 2    | 3     | 0    | 9          | 50         |
| 04:15 PM                                                   | 1                     | 12   | 1     | 1    | 15         | 4                     | 14   | 6     | 0    | 24         | 0                       | 1        | 1     | 2    | 4          | 5                       | 1    | 0     | 1    | 7          | 50         |
| 04:30 PM                                                   | 3                     | 8    | 1     | 0    | 12         | 5                     | 16   | 6     | 2    | 29         | 2                       | 1        | 4     | 2    | 9          | 2                       | 0    | 2     | 0    | 4          | 54         |
| 04:45 PM                                                   | 1                     | 5    | 2     | 0    | 8          | 5                     | 18   | 5     | 0    | 28         | 1                       | 1        | 3     | 0    | 5          | 4                       | 1    | 5     | 0    | 10         | 51         |
| Total Volume                                               | 6                     | 31   | 4     | 1    | 42         | 18                    | 69   | 22    | 2    | 111        | 4                       | 4        | 9     | 5    | 22         | 15                      | 4    | 10    | 1    | 30         | 205        |
| % App. Total                                               | 14.3                  | 73.8 | 9.5   | 2.4  |            | 16.2                  | 62.2 | 19.8  | 1.8  |            | 18.2                    | 18.2     | 40.9  | 22.7 |            | 50                      | 13.3 | 33.3  | 3.3  |            |            |
| PHF                                                        | .500                  | .646 | .500  | .250 | .700       | .900                  | .821 | .917  | .250 | .925       | .500                    | 1.0<br>0 | .563  | .625 | .611       | .750                    | .500 | .500  | .250 | .750       | .949       |





Ridgeview Data  
Collection

Glenwood Springs, CO  
Lofts at Red Mountain  
AM Peak  
E Meadows Dr Roundabout

File Name : E Meadows Roundabout AM  
Site Code : IPO 526  
Start Date : 2/18/2021  
Page No : 1

Groups Printed- Automobiles - Bicycle and Pedestrian

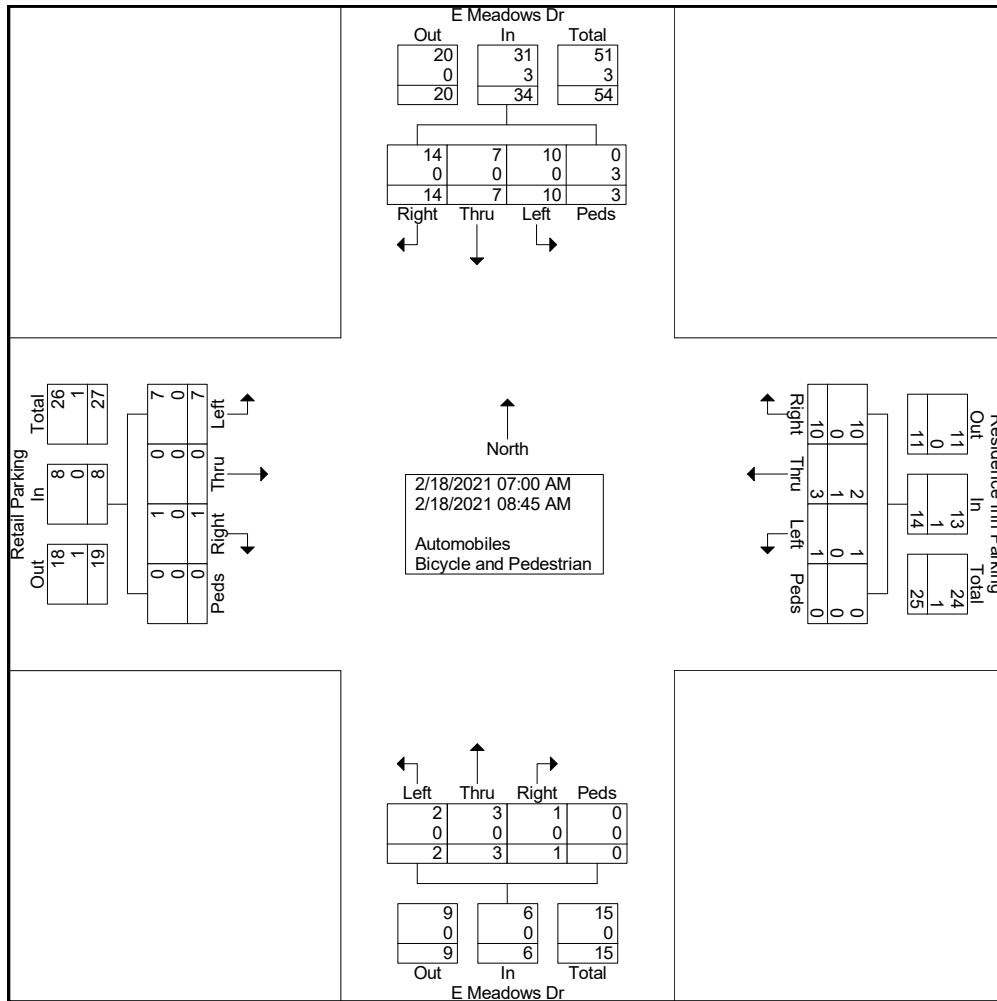
|                          | Retail Parking Eastbound |      |       |      |            | Residence Inn Parking Westbound |      |       |      |            | E Meadows Dr Northbound |      |       |      |            | E Meadows Dr Southbound |      |       |      |            |            |
|--------------------------|--------------------------|------|-------|------|------------|---------------------------------|------|-------|------|------------|-------------------------|------|-------|------|------------|-------------------------|------|-------|------|------------|------------|
| Start Time               | Left                     | Thru | Right | Peds | App. Total | Left                            | Thru | Right | Peds | App. Total | Left                    | Thru | Right | Peds | App. Total | Left                    | Thru | Right | Peds | App. Total | Int. Total |
| 07:00 AM                 | 0                        | 0    | 0     | 0    | 0          | 0                               | 0    | 2     | 0    | 2          | 1                       | 0    | 0     | 0    | 1          | 0                       | 0    | 0     | 0    | 0          | 3          |
| 07:15 AM                 | 2                        | 0    | 0     | 0    | 2          | 0                               | 0    | 1     | 0    | 1          | 0                       | 0    | 0     | 0    | 0          | 0                       | 0    | 1     | 0    | 1          | 4          |
| 07:30 AM                 | 0                        | 0    | 0     | 0    | 0          | 0                               | 1    | 2     | 0    | 3          | 0                       | 1    | 0     | 0    | 1          | 1                       | 1    | 0     | 0    | 2          | 6          |
| 07:45 AM                 | 1                        | 0    | 0     | 0    | 1          | 1                               | 1    | 0     | 0    | 2          | 0                       | 0    | 0     | 0    | 0          | 1                       | 0    | 3     | 0    | 4          | 7          |
| Total                    | 3                        | 0    | 0     | 0    | 3          | 1                               | 2    | 5     | 0    | 8          | 1                       | 1    | 0     | 0    | 2          | 2                       | 1    | 4     | 0    | 7          | 20         |
| 08:00 AM                 | 1                        | 0    | 1     | 0    | 2          | 0                               | 0    | 1     | 0    | 1          | 0                       | 1    | 0     | 0    | 1          | 4                       | 2    | 1     | 2    | 9          | 13         |
| 08:15 AM                 | 0                        | 0    | 0     | 0    | 0          | 0                               | 0    | 0     | 0    | 0          | 0                       | 0    | 0     | 0    | 0          | 2                       | 2    | 3     | 0    | 7          | 7          |
| 08:30 AM                 | 2                        | 0    | 0     | 0    | 2          | 0                               | 0    | 2     | 0    | 2          | 0                       | 1    | 1     | 0    | 2          | 2                       | 1    | 2     | 1    | 6          | 12         |
| 08:45 AM                 | 1                        | 0    | 0     | 0    | 1          | 0                               | 1    | 2     | 0    | 3          | 1                       | 0    | 0     | 0    | 1          | 0                       | 1    | 4     | 0    | 5          | 10         |
| Total                    | 4                        | 0    | 1     | 0    | 5          | 0                               | 1    | 5     | 0    | 6          | 1                       | 2    | 1     | 0    | 4          | 8                       | 6    | 10    | 3    | 27         | 42         |
| Grand Total              | 7                        | 0    | 1     | 0    | 8          | 1                               | 3    | 10    | 0    | 14         | 2                       | 3    | 1     | 0    | 6          | 10                      | 7    | 14    | 3    | 34         | 62         |
| Apprch %                 | 87.5                     | 0    | 12.5  | 0    |            | 7.1                             | 21.4 | 71.4  | 0    |            | 33.3                    | 50   | 16.7  | 0    |            | 29.4                    | 20.6 | 41.2  | 8.8  |            |            |
| Total %                  | 11.3                     | 0    | 1.6   | 0    | 12.9       | 1.6                             | 4.8  | 16.1  | 0    | 22.6       | 3.2                     | 4.8  | 1.6   | 0    | 9.7        | 16.1                    | 11.3 | 22.6  | 4.8  | 54.8       |            |
| Automobiles              | 7                        | 0    | 1     | 0    | 8          | 1                               | 2    | 10    | 0    | 13         | 2                       | 3    | 1     | 0    | 6          | 10                      | 7    | 14    | 0    | 31         | 58         |
| % Automobiles            | 100                      | 0    | 100   | 0    | 100        | 100                             | 66.7 | 100   | 0    | 92.9       | 100                     | 100  | 100   | 0    | 100        | 100                     | 100  | 100   | 0    | 91.2       | 93.5       |
| Bicycle and Pedestrian   | 0                        | 0    | 0     | 0    | 0          | 0                               | 1    | 0     | 0    | 1          | 0                       | 0    | 0     | 0    | 0          | 0                       | 0    | 0     | 3    | 3          | 4          |
| % Bicycle and Pedestrian | 0                        | 0    | 0     | 0    | 0          | 0                               | 33.3 | 0     | 0    | 7.1        | 0                       | 0    | 0     | 0    | 0          | 0                       | 0    | 0     | 100  | 8.8        | 6.5        |



Ridgeview Data  
Collection

Glenwood Springs, CO  
Lofts at Red Mountain  
AM Peak  
E Meadows Dr Roundabout

File Name : E Meadows Roundabout AM  
Site Code : IPO 526  
Start Date : 2/18/2021  
Page No : 2



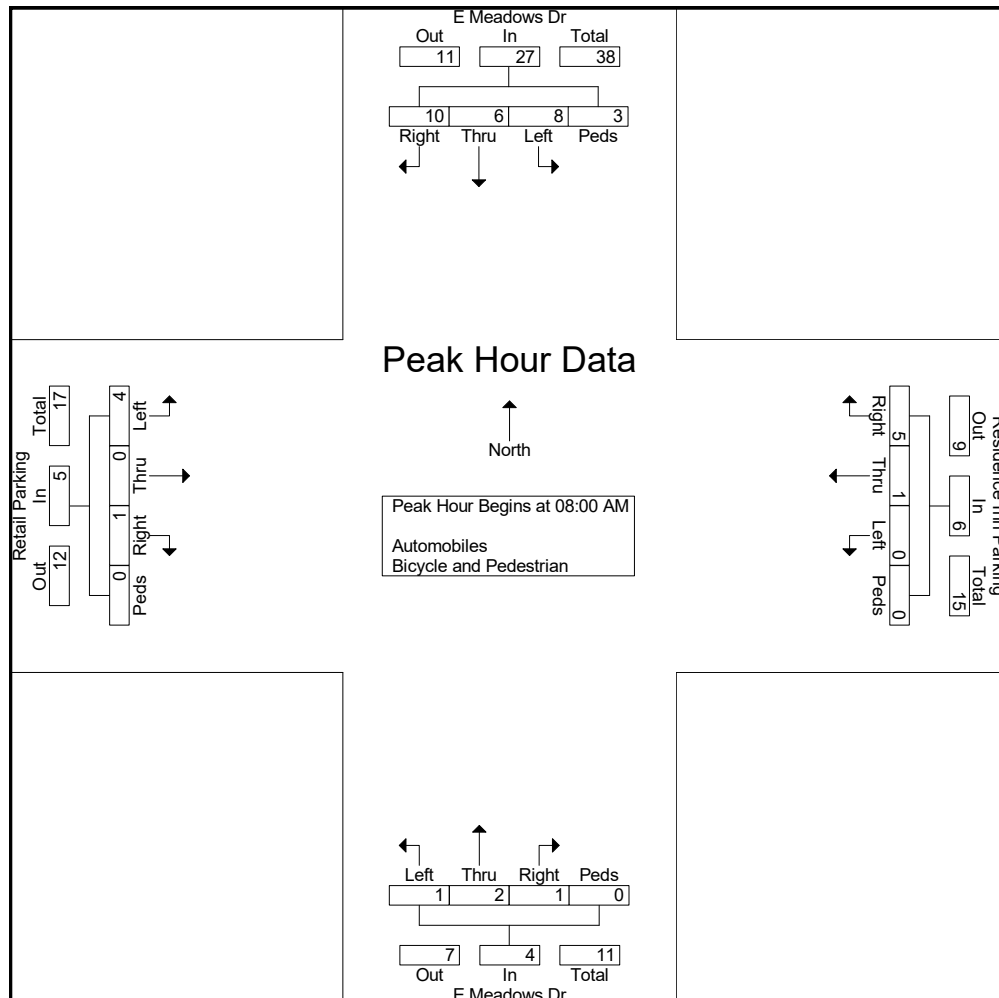


Ridgeview Data  
Collection

Glenwood Springs, CO  
Lofts at Red Mountain  
AM Peak  
E Meadows Dr Roundabout

File Name : E Meadows Roundabout AM  
Site Code : IPO 526  
Start Date : 2/18/2021  
Page No : 3

|                                                            | Retail Parking<br>Eastbound |      |       |      |            | Residence Inn Parking<br>Westbound |      |       |      |            | E Meadows Dr<br>Northbound |      |       |      |            | E Meadows Dr<br>Southbound |      |       |      |            |            |
|------------------------------------------------------------|-----------------------------|------|-------|------|------------|------------------------------------|------|-------|------|------------|----------------------------|------|-------|------|------------|----------------------------|------|-------|------|------------|------------|
| Start Time                                                 | Left                        | Thru | Right | Peds | App. Total | Left                               | Thru | Right | Peds | App. Total | Left                       | Thru | Right | Peds | App. Total | Left                       | Thru | Right | Peds | App. Total | Int. Total |
| Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1 |                             |      |       |      |            |                                    |      |       |      |            |                            |      |       |      |            |                            |      |       |      |            |            |
| Peak Hour for Entire Intersection Begins at 08:00 AM       |                             |      |       |      |            |                                    |      |       |      |            |                            |      |       |      |            |                            |      |       |      |            |            |
| 08:00 AM                                                   | 1                           | 0    | 1     | 0    | 2          | 0                                  | 0    | 1     | 0    | 1          | 0                          | 1    | 0     | 0    | 1          | 4                          | 2    | 1     | 2    | 9          | 13         |
| 08:15 AM                                                   | 0                           | 0    | 0     | 0    | 0          | 0                                  | 0    | 0     | 0    | 0          | 0                          | 0    | 0     | 0    | 0          | 2                          | 2    | 3     | 0    | 7          | 7          |
| 08:30 AM                                                   | 2                           | 0    | 0     | 0    | 2          | 0                                  | 0    | 2     | 0    | 2          | 0                          | 1    | 1     | 0    | 2          | 2                          | 1    | 2     | 1    | 6          | 12         |
| 08:45 AM                                                   | 1                           | 0    | 0     | 0    | 1          | 0                                  | 1    | 2     | 0    | 3          | 1                          | 0    | 0     | 0    | 1          | 0                          | 1    | 4     | 0    | 5          | 10         |
| Total Volume                                               | 4                           | 0    | 1     | 0    | 5          | 0                                  | 1    | 5     | 0    | 6          | 1                          | 2    | 1     | 0    | 4          | 8                          | 6    | 10    | 3    | 27         | 42         |
| % App. Total                                               | 80                          | 0    | 20    | 0    |            | 0                                  | 16.7 | 83.3  | 0    |            | 25                         | 50   | 25    | 0    |            | 29.6                       | 22.2 | 37    | 11.1 |            |            |
| PHF                                                        | .500                        | .000 | .250  | .000 | .625       | .000                               | .250 | .625  | .000 | .500       | .250                       | .500 | .250  | .000 | .500       | .500                       | .750 | .625  | .375 | .750       | .808       |





Ridgeview Data  
Collection

Glenwood Springs, CO  
Lofts at Red Mountain  
PM Peak  
E Meadows Dr Roundabout

File Name : E Meadows Roundabout PM  
Site Code : IPO 526  
Start Date : 2/17/2021  
Page No : 1

Groups Printed- Automobiles - Bicycle and Pedestrian

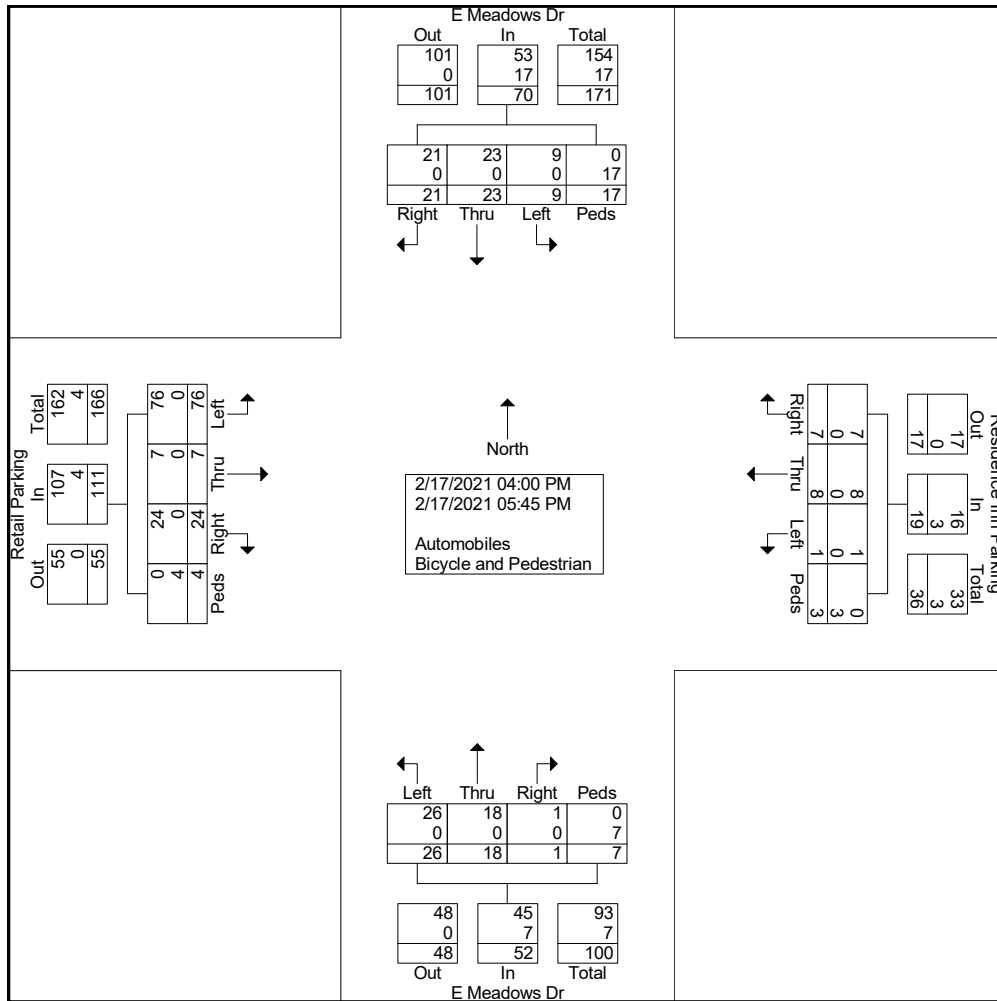
|                          | Retail Parking Eastbound |      |       |      |            | Residence Inn Parking Westbound |      |       |      |            | E Meadows Dr Northbound |      |       |      |            | E Meadows Dr Southbound |      |       |      |            |            |
|--------------------------|--------------------------|------|-------|------|------------|---------------------------------|------|-------|------|------------|-------------------------|------|-------|------|------------|-------------------------|------|-------|------|------------|------------|
| Start Time               | Left                     | Thru | Right | Peds | App. Total | Left                            | Thru | Right | Peds | App. Total | Left                    | Thru | Right | Peds | App. Total | Left                    | Thru | Right | Peds | App. Total | Int. Total |
| 04:00 PM                 | 11                       | 1    | 2     | 0    | 14         | 0                               | 2    | 3     | 1    | 6          | 4                       | 3    | 0     | 0    | 7          | 1                       | 5    | 4     | 3    | 13         | 40         |
| 04:15 PM                 | 12                       | 0    | 3     | 0    | 15         | 0                               | 0    | 1     | 1    | 2          | 3                       | 3    | 0     | 0    | 6          | 0                       | 3    | 3     | 4    | 10         | 33         |
| 04:30 PM                 | 13                       | 2    | 1     | 0    | 16         | 0                               | 0    | 0     | 0    | 0          | 4                       | 4    | 0     | 0    | 8          | 1                       | 4    | 1     | 3    | 9          | 33         |
| 04:45 PM                 | 12                       | 1    | 7     | 2    | 22         | 0                               | 2    | 1     | 0    | 3          | 6                       | 1    | 0     | 2    | 9          | 3                       | 2    | 1     | 2    | 8          | 42         |
| Total                    | 48                       | 4    | 13    | 2    | 67         | 0                               | 4    | 5     | 2    | 11         | 17                      | 11   | 0     | 2    | 30         | 5                       | 14   | 9     | 12   | 40         | 148        |
| 05:00 PM                 | 9                        | 2    | 4     | 0    | 15         | 0                               | 1    | 0     | 0    | 1          | 1                       | 1    | 0     | 0    | 2          | 1                       | 1    | 3     | 0    | 5          | 23         |
| 05:15 PM                 | 5                        | 0    | 3     | 0    | 8          | 0                               | 1    | 1     | 1    | 3          | 2                       | 4    | 0     | 0    | 6          | 1                       | 3    | 5     | 5    | 14         | 31         |
| 05:30 PM                 | 8                        | 0    | 2     | 0    | 10         | 1                               | 1    | 1     | 0    | 3          | 2                       | 2    | 0     | 4    | 8          | 1                       | 1    | 1     | 0    | 3          | 24         |
| 05:45 PM                 | 6                        | 1    | 2     | 2    | 11         | 0                               | 1    | 0     | 0    | 1          | 4                       | 0    | 1     | 1    | 6          | 1                       | 4    | 3     | 0    | 8          | 26         |
| Total                    | 28                       | 3    | 11    | 2    | 44         | 1                               | 4    | 2     | 1    | 8          | 9                       | 7    | 1     | 5    | 22         | 4                       | 9    | 12    | 5    | 30         | 104        |
| Grand Total              | 76                       | 7    | 24    | 4    | 111        | 1                               | 8    | 7     | 3    | 19         | 26                      | 18   | 1     | 7    | 52         | 9                       | 23   | 21    | 17   | 70         | 252        |
| Apprch %                 | 68.5                     | 6.3  | 21.6  | 3.6  |            | 5.3                             | 42.1 | 36.8  | 15.8 |            | 50                      | 34.6 | 1.9   | 13.5 |            | 12.9                    | 32.9 | 30    | 24.3 |            |            |
| Total %                  | 30.2                     | 2.8  | 9.5   | 1.6  | 44         | 0.4                             | 3.2  | 2.8   | 1.2  | 7.5        | 10.3                    | 7.1  | 0.4   | 2.8  | 20.6       | 3.6                     | 9.1  | 8.3   | 6.7  | 27.8       |            |
| Automobiles              | 76                       | 7    | 24    | 0    | 107        | 1                               | 8    | 7     | 0    | 16         | 26                      | 18   | 1     | 0    | 45         | 9                       | 23   | 21    | 0    | 53         | 221        |
| % Automobiles            | 100                      | 100  | 100   | 0    | 96.4       | 100                             | 100  | 100   | 0    | 84.2       | 100                     | 100  | 100   | 0    | 86.5       | 100                     | 100  | 100   | 0    | 75.7       | 87.7       |
| Bicycle and Pedestrian   | 0                        | 0    | 0     | 4    | 4          | 0                               | 0    | 0     | 3    | 3          | 0                       | 0    | 0     | 7    | 7          | 0                       | 0    | 0     | 17   | 17         | 31         |
| % Bicycle and Pedestrian | 0                        | 0    | 0     | 100  | 3.6        | 0                               | 0    | 0     | 100  | 15.8       | 0                       | 0    | 0     | 100  | 13.5       | 0                       | 0    | 0     | 100  | 24.3       | 12.3       |



Ridgeview Data  
Collection

Glenwood Springs, CO  
Lofts at Red Mountain  
PM Peak  
E Meadows Dr Roundabout

File Name : E Meadows Roundabout PM  
Site Code : IPO 526  
Start Date : 2/17/2021  
Page No : 2



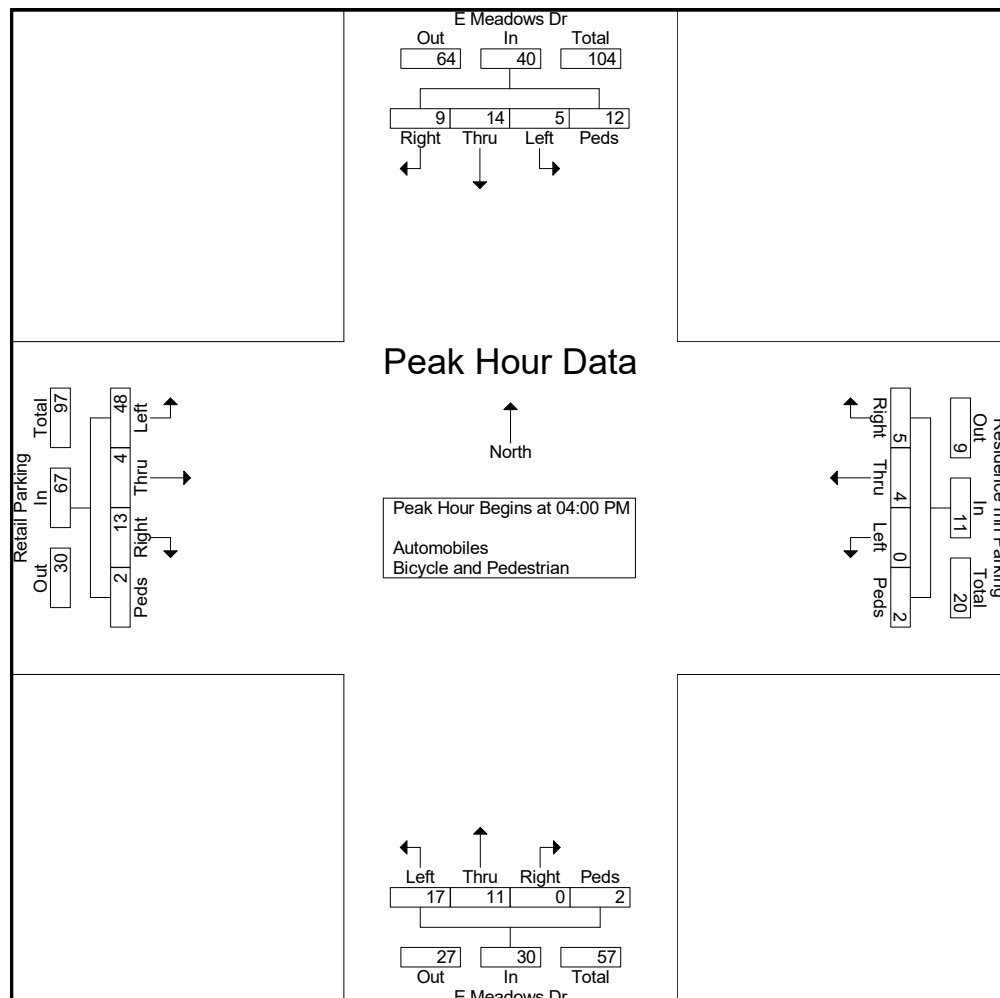


Ridgeview Data  
Collection

Glenwood Springs, CO  
Lofts at Red Mountain  
PM Peak  
E Meadows Dr Roundabout

File Name : E Meadows Roundabout PM  
Site Code : IPO 526  
Start Date : 2/17/2021  
Page No : 3

|                                                            | Retail Parking<br>Eastbound |      |       |      |            | Residence Inn Parking<br>Westbound |      |       |      |            | E Meadows Dr<br>Northbound |      |       |      |            | E Meadows Dr<br>Southbound |      |       |      |            |            |
|------------------------------------------------------------|-----------------------------|------|-------|------|------------|------------------------------------|------|-------|------|------------|----------------------------|------|-------|------|------------|----------------------------|------|-------|------|------------|------------|
| Start Time                                                 | Left                        | Thru | Right | Peds | App. Total | Left                               | Thru | Right | Peds | App. Total | Left                       | Thru | Right | Peds | App. Total | Left                       | Thru | Right | Peds | App. Total | Int. Total |
| Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1 |                             |      |       |      |            |                                    |      |       |      |            |                            |      |       |      |            |                            |      |       |      |            |            |
| Peak Hour for Entire Intersection Begins at 04:00 PM       |                             |      |       |      |            |                                    |      |       |      |            |                            |      |       |      |            |                            |      |       |      |            |            |
| 04:00 PM                                                   | 11                          | 1    | 2     | 0    | 14         | 0                                  | 2    | 3     | 1    | 6          | 4                          | 3    | 0     | 0    | 7          | 1                          | 5    | 4     | 3    | 13         | 40         |
| 04:15 PM                                                   | 12                          | 0    | 3     | 0    | 15         | 0                                  | 0    | 1     | 1    | 2          | 3                          | 3    | 0     | 0    | 6          | 0                          | 3    | 3     | 4    | 10         | 33         |
| 04:30 PM                                                   | 13                          | 2    | 1     | 0    | 16         | 0                                  | 0    | 0     | 0    | 0          | 4                          | 4    | 0     | 0    | 8          | 1                          | 4    | 1     | 3    | 9          | 33         |
| 04:45 PM                                                   | 12                          | 1    | 7     | 2    | 22         | 0                                  | 2    | 1     | 0    | 3          | 6                          | 1    | 0     | 2    | 9          | 3                          | 2    | 1     | 2    | 8          | 42         |
| Total Volume                                               | 48                          | 4    | 13    | 2    | 67         | 0                                  | 4    | 5     | 2    | 11         | 17                         | 11   | 0     | 2    | 30         | 5                          | 14   | 9     | 12   | 40         | 148        |
| % App. Total                                               | 71.6                        | 6    | 19.4  | 3    |            | 0                                  | 36.4 | 45.5  | 18.2 |            | 56.7                       | 36.7 | 0     | 6.7  |            | 12.5                       | 35   | 22.5  | 30   |            |            |
| PHF                                                        | .923                        | .500 | .464  | .250 | .761       | .000                               | .500 | .417  | .500 | .458       | .708                       | .688 | .000  | .250 | .833       | .417                       | .700 | .563  | .750 | .769       | .881       |







Ridgeview Data  
Collection

Glenwood Springs, CO  
Lofts at Red Mountain  
AM Peak  
Midland Ave & E Meadows Dr

File Name : Midland and E Meadows AM  
Site Code : IPO 526  
Start Date : 2/18/2021  
Page No : 1

Groups Printed- Automobiles - Bicycle and Pedestrian

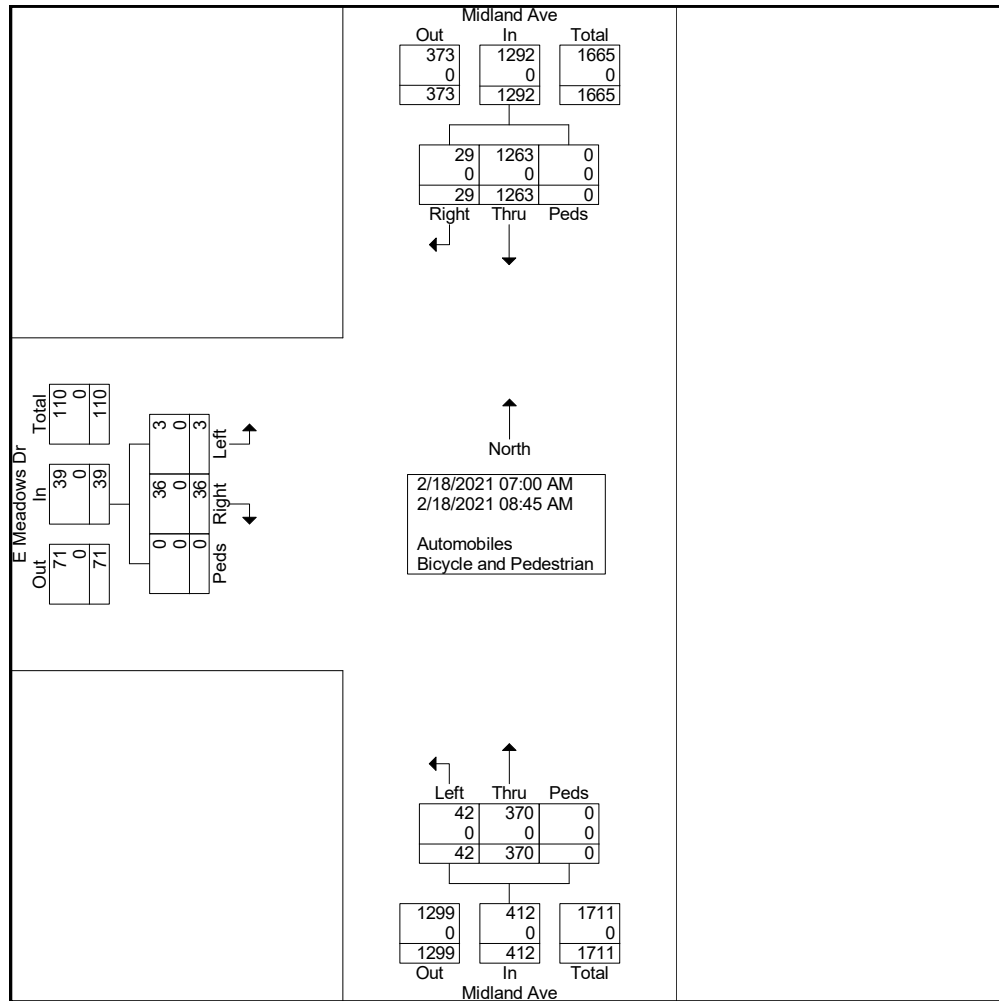
| Start Time               | E Meadows Dr<br>Eastbound |       |      |            | Midland Ave<br>Northbound |      |      |            | Midland Ave<br>Southbound |       |      |            | Int. Total |
|--------------------------|---------------------------|-------|------|------------|---------------------------|------|------|------------|---------------------------|-------|------|------------|------------|
|                          | Left                      | Right | Peds | App. Total | Left                      | Thru | Peds | App. Total | Thru                      | Right | Peds | App. Total |            |
| 07:00 AM                 | 1                         | 2     | 0    | 3          | 0                         | 18   | 0    | 18         | 37                        | 3     | 0    | 40         | 61         |
| 07:15 AM                 | 0                         | 5     | 0    | 5          | 3                         | 32   | 0    | 35         | 43                        | 0     | 0    | 43         | 83         |
| 07:30 AM                 | 1                         | 1     | 0    | 2          | 4                         | 38   | 0    | 42         | 97                        | 1     | 0    | 98         | 142        |
| 07:45 AM                 | 0                         | 5     | 0    | 5          | 3                         | 36   | 0    | 39         | 158                       | 4     | 0    | 162        | 206        |
| Total                    | 2                         | 13    | 0    | 15         | 10                        | 124  | 0    | 134        | 335                       | 8     | 0    | 343        | 492        |
| 08:00 AM                 | 0                         | 4     | 0    | 4          | 6                         | 54   | 0    | 60         | 239                       | 7     | 0    | 246        | 310        |
| 08:15 AM                 | 0                         | 5     | 0    | 5          | 5                         | 60   | 0    | 65         | 234                       | 8     | 0    | 242        | 312        |
| 08:30 AM                 | 1                         | 7     | 0    | 8          | 5                         | 64   | 0    | 69         | 227                       | 3     | 0    | 230        | 307        |
| 08:45 AM                 | 0                         | 7     | 0    | 7          | 16                        | 68   | 0    | 84         | 228                       | 3     | 0    | 231        | 322        |
| Total                    | 1                         | 23    | 0    | 24         | 32                        | 246  | 0    | 278        | 928                       | 21    | 0    | 949        | 1251       |
| Grand Total              | 3                         | 36    | 0    | 39         | 42                        | 370  | 0    | 412        | 1263                      | 29    | 0    | 1292       | 1743       |
| Apprch %                 | 7.7                       | 92.3  | 0    |            | 10.2                      | 89.8 | 0    |            | 97.8                      | 2.2   | 0    |            |            |
| Total %                  | 0.2                       | 2.1   | 0    | 2.2        | 2.4                       | 21.2 | 0    | 23.6       | 72.5                      | 1.7   | 0    | 74.1       |            |
| Automobiles              | 3                         | 36    | 0    | 39         | 42                        | 370  | 0    | 412        | 1263                      | 29    | 0    | 1292       | 1743       |
| % Automobiles            | 100                       | 100   | 0    | 100        | 100                       | 100  | 0    | 100        | 100                       | 100   | 0    | 100        | 100        |
| Bicycle and Pedestrian   | 0                         | 0     | 0    | 0          | 0                         | 0    | 0    | 0          | 0                         | 0     | 0    | 0          | 0          |
| % Bicycle and Pedestrian | 0                         | 0     | 0    | 0          | 0                         | 0    | 0    | 0          | 0                         | 0     | 0    | 0          | 0          |



Ridgeview Data  
Collection

Glenwood Springs, CO  
Lofts at Red Mountain  
AM Peak  
Midland Ave & E Meadows Dr

File Name : Midland and E Meadows AM  
Site Code : IPO 526  
Start Date : 2/18/2021  
Page No : 2



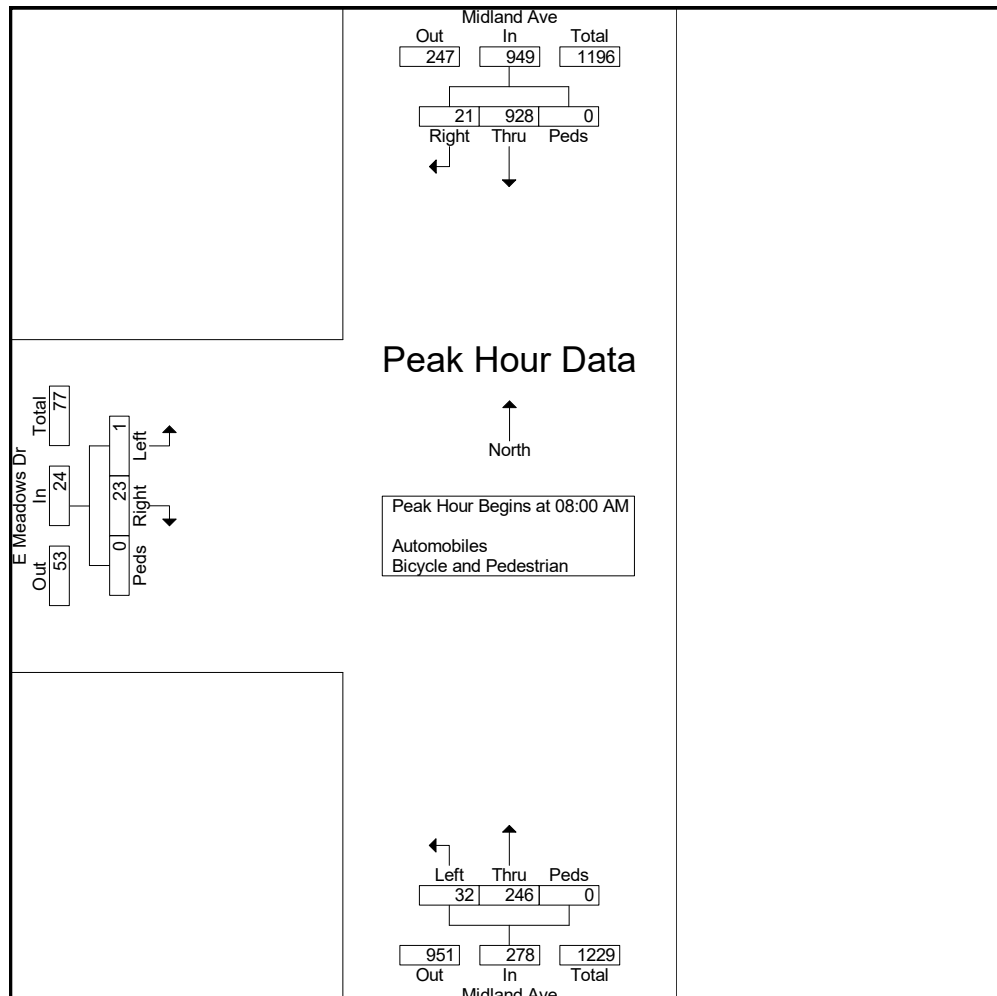


Ridgeview Data  
Collection

Glenwood Springs, CO  
Lofts at Red Mountain  
AM Peak  
Midland Ave & E Meadows Dr

File Name : Midland and E Meadows AM  
Site Code : IPO 526  
Start Date : 2/18/2021  
Page No : 3

|                                                            | E Meadows Dr<br>Eastbound |       |      |            | Midland Ave<br>Northbound |      |      |            | Midland Ave<br>Southbound |       |      |            |            |
|------------------------------------------------------------|---------------------------|-------|------|------------|---------------------------|------|------|------------|---------------------------|-------|------|------------|------------|
| Start Time                                                 | Left                      | Right | Peds | App. Total | Left                      | Thru | Peds | App. Total | Thru                      | Right | Peds | App. Total | Int. Total |
| Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1 |                           |       |      |            |                           |      |      |            |                           |       |      |            |            |
| Peak Hour for Entire Intersection Begins at 08:00 AM       |                           |       |      |            |                           |      |      |            |                           |       |      |            |            |
| 08:00 AM                                                   | 0                         | 4     | 0    | 4          | 6                         | 54   | 0    | 60         | 239                       | 7     | 0    | 246        | 310        |
| 08:15 AM                                                   | 0                         | 5     | 0    | 5          | 5                         | 60   | 0    | 65         | 234                       | 8     | 0    | 242        | 312        |
| 08:30 AM                                                   | 1                         | 7     | 0    | 8          | 5                         | 64   | 0    | 69         | 227                       | 3     | 0    | 230        | 307        |
| 08:45 AM                                                   | 0                         | 7     | 0    | 7          | 16                        | 68   | 0    | 84         | 228                       | 3     | 0    | 231        | 322        |
| Total Volume                                               | 1                         | 23    | 0    | 24         | 32                        | 246  | 0    | 278        | 928                       | 21    | 0    | 949        | 1251       |
| % App. Total                                               | 4.2                       | 95.8  | 0    |            | 11.5                      | 88.5 | 0    |            | 97.8                      | 2.2   | 0    |            |            |
| PHF                                                        | .250                      | .821  | .000 | .750       | .500                      | .904 | .000 | .827       | .971                      | .656  | .000 | .964       | .971       |





Ridgeview Data  
Collection

Glenwood Springs, CO  
Lofts at Red Mountain  
PM Peak  
Midland Ave & E Meadows Dr

File Name : Midland and E Meadows PM  
Site Code : IPO 526  
Start Date : 2/17/2021  
Page No : 1

Groups Printed- Automobiles - Bicycle and Pedestrian

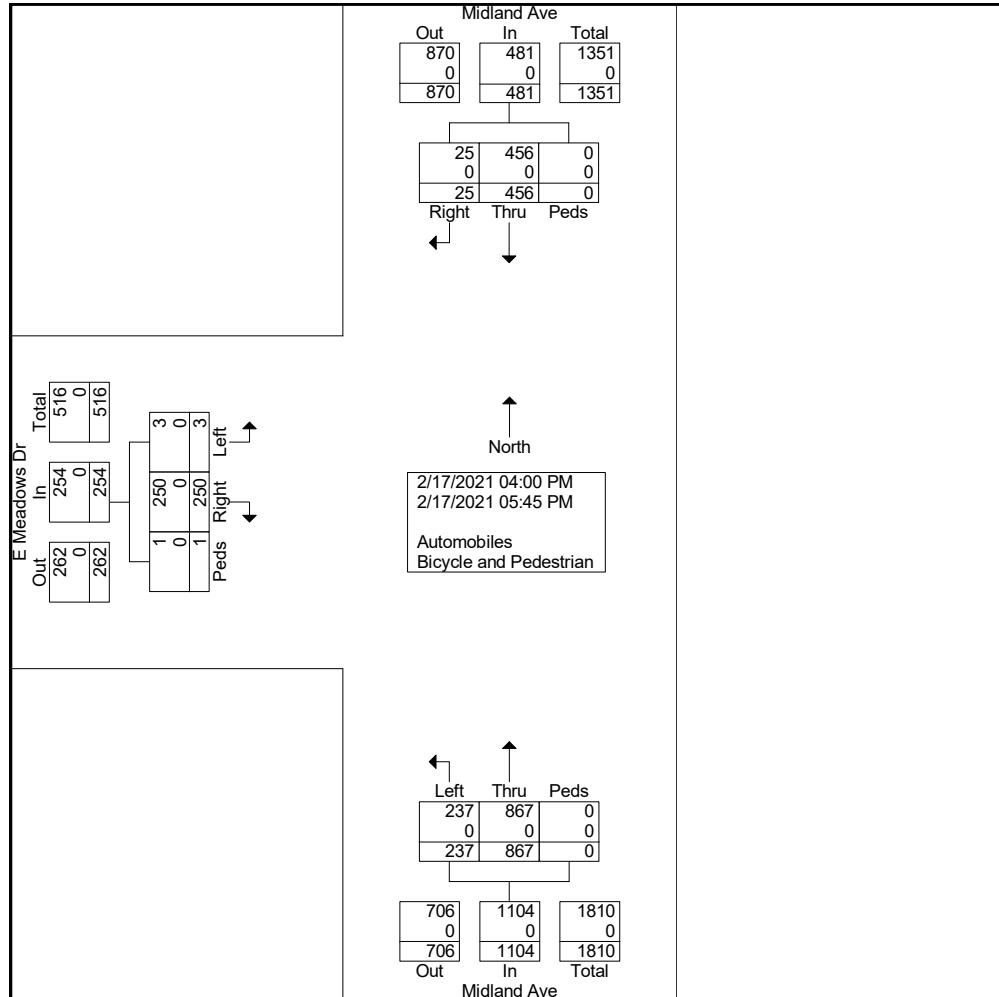
| Start Time               | E Meadows Dr<br>Eastbound |       |      |            | Midland Ave<br>Northbound |      |      |            | Midland Ave<br>Southbound |       |      |            | Int. Total |
|--------------------------|---------------------------|-------|------|------------|---------------------------|------|------|------------|---------------------------|-------|------|------------|------------|
|                          | Left                      | Right | Peds | App. Total | Left                      | Thru | Peds | App. Total | Thru                      | Right | Peds | App. Total |            |
| 04:00 PM                 | 2                         | 36    | 0    | 38         | 26                        | 108  | 0    | 134        | 65                        | 2     | 0    | 67         | 239        |
| 04:15 PM                 | 1                         | 34    | 0    | 35         | 35                        | 88   | 0    | 123        | 61                        | 1     | 0    | 62         | 220        |
| 04:30 PM                 | 0                         | 35    | 1    | 36         | 31                        | 96   | 0    | 127        | 64                        | 6     | 0    | 70         | 233        |
| 04:45 PM                 | 0                         | 37    | 0    | 37         | 29                        | 92   | 0    | 121        | 48                        | 2     | 0    | 50         | 208        |
| Total                    | 3                         | 142   | 1    | 146        | 121                       | 384  | 0    | 505        | 238                       | 11    | 0    | 249        | 900        |
| 05:00 PM                 | 0                         | 33    | 0    | 33         | 35                        | 122  | 0    | 157        | 64                        | 3     | 0    | 67         | 257        |
| 05:15 PM                 | 0                         | 20    | 0    | 20         | 34                        | 149  | 0    | 183        | 57                        | 6     | 0    | 63         | 266        |
| 05:30 PM                 | 0                         | 29    | 0    | 29         | 23                        | 128  | 0    | 151        | 48                        | 2     | 0    | 50         | 230        |
| 05:45 PM                 | 0                         | 26    | 0    | 26         | 24                        | 84   | 0    | 108        | 49                        | 3     | 0    | 52         | 186        |
| Total                    | 0                         | 108   | 0    | 108        | 116                       | 483  | 0    | 599        | 218                       | 14    | 0    | 232        | 939        |
| Grand Total              | 3                         | 250   | 1    | 254        | 237                       | 867  | 0    | 1104       | 456                       | 25    | 0    | 481        | 1839       |
| Apprch %                 | 1.2                       | 98.4  | 0.4  |            | 21.5                      | 78.5 | 0    |            | 94.8                      | 5.2   | 0    |            |            |
| Total %                  | 0.2                       | 13.6  | 0.1  | 13.8       | 12.9                      | 47.1 | 0    | 60         | 24.8                      | 1.4   | 0    | 26.2       |            |
| Automobiles              | 3                         | 250   | 1    | 254        | 237                       | 867  | 0    | 1104       | 456                       | 25    | 0    | 481        | 1839       |
| % Automobiles            | 100                       | 100   | 100  | 100        | 100                       | 100  | 0    | 100        | 100                       | 100   | 0    | 100        | 100        |
| Bicycle and Pedestrian   | 0                         | 0     | 0    | 0          | 0                         | 0    | 0    | 0          | 0                         | 0     | 0    | 0          | 0          |
| % Bicycle and Pedestrian | 0                         | 0     | 0    | 0          | 0                         | 0    | 0    | 0          | 0                         | 0     | 0    | 0          | 0          |



Ridgeview Data  
Collection

Glenwood Springs, CO  
Lofts at Red Mountain  
PM Peak  
Midland Ave & E Meadows Dr

File Name : Midland and E Meadows PM  
Site Code : IPO 526  
Start Date : 2/17/2021  
Page No : 2



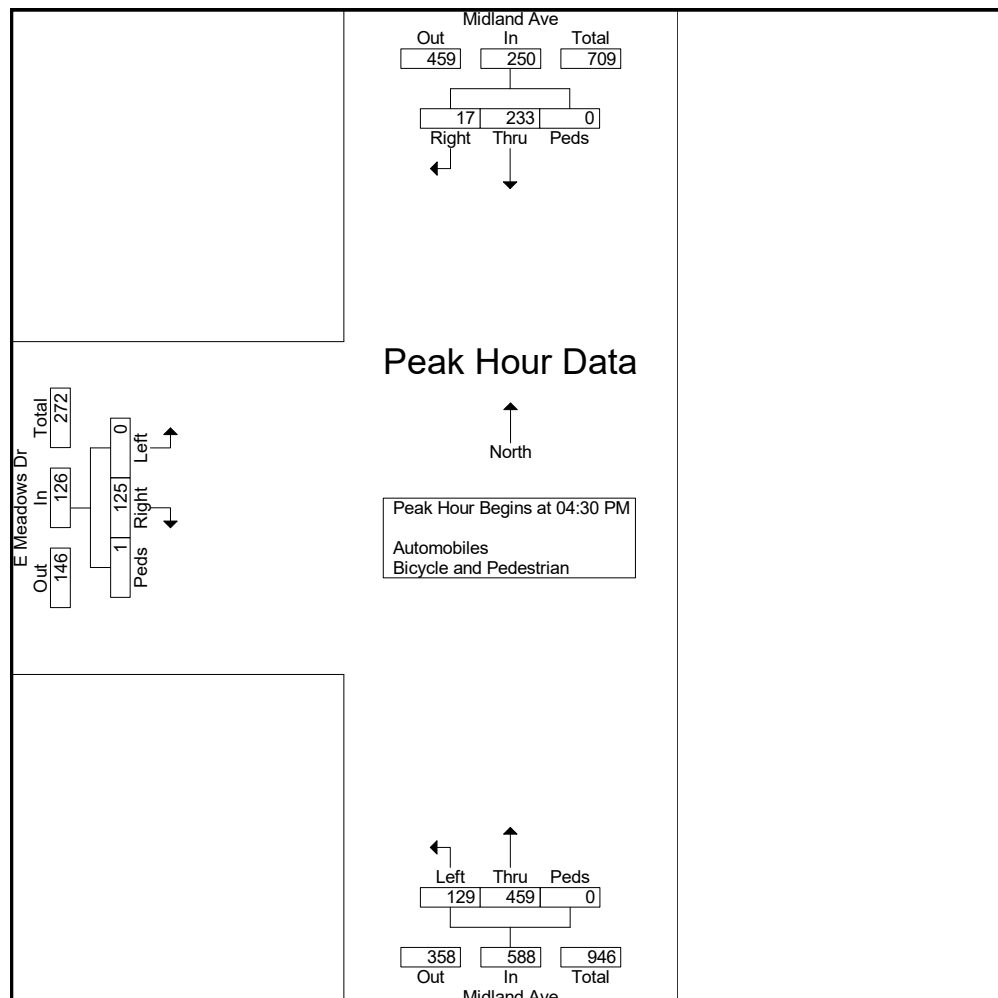


Ridgeview Data  
Collection

Glenwood Springs, CO  
Lofts at Red Mountain  
PM Peak  
Midland Ave & E Meadows Dr

File Name : Midland and E Meadows PM  
Site Code : IPO 526  
Start Date : 2/17/2021  
Page No : 3

|                                                            | E Meadows Dr<br>Eastbound |       |      |            | Midland Ave<br>Northbound |      |      |            | Midland Ave<br>Southbound |       |      |            |            |
|------------------------------------------------------------|---------------------------|-------|------|------------|---------------------------|------|------|------------|---------------------------|-------|------|------------|------------|
| Start Time                                                 | Left                      | Right | Peds | App. Total | Left                      | Thru | Peds | App. Total | Thru                      | Right | Peds | App. Total | Int. Total |
| Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1 |                           |       |      |            |                           |      |      |            |                           |       |      |            |            |
| Peak Hour for Entire Intersection Begins at 04:30 PM       |                           |       |      |            |                           |      |      |            |                           |       |      |            |            |
| 04:30 PM                                                   | 0                         | 35    | 1    | 36         | 31                        | 96   | 0    | 127        | 64                        | 6     | 0    | 70         | 233        |
| 04:45 PM                                                   | 0                         | 37    | 0    | 37         | 29                        | 92   | 0    | 121        | 48                        | 2     | 0    | 50         | 208        |
| 05:00 PM                                                   | 0                         | 33    | 0    | 33         | 35                        | 122  | 0    | 157        | 64                        | 3     | 0    | 67         | 257        |
| 05:15 PM                                                   | 0                         | 20    | 0    | 20         | 34                        | 149  | 0    | 183        | 57                        | 6     | 0    | 63         | 266        |
| Total Volume                                               | 0                         | 125   | 1    | 126        | 129                       | 459  | 0    | 588        | 233                       | 17    | 0    | 250        | 964        |
| % App. Total                                               | 0                         | 99.2  | 0.8  |            | 21.9                      | 78.1 | 0    |            | 93.2                      | 6.8   | 0    |            |            |
| PHF                                                        | .000                      | .845  | .250 | .851       | .921                      | .770 | .000 | .803       | .910                      | .708  | .000 | .893       | .906       |





Ridgeview Data  
Collection

Glenwood Springs, CO  
Lofts at Red Mountain  
AM Peak  
Midland Ave & West Meadows

File Name : Midland and W Meadows AM  
Site Code : IPO 526  
Start Date : 2/18/2021  
Page No : 1

Groups Printed- Automobiles - Bicycle and Pedestrian

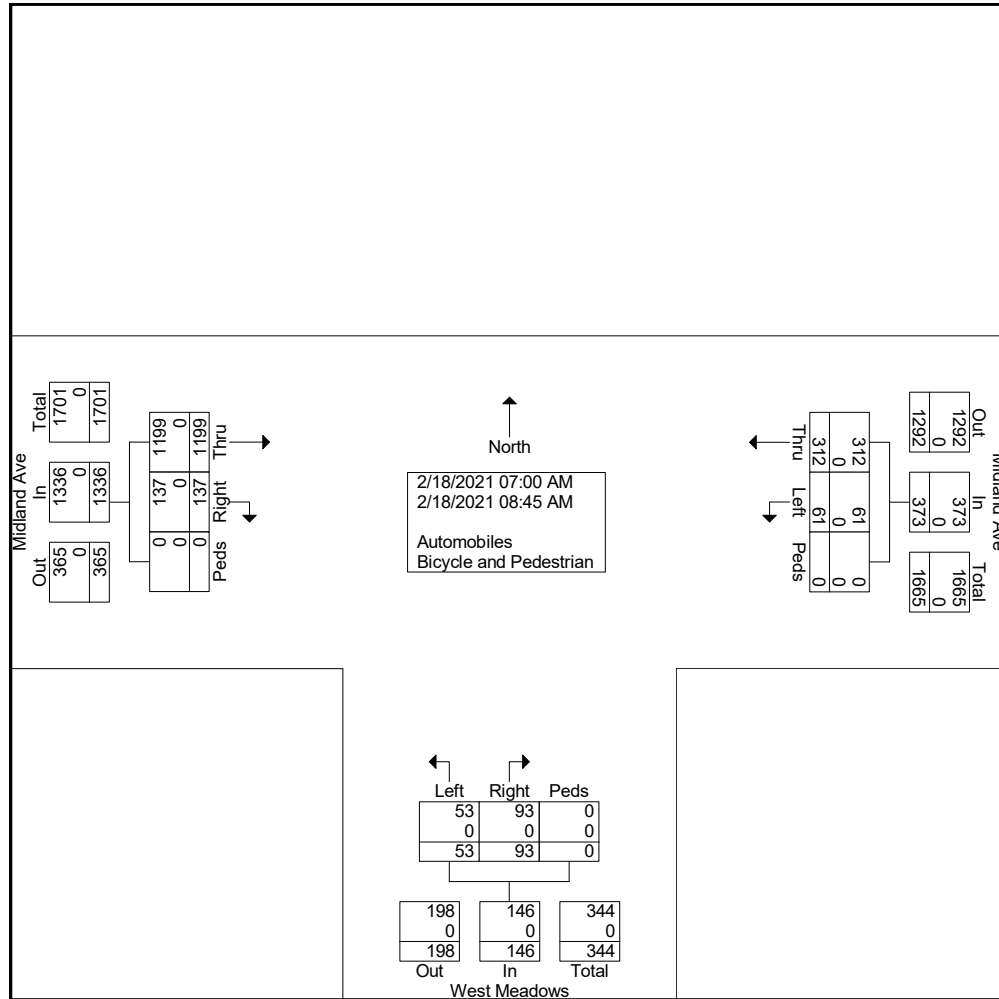
|                          | Midland Ave<br>Eastbound |       |      |            | Midland Ave<br>Westbound |      |      |            | West Meadows<br>Northbound |       |      |            |            |
|--------------------------|--------------------------|-------|------|------------|--------------------------|------|------|------------|----------------------------|-------|------|------------|------------|
| Start Time               | Thru                     | Right | Peds | App. Total | Left                     | Thru | Peds | App. Total | Left                       | Right | Peds | App. Total | Int. Total |
| 07:00 AM                 | 37                       | 13    | 0    | 50         | 2                        | 17   | 0    | 19         | 1                          | 3     | 0    | 4          | 73         |
| 07:15 AM                 | 37                       | 5     | 0    | 42         | 4                        | 28   | 0    | 32         | 2                          | 6     | 0    | 8          | 82         |
| 07:30 AM                 | 93                       | 15    | 0    | 108        | 1                        | 38   | 0    | 39         | 5                          | 5     | 0    | 10         | 157        |
| 07:45 AM                 | 150                      | 18    | 0    | 168        | 5                        | 31   | 0    | 36         | 9                          | 12    | 0    | 21         | 225        |
| Total                    | 317                      | 51    | 0    | 368        | 12                       | 114  | 0    | 126        | 17                         | 26    | 0    | 43         | 537        |
| 08:00 AM                 | 232                      | 23    | 0    | 255        | 7                        | 47   | 0    | 54         | 7                          | 14    | 0    | 21         | 330        |
| 08:15 AM                 | 235                      | 23    | 0    | 258        | 12                       | 48   | 0    | 60         | 9                          | 7     | 0    | 16         | 334        |
| 08:30 AM                 | 210                      | 21    | 0    | 231        | 14                       | 51   | 0    | 65         | 14                         | 20    | 0    | 34         | 330        |
| 08:45 AM                 | 205                      | 19    | 0    | 224        | 16                       | 52   | 0    | 68         | 6                          | 26    | 0    | 32         | 324        |
| Total                    | 882                      | 86    | 0    | 968        | 49                       | 198  | 0    | 247        | 36                         | 67    | 0    | 103        | 1318       |
| Grand Total              | 1199                     | 137   | 0    | 1336       | 61                       | 312  | 0    | 373        | 53                         | 93    | 0    | 146        | 1855       |
| Apprch %                 | 89.7                     | 10.3  | 0    |            | 16.4                     | 83.6 | 0    |            | 36.3                       | 63.7  | 0    |            |            |
| Total %                  | 64.6                     | 7.4   | 0    | 72         | 3.3                      | 16.8 | 0    | 20.1       | 2.9                        | 5     | 0    | 7.9        |            |
| Automobiles              | 1199                     | 137   | 0    | 1336       | 61                       | 312  | 0    | 373        | 53                         | 93    | 0    | 146        | 1855       |
| % Automobiles            | 100                      | 100   | 0    | 100        | 100                      | 100  | 0    | 100        | 100                        | 100   | 0    | 100        | 100        |
| Bicycle and Pedestrian   | 0                        | 0     | 0    | 0          | 0                        | 0    | 0    | 0          | 0                          | 0     | 0    | 0          | 0          |
| % Bicycle and Pedestrian | 0                        | 0     | 0    | 0          | 0                        | 0    | 0    | 0          | 0                          | 0     | 0    | 0          | 0          |



Ridgeview Data  
Collection

Glenwood Springs, CO  
Lofts at Red Mountain  
AM Peak  
Midland Ave & West Meadows

File Name : Midland and W Meadows AM  
Site Code : IPO 526  
Start Date : 2/18/2021  
Page No : 2





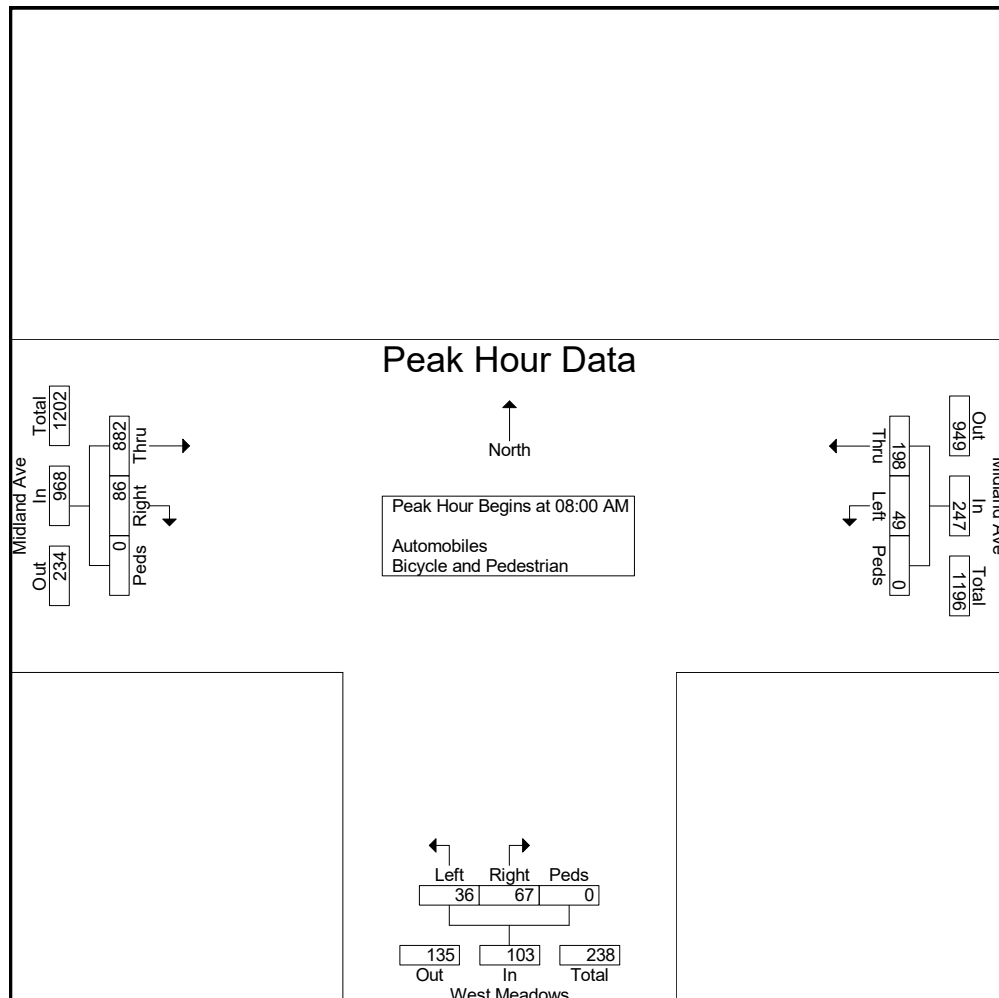


Ridgeview Data  
Collection

Glenwood Springs, CO  
Lofts at Red Mountain  
AM Peak  
Midland Ave & West Meadows

File Name : Midland and W Meadows AM  
Site Code : IPO 526  
Start Date : 2/18/2021  
Page No : 3

|                                                            | Midland Ave<br>Eastbound |       |      |            | Midland Ave<br>Westbound |      |      |            | West Meadows<br>Northbound |       |      |            |            |
|------------------------------------------------------------|--------------------------|-------|------|------------|--------------------------|------|------|------------|----------------------------|-------|------|------------|------------|
| Start Time                                                 | Thru                     | Right | Peds | App. Total | Left                     | Thru | Peds | App. Total | Left                       | Right | Peds | App. Total | Int. Total |
| Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1 |                          |       |      |            |                          |      |      |            |                            |       |      |            |            |
| Peak Hour for Entire Intersection Begins at 08:00 AM       |                          |       |      |            |                          |      |      |            |                            |       |      |            |            |
| 08:00 AM                                                   | 232                      | 23    | 0    | 255        | 7                        | 47   | 0    | 54         | 7                          | 14    | 0    | 21         | 330        |
| 08:15 AM                                                   | 235                      | 23    | 0    | 258        | 12                       | 48   | 0    | 60         | 9                          | 7     | 0    | 16         | 334        |
| 08:30 AM                                                   | 210                      | 21    | 0    | 231        | 14                       | 51   | 0    | 65         | 14                         | 20    | 0    | 34         | 330        |
| 08:45 AM                                                   | 205                      | 19    | 0    | 224        | 16                       | 52   | 0    | 68         | 6                          | 26    | 0    | 32         | 324        |
| Total Volume                                               | 882                      | 86    | 0    | 968        | 49                       | 198  | 0    | 247        | 36                         | 67    | 0    | 103        | 1318       |
| % App. Total                                               | 91.1                     | 8.9   | 0    |            | 19.8                     | 80.2 | 0    |            | 35                         | 65    | 0    |            |            |
| PHF                                                        | .938                     | .935  | .000 | .938       | .766                     | .952 | .000 | .908       | .643                       | .644  | .000 | .757       | .987       |





Ridgeview Data  
Collection

Glenwood Springs, CO  
Lofts at Red Mountain  
PM Peak  
Midland Ave & West Meadows

File Name : Midland and W Meadows PM  
Site Code : IPO 526  
Start Date : 2/17/2021  
Page No : 1

Groups Printed- Automobiles - Bicycle and Pedestrian

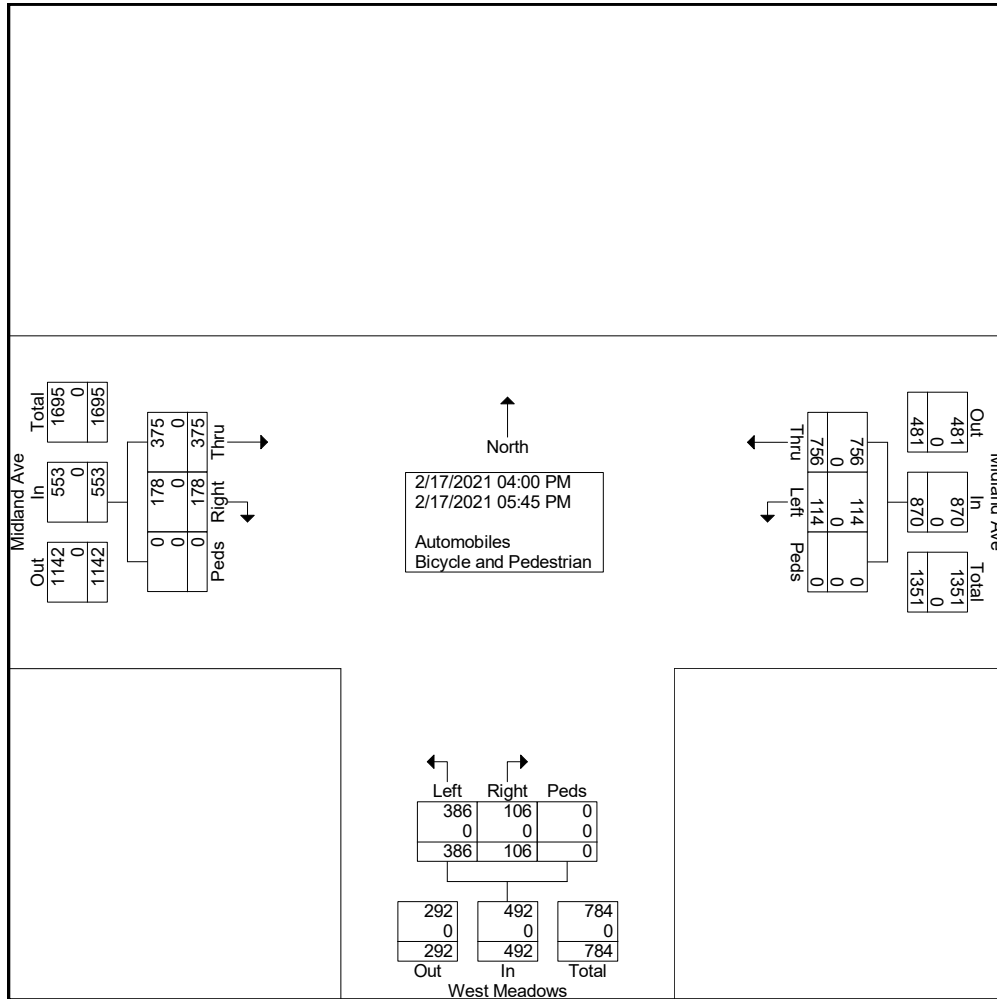
| Start Time               | Midland Ave Eastbound |       |      |            | Midland Ave Westbound |      |      |            | West Meadows Northbound |       |      |            | Int. Total |
|--------------------------|-----------------------|-------|------|------------|-----------------------|------|------|------------|-------------------------|-------|------|------------|------------|
|                          | Thru                  | Right | Peds | App. Total | Left                  | Thru | Peds | App. Total | Left                    | Right | Peds | App. Total |            |
| 04:00 PM                 | 45                    | 31    | 0    | 76         | 21                    | 89   | 0    | 110        | 50                      | 22    | 0    | 72         | 258        |
| 04:15 PM                 | 54                    | 31    | 0    | 85         | 12                    | 77   | 0    | 89         | 50                      | 8     | 0    | 58         | 232        |
| 04:30 PM                 | 56                    | 25    | 0    | 81         | 11                    | 85   | 0    | 96         | 60                      | 14    | 0    | 74         | 251        |
| 04:45 PM                 | 41                    | 21    | 0    | 62         | 10                    | 82   | 0    | 92         | 60                      | 9     | 0    | 69         | 223        |
| Total                    | 196                   | 108   | 0    | 304        | 54                    | 333  | 0    | 387        | 220                     | 53    | 0    | 273        | 964        |
| 05:00 PM                 | 47                    | 18    | 0    | 65         | 13                    | 109  | 0    | 122        | 43                      | 20    | 0    | 63         | 250        |
| 05:15 PM                 | 56                    | 15    | 0    | 71         | 17                    | 132  | 0    | 149        | 48                      | 7     | 0    | 55         | 275        |
| 05:30 PM                 | 39                    | 22    | 0    | 61         | 10                    | 118  | 0    | 128        | 35                      | 11    | 0    | 46         | 235        |
| 05:45 PM                 | 37                    | 15    | 0    | 52         | 20                    | 64   | 0    | 84         | 40                      | 15    | 0    | 55         | 191        |
| Total                    | 179                   | 70    | 0    | 249        | 60                    | 423  | 0    | 483        | 166                     | 53    | 0    | 219        | 951        |
| Grand Total              | 375                   | 178   | 0    | 553        | 114                   | 756  | 0    | 870        | 386                     | 106   | 0    | 492        | 1915       |
| Apprch %                 | 67.8                  | 32.2  | 0    |            | 13.1                  | 86.9 | 0    |            | 78.5                    | 21.5  | 0    |            |            |
| Total %                  | 19.6                  | 9.3   | 0    | 28.9       | 6                     | 39.5 | 0    | 45.4       | 20.2                    | 5.5   | 0    | 25.7       |            |
| Automobiles              | 375                   | 178   | 0    | 553        | 114                   | 756  | 0    | 870        | 386                     | 106   | 0    | 492        | 1915       |
| % Automobiles            | 100                   | 100   | 0    | 100        | 100                   | 100  | 0    | 100        | 100                     | 100   | 0    | 100        | 100        |
| Bicycle and Pedestrian   | 0                     | 0     | 0    | 0          | 0                     | 0    | 0    | 0          | 0                       | 0     | 0    | 0          | 0          |
| % Bicycle and Pedestrian | 0                     | 0     | 0    | 0          | 0                     | 0    | 0    | 0          | 0                       | 0     | 0    | 0          | 0          |



Ridgeview Data  
Collection

Glenwood Springs, CO  
Lofts at Red Mountain  
PM Peak  
Midland Ave & West Meadows

File Name : Midland and W Meadows PM  
Site Code : IPO 526  
Start Date : 2/17/2021  
Page No : 2



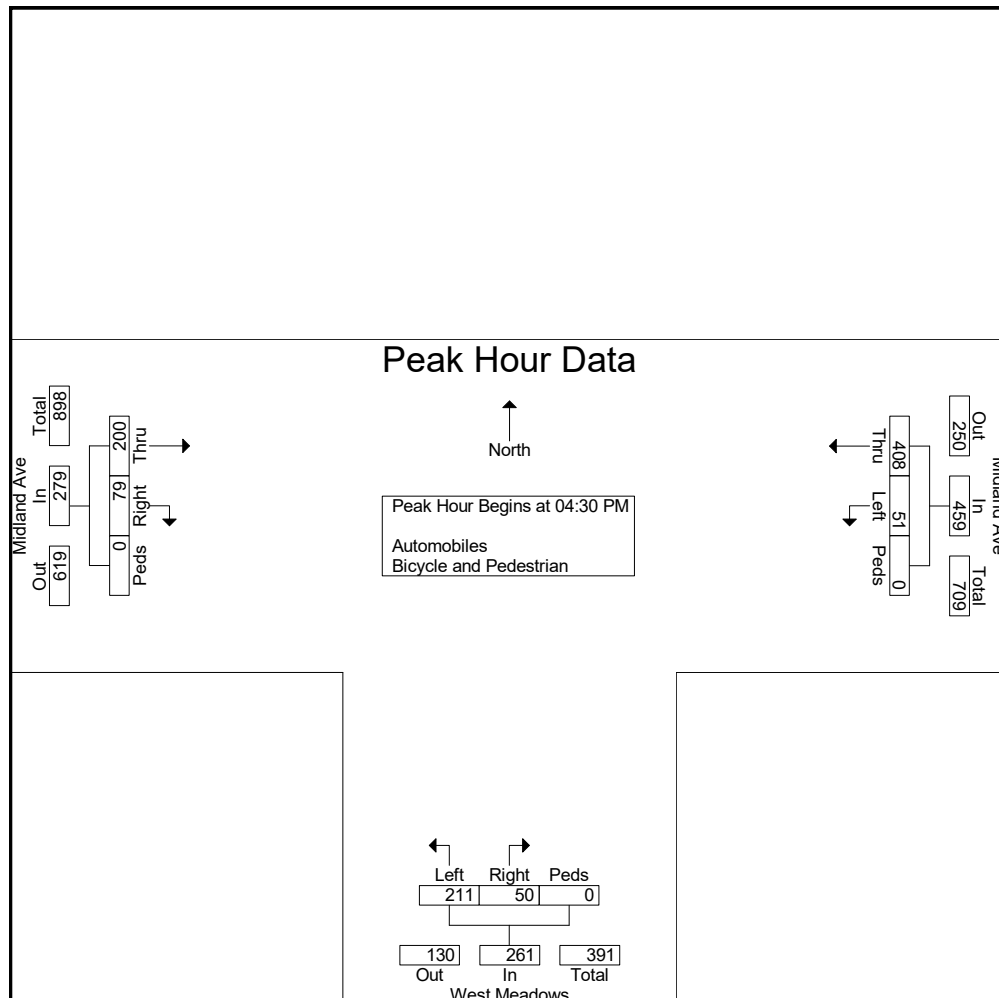


Ridgeview Data  
Collection

Glenwood Springs, CO  
Lofts at Red Mountain  
PM Peak  
Midland Ave & West Meadows

File Name : Midland and W Meadows PM  
Site Code : IPO 526  
Start Date : 2/17/2021  
Page No : 3

|                                                            | Midland Ave<br>Eastbound |       |      |            | Midland Ave<br>Westbound |      |      |            | West Meadows<br>Northbound |       |      |            |            |
|------------------------------------------------------------|--------------------------|-------|------|------------|--------------------------|------|------|------------|----------------------------|-------|------|------------|------------|
| Start Time                                                 | Thru                     | Right | Peds | App. Total | Left                     | Thru | Peds | App. Total | Left                       | Right | Peds | App. Total | Int. Total |
| Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1 |                          |       |      |            |                          |      |      |            |                            |       |      |            |            |
| Peak Hour for Entire Intersection Begins at 04:30 PM       |                          |       |      |            |                          |      |      |            |                            |       |      |            |            |
| 04:30 PM                                                   | 56                       | 25    | 0    | 81         | 11                       | 85   | 0    | 96         | 60                         | 14    | 0    | 74         | 251        |
| 04:45 PM                                                   | 41                       | 21    | 0    | 62         | 10                       | 82   | 0    | 92         | 60                         | 9     | 0    | 69         | 223        |
| 05:00 PM                                                   | 47                       | 18    | 0    | 65         | 13                       | 109  | 0    | 122        | 43                         | 20    | 0    | 63         | 250        |
| 05:15 PM                                                   | 56                       | 15    | 0    | 71         | 17                       | 132  | 0    | 149        | 48                         | 7     | 0    | 55         | 275        |
| Total Volume                                               | 200                      | 79    | 0    | 279        | 51                       | 408  | 0    | 459        | 211                        | 50    | 0    | 261        | 999        |
| % App. Total                                               | 71.7                     | 28.3  | 0    |            | 11.1                     | 88.9 | 0    |            | 80.8                       | 19.2  | 0    |            |            |
| PHF                                                        | .893                     | .790  | .000 | .861       | .750                     | .773 | .000 | .770       | .879                       | .625  | .000 | .882       | .908       |





Ridgeview Data  
Collection

Glenwood Springs, CO  
Lofts at Red Mountain  
AM Peak  
Midland Ave & Wolfsohn Rd

File Name : Midland and Wulfsohn AM  
Site Code : IPO 526  
Start Date : 2/18/2021  
Page No : 1

Groups Printed- Automobiles - Bicycle and Pedestrian

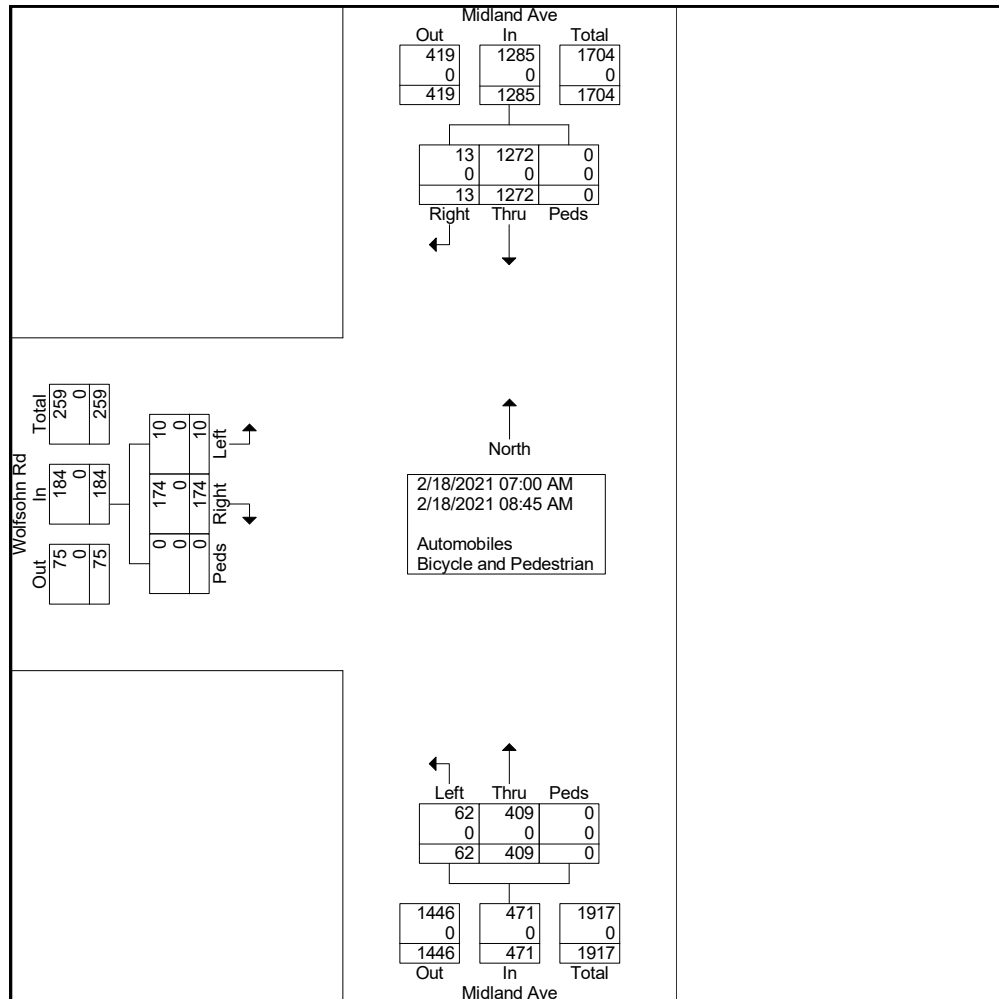
| Start Time               | Wolfsohn Rd<br>Eastbound |       |      |            | Midland Ave<br>Northbound |      |      |            | Midland Ave<br>Southbound |       |      |            | Int. Total |
|--------------------------|--------------------------|-------|------|------------|---------------------------|------|------|------------|---------------------------|-------|------|------------|------------|
|                          | Left                     | Right | Peds | App. Total | Left                      | Thru | Peds | App. Total | Thru                      | Right | Peds | App. Total |            |
| 07:00 AM                 | 0                        | 15    | 0    | 15         | 8                         | 17   | 0    | 25         | 39                        | 1     | 0    | 40         | 80         |
| 07:15 AM                 | 0                        | 15    | 0    | 15         | 3                         | 36   | 0    | 39         | 47                        | 0     | 0    | 47         | 101        |
| 07:30 AM                 | 1                        | 28    | 0    | 29         | 6                         | 40   | 0    | 46         | 94                        | 1     | 0    | 95         | 170        |
| 07:45 AM                 | 1                        | 15    | 0    | 16         | 6                         | 39   | 0    | 45         | 163                       | 2     | 0    | 165        | 226        |
| Total                    | 2                        | 73    | 0    | 75         | 23                        | 132  | 0    | 155        | 343                       | 4     | 0    | 347        | 577        |
| 08:00 AM                 | 3                        | 16    | 0    | 19         | 11                        | 60   | 0    | 71         | 236                       | 4     | 0    | 240        | 330        |
| 08:15 AM                 | 2                        | 20    | 0    | 22         | 15                        | 67   | 0    | 82         | 237                       | 2     | 0    | 239        | 343        |
| 08:30 AM                 | 1                        | 31    | 0    | 32         | 7                         | 69   | 0    | 76         | 228                       | 1     | 0    | 229        | 337        |
| 08:45 AM                 | 2                        | 34    | 0    | 36         | 6                         | 81   | 0    | 87         | 228                       | 2     | 0    | 230        | 353        |
| Total                    | 8                        | 101   | 0    | 109        | 39                        | 277  | 0    | 316        | 929                       | 9     | 0    | 938        | 1363       |
| Grand Total              | 10                       | 174   | 0    | 184        | 62                        | 409  | 0    | 471        | 1272                      | 13    | 0    | 1285       | 1940       |
| Apprch %                 | 5.4                      | 94.6  | 0    |            | 13.2                      | 86.8 | 0    |            | 99                        | 1     | 0    |            |            |
| Total %                  | 0.5                      | 9     | 0    | 9.5        | 3.2                       | 21.1 | 0    | 24.3       | 65.6                      | 0.7   | 0    | 66.2       |            |
| Automobiles              | 10                       | 174   | 0    | 184        | 62                        | 409  | 0    | 471        | 1272                      | 13    | 0    | 1285       | 1940       |
| % Automobiles            | 100                      | 100   | 0    | 100        | 100                       | 100  | 0    | 100        | 100                       | 100   | 0    | 100        | 100        |
| Bicycle and Pedestrian   | 0                        | 0     | 0    | 0          | 0                         | 0    | 0    | 0          | 0                         | 0     | 0    | 0          | 0          |
| % Bicycle and Pedestrian | 0                        | 0     | 0    | 0          | 0                         | 0    | 0    | 0          | 0                         | 0     | 0    | 0          | 0          |



Ridgeview Data  
Collection

Glenwood Springs, CO  
Lofts at Red Mountain  
AM Peak  
Midland Ave & Wolfsohn Rd

File Name : Midland and Wulfsohn AM  
Site Code : IPO 526  
Start Date : 2/18/2021  
Page No : 2



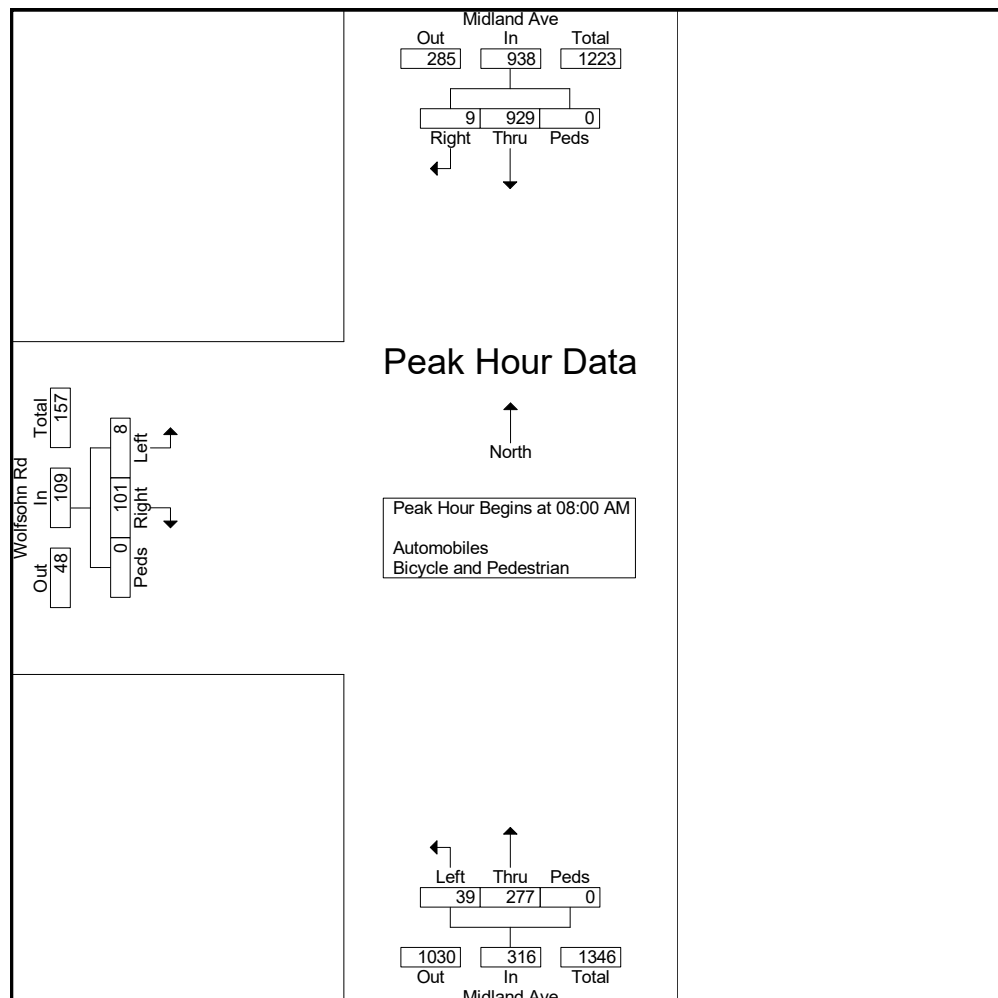


Ridgeview Data  
Collection

Glenwood Springs, CO  
Lofts at Red Mountain  
AM Peak  
Midland Ave & Wolfsohn Rd

File Name : Midland and Wulfsohn AM  
Site Code : IPO 526  
Start Date : 2/18/2021  
Page No : 3

|                                                            | Wolfsohn Rd<br>Eastbound |       |      |            | Midland Ave<br>Northbound |      |      |            | Midland Ave<br>Southbound |       |      |            |            |
|------------------------------------------------------------|--------------------------|-------|------|------------|---------------------------|------|------|------------|---------------------------|-------|------|------------|------------|
| Start Time                                                 | Left                     | Right | Peds | App. Total | Left                      | Thru | Peds | App. Total | Thru                      | Right | Peds | App. Total | Int. Total |
| Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1 |                          |       |      |            |                           |      |      |            |                           |       |      |            |            |
| Peak Hour for Entire Intersection Begins at 08:00 AM       |                          |       |      |            |                           |      |      |            |                           |       |      |            |            |
| 08:00 AM                                                   | 3                        | 16    | 0    | 19         | 11                        | 60   | 0    | 71         | 236                       | 4     | 0    | 240        | 330        |
| 08:15 AM                                                   | 2                        | 20    | 0    | 22         | 15                        | 67   | 0    | 82         | 237                       | 2     | 0    | 239        | 343        |
| 08:30 AM                                                   | 1                        | 31    | 0    | 32         | 7                         | 69   | 0    | 76         | 228                       | 1     | 0    | 229        | 337        |
| 08:45 AM                                                   | 2                        | 34    | 0    | 36         | 6                         | 81   | 0    | 87         | 228                       | 2     | 0    | 230        | 353        |
| Total Volume                                               | 8                        | 101   | 0    | 109        | 39                        | 277  | 0    | 316        | 929                       | 9     | 0    | 938        | 1363       |
| % App. Total                                               | 7.3                      | 92.7  | 0    |            | 12.3                      | 87.7 | 0    |            | 99                        | 1     | 0    |            |            |
| PHF                                                        | .667                     | .743  | .000 | .757       | .650                      | .855 | .000 | .908       | .980                      | .563  | .000 | .977       | .965       |





Ridgeview Data  
Collection

Glenwood Springs, CO  
Lofts at Red Mountain  
PM Peak  
Midland Ave & Wolfsohn Rd

File Name : Midland and Wulfsohn PM  
Site Code : IPO 526  
Start Date : 2/17/2021  
Page No : 1

Groups Printed- Automobiles - Bicycle and Pedestrian

| Start Time               | Wolfsohn Rd Eastbound |       |      |            | Midland Ave Northbound |      |      |            | Midland Ave Southbound |       |      |            | Int. Total |
|--------------------------|-----------------------|-------|------|------------|------------------------|------|------|------------|------------------------|-------|------|------------|------------|
|                          | Left                  | Right | Peds | App. Total | Left                   | Thru | Peds | App. Total | Thru                   | Right | Peds | App. Total |            |
| 04:00 PM                 | 4                     | 9     | 0    | 13         | 37                     | 134  | 0    | 171        | 96                     | 3     | 0    | 99         | 283        |
| 04:15 PM                 | 5                     | 16    | 0    | 21         | 36                     | 115  | 0    | 151        | 91                     | 9     | 0    | 100        | 272        |
| 04:30 PM                 | 1                     | 19    | 0    | 20         | 29                     | 128  | 0    | 157        | 96                     | 3     | 0    | 99         | 276        |
| 04:45 PM                 | 5                     | 23    | 0    | 28         | 28                     | 119  | 0    | 147        | 80                     | 6     | 0    | 86         | 261        |
| Total                    | 15                    | 67    | 0    | 82         | 130                    | 496  | 0    | 626        | 363                    | 21    | 0    | 384        | 1092       |
| 05:00 PM                 | 0                     | 22    | 0    | 22         | 24                     | 161  | 0    | 185        | 97                     | 3     | 0    | 100        | 307        |
| 05:15 PM                 | 1                     | 18    | 0    | 19         | 41                     | 182  | 0    | 223        | 73                     | 5     | 0    | 78         | 320        |
| 05:30 PM                 | 3                     | 25    | 0    | 28         | 20                     | 146  | 0    | 166        | 74                     | 0     | 0    | 74         | 268        |
| 05:45 PM                 | 0                     | 16    | 0    | 16         | 34                     | 107  | 0    | 141        | 73                     | 4     | 0    | 77         | 234        |
| Total                    | 4                     | 81    | 0    | 85         | 119                    | 596  | 0    | 715        | 317                    | 12    | 0    | 329        | 1129       |
| Grand Total              | 19                    | 148   | 0    | 167        | 249                    | 1092 | 0    | 1341       | 680                    | 33    | 0    | 713        | 2221       |
| Apprch %                 | 11.4                  | 88.6  | 0    |            | 18.6                   | 81.4 | 0    |            | 95.4                   | 4.6   | 0    |            |            |
| Total %                  | 0.9                   | 6.7   | 0    | 7.5        | 11.2                   | 49.2 | 0    | 60.4       | 30.6                   | 1.5   | 0    | 32.1       |            |
| Automobiles              | 19                    | 148   | 0    | 167        | 249                    | 1092 | 0    | 1341       | 680                    | 33    | 0    | 713        | 2221       |
| % Automobiles            | 100                   | 100   | 0    | 100        | 100                    | 100  | 0    | 100        | 100                    | 100   | 0    | 100        | 100        |
| Bicycle and Pedestrian   | 0                     | 0     | 0    | 0          | 0                      | 0    | 0    | 0          | 0                      | 0     | 0    | 0          | 0          |
| % Bicycle and Pedestrian | 0                     | 0     | 0    | 0          | 0                      | 0    | 0    | 0          | 0                      | 0     | 0    | 0          | 0          |

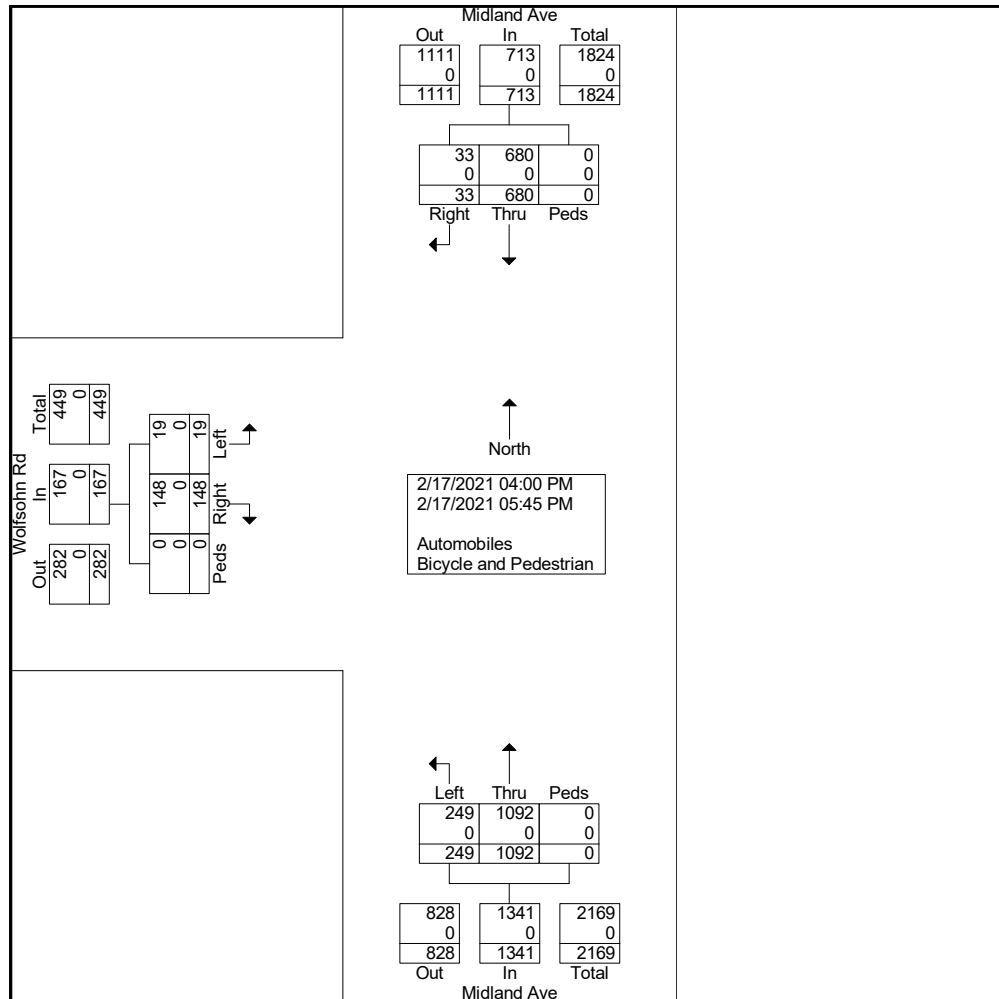




Ridgeview Data  
Collection

Glenwood Springs, CO  
Lofts at Red Mountain  
PM Peak  
Midland Ave & Wolfsohn Rd

File Name : Midland and Wulfsohn PM  
Site Code : IPO 526  
Start Date : 2/17/2021  
Page No : 2



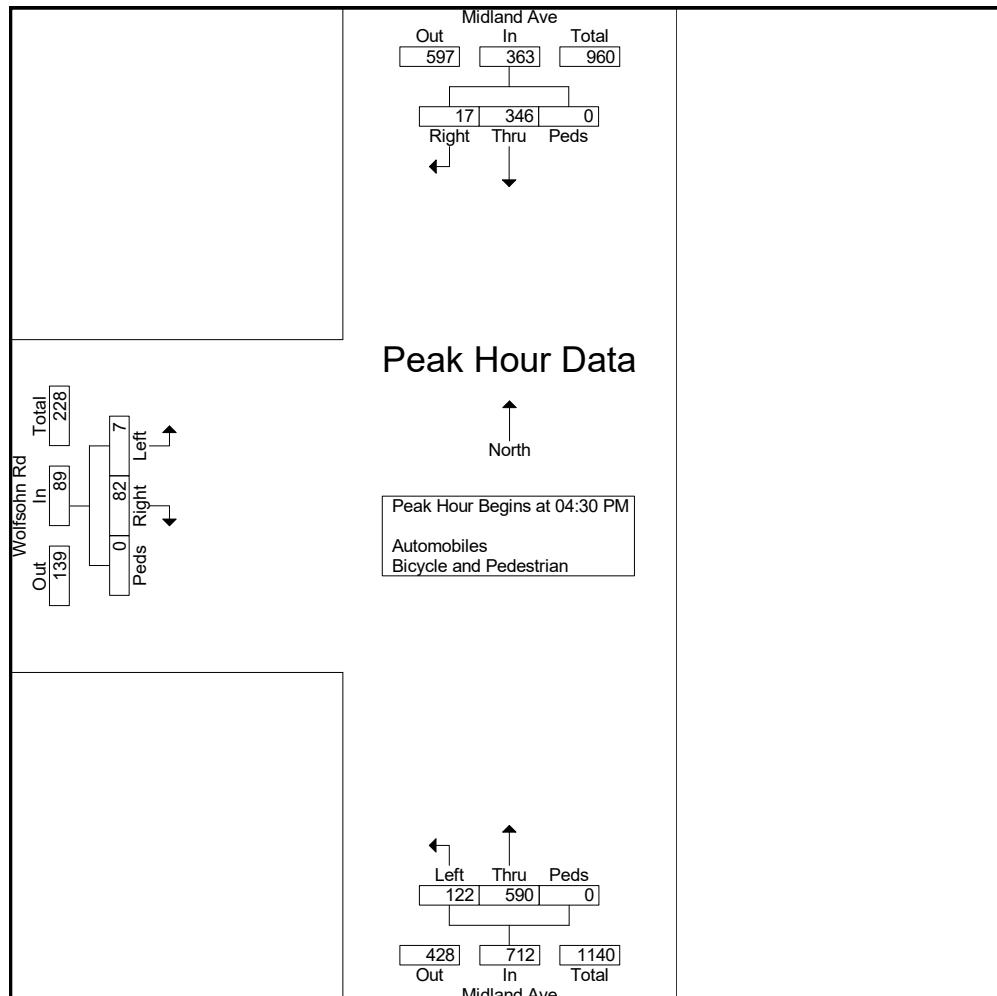


Ridgeview Data  
Collection

Glenwood Springs, CO  
Lofts at Red Mountain  
PM Peak  
Midland Ave & Wolfsohn Rd

File Name : Midland and Wulfsohn PM  
Site Code : IPO 526  
Start Date : 2/17/2021  
Page No : 3

|                                                            | Wolfsohn Rd<br>Eastbound |           |      |            | Midland Ave<br>Northbound |            |      |            | Midland Ave<br>Southbound |          |      |            |            |
|------------------------------------------------------------|--------------------------|-----------|------|------------|---------------------------|------------|------|------------|---------------------------|----------|------|------------|------------|
| Start Time                                                 | Left                     | Right     | Peds | App. Total | Left                      | Thru       | Peds | App. Total | Thru                      | Right    | Peds | App. Total | Int. Total |
| Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1 |                          |           |      |            |                           |            |      |            |                           |          |      |            |            |
| Peak Hour for Entire Intersection Begins at 04:30 PM       |                          |           |      |            |                           |            |      |            |                           |          |      |            |            |
| 04:30 PM                                                   | 1                        | 19        | 0    | 20         | 29                        | 128        | 0    | 157        | 96                        | 3        | 0    | 99         | 276        |
| 04:45 PM                                                   | <b>5</b>                 | <b>23</b> | 0    | <b>28</b>  | 28                        | 119        | 0    | 147        | 80                        | <b>6</b> | 0    | 86         | 261        |
| 05:00 PM                                                   | 0                        | 22        | 0    | 22         | 24                        | 161        | 0    | 185        | <b>97</b>                 | 3        | 0    | <b>100</b> | 307        |
| 05:15 PM                                                   | 1                        | 18        | 0    | 19         | <b>41</b>                 | <b>182</b> | 0    | <b>223</b> | 73                        | 5        | 0    | 78         | <b>320</b> |
| Total Volume                                               | 7                        | 82        | 0    | 89         | 122                       | 590        | 0    | 712        | 346                       | 17       | 0    | 363        | 1164       |
| % App. Total                                               | 7.9                      | 92.1      | 0    |            | 17.1                      | 82.9       | 0    |            | 95.3                      | 4.7      | 0    |            |            |
| PHF                                                        | .350                     | .891      | .000 | .795       | .744                      | .810       | .000 | .798       | .892                      | .708     | .000 | .908       | .909       |



# APPENDIX B

## CDOT OTIS Traffic Information and Projections

| ROUTE | REFPT   | ENDREFPT | LENGTH | UPDATEYR | AADT  | AADTYR | COUNTYEAR | YR20FACTOR | Growth Rate | DHV  | DD | COUNTSTATIONID | LOCATION                                  |
|-------|---------|----------|--------|----------|-------|--------|-----------|------------|-------------|------|----|----------------|-------------------------------------------|
| 070A  | 109     | 114.295  | 5.297  | 2019     | 32000 | 2019   | 2019      | 1.27       | 1.20%       | 10.5 | 56 | 103014         | ON I-70 E/O SH 6 CANYON CREEK RD EXIT 114 |
| 070A  | 114.295 | 116.38   | 2.083  | 2019     | 26000 | 2019   | 2018      | 1.24       | 1.08%       | 10.5 | 56 | 103015         | ON I-70 W/O SH 82 GLENWOOD SPRINGS        |
|       |         |          |        |          |       |        |           |            | 1.14%       |      |    |                |                                           |

# APPENDIX C

## Trip Generation Worksheets

Project Lofts at Red Mountain - Phase III (Background)  
 Subject Trip Generation for Multifamily Housing (Mid-Rise)  
 Designed by MAG Date February 23, 2021 Job No. 196157000  
 Checked by \_\_\_\_\_ Date \_\_\_\_\_ Sheet No. 1 of 1

### **TRIP GENERATION MANUAL TECHNIQUES**

ITE Trip Generation Manual 10th Edition, Fitted Curve Equations

Land Use Code - Multifamily Housing (Mid-Rise) (221)

Independant Variable - Dwelling Units (X)

$$X = 89$$

T = Average Vehicle Trip Ends

#### **Peak Hour of Adjacent Street Traffic, One Hour Between 7 and 9 a.m. (Series 200 Page 74)**

|                                                                  |                                                                                                                              |
|------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------|
| $\ln(T) = 0.98 \ln(X) - 0.98$ $\ln(T) = 0.98 * \ln(89.0) - 0.98$ | Directional Distribution: 26% ent. 74% exit.<br>T = 31 Average Vehicle Trip Ends<br>8 entering 23 exiting<br><br>8 + 23 = 31 |
|------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------|

#### **Peak Hour of Adjacent Street Traffic, One Hour Between 4 and 6 p.m. (Series 200 Page 75)**

|                                                                  |                                                                                                                                |
|------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------|
| $\ln(T) = 0.96 \ln(X) - 0.63$ $\ln(T) = 0.96 * \ln(89.0) - 0.63$ | Directional Distribution: 61% ent. 39% exit.<br>T = 40 Average Vehicle Trip Ends<br>24 entering 16 exiting<br><br>24 + 16 = 40 |
|------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------|

#### **Weekday (Series 200 Page 73)**

|                                                 |                                                                                                                                      |
|-------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------|
| $(T) = 5.45(X) - 1.75$ $(T) = 5.45 * 89 - 1.75$ | Directional Distribution: 50% ent. 50% exit.<br>T = 484 Average Vehicle Trip Ends<br>242 entering 242 exiting<br><br>242 + 242 = 484 |
|-------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------|

#### **Peak Hour of Generator, Saturday (Series 200 Page 79)**

|                                                 |                                                                                                                                |
|-------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------|
| $(T) = 0.42(X) + 6.73$ $(T) = 0.42 * 89 + 6.73$ | Directional Distribution: 49% ent. 51% exit.<br>T = 44 Average Vehicle Trip Ends<br>22 entering 22 exiting<br><br>22 + 22 = 44 |
|-------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------|

Project Lofts at Red Mountain - Phase IV  
 Subject Trip Generation for Multifamily Housing (Mid-Rise)  
 Designed by MAG Date February 23, 2021 Job No. 196157000  
 Checked by \_\_\_\_\_ Date \_\_\_\_\_ Sheet No. 1 of 2

### **TRIP GENERATION MANUAL TECHNIQUES**

ITE Trip Generation Manual 10th Edition, Fitted Curve Equations

Land Use Code - Multifamily Housing (Mid-Rise) (221)

Independant Variable - Dwelling Units (X)

$$X = 36$$

T = Average Vehicle Trip Ends

#### **Peak Hour of Adjacent Street Traffic, One Hour Between 7 and 9 a.m. (Series 200 Page 74)**

|                                                                  |                                                                                                                              |
|------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------|
| $\ln(T) = 0.98 \ln(X) - 0.98$ $\ln(T) = 0.98 * \ln(36.0) - 0.98$ | Directional Distribution: 26% ent. 74% exit.<br>T = 13 Average Vehicle Trip Ends<br>3 entering 10 exiting<br><br>3 + 10 = 13 |
|------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------|

#### **Peak Hour of Adjacent Street Traffic, One Hour Between 4 and 6 p.m. (Series 200 Page 75)**

|                                                                  |                                                                                                                              |
|------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------|
| $\ln(T) = 0.96 \ln(X) - 0.63$ $\ln(T) = 0.96 * \ln(36.0) - 0.63$ | Directional Distribution: 61% ent. 39% exit.<br>T = 17 Average Vehicle Trip Ends<br>10 entering 7 exiting<br><br>10 + 7 = 17 |
|------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------|

#### **Weekday (Series 200 Page 73)**

|                                                  |                                                                                                                                  |
|--------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------|
| $(T) = 5.45*(X) - 1.75$ $(T) = 5.45 * 36 - 1.75$ | Directional Distribution: 50% ent. 50% exit.<br>T = 196 Average Vehicle Trip Ends<br>98 entering 98 exiting<br><br>98 + 98 = 196 |
|--------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------|

#### **Peak Hour of Generator, Saturday (Series 200 Page 79)**

|                                                  |                                                                                                                                |
|--------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------|
| $(T) = 0.42*(X) + 6.73$ $(T) = 0.42 * 36 + 6.73$ | Directional Distribution: 49% ent. 51% exit.<br>T = 22 Average Vehicle Trip Ends<br>11 entering 11 exiting<br><br>11 + 11 = 22 |
|--------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------|

Project Lofts at Red Mountain - Phase IV  
 Subject Trip Generation for Fast Casual Restaurant  
 Designed by MAG Date February 23, 2021 Job No. 196157000  
 Checked by \_\_\_\_\_ Date \_\_\_\_\_ Sheet No. 2 of 2

## **TRIP GENERATION MANUAL TECHNIQUES**

ITE Trip Generation Manual 10th Edition, Average Rate Equations

Land Use Code - Fast Casual Restaurant (930)

Independant Variable - 1000 Square Feet Gross Floor Area (X)

Gross Floor Area = 5,950 Square Feet

X = 5.950

T = Average Vehicle Trip Ends

### **Peak Hour of Adjacent Street Traffic, One Hour Between 7 and 9 a.m. (900 Series Page 62)**

|                  |                           |                           |           |
|------------------|---------------------------|---------------------------|-----------|
| Average Weekday  | Directional Distribution: | 67% ent.                  | 33% exit. |
| T = 2.07 (X)     | T = 12                    | Average Vehicle Trip Ends |           |
| T = 2.07 * 5.950 | 8 entering                | 4                         | exiting   |
|                  | 8 + 4 =                   | 12                        |           |

### **Peak Hour of Adjacent Street Traffic, One Hour Between 4 and 6 p.m. (900 Series Page 63)**

|                   |                           |                           |           |
|-------------------|---------------------------|---------------------------|-----------|
| Average Weekday   | Directional Distribution: | 55% ent.                  | 45% exit. |
| T = 14.13(X)      | T = 84                    | Average Vehicle Trip Ends |           |
| T = 14.13 * 5.950 | 46 entering               | 38                        | exiting   |
|                   | 46 + 38 =                 | 84                        |           |

### **Weekday (900 Series Page 61)**

|                    |                           |                           |             |
|--------------------|---------------------------|---------------------------|-------------|
| Average Weekday    | Directional Distribution: | 50% entering,             | 50% exiting |
| T = 315.17 (X)     | T = 1876                  | Average Vehicle Trip Ends |             |
| T = 315.17 * 5.950 | 938 entering              | 938                       | exiting     |
|                    | 938 + 938 =               | 1876                      |             |

### **Saturday Peak Hour of Generator (900 Series Page 67)**

|                   |                           |                           |           |
|-------------------|---------------------------|---------------------------|-----------|
|                   | Directional Distribution: | 55% ent.                  | 45% exit. |
| T = 34.02 (X)     | T = 202                   | Average Vehicle Trip Ends |           |
| T = 34.02 * 5.950 | 111 entering              | 91                        | exiting   |
|                   | 111 + 91 =                | 202                       |           |



# APPENDIX D

## Intersection Analysis Worksheets

# Timings

## 1: W Meadows & Midland Ave

2021 Adjusted Existing AM.syn

02/25/2021

|                      | →     | ↘     | ↙     | ←     | ↖     | ↗     |
|----------------------|-------|-------|-------|-------|-------|-------|
| Lane Group           | EBT   | EBR   | WBL   | WBT   | NBL   | NBR   |
| Lane Configurations  | ↑     | ↑     | ↘     | ↑     | ↘     | ↘     |
| Traffic Volume (vph) | 1235  | 120   | 69    | 277   | 50    | 94    |
| Future Volume (vph)  | 1235  | 120   | 69    | 277   | 50    | 94    |
| Turn Type            | NA    | Perm  | pm+pt | NA    | Prot  | Perm  |
| Protected Phases     | 4     |       | 3     | 8     | 2     |       |
| Permitted Phases     |       | 4     | 8     |       |       | 2     |
| Detector Phase       | 4     | 4     | 3     | 8     | 2     | 2     |
| Switch Phase         |       |       |       |       |       |       |
| Minimum Initial (s)  | 5.0   | 5.0   | 5.0   | 5.0   | 5.0   | 5.0   |
| Minimum Split (s)    | 22.5  | 22.5  | 9.5   | 22.5  | 22.5  | 22.5  |
| Total Split (s)      | 88.0  | 88.0  | 9.5   | 97.5  | 22.5  | 22.5  |
| Total Split (%)      | 73.3% | 73.3% | 7.9%  | 81.3% | 18.8% | 18.8% |
| Yellow Time (s)      | 3.5   | 3.5   | 3.5   | 3.5   | 3.5   | 3.5   |
| All-Red Time (s)     | 1.0   | 1.0   | 1.0   | 1.0   | 1.0   | 1.0   |
| Lost Time Adjust (s) | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| Total Lost Time (s)  | 4.5   | 4.5   | 4.5   | 4.5   | 4.5   | 4.5   |
| Lead/Lag             | Lag   | Lag   | Lead  |       |       |       |
| Lead-Lag Optimize?   | Yes   | Yes   | Yes   |       |       |       |
| Recall Mode          | None  | None  | None  | None  | Max   | Max   |
| Act Effect Green (s) | 83.6  | 83.6  | 91.1  | 91.1  | 18.0  | 18.0  |
| Actuated g/C Ratio   | 0.71  | 0.71  | 0.77  | 0.77  | 0.15  | 0.15  |
| v/c Ratio            | 1.00  | 0.11  | 0.56  | 0.21  | 0.24  | 0.36  |
| Control Delay        | 42.8  | 3.2   | 29.0  | 4.1   | 47.7  | 11.0  |
| Queue Delay          | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| Total Delay          | 42.8  | 3.2   | 29.0  | 4.1   | 47.7  | 11.0  |
| LOS                  | D     | A     | C     | A     | D     | B     |
| Approach Delay       | 39.2  |       |       | 9.0   | 23.7  |       |
| Approach LOS         | D     |       |       | A     | C     |       |

### Intersection Summary

Cycle Length: 120

Actuated Cycle Length: 118.1

Natural Cycle: 120

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 1.00

Intersection Signal Delay: 32.1

Intersection LOS: C

Intersection Capacity Utilization 78.3%

ICU Level of Service D

Analysis Period (min) 15

Splits and Phases: 1: W Meadows & Midland Ave

|        |        |      |
|--------|--------|------|
| ↖ Ø2   | ↘ Ø3   | → Ø4 |
| 22.5 s | 9.5 s  | 88 s |
|        | ↖ Ø8   |      |
|        | 97.5 s |      |

HCM 6th Signalized Intersection Summary  
1: W Meadows & Midland Ave

2021 Adjusted Existing AM.syn  
02/25/2021

|                              |  |  |  |  |  |  |
|------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|
| Movement                     | EBT                                                                               | EBR                                                                               | WBL                                                                               | WBT                                                                               | NBL                                                                               | NBR                                                                               |
| Lane Configurations          | ↑                                                                                 | ↗                                                                                 | ↖                                                                                 | ↑                                                                                 | ↖                                                                                 | ↗                                                                                 |
| Traffic Volume (veh/h)       | 1235                                                                              | 120                                                                               | 69                                                                                | 277                                                                               | 50                                                                                | 94                                                                                |
| Future Volume (veh/h)        | 1235                                                                              | 120                                                                               | 69                                                                                | 277                                                                               | 50                                                                                | 94                                                                                |
| Initial Q (Qb), veh          | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 |
| Ped-Bike Adj(A_pbT)          |                                                                                   | 1.00                                                                              | 1.00                                                                              |                                                                                   | 1.00                                                                              | 1.00                                                                              |
| Parking Bus, Adj             | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              |
| Work Zone On Approach        | No                                                                                |                                                                                   |                                                                                   | No                                                                                | No                                                                                |                                                                                   |
| Adj Sat Flow, veh/h/ln       | 1870                                                                              | 1870                                                                              | 1870                                                                              | 1870                                                                              | 1870                                                                              | 1870                                                                              |
| Adj Flow Rate, veh/h         | 1314                                                                              | 128                                                                               | 76                                                                                | 304                                                                               | 66                                                                                | 124                                                                               |
| Peak Hour Factor             | 0.94                                                                              | 0.94                                                                              | 0.91                                                                              | 0.91                                                                              | 0.76                                                                              | 0.76                                                                              |
| Percent Heavy Veh, %         | 2                                                                                 | 2                                                                                 | 2                                                                                 | 2                                                                                 | 2                                                                                 | 2                                                                                 |
| Cap, veh/h                   | 1306                                                                              | 1107                                                                              | 129                                                                               | 1448                                                                              | 268                                                                               | 239                                                                               |
| Arrive On Green              | 0.70                                                                              | 0.70                                                                              | 0.04                                                                              | 0.77                                                                              | 0.15                                                                              | 0.15                                                                              |
| Sat Flow, veh/h              | 1870                                                                              | 1585                                                                              | 1781                                                                              | 1870                                                                              | 1781                                                                              | 1585                                                                              |
| Grp Volume(v), veh/h         | 1314                                                                              | 128                                                                               | 76                                                                                | 304                                                                               | 66                                                                                | 124                                                                               |
| Grp Sat Flow(s),veh/h/ln     | 1870                                                                              | 1585                                                                              | 1781                                                                              | 1870                                                                              | 1781                                                                              | 1585                                                                              |
| Q Serve(g_s), s              | 83.5                                                                              | 3.2                                                                               | 1.3                                                                               | 5.2                                                                               | 3.9                                                                               | 8.6                                                                               |
| Cycle Q Clear(g_c), s        | 83.5                                                                              | 3.2                                                                               | 1.3                                                                               | 5.2                                                                               | 3.9                                                                               | 8.6                                                                               |
| Prop In Lane                 |                                                                                   | 1.00                                                                              | 1.00                                                                              |                                                                                   | 1.00                                                                              | 1.00                                                                              |
| Lane Grp Cap(c), veh/h       | 1306                                                                              | 1107                                                                              | 129                                                                               | 1448                                                                              | 268                                                                               | 239                                                                               |
| V/C Ratio(X)                 | 1.01                                                                              | 0.12                                                                              | 0.59                                                                              | 0.21                                                                              | 0.25                                                                              | 0.52                                                                              |
| Avail Cap(c_a), veh/h        | 1306                                                                              | 1107                                                                              | 135                                                                               | 1454                                                                              | 268                                                                               | 239                                                                               |
| HCM Platoon Ratio            | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              |
| Upstream Filter(I)           | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              |
| Uniform Delay (d), s/veh     | 18.0                                                                              | 5.9                                                                               | 34.4                                                                              | 3.6                                                                               | 44.8                                                                              | 46.8                                                                              |
| Incr Delay (d2), s/veh       | 26.4                                                                              | 0.0                                                                               | 6.2                                                                               | 0.1                                                                               | 2.2                                                                               | 7.9                                                                               |
| Initial Q Delay(d3),s/veh    | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               |
| %ile BackOfQ(50%),veh/ln     | 40.5                                                                              | 1.0                                                                               | 1.8                                                                               | 1.7                                                                               | 1.9                                                                               | 3.9                                                                               |
| Unsig. Movement Delay, s/veh |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |
| LnGrp Delay(d),s/veh         | 44.5                                                                              | 6.0                                                                               | 40.5                                                                              | 3.7                                                                               | 47.0                                                                              | 54.7                                                                              |
| LnGrp LOS                    | F                                                                                 | A                                                                                 | D                                                                                 | A                                                                                 | D                                                                                 | D                                                                                 |
| Approach Vol, veh/h          | 1442                                                                              |                                                                                   |                                                                                   | 380                                                                               | 190                                                                               |                                                                                   |
| Approach Delay, s/veh        | 41.1                                                                              |                                                                                   |                                                                                   | 11.1                                                                              | 52.0                                                                              |                                                                                   |
| Approach LOS                 | D                                                                                 |                                                                                   |                                                                                   | B                                                                                 | D                                                                                 |                                                                                   |
| Timer - Assigned Phs         | 2                                                                                 |                                                                                   | 3                                                                                 | 4                                                                                 | 8                                                                                 |                                                                                   |
| Phs Duration (G+Y+Rc), s     | 22.5                                                                              |                                                                                   | 9.1                                                                               | 88.0                                                                              | 97.1                                                                              |                                                                                   |
| Change Period (Y+Rc), s      | 4.5                                                                               |                                                                                   | 4.5                                                                               | 4.5                                                                               | 4.5                                                                               |                                                                                   |
| Max Green Setting (Gmax), s  | 18.0                                                                              |                                                                                   | 5.0                                                                               | 83.5                                                                              | 93.0                                                                              |                                                                                   |
| Max Q Clear Time (g_c+l1), s | 10.6                                                                              |                                                                                   | 3.3                                                                               | 85.5                                                                              | 7.2                                                                               |                                                                                   |
| Green Ext Time (p_c), s      | 0.3                                                                               |                                                                                   | 0.0                                                                               | 0.0                                                                               | 2.0                                                                               |                                                                                   |
| Intersection Summary         |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |
| HCM 6th Ctrl Delay           |                                                                                   |                                                                                   | 36.4                                                                              |                                                                                   |                                                                                   |                                                                                   |
| HCM 6th LOS                  |                                                                                   |                                                                                   | D                                                                                 |                                                                                   |                                                                                   |                                                                                   |

# Timings

## 1: W Meadows & Midland Ave

2021 Adjusted Existing PM.syn

02/25/2021

|                      | →     | ↘     | ↙     | ←     | ↖     | ↗     |
|----------------------|-------|-------|-------|-------|-------|-------|
| Lane Group           | EBT   | EBR   | WBL   | WBT   | NBL   | NBR   |
| Lane Configurations  | ↑     | ↑     | ↘     | ↑     | ↘     | ↑     |
| Traffic Volume (vph) | 280   | 111   | 71    | 571   | 295   | 70    |
| Future Volume (vph)  | 280   | 111   | 71    | 571   | 295   | 70    |
| Turn Type            | NA    | Perm  | pm+pt | NA    | Prot  | Perm  |
| Protected Phases     | 4     |       | 3     | 8     | 2     |       |
| Permitted Phases     |       | 4     | 8     |       |       | 2     |
| Detector Phase       | 4     | 4     | 3     | 8     | 2     | 2     |
| Switch Phase         |       |       |       |       |       |       |
| Minimum Initial (s)  | 5.0   | 5.0   | 5.0   | 5.0   | 5.0   | 5.0   |
| Minimum Split (s)    | 22.5  | 22.5  | 9.5   | 22.5  | 22.5  | 22.5  |
| Total Split (s)      | 66.0  | 66.0  | 10.0  | 76.0  | 44.0  | 44.0  |
| Total Split (%)      | 55.0% | 55.0% | 8.3%  | 63.3% | 36.7% | 36.7% |
| Yellow Time (s)      | 3.5   | 3.5   | 3.5   | 3.5   | 3.5   | 3.5   |
| All-Red Time (s)     | 1.0   | 1.0   | 1.0   | 1.0   | 1.0   | 1.0   |
| Lost Time Adjust (s) | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| Total Lost Time (s)  | 4.5   | 4.5   | 4.5   | 4.5   | 4.5   | 4.5   |
| Lead/Lag             | Lag   | Lag   | Lead  |       |       |       |
| Lead-Lag Optimize?   | Yes   | Yes   | Yes   |       |       |       |
| Recall Mode          | None  | None  | None  | None  | Max   | Max   |
| Act Effect Green (s) | 34.3  | 34.3  | 42.1  | 42.1  | 40.1  | 40.1  |
| Actuated g/C Ratio   | 0.38  | 0.38  | 0.46  | 0.46  | 0.44  | 0.44  |
| v/c Ratio            | 0.47  | 0.19  | 0.24  | 0.86  | 0.43  | 0.11  |
| Control Delay        | 23.9  | 3.9   | 14.4  | 33.0  | 22.5  | 5.6   |
| Queue Delay          | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| Total Delay          | 23.9  | 3.9   | 14.4  | 33.0  | 22.5  | 5.6   |
| LOS                  | C     | A     | B     | C     | C     | A     |
| Approach Delay       | 18.2  |       |       | 30.9  | 19.2  |       |
| Approach LOS         | B     |       |       | C     | B     |       |

### Intersection Summary

Cycle Length: 120

Actuated Cycle Length: 91.3

Natural Cycle: 60

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 0.86

Intersection Signal Delay: 24.7

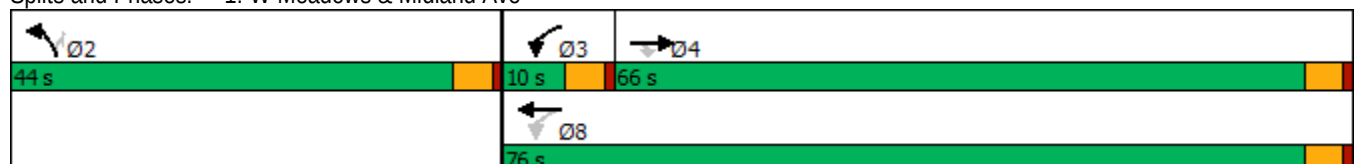
Intersection LOS: C

Intersection Capacity Utilization 53.9%

ICU Level of Service A

Analysis Period (min) 15

### Splits and Phases: 1: W Meadows & Midland Ave



HCM 6th Signalized Intersection Summary  
1: W Meadows & Midland Ave

2021 Adjusted Existing PM.syn  
02/25/2021

|                              |  |  |  |  |  |  |
|------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|
| Movement                     | EBT                                                                               | EBR                                                                               | WBL                                                                               | WBT                                                                               | NBL                                                                               | NBR                                                                               |
| Lane Configurations          |  |  |  |  |  |  |
| Traffic Volume (veh/h)       | 280                                                                               | 111                                                                               | 71                                                                                | 571                                                                               | 295                                                                               | 70                                                                                |
| Future Volume (veh/h)        | 280                                                                               | 111                                                                               | 71                                                                                | 571                                                                               | 295                                                                               | 70                                                                                |
| Initial Q (Qb), veh          | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 |
| Ped-Bike Adj(A_pbT)          |                                                                                   | 1.00                                                                              | 1.00                                                                              |                                                                                   | 1.00                                                                              | 1.00                                                                              |
| Parking Bus, Adj             | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              |
| Work Zone On Approach        | No                                                                                |                                                                                   |                                                                                   | No                                                                                | No                                                                                |                                                                                   |
| Adj Sat Flow, veh/h/ln       | 1870                                                                              | 1870                                                                              | 1870                                                                              | 1870                                                                              | 1870                                                                              | 1870                                                                              |
| Adj Flow Rate, veh/h         | 326                                                                               | 129                                                                               | 92                                                                                | 742                                                                               | 335                                                                               | 80                                                                                |
| Peak Hour Factor             | 0.86                                                                              | 0.86                                                                              | 0.77                                                                              | 0.77                                                                              | 0.88                                                                              | 0.88                                                                              |
| Percent Heavy Veh, %         | 2                                                                                 | 2                                                                                 | 2                                                                                 | 2                                                                                 | 2                                                                                 | 2                                                                                 |
| Cap, veh/h                   | 659                                                                               | 558                                                                               | 373                                                                               | 848                                                                               | 793                                                                               | 706                                                                               |
| Arrive On Green              | 0.35                                                                              | 0.35                                                                              | 0.05                                                                              | 0.45                                                                              | 0.45                                                                              | 0.45                                                                              |
| Sat Flow, veh/h              | 1870                                                                              | 1585                                                                              | 1781                                                                              | 1870                                                                              | 1781                                                                              | 1585                                                                              |
| Grp Volume(v), veh/h         | 326                                                                               | 129                                                                               | 92                                                                                | 742                                                                               | 335                                                                               | 80                                                                                |
| Grp Sat Flow(s),veh/h/ln     | 1870                                                                              | 1585                                                                              | 1781                                                                              | 1870                                                                              | 1781                                                                              | 1585                                                                              |
| Q Serve(g_s), s              | 12.1                                                                              | 5.1                                                                               | 2.8                                                                               | 31.9                                                                              | 11.4                                                                              | 2.6                                                                               |
| Cycle Q Clear(g_c), s        | 12.1                                                                              | 5.1                                                                               | 2.8                                                                               | 31.9                                                                              | 11.4                                                                              | 2.6                                                                               |
| Prop In Lane                 |                                                                                   | 1.00                                                                              | 1.00                                                                              |                                                                                   | 1.00                                                                              | 1.00                                                                              |
| Lane Grp Cap(c), veh/h       | 659                                                                               | 558                                                                               | 373                                                                               | 848                                                                               | 793                                                                               | 706                                                                               |
| V/C Ratio(X)                 | 0.49                                                                              | 0.23                                                                              | 0.25                                                                              | 0.87                                                                              | 0.42                                                                              | 0.11                                                                              |
| Avail Cap(c_a), veh/h        | 1296                                                                              | 1098                                                                              | 393                                                                               | 1507                                                                              | 793                                                                               | 706                                                                               |
| HCM Platoon Ratio            | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              |
| Upstream Filter(I)           | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              |
| Uniform Delay (d), s/veh     | 22.5                                                                              | 20.3                                                                              | 16.7                                                                              | 22.0                                                                              | 16.8                                                                              | 14.4                                                                              |
| Incr Delay (d2), s/veh       | 0.6                                                                               | 0.2                                                                               | 0.3                                                                               | 3.0                                                                               | 1.7                                                                               | 0.3                                                                               |
| Initial Q Delay(d3),s/veh    | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               |
| %ile BackOfQ(50%),veh/ln     | 5.3                                                                               | 1.9                                                                               | 1.1                                                                               | 13.8                                                                              | 4.8                                                                               | 1.0                                                                               |
| Unsig. Movement Delay, s/veh |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |
| LnGrp Delay(d),s/veh         | 23.1                                                                              | 20.5                                                                              | 17.0                                                                              | 25.0                                                                              | 18.5                                                                              | 14.7                                                                              |
| LnGrp LOS                    | C                                                                                 | C                                                                                 | B                                                                                 | C                                                                                 | B                                                                                 | B                                                                                 |
| Approach Vol, veh/h          | 455                                                                               |                                                                                   |                                                                                   | 834                                                                               | 415                                                                               |                                                                                   |
| Approach Delay, s/veh        | 22.4                                                                              |                                                                                   |                                                                                   | 24.1                                                                              | 17.8                                                                              |                                                                                   |
| Approach LOS                 | C                                                                                 |                                                                                   |                                                                                   | C                                                                                 | B                                                                                 |                                                                                   |
| Timer - Assigned Phs         | 2                                                                                 |                                                                                   | 3                                                                                 | 4                                                                                 | 8                                                                                 |                                                                                   |
| Phs Duration (G+Y+Rc), s     | 44.0                                                                              |                                                                                   | 9.0                                                                               | 35.8                                                                              | 44.7                                                                              |                                                                                   |
| Change Period (Y+Rc), s      | 4.5                                                                               |                                                                                   | 4.5                                                                               | 4.5                                                                               | 4.5                                                                               |                                                                                   |
| Max Green Setting (Gmax), s  | 39.5                                                                              |                                                                                   | 5.5                                                                               | 61.5                                                                              | 71.5                                                                              |                                                                                   |
| Max Q Clear Time (g_c+l1), s | 13.4                                                                              |                                                                                   | 4.8                                                                               | 14.1                                                                              | 33.9                                                                              |                                                                                   |
| Green Ext Time (p_c), s      | 1.3                                                                               |                                                                                   | 0.0                                                                               | 2.6                                                                               | 6.3                                                                               |                                                                                   |
| Intersection Summary         |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |
| HCM 6th Ctrl Delay           |                                                                                   |                                                                                   | 22.1                                                                              |                                                                                   |                                                                                   |                                                                                   |
| HCM 6th LOS                  |                                                                                   |                                                                                   | C                                                                                 |                                                                                   |                                                                                   |                                                                                   |

# Timings

2023 Background AM.syn

## 1: W Meadows & Midland Ave

02/25/2021

|                      | →     | ↘     | ↙     | ←     | ↖     | ↗     |
|----------------------|-------|-------|-------|-------|-------|-------|
| Lane Group           | EBT   | EBR   | WBL   | WBT   | NBL   | NBR   |
| Lane Configurations  | ↑     | ↑     | ↑     | ↑     | ↑     | ↑     |
| Traffic Volume (vph) | 1264  | 125   | 71    | 283   | 60    | 96    |
| Future Volume (vph)  | 1264  | 125   | 71    | 283   | 60    | 96    |
| Turn Type            | NA    | Perm  | pm+pt | NA    | Prot  | Perm  |
| Protected Phases     | 4     |       | 3     | 8     | 2     |       |
| Permitted Phases     |       | 4     | 8     |       |       | 2     |
| Detector Phase       | 4     | 4     | 3     | 8     | 2     | 2     |
| Switch Phase         |       |       |       |       |       |       |
| Minimum Initial (s)  | 5.0   | 5.0   | 5.0   | 5.0   | 5.0   | 5.0   |
| Minimum Split (s)    | 22.5  | 22.5  | 9.5   | 22.5  | 22.5  | 22.5  |
| Total Split (s)      | 88.0  | 88.0  | 9.5   | 97.5  | 22.5  | 22.5  |
| Total Split (%)      | 73.3% | 73.3% | 7.9%  | 81.3% | 18.8% | 18.8% |
| Yellow Time (s)      | 3.5   | 3.5   | 3.5   | 3.5   | 3.5   | 3.5   |
| All-Red Time (s)     | 1.0   | 1.0   | 1.0   | 1.0   | 1.0   | 1.0   |
| Lost Time Adjust (s) | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| Total Lost Time (s)  | 4.5   | 4.5   | 4.5   | 4.5   | 4.5   | 4.5   |
| Lead/Lag             | Lag   | Lag   | Lead  |       |       |       |
| Lead-Lag Optimize?   | Yes   | Yes   | Yes   |       |       |       |
| Recall Mode          | None  | None  | None  | None  | Max   | Max   |
| Act Effect Green (s) | 83.6  | 83.6  | 91.1  | 91.1  | 18.0  | 18.0  |
| Actuated g/C Ratio   | 0.71  | 0.71  | 0.77  | 0.77  | 0.15  | 0.15  |
| v/c Ratio            | 1.02  | 0.12  | 0.57  | 0.22  | 0.29  | 0.36  |
| Control Delay        | 49.1  | 3.3   | 30.3  | 4.1   | 48.6  | 10.9  |
| Queue Delay          | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| Total Delay          | 49.1  | 3.3   | 30.3  | 4.1   | 48.6  | 10.9  |
| LOS                  | D     | A     | C     | A     | D     | B     |
| Approach Delay       | 45.0  |       |       | 9.3   | 25.4  |       |
| Approach LOS         | D     |       |       | A     | C     |       |

### Intersection Summary

|                                         |
|-----------------------------------------|
| Cycle Length: 120                       |
| Actuated Cycle Length: 118.1            |
| Natural Cycle: 130                      |
| Control Type: Actuated-Uncoordinated    |
| Maximum v/c Ratio: 1.02                 |
| Intersection Signal Delay: 36.3         |
| Intersection Capacity Utilization 80.0% |
| Analysis Period (min) 15                |
| Intersection LOS: D                     |
| ICU Level of Service D                  |

### Splits and Phases: 1: W Meadows & Midland Ave

|        |        |      |
|--------|--------|------|
| ↖ 02   | ↘ 03   | → 04 |
| 22.5 s | 9.5 s  | 88 s |
|        | ↙ 08   |      |
|        | 97.5 s |      |

# HCM 6th Signalized Intersection Summary

## 1: W Meadows & Midland Ave

2023 Background AM.syn

02/25/2021

|                              |  |  |  |  |  |  |
|------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|
| Movement                     | EBT                                                                               | EBR                                                                               | WBL                                                                               | WBT                                                                               | NBL                                                                               | NBR                                                                               |
| Lane Configurations          |  |  |  |  |  |  |
| Traffic Volume (veh/h)       | 1264                                                                              | 125                                                                               | 71                                                                                | 283                                                                               | 60                                                                                | 96                                                                                |
| Future Volume (veh/h)        | 1264                                                                              | 125                                                                               | 71                                                                                | 283                                                                               | 60                                                                                | 96                                                                                |
| Initial Q (Qb), veh          | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 |
| Ped-Bike Adj(A_pbT)          |                                                                                   | 1.00                                                                              | 1.00                                                                              |                                                                                   | 1.00                                                                              | 1.00                                                                              |
| Parking Bus, Adj             | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              |
| Work Zone On Approach        | No                                                                                |                                                                                   |                                                                                   | No                                                                                | No                                                                                |                                                                                   |
| Adj Sat Flow, veh/h/ln       | 1870                                                                              | 1870                                                                              | 1870                                                                              | 1870                                                                              | 1870                                                                              | 1870                                                                              |
| Adj Flow Rate, veh/h         | 1345                                                                              | 133                                                                               | 78                                                                                | 311                                                                               | 79                                                                                | 126                                                                               |
| Peak Hour Factor             | 0.94                                                                              | 0.94                                                                              | 0.91                                                                              | 0.91                                                                              | 0.76                                                                              | 0.76                                                                              |
| Percent Heavy Veh, %         | 2                                                                                 | 2                                                                                 | 2                                                                                 | 2                                                                                 | 2                                                                                 | 2                                                                                 |
| Cap, veh/h                   | 1306                                                                              | 1106                                                                              | 129                                                                               | 1448                                                                              | 268                                                                               | 239                                                                               |
| Arrive On Green              | 0.70                                                                              | 0.70                                                                              | 0.04                                                                              | 0.77                                                                              | 0.15                                                                              | 0.15                                                                              |
| Sat Flow, veh/h              | 1870                                                                              | 1585                                                                              | 1781                                                                              | 1870                                                                              | 1781                                                                              | 1585                                                                              |
| Grp Volume(v), veh/h         | 1345                                                                              | 133                                                                               | 78                                                                                | 311                                                                               | 79                                                                                | 126                                                                               |
| Grp Sat Flow(s),veh/h/ln     | 1870                                                                              | 1585                                                                              | 1781                                                                              | 1870                                                                              | 1781                                                                              | 1585                                                                              |
| Q Serve(g_s), s              | 83.5                                                                              | 3.3                                                                               | 1.4                                                                               | 5.4                                                                               | 4.7                                                                               | 8.8                                                                               |
| Cycle Q Clear(g_c), s        | 83.5                                                                              | 3.3                                                                               | 1.4                                                                               | 5.4                                                                               | 4.7                                                                               | 8.8                                                                               |
| Prop In Lane                 |                                                                                   | 1.00                                                                              | 1.00                                                                              |                                                                                   | 1.00                                                                              | 1.00                                                                              |
| Lane Grp Cap(c), veh/h       | 1306                                                                              | 1106                                                                              | 129                                                                               | 1448                                                                              | 268                                                                               | 239                                                                               |
| V/C Ratio(X)                 | 1.03                                                                              | 0.12                                                                              | 0.60                                                                              | 0.21                                                                              | 0.29                                                                              | 0.53                                                                              |
| Avail Cap(c_a), veh/h        | 1306                                                                              | 1106                                                                              | 135                                                                               | 1454                                                                              | 268                                                                               | 239                                                                               |
| HCM Platoon Ratio            | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              |
| Upstream Filter(I)           | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              |
| Uniform Delay (d), s/veh     | 18.1                                                                              | 6.0                                                                               | 34.4                                                                              | 3.7                                                                               | 45.2                                                                              | 46.9                                                                              |
| Incr Delay (d2), s/veh       | 33.0                                                                              | 0.0                                                                               | 7.0                                                                               | 0.1                                                                               | 2.8                                                                               | 8.1                                                                               |
| Initial Q Delay(d3),s/veh    | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               |
| %ile BackOfQ(50%),veh/ln     | 42.9                                                                              | 1.1                                                                               | 1.9                                                                               | 1.7                                                                               | 2.3                                                                               | 4.0                                                                               |
| Unsig. Movement Delay, s/veh |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |
| LnGrp Delay(d),s/veh         | 51.0                                                                              | 6.0                                                                               | 41.3                                                                              | 3.7                                                                               | 48.0                                                                              | 55.0                                                                              |
| LnGrp LOS                    | F                                                                                 | A                                                                                 | D                                                                                 | A                                                                                 | D                                                                                 | E                                                                                 |
| Approach Vol, veh/h          | 1478                                                                              |                                                                                   |                                                                                   | 389                                                                               | 205                                                                               |                                                                                   |
| Approach Delay, s/veh        | 47.0                                                                              |                                                                                   |                                                                                   | 11.3                                                                              | 52.3                                                                              |                                                                                   |
| Approach LOS                 | D                                                                                 |                                                                                   |                                                                                   | B                                                                                 | D                                                                                 |                                                                                   |
| Timer - Assigned Phs         | 2                                                                                 |                                                                                   | 3                                                                                 | 4                                                                                 | 8                                                                                 |                                                                                   |
| Phs Duration (G+Y+Rc), s     | 22.5                                                                              |                                                                                   | 9.1                                                                               | 88.0                                                                              | 97.1                                                                              |                                                                                   |
| Change Period (Y+Rc), s      | 4.5                                                                               |                                                                                   | 4.5                                                                               | 4.5                                                                               | 4.5                                                                               |                                                                                   |
| Max Green Setting (Gmax), s  | 18.0                                                                              |                                                                                   | 5.0                                                                               | 83.5                                                                              | 93.0                                                                              |                                                                                   |
| Max Q Clear Time (g_c+l1), s | 10.8                                                                              |                                                                                   | 3.4                                                                               | 85.5                                                                              | 7.4                                                                               |                                                                                   |
| Green Ext Time (p_c), s      | 0.3                                                                               |                                                                                   | 0.0                                                                               | 0.0                                                                               | 2.1                                                                               |                                                                                   |
| Intersection Summary         |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |
| HCM 6th Ctrl Delay           |                                                                                   |                                                                                   | 40.8                                                                              |                                                                                   |                                                                                   |                                                                                   |
| HCM 6th LOS                  |                                                                                   |                                                                                   | D                                                                                 |                                                                                   |                                                                                   |                                                                                   |

# Timings

2023 Background PM.syn

## 1: W Meadows & Midland Ave

02/25/2021

|                      | →     | ↘     | ↙     | ←     | ↖     | ↗     |
|----------------------|-------|-------|-------|-------|-------|-------|
| Lane Group           | EBT   | EBR   | WBL   | WBT   | NBL   | NBR   |
| Lane Configurations  | ↑     | ↑     | ↘     | ↑     | ↘     | ↑     |
| Traffic Volume (vph) | 289   | 121   | 73    | 584   | 308   | 72    |
| Future Volume (vph)  | 289   | 121   | 73    | 584   | 308   | 72    |
| Turn Type            | NA    | Perm  | pm+pt | NA    | Prot  | Perm  |
| Protected Phases     | 4     |       | 3     | 8     | 2     |       |
| Permitted Phases     |       | 4     | 8     |       |       | 2     |
| Detector Phase       | 4     | 4     | 3     | 8     | 2     | 2     |
| Switch Phase         |       |       |       |       |       |       |
| Minimum Initial (s)  | 5.0   | 5.0   | 5.0   | 5.0   | 5.0   | 5.0   |
| Minimum Split (s)    | 22.5  | 22.5  | 9.5   | 22.5  | 22.5  | 22.5  |
| Total Split (s)      | 64.6  | 64.6  | 10.4  | 75.0  | 45.0  | 45.0  |
| Total Split (%)      | 53.8% | 53.8% | 8.7%  | 62.5% | 37.5% | 37.5% |
| Yellow Time (s)      | 3.5   | 3.5   | 3.5   | 3.5   | 3.5   | 3.5   |
| All-Red Time (s)     | 1.0   | 1.0   | 1.0   | 1.0   | 1.0   | 1.0   |
| Lost Time Adjust (s) | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| Total Lost Time (s)  | 4.5   | 4.5   | 4.5   | 4.5   | 4.5   | 4.5   |
| Lead/Lag             | Lag   | Lag   | Lead  |       |       |       |
| Lead-Lag Optimize?   | Yes   | Yes   | Yes   |       |       |       |
| Recall Mode          | None  | None  | None  | None  | Max   | Max   |
| Act Effect Green (s) | 36.0  | 36.0  | 44.0  | 44.0  | 41.1  | 41.1  |
| Actuated g/C Ratio   | 0.38  | 0.38  | 0.47  | 0.47  | 0.44  | 0.44  |
| v/c Ratio            | 0.47  | 0.20  | 0.24  | 0.87  | 0.45  | 0.11  |
| Control Delay        | 24.4  | 3.8   | 14.6  | 33.8  | 23.8  | 5.6   |
| Queue Delay          | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| Total Delay          | 24.4  | 3.8   | 14.6  | 33.8  | 23.8  | 5.6   |
| LOS                  | C     | A     | B     | C     | C     | A     |
| Approach Delay       | 18.3  |       |       | 31.7  | 20.4  |       |
| Approach LOS         | B     |       |       | C     | C     |       |

### Intersection Summary

Cycle Length: 120

Actuated Cycle Length: 94.3

Natural Cycle: 60

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 0.87

Intersection Signal Delay: 25.3

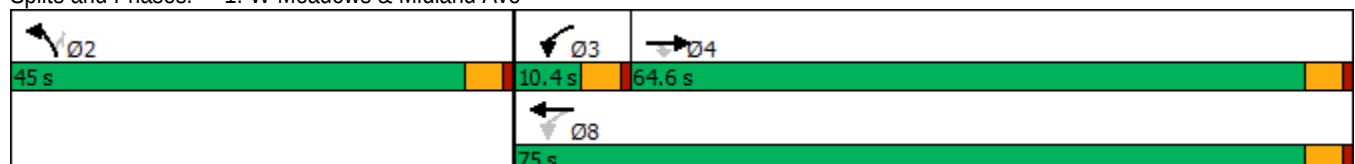
Intersection LOS: C

Intersection Capacity Utilization 55.3%

ICU Level of Service B

Analysis Period (min) 15

Splits and Phases: 1: W Meadows & Midland Ave





# HCM 6th Signalized Intersection Summary

2023 Background PM.syn

## 1: W Meadows & Midland Ave

02/25/2021

|                              | →    | ↘    | ↙    | ←    | ↖    | ↗    |
|------------------------------|------|------|------|------|------|------|
| Movement                     | EBT  | EBR  | WBL  | WBT  | NBL  | NBR  |
| Lane Configurations          | ↑    | ↗    | ↙    | ↑    | ↙    | ↗    |
| Traffic Volume (veh/h)       | 289  | 121  | 73   | 584  | 308  | 72   |
| Future Volume (veh/h)        | 289  | 121  | 73   | 584  | 308  | 72   |
| Initial Q (Qb), veh          | 0    | 0    | 0    | 0    | 0    | 0    |
| Ped-Bike Adj(A_pbT)          |      | 1.00 | 1.00 |      | 1.00 | 1.00 |
| Parking Bus, Adj             | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Work Zone On Approach        | No   |      |      | No   | No   |      |
| Adj Sat Flow, veh/h/ln       | 1870 | 1870 | 1870 | 1870 | 1870 | 1870 |
| Adj Flow Rate, veh/h         | 336  | 141  | 95   | 758  | 350  | 82   |
| Peak Hour Factor             | 0.86 | 0.86 | 0.77 | 0.77 | 0.88 | 0.88 |
| Percent Heavy Veh, %         | 2    | 2    | 2    | 2    | 2    | 2    |
| Cap, veh/h                   | 676  | 573  | 370  | 861  | 787  | 700  |
| Arrive On Green              | 0.36 | 0.36 | 0.05 | 0.46 | 0.44 | 0.44 |
| Sat Flow, veh/h              | 1870 | 1585 | 1781 | 1870 | 1781 | 1585 |
| Grp Volume(v), veh/h         | 336  | 141  | 95   | 758  | 350  | 82   |
| Grp Sat Flow(s),veh/h/ln     | 1870 | 1585 | 1781 | 1870 | 1781 | 1585 |
| Q Serve(g_s), s              | 12.8 | 5.7  | 2.9  | 33.7 | 12.5 | 2.8  |
| Cycle Q Clear(g_c), s        | 12.8 | 5.7  | 2.9  | 33.7 | 12.5 | 2.8  |
| Prop In Lane                 |      | 1.00 | 1.00 |      | 1.00 | 1.00 |
| Lane Grp Cap(c), veh/h       | 676  | 573  | 370  | 861  | 787  | 700  |
| V/C Ratio(X)                 | 0.50 | 0.25 | 0.26 | 0.88 | 0.44 | 0.12 |
| Avail Cap(c_a), veh/h        | 1226 | 1039 | 396  | 1438 | 787  | 700  |
| HCM Platoon Ratio            | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Upstream Filter(l)           | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Uniform Delay (d), s/veh     | 22.8 | 20.5 | 16.9 | 22.5 | 17.8 | 15.1 |
| Incr Delay (d2), s/veh       | 0.6  | 0.2  | 0.4  | 3.7  | 1.8  | 0.3  |
| Initial Q Delay(d3),s/veh    | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  |
| %ile BackOfQ(50%),veh/ln     | 5.6  | 2.1  | 1.2  | 14.8 | 5.3  | 1.0  |
| Unsig. Movement Delay, s/veh |      |      |      |      |      |      |
| LnGrp Delay(d),s/veh         | 23.4 | 20.7 | 17.3 | 26.2 | 19.6 | 15.4 |
| LnGrp LOS                    | C    | C    | B    | C    | B    | B    |
| Approach Vol, veh/h          | 477  |      |      | 853  | 432  |      |
| Approach Delay, s/veh        | 22.6 |      |      | 25.2 | 18.8 |      |
| Approach LOS                 | C    |      |      | C    | B    |      |
| Timer - Assigned Phs         | 2    |      | 3    | 4    | 8    |      |
| Phs Duration (G+Y+Rc), s     | 45.0 |      | 9.1  | 37.7 | 46.7 |      |
| Change Period (Y+Rc), s      | 4.5  |      | 4.5  | 4.5  | 4.5  |      |
| Max Green Setting (Gmax), s  | 40.5 |      | 5.9  | 60.1 | 70.5 |      |
| Max Q Clear Time (g_c+l1), s | 14.5 |      | 4.9  | 14.8 | 35.7 |      |
| Green Ext Time (p_c), s      | 1.4  |      | 0.0  | 2.7  | 6.5  |      |
| Intersection Summary         |      |      |      |      |      |      |
| HCM 6th Ctrl Delay           |      |      | 22.9 |      |      |      |
| HCM 6th LOS                  |      |      | C    |      |      |      |

# Timings

## 1: W Meadows & Midland Ave

2023 Total AM.syn

02/25/2021

|                      | →     | ↘     | ↙     | ←     | ↖     | ↗     |
|----------------------|-------|-------|-------|-------|-------|-------|
| Lane Group           | EBT   | EBR   | WBL   | WBT   | NBL   | NBR   |
| Lane Configurations  | ↑     | ↑     | ↘     | ↑     | ↘     | ↑     |
| Traffic Volume (vph) | 1265  | 128   | 71    | 283   | 66    | 96    |
| Future Volume (vph)  | 1265  | 128   | 71    | 283   | 66    | 96    |
| Turn Type            | NA    | Perm  | pm+pt | NA    | Prot  | Perm  |
| Protected Phases     | 4     |       | 3     | 8     | 2     |       |
| Permitted Phases     |       | 4     | 8     |       |       | 2     |
| Detector Phase       | 4     | 4     | 3     | 8     | 2     | 2     |
| Switch Phase         |       |       |       |       |       |       |
| Minimum Initial (s)  | 5.0   | 5.0   | 5.0   | 5.0   | 5.0   | 5.0   |
| Minimum Split (s)    | 22.5  | 22.5  | 9.5   | 22.5  | 22.5  | 22.5  |
| Total Split (s)      | 88.0  | 88.0  | 9.5   | 97.5  | 22.5  | 22.5  |
| Total Split (%)      | 73.3% | 73.3% | 7.9%  | 81.3% | 18.8% | 18.8% |
| Yellow Time (s)      | 3.5   | 3.5   | 3.5   | 3.5   | 3.5   | 3.5   |
| All-Red Time (s)     | 1.0   | 1.0   | 1.0   | 1.0   | 1.0   | 1.0   |
| Lost Time Adjust (s) | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| Total Lost Time (s)  | 4.5   | 4.5   | 4.5   | 4.5   | 4.5   | 4.5   |
| Lead/Lag             | Lag   | Lag   | Lead  |       |       |       |
| Lead-Lag Optimize?   | Yes   | Yes   | Yes   |       |       |       |
| Recall Mode          | None  | None  | None  | None  | Max   | Max   |
| Act Effect Green (s) | 83.6  | 83.6  | 91.1  | 91.1  | 18.0  | 18.0  |
| Actuated g/C Ratio   | 0.71  | 0.71  | 0.77  | 0.77  | 0.15  | 0.15  |
| v/c Ratio            | 1.02  | 0.12  | 0.57  | 0.22  | 0.32  | 0.36  |
| Control Delay        | 49.3  | 3.3   | 30.3  | 4.1   | 49.2  | 10.9  |
| Queue Delay          | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| Total Delay          | 49.3  | 3.3   | 30.3  | 4.1   | 49.2  | 10.9  |
| LOS                  | D     | A     | C     | A     | D     | B     |
| Approach Delay       | 45.1  |       |       | 9.3   | 26.6  |       |
| Approach LOS         | D     |       |       | A     | C     |       |

### Intersection Summary

Cycle Length: 120

Actuated Cycle Length: 118.1

Natural Cycle: 130

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 1.02

Intersection Signal Delay: 36.5

Intersection LOS: D

Intersection Capacity Utilization 80.0%

ICU Level of Service D

Analysis Period (min) 15

Splits and Phases: 1: W Meadows & Midland Ave

|        |        |      |
|--------|--------|------|
| ↖ 02   | ↘ 03   | → 04 |
| 22.5 s | 9.5 s  | 88 s |
|        | ↖ 08   |      |
|        | 97.5 s |      |

HCM 6th Signalized Intersection Summary  
1: W Meadows & Midland Ave

2023 Total AM.syn  
02/25/2021

|                              |  |  |  |  |  |  |
|------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|
| Movement                     | EBT                                                                               | EBR                                                                               | WBL                                                                               | WBT                                                                               | NBL                                                                               | NBR                                                                               |
| Lane Configurations          | ↑                                                                                 | ↑                                                                                 | ↑                                                                                 | ↑                                                                                 | ↑                                                                                 | ↑                                                                                 |
| Traffic Volume (veh/h)       | 1265                                                                              | 128                                                                               | 71                                                                                | 283                                                                               | 66                                                                                | 96                                                                                |
| Future Volume (veh/h)        | 1265                                                                              | 128                                                                               | 71                                                                                | 283                                                                               | 66                                                                                | 96                                                                                |
| Initial Q (Qb), veh          | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 |
| Ped-Bike Adj(A_pbT)          |                                                                                   | 1.00                                                                              | 1.00                                                                              |                                                                                   | 1.00                                                                              | 1.00                                                                              |
| Parking Bus, Adj             | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              |
| Work Zone On Approach        | No                                                                                |                                                                                   |                                                                                   | No                                                                                | No                                                                                |                                                                                   |
| Adj Sat Flow, veh/h/ln       | 1870                                                                              | 1870                                                                              | 1870                                                                              | 1870                                                                              | 1870                                                                              | 1870                                                                              |
| Adj Flow Rate, veh/h         | 1346                                                                              | 136                                                                               | 78                                                                                | 311                                                                               | 87                                                                                | 126                                                                               |
| Peak Hour Factor             | 0.94                                                                              | 0.94                                                                              | 0.91                                                                              | 0.91                                                                              | 0.76                                                                              | 0.76                                                                              |
| Percent Heavy Veh, %         | 2                                                                                 | 2                                                                                 | 2                                                                                 | 2                                                                                 | 2                                                                                 | 2                                                                                 |
| Cap, veh/h                   | 1306                                                                              | 1106                                                                              | 129                                                                               | 1448                                                                              | 268                                                                               | 239                                                                               |
| Arrive On Green              | 0.70                                                                              | 0.70                                                                              | 0.04                                                                              | 0.77                                                                              | 0.15                                                                              | 0.15                                                                              |
| Sat Flow, veh/h              | 1870                                                                              | 1585                                                                              | 1781                                                                              | 1870                                                                              | 1781                                                                              | 1585                                                                              |
| Grp Volume(v), veh/h         | 1346                                                                              | 136                                                                               | 78                                                                                | 311                                                                               | 87                                                                                | 126                                                                               |
| Grp Sat Flow(s),veh/h/ln     | 1870                                                                              | 1585                                                                              | 1781                                                                              | 1870                                                                              | 1781                                                                              | 1585                                                                              |
| Q Serve(g_s), s              | 83.5                                                                              | 3.4                                                                               | 1.4                                                                               | 5.4                                                                               | 5.2                                                                               | 8.8                                                                               |
| Cycle Q Clear(g_c), s        | 83.5                                                                              | 3.4                                                                               | 1.4                                                                               | 5.4                                                                               | 5.2                                                                               | 8.8                                                                               |
| Prop In Lane                 |                                                                                   | 1.00                                                                              | 1.00                                                                              |                                                                                   | 1.00                                                                              | 1.00                                                                              |
| Lane Grp Cap(c), veh/h       | 1306                                                                              | 1106                                                                              | 129                                                                               | 1448                                                                              | 268                                                                               | 239                                                                               |
| V/C Ratio(X)                 | 1.03                                                                              | 0.12                                                                              | 0.60                                                                              | 0.21                                                                              | 0.32                                                                              | 0.53                                                                              |
| Avail Cap(c_a), veh/h        | 1306                                                                              | 1106                                                                              | 135                                                                               | 1454                                                                              | 268                                                                               | 239                                                                               |
| HCM Platoon Ratio            | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              |
| Upstream Filter(I)           | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              |
| Uniform Delay (d), s/veh     | 18.1                                                                              | 6.0                                                                               | 34.4                                                                              | 3.7                                                                               | 45.4                                                                              | 46.9                                                                              |
| Incr Delay (d2), s/veh       | 33.2                                                                              | 0.0                                                                               | 7.0                                                                               | 0.1                                                                               | 3.2                                                                               | 8.1                                                                               |
| Initial Q Delay(d3),s/veh    | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               |
| %ile BackOfQ(50%),veh/ln     | 43.0                                                                              | 1.1                                                                               | 1.9                                                                               | 1.7                                                                               | 2.6                                                                               | 4.0                                                                               |
| Unsig. Movement Delay, s/veh |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |
| LnGrp Delay(d),s/veh         | 51.3                                                                              | 6.0                                                                               | 41.3                                                                              | 3.7                                                                               | 48.6                                                                              | 55.0                                                                              |
| LnGrp LOS                    | F                                                                                 | A                                                                                 | D                                                                                 | A                                                                                 | D                                                                                 | E                                                                                 |
| Approach Vol, veh/h          | 1482                                                                              |                                                                                   |                                                                                   | 389                                                                               | 213                                                                               |                                                                                   |
| Approach Delay, s/veh        | 47.1                                                                              |                                                                                   |                                                                                   | 11.3                                                                              | 52.4                                                                              |                                                                                   |
| Approach LOS                 | D                                                                                 |                                                                                   |                                                                                   | B                                                                                 | D                                                                                 |                                                                                   |
| Timer - Assigned Phs         |                                                                                   | 2                                                                                 | 3                                                                                 | 4                                                                                 |                                                                                   | 8                                                                                 |
| Phs Duration (G+Y+Rc), s     |                                                                                   | 22.5                                                                              | 9.1                                                                               | 88.0                                                                              |                                                                                   | 97.1                                                                              |
| Change Period (Y+Rc), s      |                                                                                   | 4.5                                                                               | 4.5                                                                               | 4.5                                                                               |                                                                                   | 4.5                                                                               |
| Max Green Setting (Gmax), s  |                                                                                   | 18.0                                                                              | 5.0                                                                               | 83.5                                                                              |                                                                                   | 93.0                                                                              |
| Max Q Clear Time (g_c+l1), s |                                                                                   | 10.8                                                                              | 3.4                                                                               | 85.5                                                                              |                                                                                   | 7.4                                                                               |
| Green Ext Time (p_c), s      |                                                                                   | 0.4                                                                               | 0.0                                                                               | 0.0                                                                               |                                                                                   | 2.1                                                                               |
| <b>Intersection Summary</b>  |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |
| HCM 6th Ctrl Delay           |                                                                                   |                                                                                   | 41.0                                                                              |                                                                                   |                                                                                   |                                                                                   |
| HCM 6th LOS                  |                                                                                   |                                                                                   | D                                                                                 |                                                                                   |                                                                                   |                                                                                   |

# Timings

## 1: W Meadows & Midland Ave

2023 Total PM.syn

02/25/2021

|                      | →     | ↘     | ↙     | ←     | ↖     | ↗     |
|----------------------|-------|-------|-------|-------|-------|-------|
| Lane Group           | EBT   | EBR   | WBL   | WBT   | NBL   | NBR   |
| Lane Configurations  | ↑     | ↑     | ↘     | ↑     | ↘     | ↗     |
| Traffic Volume (vph) | 295   | 138   | 73    | 584   | 326   | 72    |
| Future Volume (vph)  | 295   | 138   | 73    | 584   | 326   | 72    |
| Turn Type            | NA    | Perm  | pm+pt | NA    | Prot  | Perm  |
| Protected Phases     | 4     |       | 3     | 8     | 2     |       |
| Permitted Phases     |       | 4     | 8     |       |       | 2     |
| Detector Phase       | 4     | 4     | 3     | 8     | 2     | 2     |
| Switch Phase         |       |       |       |       |       |       |
| Minimum Initial (s)  | 5.0   | 5.0   | 5.0   | 5.0   | 5.0   | 5.0   |
| Minimum Split (s)    | 22.5  | 22.5  | 9.5   | 22.5  | 22.5  | 22.5  |
| Total Split (s)      | 63.8  | 63.8  | 10.2  | 74.0  | 46.0  | 46.0  |
| Total Split (%)      | 53.2% | 53.2% | 8.5%  | 61.7% | 38.3% | 38.3% |
| Yellow Time (s)      | 3.5   | 3.5   | 3.5   | 3.5   | 3.5   | 3.5   |
| All-Red Time (s)     | 1.0   | 1.0   | 1.0   | 1.0   | 1.0   | 1.0   |
| Lost Time Adjust (s) | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| Total Lost Time (s)  | 4.5   | 4.5   | 4.5   | 4.5   | 4.5   | 4.5   |
| Lead/Lag             | Lag   | Lag   | Lead  |       |       |       |
| Lead-Lag Optimize?   | Yes   | Yes   | Yes   |       |       |       |
| Recall Mode          | None  | None  | None  | None  | Max   | Max   |
| Act Effect Green (s) | 36.8  | 36.8  | 44.7  | 44.7  | 42.1  | 42.1  |
| Actuated g/C Ratio   | 0.38  | 0.38  | 0.47  | 0.47  | 0.44  | 0.44  |
| v/c Ratio            | 0.48  | 0.23  | 0.25  | 0.87  | 0.48  | 0.11  |
| Control Delay        | 24.7  | 3.7   | 15.0  | 34.5  | 24.4  | 5.7   |
| Queue Delay          | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| Total Delay          | 24.7  | 3.7   | 15.0  | 34.5  | 24.4  | 5.7   |
| LOS                  | C     | A     | B     | C     | C     | A     |
| Approach Delay       | 18.0  |       |       | 32.3  | 21.0  |       |
| Approach LOS         | B     |       |       | C     | C     |       |

### Intersection Summary

Cycle Length: 120

Actuated Cycle Length: 96

Natural Cycle: 60

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 0.87

Intersection Signal Delay: 25.5

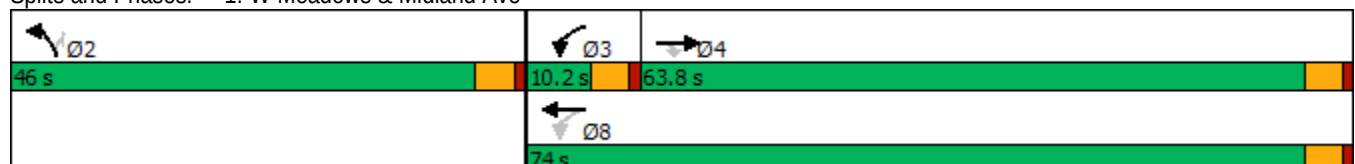
Intersection LOS: C

Intersection Capacity Utilization 56.3%

ICU Level of Service B

Analysis Period (min) 15

Splits and Phases: 1: W Meadows & Midland Ave



HCM 6th Signalized Intersection Summary  
1: W Meadows & Midland Ave

2023 Total PM.syn  
02/25/2021

|                              |  |  |  |  |  |  |
|------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|
| Movement                     | EBT                                                                               | EBR                                                                               | WBL                                                                               | WBT                                                                               | NBL                                                                               | NBR                                                                               |
| Lane Configurations          |  |  |  |  |  |  |
| Traffic Volume (veh/h)       | 295                                                                               | 138                                                                               | 73                                                                                | 584                                                                               | 326                                                                               | 72                                                                                |
| Future Volume (veh/h)        | 295                                                                               | 138                                                                               | 73                                                                                | 584                                                                               | 326                                                                               | 72                                                                                |
| Initial Q (Qb), veh          | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 |
| Ped-Bike Adj(A_pbT)          |                                                                                   | 1.00                                                                              | 1.00                                                                              |                                                                                   | 1.00                                                                              | 1.00                                                                              |
| Parking Bus, Adj             | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              |
| Work Zone On Approach        | No                                                                                |                                                                                   |                                                                                   | No                                                                                | No                                                                                |                                                                                   |
| Adj Sat Flow, veh/h/ln       | 1870                                                                              | 1870                                                                              | 1870                                                                              | 1870                                                                              | 1870                                                                              | 1870                                                                              |
| Adj Flow Rate, veh/h         | 343                                                                               | 160                                                                               | 95                                                                                | 758                                                                               | 370                                                                               | 82                                                                                |
| Peak Hour Factor             | 0.86                                                                              | 0.86                                                                              | 0.77                                                                              | 0.77                                                                              | 0.88                                                                              | 0.88                                                                              |
| Percent Heavy Veh, %         | 2                                                                                 | 2                                                                                 | 2                                                                                 | 2                                                                                 | 2                                                                                 | 2                                                                                 |
| Cap, veh/h                   | 677                                                                               | 573                                                                               | 360                                                                               | 858                                                                               | 792                                                                               | 705                                                                               |
| Arrive On Green              | 0.36                                                                              | 0.36                                                                              | 0.05                                                                              | 0.46                                                                              | 0.44                                                                              | 0.44                                                                              |
| Sat Flow, veh/h              | 1870                                                                              | 1585                                                                              | 1781                                                                              | 1870                                                                              | 1781                                                                              | 1585                                                                              |
| Grp Volume(v), veh/h         | 343                                                                               | 160                                                                               | 95                                                                                | 758                                                                               | 370                                                                               | 82                                                                                |
| Grp Sat Flow(s),veh/h/ln     | 1870                                                                              | 1585                                                                              | 1781                                                                              | 1870                                                                              | 1781                                                                              | 1585                                                                              |
| Q Serve(g_s), s              | 13.4                                                                              | 6.7                                                                               | 3.0                                                                               | 34.4                                                                              | 13.6                                                                              | 2.8                                                                               |
| Cycle Q Clear(g_c), s        | 13.4                                                                              | 6.7                                                                               | 3.0                                                                               | 34.4                                                                              | 13.6                                                                              | 2.8                                                                               |
| Prop In Lane                 |                                                                                   | 1.00                                                                              | 1.00                                                                              |                                                                                   | 1.00                                                                              | 1.00                                                                              |
| Lane Grp Cap(c), veh/h       | 677                                                                               | 573                                                                               | 360                                                                               | 858                                                                               | 792                                                                               | 705                                                                               |
| V/C Ratio(X)                 | 0.51                                                                              | 0.28                                                                              | 0.26                                                                              | 0.88                                                                              | 0.47                                                                              | 0.12                                                                              |
| Avail Cap(c_a), veh/h        | 1188                                                                              | 1007                                                                              | 382                                                                               | 1393                                                                              | 792                                                                               | 705                                                                               |
| HCM Platoon Ratio            | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              |
| Upstream Filter(I)           | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              |
| Uniform Delay (d), s/veh     | 23.3                                                                              | 21.1                                                                              | 17.3                                                                              | 23.0                                                                              | 18.2                                                                              | 15.2                                                                              |
| Incr Delay (d2), s/veh       | 0.6                                                                               | 0.3                                                                               | 0.4                                                                               | 4.2                                                                               | 2.0                                                                               | 0.3                                                                               |
| Initial Q Delay(d3),s/veh    | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               |
| %ile BackOfQ(50%),veh/ln     | 5.8                                                                               | 2.5                                                                               | 1.2                                                                               | 15.2                                                                              | 5.8                                                                               | 1.1                                                                               |
| Unsig. Movement Delay, s/veh |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |
| LnGrp Delay(d),s/veh         | 23.9                                                                              | 21.4                                                                              | 17.7                                                                              | 27.2                                                                              | 20.1                                                                              | 15.5                                                                              |
| LnGrp LOS                    | C                                                                                 | C                                                                                 | B                                                                                 | C                                                                                 | C                                                                                 | B                                                                                 |
| Approach Vol, veh/h          | 503                                                                               |                                                                                   |                                                                                   | 853                                                                               | 452                                                                               |                                                                                   |
| Approach Delay, s/veh        | 23.1                                                                              |                                                                                   |                                                                                   | 26.1                                                                              | 19.3                                                                              |                                                                                   |
| Approach LOS                 | C                                                                                 |                                                                                   |                                                                                   | C                                                                                 | B                                                                                 |                                                                                   |
| Timer - Assigned Phs         | 2                                                                                 |                                                                                   | 3                                                                                 | 4                                                                                 | 8                                                                                 |                                                                                   |
| Phs Duration (G+Y+Rc), s     | 46.0                                                                              |                                                                                   | 9.1                                                                               | 38.3                                                                              | 47.3                                                                              |                                                                                   |
| Change Period (Y+Rc), s      | 4.5                                                                               |                                                                                   | 4.5                                                                               | 4.5                                                                               | 4.5                                                                               |                                                                                   |
| Max Green Setting (Gmax), s  | 41.5                                                                              |                                                                                   | 5.7                                                                               | 59.3                                                                              | 69.5                                                                              |                                                                                   |
| Max Q Clear Time (g_c+l1), s | 15.6                                                                              |                                                                                   | 5.0                                                                               | 15.4                                                                              | 36.4                                                                              |                                                                                   |
| Green Ext Time (p_c), s      | 1.4                                                                               |                                                                                   | 0.0                                                                               | 2.9                                                                               | 6.4                                                                               |                                                                                   |
| Intersection Summary         |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |
| HCM 6th Ctrl Delay           |                                                                                   |                                                                                   | 23.6                                                                              |                                                                                   |                                                                                   |                                                                                   |
| HCM 6th LOS                  |                                                                                   |                                                                                   | C                                                                                 |                                                                                   |                                                                                   |                                                                                   |

# Timings

2040 Background AM.syn

## 1: W Meadows & Midland Ave

02/25/2021

|                      | →     | ↘     | ↙     | ←     | ↖     | ↗     |
|----------------------|-------|-------|-------|-------|-------|-------|
| Lane Group           | EBT   | EBR   | WBL   | WBT   | NBL   | NBR   |
| Lane Configurations  | ↑     | ↑     | ↘     | ↑     | ↘     | ↗     |
| Traffic Volume (vph) | 1535  | 152   | 86    | 344   | 71    | 117   |
| Future Volume (vph)  | 1535  | 152   | 86    | 344   | 71    | 117   |
| Turn Type            | NA    | Perm  | pm+pt | NA    | Prot  | Perm  |
| Protected Phases     | 4     |       | 3     | 8     | 2     |       |
| Permitted Phases     |       | 4     | 8     |       |       | 2     |
| Detector Phase       | 4     | 4     | 3     | 8     | 2     | 2     |
| Switch Phase         |       |       |       |       |       |       |
| Minimum Initial (s)  | 5.0   | 5.0   | 5.0   | 5.0   | 5.0   | 5.0   |
| Minimum Split (s)    | 22.5  | 22.5  | 9.5   | 22.5  | 22.5  | 22.5  |
| Total Split (s)      | 88.0  | 88.0  | 9.5   | 97.5  | 22.5  | 22.5  |
| Total Split (%)      | 73.3% | 73.3% | 7.9%  | 81.3% | 18.8% | 18.8% |
| Yellow Time (s)      | 3.5   | 3.5   | 3.5   | 3.5   | 3.5   | 3.5   |
| All-Red Time (s)     | 1.0   | 1.0   | 1.0   | 1.0   | 1.0   | 1.0   |
| Lost Time Adjust (s) | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| Total Lost Time (s)  | 4.5   | 4.5   | 4.5   | 4.5   | 4.5   | 4.5   |
| Lead/Lag             | Lag   | Lag   | Lead  |       |       |       |
| Lead-Lag Optimize?   | Yes   | Yes   | Yes   |       |       |       |
| Recall Mode          | None  | None  | None  | None  | Max   | Max   |
| Act Effect Green (s) | 83.5  | 83.5  | 93.0  | 93.0  | 18.0  | 18.0  |
| Actuated g/C Ratio   | 0.70  | 0.70  | 0.78  | 0.78  | 0.15  | 0.15  |
| v/c Ratio            | 1.26  | 0.14  | 0.69  | 0.26  | 0.29  | 0.39  |
| Control Delay        | 144.7 | 3.8   | 42.8  | 4.3   | 48.7  | 16.0  |
| Queue Delay          | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| Total Delay          | 144.7 | 3.8   | 42.8  | 4.3   | 48.7  | 16.0  |
| LOS                  | F     | A     | D     | A     | D     | B     |
| Approach Delay       | 132.0 |       |       | 12.0  | 28.3  |       |
| Approach LOS         | F     |       |       | B     | C     |       |

### Intersection Summary

Cycle Length: 120

Actuated Cycle Length: 120

Natural Cycle: 150

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 1.26

Intersection Signal Delay: 100.7

Intersection LOS: F

Intersection Capacity Utilization 95.5%

ICU Level of Service F

Analysis Period (min) 15

Splits and Phases: 1: W Meadows & Midland Ave

|        |        |      |
|--------|--------|------|
| ↖ Ø2   | ↘ Ø3   | → Ø4 |
| 22.5 s | 9.5 s  | 88 s |
|        | ↙ Ø8   |      |
|        | 97.5 s |      |

HCM 6th Signalized Intersection Summary  
1: W Meadows & Midland Ave

2040 Background AM.syn

02/25/2021

|                              |  |  |  |  |  |  |
|------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|
| Movement                     | EBT                                                                               | EBR                                                                               | WBL                                                                               | WBT                                                                               | NBL                                                                               | NBR                                                                               |
| Lane Configurations          | ↑                                                                                 | ↗                                                                                 | ↖                                                                                 | ↑                                                                                 | ↖                                                                                 | ↗                                                                                 |
| Traffic Volume (veh/h)       | 1535                                                                              | 152                                                                               | 86                                                                                | 344                                                                               | 71                                                                                | 117                                                                               |
| Future Volume (veh/h)        | 1535                                                                              | 152                                                                               | 86                                                                                | 344                                                                               | 71                                                                                | 117                                                                               |
| Initial Q (Qb), veh          | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 |
| Ped-Bike Adj(A_pbT)          |                                                                                   | 1.00                                                                              | 1.00                                                                              |                                                                                   | 1.00                                                                              | 1.00                                                                              |
| Parking Bus, Adj             | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              |
| Work Zone On Approach        | No                                                                                |                                                                                   |                                                                                   | No                                                                                | No                                                                                |                                                                                   |
| Adj Sat Flow, veh/h/ln       | 1870                                                                              | 1870                                                                              | 1870                                                                              | 1870                                                                              | 1870                                                                              | 1870                                                                              |
| Adj Flow Rate, veh/h         | 1633                                                                              | 162                                                                               | 93                                                                                | 374                                                                               | 77                                                                                | 127                                                                               |
| Peak Hour Factor             | 0.94                                                                              | 0.94                                                                              | 0.92                                                                              | 0.92                                                                              | 0.92                                                                              | 0.92                                                                              |
| Percent Heavy Veh, %         | 2                                                                                 | 2                                                                                 | 2                                                                                 | 2                                                                                 | 2                                                                                 | 2                                                                                 |
| Cap, veh/h                   | 1304                                                                              | 1105                                                                              | 131                                                                               | 1449                                                                              | 268                                                                               | 238                                                                               |
| Arrive On Green              | 0.70                                                                              | 0.70                                                                              | 0.04                                                                              | 0.77                                                                              | 0.15                                                                              | 0.15                                                                              |
| Sat Flow, veh/h              | 1870                                                                              | 1585                                                                              | 1781                                                                              | 1870                                                                              | 1781                                                                              | 1585                                                                              |
| Grp Volume(v), veh/h         | 1633                                                                              | 162                                                                               | 93                                                                                | 374                                                                               | 77                                                                                | 127                                                                               |
| Grp Sat Flow(s),veh/h/ln     | 1870                                                                              | 1585                                                                              | 1781                                                                              | 1870                                                                              | 1781                                                                              | 1585                                                                              |
| Q Serve(g_s), s              | 83.5                                                                              | 4.1                                                                               | 2.1                                                                               | 6.7                                                                               | 4.6                                                                               | 8.9                                                                               |
| Cycle Q Clear(g_c), s        | 83.5                                                                              | 4.1                                                                               | 2.1                                                                               | 6.7                                                                               | 4.6                                                                               | 8.9                                                                               |
| Prop In Lane                 |                                                                                   | 1.00                                                                              | 1.00                                                                              |                                                                                   | 1.00                                                                              | 1.00                                                                              |
| Lane Grp Cap(c), veh/h       | 1304                                                                              | 1105                                                                              | 131                                                                               | 1449                                                                              | 268                                                                               | 238                                                                               |
| V/C Ratio(X)                 | 1.25                                                                              | 0.15                                                                              | 0.71                                                                              | 0.26                                                                              | 0.29                                                                              | 0.53                                                                              |
| Avail Cap(c_a), veh/h        | 1304                                                                              | 1105                                                                              | 134                                                                               | 1452                                                                              | 268                                                                               | 238                                                                               |
| HCM Platoon Ratio            | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              |
| Upstream Filter(l)           | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              |
| Uniform Delay (d), s/veh     | 18.1                                                                              | 6.1                                                                               | 36.5                                                                              | 3.8                                                                               | 45.2                                                                              | 47.0                                                                              |
| Incr Delay (d2), s/veh       | 120.0                                                                             | 0.1                                                                               | 15.5                                                                              | 0.1                                                                               | 2.7                                                                               | 8.3                                                                               |
| Initial Q Delay(d3),s/veh    | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               |
| %ile BackOfQ(50%),veh/ln     | 74.5                                                                              | 1.3                                                                               | 2.5                                                                               | 2.2                                                                               | 2.2                                                                               | 4.1                                                                               |
| Unsig. Movement Delay, s/veh |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |
| LnGrp Delay(d),s/veh         | 138.2                                                                             | 6.2                                                                               | 51.9                                                                              | 3.9                                                                               | 47.9                                                                              | 55.3                                                                              |
| LnGrp LOS                    | F                                                                                 | A                                                                                 | D                                                                                 | A                                                                                 | D                                                                                 | E                                                                                 |
| Approach Vol, veh/h          | 1795                                                                              |                                                                                   |                                                                                   | 467                                                                               | 204                                                                               |                                                                                   |
| Approach Delay, s/veh        | 126.3                                                                             |                                                                                   |                                                                                   | 13.5                                                                              | 52.5                                                                              |                                                                                   |
| Approach LOS                 | F                                                                                 |                                                                                   |                                                                                   | B                                                                                 | D                                                                                 |                                                                                   |
| Timer - Assigned Phs         | 2                                                                                 |                                                                                   | 3                                                                                 | 4                                                                                 | 8                                                                                 |                                                                                   |
| Phs Duration (G+Y+Rc), s     | 22.5                                                                              |                                                                                   | 9.3                                                                               | 88.0                                                                              | 97.3                                                                              |                                                                                   |
| Change Period (Y+Rc), s      | 4.5                                                                               |                                                                                   | 4.5                                                                               | 4.5                                                                               | 4.5                                                                               |                                                                                   |
| Max Green Setting (Gmax), s  | 18.0                                                                              |                                                                                   | 5.0                                                                               | 83.5                                                                              | 93.0                                                                              |                                                                                   |
| Max Q Clear Time (g_c+l1), s | 10.9                                                                              |                                                                                   | 4.1                                                                               | 85.5                                                                              | 8.7                                                                               |                                                                                   |
| Green Ext Time (p_c), s      | 0.3                                                                               |                                                                                   | 0.0                                                                               | 0.0                                                                               | 2.6                                                                               |                                                                                   |
| Intersection Summary         |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |
| HCM 6th Ctrl Delay           |                                                                                   |                                                                                   | 98.8                                                                              |                                                                                   |                                                                                   |                                                                                   |
| HCM 6th LOS                  |                                                                                   |                                                                                   | F                                                                                 |                                                                                   |                                                                                   |                                                                                   |

# Timings

2040 Background PM.syn

## 1: W Meadows & Midland Ave

02/25/2021

|                      | →     | ↘     | ↙     | ←     | ↖     | ↗     |
|----------------------|-------|-------|-------|-------|-------|-------|
| Lane Group           | EBT   | EBR   | WBL   | WBT   | NBL   | NBR   |
| Lane Configurations  | ↑     | ↑     | ↘     | ↑     | ↘     | ↘     |
| Traffic Volume (vph) | 350   | 145   | 88    | 710   | 373   | 87    |
| Future Volume (vph)  | 350   | 145   | 88    | 710   | 373   | 87    |
| Turn Type            | NA    | Perm  | pm+pt | NA    | Prot  | Perm  |
| Protected Phases     | 4     |       | 3     | 8     | 2     |       |
| Permitted Phases     |       | 4     | 8     |       |       | 2     |
| Detector Phase       | 4     | 4     | 3     | 8     | 2     | 2     |
| Switch Phase         |       |       |       |       |       |       |
| Minimum Initial (s)  | 5.0   | 5.0   | 5.0   | 5.0   | 5.0   | 5.0   |
| Minimum Split (s)    | 22.5  | 22.5  | 9.5   | 22.5  | 22.5  | 22.5  |
| Total Split (s)      | 62.8  | 62.8  | 10.2  | 73.0  | 47.0  | 47.0  |
| Total Split (%)      | 52.3% | 52.3% | 8.5%  | 60.8% | 39.2% | 39.2% |
| Yellow Time (s)      | 3.5   | 3.5   | 3.5   | 3.5   | 3.5   | 3.5   |
| All-Red Time (s)     | 1.0   | 1.0   | 1.0   | 1.0   | 1.0   | 1.0   |
| Lost Time Adjust (s) | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| Total Lost Time (s)  | 4.5   | 4.5   | 4.5   | 4.5   | 4.5   | 4.5   |
| Lead/Lag             | Lag   | Lag   | Lead  |       |       |       |
| Lead-Lag Optimize?   | Yes   | Yes   | Yes   |       |       |       |
| Recall Mode          | None  | None  | None  | None  | Max   | Max   |
| Act Effect Green (s) | 38.8  | 38.8  | 46.7  | 46.7  | 43.2  | 43.2  |
| Actuated g/C Ratio   | 0.39  | 0.39  | 0.47  | 0.47  | 0.44  | 0.44  |
| v/c Ratio            | 0.52  | 0.22  | 0.27  | 0.88  | 0.52  | 0.13  |
| Control Delay        | 25.7  | 3.6   | 15.4  | 35.3  | 26.4  | 5.5   |
| Queue Delay          | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| Total Delay          | 25.7  | 3.6   | 15.4  | 35.3  | 26.4  | 5.5   |
| LOS                  | C     | A     | B     | D     | C     | A     |
| Approach Delay       | 19.2  |       |       | 33.1  | 22.4  |       |
| Approach LOS         | B     |       |       | C     | C     |       |

### Intersection Summary

Cycle Length: 120

Actuated Cycle Length: 99

Natural Cycle: 60

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 0.88

Intersection Signal Delay: 26.4

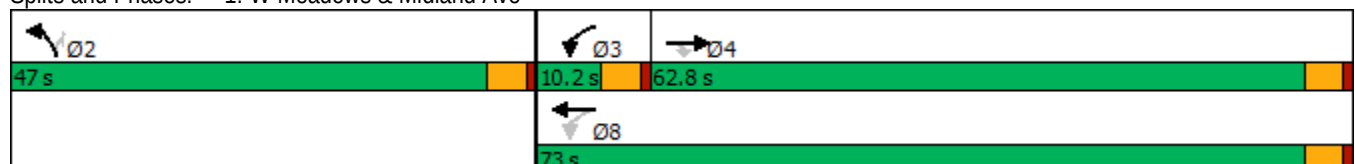
Intersection LOS: C

Intersection Capacity Utilization 65.5%

ICU Level of Service C

Analysis Period (min) 15

Splits and Phases: 1: W Meadows & Midland Ave





HCM 6th Signalized Intersection Summary  
1: W Meadows & Midland Ave

2040 Background PM.syn

02/25/2021

|                              |  |  |  |  |  |  |
|------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|
| Movement                     | EBT                                                                               | EBR                                                                               | WBL                                                                               | WBT                                                                               | NBL                                                                               | NBR                                                                               |
| Lane Configurations          |  |  |  |  |  |  |
| Traffic Volume (veh/h)       | 350                                                                               | 145                                                                               | 88                                                                                | 710                                                                               | 373                                                                               | 87                                                                                |
| Future Volume (veh/h)        | 350                                                                               | 145                                                                               | 88                                                                                | 710                                                                               | 373                                                                               | 87                                                                                |
| Initial Q (Qb), veh          | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 |
| Ped-Bike Adj(A_pbT)          |                                                                                   | 1.00                                                                              | 1.00                                                                              |                                                                                   | 1.00                                                                              | 1.00                                                                              |
| Parking Bus, Adj             | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              |
| Work Zone On Approach        | No                                                                                |                                                                                   |                                                                                   | No                                                                                | No                                                                                |                                                                                   |
| Adj Sat Flow, veh/h/ln       | 1870                                                                              | 1870                                                                              | 1870                                                                              | 1870                                                                              | 1870                                                                              | 1870                                                                              |
| Adj Flow Rate, veh/h         | 380                                                                               | 158                                                                               | 96                                                                                | 772                                                                               | 405                                                                               | 95                                                                                |
| Peak Hour Factor             | 0.92                                                                              | 0.92                                                                              | 0.92                                                                              | 0.92                                                                              | 0.92                                                                              | 0.92                                                                              |
| Percent Heavy Veh, %         | 2                                                                                 | 2                                                                                 | 2                                                                                 | 2                                                                                 | 2                                                                                 | 2                                                                                 |
| Cap, veh/h                   | 690                                                                               | 585                                                                               | 342                                                                               | 869                                                                               | 787                                                                               | 700                                                                               |
| Arrive On Green              | 0.37                                                                              | 0.37                                                                              | 0.05                                                                              | 0.46                                                                              | 0.44                                                                              | 0.44                                                                              |
| Sat Flow, veh/h              | 1870                                                                              | 1585                                                                              | 1781                                                                              | 1870                                                                              | 1781                                                                              | 1585                                                                              |
| Grp Volume(v), veh/h         | 380                                                                               | 158                                                                               | 96                                                                                | 772                                                                               | 405                                                                               | 95                                                                                |
| Grp Sat Flow(s),veh/h/ln     | 1870                                                                              | 1585                                                                              | 1781                                                                              | 1870                                                                              | 1781                                                                              | 1585                                                                              |
| Q Serve(g_s), s              | 15.5                                                                              | 6.7                                                                               | 3.1                                                                               | 36.2                                                                              | 15.8                                                                              | 3.4                                                                               |
| Cycle Q Clear(g_c), s        | 15.5                                                                              | 6.7                                                                               | 3.1                                                                               | 36.2                                                                              | 15.8                                                                              | 3.4                                                                               |
| Prop In Lane                 |                                                                                   | 1.00                                                                              | 1.00                                                                              |                                                                                   | 1.00                                                                              | 1.00                                                                              |
| Lane Grp Cap(c), veh/h       | 690                                                                               | 585                                                                               | 342                                                                               | 869                                                                               | 787                                                                               | 700                                                                               |
| V/C Ratio(X)                 | 0.55                                                                              | 0.27                                                                              | 0.28                                                                              | 0.89                                                                              | 0.51                                                                              | 0.14                                                                              |
| Avail Cap(c_a), veh/h        | 1134                                                                              | 961                                                                               | 361                                                                               | 1332                                                                              | 787                                                                               | 700                                                                               |
| HCM Platoon Ratio            | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              |
| Upstream Filter(I)           | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              |
| Uniform Delay (d), s/veh     | 24.0                                                                              | 21.3                                                                              | 17.8                                                                              | 23.5                                                                              | 19.4                                                                              | 15.9                                                                              |
| Incr Delay (d2), s/veh       | 0.7                                                                               | 0.2                                                                               | 0.4                                                                               | 5.1                                                                               | 2.4                                                                               | 0.4                                                                               |
| Initial Q Delay(d3),s/veh    | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               |
| %ile BackOfQ(50%),veh/ln     | 6.8                                                                               | 2.5                                                                               | 1.3                                                                               | 16.2                                                                              | 6.8                                                                               | 1.3                                                                               |
| Unsig. Movement Delay, s/veh |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |
| LnGrp Delay(d),s/veh         | 24.7                                                                              | 21.5                                                                              | 18.2                                                                              | 28.6                                                                              | 21.8                                                                              | 16.3                                                                              |
| LnGrp LOS                    | C                                                                                 | C                                                                                 | B                                                                                 | C                                                                                 | C                                                                                 | B                                                                                 |
| Approach Vol, veh/h          | 538                                                                               |                                                                                   |                                                                                   | 868                                                                               | 500                                                                               |                                                                                   |
| Approach Delay, s/veh        | 23.8                                                                              |                                                                                   |                                                                                   | 27.4                                                                              | 20.8                                                                              |                                                                                   |
| Approach LOS                 | C                                                                                 |                                                                                   |                                                                                   | C                                                                                 | C                                                                                 |                                                                                   |
| Timer - Assigned Phs         | 2                                                                                 |                                                                                   | 3                                                                                 | 4                                                                                 | 8                                                                                 |                                                                                   |
| Phs Duration (G+Y+Rc), s     | 47.0                                                                              |                                                                                   | 9.2                                                                               | 40.0                                                                              | 49.2                                                                              |                                                                                   |
| Change Period (Y+Rc), s      | 4.5                                                                               |                                                                                   | 4.5                                                                               | 4.5                                                                               | 4.5                                                                               |                                                                                   |
| Max Green Setting (Gmax), s  | 42.5                                                                              |                                                                                   | 5.7                                                                               | 58.3                                                                              | 68.5                                                                              |                                                                                   |
| Max Q Clear Time (g_c+l1), s | 17.8                                                                              |                                                                                   | 5.1                                                                               | 17.5                                                                              | 38.2                                                                              |                                                                                   |
| Green Ext Time (p_c), s      | 1.6                                                                               |                                                                                   | 0.0                                                                               | 3.1                                                                               | 6.5                                                                               |                                                                                   |
| Intersection Summary         |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |
| HCM 6th Ctrl Delay           |                                                                                   |                                                                                   | 24.7                                                                              |                                                                                   |                                                                                   |                                                                                   |
| HCM 6th LOS                  |                                                                                   |                                                                                   | C                                                                                 |                                                                                   |                                                                                   |                                                                                   |

# Timings

2040 Background AM\_Improved.syn

## 1: W Meadows & Midland Ave

02/25/2021

|                      | →     | ↖     | ←     | ↗     | ↘     |
|----------------------|-------|-------|-------|-------|-------|
| Lane Group           | EBT   | WBL   | WBT   | NBL   | NBR   |
| Lane Configurations  | ↑↑    | ↖     | ↑↑    | ↖     | ↖     |
| Traffic Volume (vph) | 1535  | 86    | 344   | 71    | 117   |
| Future Volume (vph)  | 1535  | 86    | 344   | 71    | 117   |
| Turn Type            | NA    | pm+pt | NA    | Prot  | Perm  |
| Protected Phases     | 4     | 3     | 8     | 2     |       |
| Permitted Phases     |       | 8     |       |       | 2     |
| Detector Phase       | 4     | 3     | 8     | 2     | 2     |
| Switch Phase         |       |       |       |       |       |
| Minimum Initial (s)  | 5.0   | 5.0   | 5.0   | 5.0   | 5.0   |
| Minimum Split (s)    | 22.5  | 9.5   | 22.5  | 22.5  | 22.5  |
| Total Split (s)      | 80.0  | 15.0  | 95.0  | 25.0  | 25.0  |
| Total Split (%)      | 66.7% | 12.5% | 79.2% | 20.8% | 20.8% |
| Yellow Time (s)      | 3.5   | 3.5   | 3.5   | 3.5   | 3.5   |
| All-Red Time (s)     | 1.0   | 1.0   | 1.0   | 1.0   | 1.0   |
| Lost Time Adjust (s) | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| Total Lost Time (s)  | 4.5   | 4.5   | 4.5   | 4.5   | 4.5   |
| Lead/Lag             | Lag   | Lead  |       |       |       |
| Lead-Lag Optimize?   | Yes   | Yes   |       |       |       |
| Recall Mode          | None  | None  | None  | Max   | Max   |
| Act Effect Green (s) | 66.3  | 75.9  | 75.9  | 21.0  | 21.0  |
| Actuated g/C Ratio   | 0.62  | 0.72  | 0.72  | 0.20  | 0.20  |
| v/c Ratio            | 0.82  | 0.47  | 0.15  | 0.22  | 0.31  |
| Control Delay        | 19.5  | 20.2  | 4.6   | 42.9  | 9.7   |
| Queue Delay          | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| Total Delay          | 19.5  | 20.2  | 4.6   | 42.9  | 9.7   |
| LOS                  | B     | C     | A     | D     | A     |
| Approach Delay       | 19.5  |       | 7.7   | 22.3  |       |
| Approach LOS         | B     |       | A     | C     |       |

### Intersection Summary

|                                         |
|-----------------------------------------|
| Cycle Length: 120                       |
| Actuated Cycle Length: 106.1            |
| Natural Cycle: 80                       |
| Control Type: Actuated-Uncoordinated    |
| Maximum v/c Ratio: 0.82                 |
| Intersection Signal Delay: 17.5         |
| Intersection Capacity Utilization 67.5% |
| Analysis Period (min) 15                |
| Intersection LOS: B                     |
| ICU Level of Service C                  |

### Splits and Phases: 1: W Meadows & Midland Ave

|      |      |      |
|------|------|------|
| ↖ 02 | ↖ 03 | → 04 |
| 25 s | 15 s | 80 s |
|      | ↖ 08 |      |
|      | 95 s |      |

HCM 6th Signalized Intersection Summary  
1: W Meadows & Midland Ave

2040 Background AM\_Improved.syn

02/25/2021

|                              |  |  |  |  |  |  |
|------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|
| Movement                     | EBT                                                                               | EBR                                                                               | WBL                                                                               | WBT                                                                               | NBL                                                                               | NBR                                                                               |
| Lane Configurations          | ↑↑                                                                                |                                                                                   | ↵                                                                                 | ↑↑                                                                                | ↵                                                                                 | ↵                                                                                 |
| Traffic Volume (veh/h)       | 1535                                                                              | 152                                                                               | 86                                                                                | 344                                                                               | 71                                                                                | 117                                                                               |
| Future Volume (veh/h)        | 1535                                                                              | 152                                                                               | 86                                                                                | 344                                                                               | 71                                                                                | 117                                                                               |
| Initial Q (Qb), veh          | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 |
| Ped-Bike Adj(A_pbT)          |                                                                                   | 1.00                                                                              | 1.00                                                                              |                                                                                   | 1.00                                                                              | 1.00                                                                              |
| Parking Bus, Adj             | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              |
| Work Zone On Approach        | No                                                                                |                                                                                   |                                                                                   | No                                                                                | No                                                                                |                                                                                   |
| Adj Sat Flow, veh/h/ln       | 1870                                                                              | 1870                                                                              | 1870                                                                              | 1870                                                                              | 1870                                                                              | 1870                                                                              |
| Adj Flow Rate, veh/h         | 1633                                                                              | 162                                                                               | 93                                                                                | 374                                                                               | 77                                                                                | 127                                                                               |
| Peak Hour Factor             | 0.94                                                                              | 0.94                                                                              | 0.92                                                                              | 0.92                                                                              | 0.92                                                                              | 0.92                                                                              |
| Percent Heavy Veh, %         | 2                                                                                 | 2                                                                                 | 2                                                                                 | 2                                                                                 | 2                                                                                 | 2                                                                                 |
| Cap, veh/h                   | 2002                                                                              | 196                                                                               | 212                                                                               | 2502                                                                              | 366                                                                               | 326                                                                               |
| Arrive On Green              | 0.61                                                                              | 0.61                                                                              | 0.05                                                                              | 0.70                                                                              | 0.21                                                                              | 0.21                                                                              |
| Sat Flow, veh/h              | 3363                                                                              | 320                                                                               | 1781                                                                              | 3647                                                                              | 1781                                                                              | 1585                                                                              |
| Grp Volume(v), veh/h         | 879                                                                               | 916                                                                               | 93                                                                                | 374                                                                               | 77                                                                                | 127                                                                               |
| Grp Sat Flow(s),veh/h/ln     | 1777                                                                              | 1813                                                                              | 1781                                                                              | 1777                                                                              | 1781                                                                              | 1585                                                                              |
| Q Serve(g_s), s              | 37.8                                                                              | 39.5                                                                              | 1.8                                                                               | 3.5                                                                               | 3.6                                                                               | 6.9                                                                               |
| Cycle Q Clear(g_c), s        | 37.8                                                                              | 39.5                                                                              | 1.8                                                                               | 3.5                                                                               | 3.6                                                                               | 6.9                                                                               |
| Prop In Lane                 |                                                                                   | 0.18                                                                              | 1.00                                                                              |                                                                                   | 1.00                                                                              | 1.00                                                                              |
| Lane Grp Cap(c), veh/h       | 1088                                                                              | 1110                                                                              | 212                                                                               | 2502                                                                              | 366                                                                               | 326                                                                               |
| V/C Ratio(X)                 | 0.81                                                                              | 0.83                                                                              | 0.44                                                                              | 0.15                                                                              | 0.21                                                                              | 0.39                                                                              |
| Avail Cap(c_a), veh/h        | 1346                                                                              | 1373                                                                              | 317                                                                               | 3227                                                                              | 366                                                                               | 326                                                                               |
| HCM Platoon Ratio            | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              |
| Upstream Filter(I)           | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              |
| Uniform Delay (d), s/veh     | 14.8                                                                              | 15.1                                                                              | 18.8                                                                              | 4.9                                                                               | 32.9                                                                              | 34.2                                                                              |
| Incr Delay (d2), s/veh       | 3.0                                                                               | 3.5                                                                               | 1.4                                                                               | 0.0                                                                               | 1.3                                                                               | 3.5                                                                               |
| Initial Q Delay(d3),s/veh    | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               |
| %ile BackOfQ(50%),veh/ln     | 14.6                                                                              | 15.6                                                                              | 1.3                                                                               | 1.1                                                                               | 1.7                                                                               | 3.0                                                                               |
| Unsig. Movement Delay, s/veh |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |
| LnGrp Delay(d),s/veh         | 17.8                                                                              | 18.6                                                                              | 20.2                                                                              | 4.9                                                                               | 34.2                                                                              | 37.7                                                                              |
| LnGrp LOS                    | B                                                                                 | B                                                                                 | C                                                                                 | A                                                                                 | C                                                                                 | D                                                                                 |
| Approach Vol, veh/h          | 1795                                                                              |                                                                                   |                                                                                   | 467                                                                               | 204                                                                               |                                                                                   |
| Approach Delay, s/veh        | 18.3                                                                              |                                                                                   |                                                                                   | 8.0                                                                               | 36.3                                                                              |                                                                                   |
| Approach LOS                 | B                                                                                 |                                                                                   |                                                                                   | A                                                                                 | D                                                                                 |                                                                                   |
| Timer - Assigned Phs         | 2                                                                                 |                                                                                   | 3                                                                                 | 4                                                                                 | 8                                                                                 |                                                                                   |
| Phs Duration (G+Y+Rc), s     | 25.0                                                                              |                                                                                   | 9.1                                                                               | 65.6                                                                              | 74.7                                                                              |                                                                                   |
| Change Period (Y+Rc), s      | 4.5                                                                               |                                                                                   | 4.5                                                                               | 4.5                                                                               | 4.5                                                                               |                                                                                   |
| Max Green Setting (Gmax), s  | 20.5                                                                              |                                                                                   | 10.5                                                                              | 75.5                                                                              | 90.5                                                                              |                                                                                   |
| Max Q Clear Time (g_c+l1), s | 8.9                                                                               |                                                                                   | 3.8                                                                               | 41.5                                                                              | 5.5                                                                               |                                                                                   |
| Green Ext Time (p_c), s      | 0.5                                                                               |                                                                                   | 0.1                                                                               | 19.6                                                                              | 2.8                                                                               |                                                                                   |
| Intersection Summary         |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |
| HCM 6th Ctrl Delay           |                                                                                   |                                                                                   | 17.8                                                                              |                                                                                   |                                                                                   |                                                                                   |
| HCM 6th LOS                  |                                                                                   |                                                                                   | B                                                                                 |                                                                                   |                                                                                   |                                                                                   |

# Timings

2040 Background PM\_Improved.syn

## 1: W Meadows & Midland Ave

02/25/2021

|                      | →     | ↖     | ←     | ↙     | ↗     |
|----------------------|-------|-------|-------|-------|-------|
| Lane Group           | EBT   | WBL   | WBT   | NBL   | NBR   |
| Lane Configurations  | ↑↑    | ↑     | ↑↑    | ↑     | ↑     |
| Traffic Volume (vph) | 350   | 88    | 710   | 373   | 87    |
| Future Volume (vph)  | 350   | 88    | 710   | 373   | 87    |
| Turn Type            | NA    | pm+pt | NA    | Prot  | Perm  |
| Protected Phases     | 4     | 3     | 8     | 2     |       |
| Permitted Phases     |       | 8     |       |       | 2     |
| Detector Phase       | 4     | 3     | 8     | 2     | 2     |
| Switch Phase         |       |       |       |       |       |
| Minimum Initial (s)  | 5.0   | 5.0   | 5.0   | 5.0   | 5.0   |
| Minimum Split (s)    | 22.5  | 9.5   | 22.5  | 22.5  | 22.5  |
| Total Split (s)      | 40.0  | 18.0  | 58.0  | 62.0  | 62.0  |
| Total Split (%)      | 33.3% | 15.0% | 48.3% | 51.7% | 51.7% |
| Yellow Time (s)      | 3.5   | 3.5   | 3.5   | 3.5   | 3.5   |
| All-Red Time (s)     | 1.0   | 1.0   | 1.0   | 1.0   | 1.0   |
| Lost Time Adjust (s) | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| Total Lost Time (s)  | 4.5   | 4.5   | 4.5   | 4.5   | 4.5   |
| Lead/Lag             | Lag   | Lead  |       |       |       |
| Lead-Lag Optimize?   | Yes   | Yes   |       |       |       |
| Recall Mode          | None  | None  | None  | Max   | Max   |
| Act Effect Green (s) | 21.9  | 33.1  | 33.1  | 57.9  | 57.9  |
| Actuated g/C Ratio   | 0.22  | 0.33  | 0.33  | 0.58  | 0.58  |
| v/c Ratio            | 0.69  | 0.38  | 0.66  | 0.40  | 0.10  |
| Control Delay        | 37.9  | 27.1  | 31.1  | 14.5  | 3.0   |
| Queue Delay          | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| Total Delay          | 37.9  | 27.1  | 31.1  | 14.5  | 3.0   |
| LOS                  | D     | C     | C     | B     | A     |
| Approach Delay       | 37.9  |       | 30.7  | 12.3  |       |
| Approach LOS         | D     |       | C     | B     |       |

### Intersection Summary

|                                         |
|-----------------------------------------|
| Cycle Length: 120                       |
| Actuated Cycle Length: 100.1            |
| Natural Cycle: 55                       |
| Control Type: Actuated-Uncoordinated    |
| Maximum v/c Ratio: 0.69                 |
| Intersection Signal Delay: 27.9         |
| Intersection Capacity Utilization 51.1% |
| Analysis Period (min) 15                |
| Intersection LOS: C                     |
| ICU Level of Service A                  |

### Splits and Phases: 1: W Meadows & Midland Ave

|      |      |      |
|------|------|------|
| ↙ Ø2 | ↖ Ø3 | → Ø4 |
| 62 s | 18 s | 40 s |
|      | ↙ Ø8 |      |
|      | 58 s |      |

HCM 6th Signalized Intersection Summary  
1: W Meadows & Midland Ave

2040 Background PM\_Improved.syn

02/25/2021

|                              | →    | ↘    | ↙    | ←    | ↖    | ↗    |
|------------------------------|------|------|------|------|------|------|
| Movement                     | EBT  | EBR  | WBL  | WBT  | NBL  | NBR  |
| Lane Configurations          | ↑↑   |      | ↘    | ↑↑   | ↘    | ↗    |
| Traffic Volume (veh/h)       | 350  | 145  | 88   | 710  | 373  | 87   |
| Future Volume (veh/h)        | 350  | 145  | 88   | 710  | 373  | 87   |
| Initial Q (Qb), veh          | 0    | 0    | 0    | 0    | 0    | 0    |
| Ped-Bike Adj(A_pbT)          |      | 1.00 | 1.00 |      | 1.00 | 1.00 |
| Parking Bus, Adj             | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Work Zone On Approach        | No   |      |      | No   | No   |      |
| Adj Sat Flow, veh/h/ln       | 1870 | 1870 | 1870 | 1870 | 1870 | 1870 |
| Adj Flow Rate, veh/h         | 380  | 158  | 96   | 772  | 405  | 95   |
| Peak Hour Factor             | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| Percent Heavy Veh, %         | 2    | 2    | 2    | 2    | 2    | 2    |
| Cap, veh/h                   | 498  | 204  | 226  | 1093 | 1066 | 949  |
| Arrive On Green              | 0.20 | 0.20 | 0.06 | 0.31 | 0.60 | 0.60 |
| Sat Flow, veh/h              | 2552 | 1008 | 1781 | 3647 | 1781 | 1585 |
| Grp Volume(v), veh/h         | 273  | 265  | 96   | 772  | 405  | 95   |
| Grp Sat Flow(s),veh/h/ln     | 1777 | 1689 | 1781 | 1777 | 1781 | 1585 |
| Q Serve(g_s), s              | 13.9 | 14.2 | 3.9  | 18.5 | 11.3 | 2.5  |
| Cycle Q Clear(g_c), s        | 13.9 | 14.2 | 3.9  | 18.5 | 11.3 | 2.5  |
| Prop In Lane                 |      | 0.60 | 1.00 |      | 1.00 | 1.00 |
| Lane Grp Cap(c), veh/h       | 360  | 342  | 226  | 1093 | 1066 | 949  |
| V/C Ratio(X)                 | 0.76 | 0.77 | 0.43 | 0.71 | 0.38 | 0.10 |
| Avail Cap(c_a), veh/h        | 657  | 624  | 373  | 1979 | 1066 | 949  |
| HCM Platoon Ratio            | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Upstream Filter(l)           | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Uniform Delay (d), s/veh     | 36.1 | 36.2 | 27.7 | 29.4 | 10.0 | 8.2  |
| Incr Delay (d2), s/veh       | 3.3  | 3.7  | 1.3  | 0.8  | 1.0  | 0.2  |
| Initial Q Delay(d3),s/veh    | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  |
| %ile BackOfQ(50%),veh/ln     | 6.3  | 6.1  | 1.7  | 7.8  | 4.4  | 0.8  |
| Unsig. Movement Delay, s/veh |      |      |      |      |      |      |
| LnGrp Delay(d),s/veh         | 39.4 | 39.9 | 29.0 | 30.3 | 11.0 | 8.4  |
| LnGrp LOS                    | D    | D    | C    | C    | B    | A    |
| Approach Vol, veh/h          | 538  |      |      | 868  | 500  |      |
| Approach Delay, s/veh        | 39.6 |      |      | 30.1 | 10.5 |      |
| Approach LOS                 | D    |      |      | C    | B    |      |
| Timer - Assigned Phs         | 2    |      | 3    | 4    | 8    |      |
| Phs Duration (G+Y+Rc), s     | 62.0 |      | 10.1 | 24.0 | 34.0 |      |
| Change Period (Y+Rc), s      | 4.5  |      | 4.5  | 4.5  | 4.5  |      |
| Max Green Setting (Gmax), s  | 57.5 |      | 13.5 | 35.5 | 53.5 |      |
| Max Q Clear Time (g_c+l1), s | 13.3 |      | 5.9  | 16.2 | 20.5 |      |
| Green Ext Time (p_c), s      | 1.7  |      | 0.1  | 3.2  | 6.2  |      |
| Intersection Summary         |      |      |      |      |      |      |
| HCM 6th Ctrl Delay           |      |      | 27.7 |      |      |      |
| HCM 6th LOS                  |      |      | C    |      |      |      |

# Timings

## 1: W Meadows & Midland Ave

2040 Total AM.syn

02/25/2021

|                      | →     | ↖     | ←     | ↗     | ↘     |
|----------------------|-------|-------|-------|-------|-------|
| Lane Group           | EBT   | WBL   | WBT   | NBL   | NBR   |
| Lane Configurations  | ↑↑    | ↖     | ↑↑    | ↖     | ↖     |
| Traffic Volume (vph) | 1536  | 86    | 344   | 77    | 117   |
| Future Volume (vph)  | 1536  | 86    | 344   | 77    | 117   |
| Turn Type            | NA    | pm+pt | NA    | Prot  | Perm  |
| Protected Phases     | 4     | 3     | 8     | 2     |       |
| Permitted Phases     |       | 8     |       |       | 2     |
| Detector Phase       | 4     | 3     | 8     | 2     | 2     |
| Switch Phase         |       |       |       |       |       |
| Minimum Initial (s)  | 5.0   | 5.0   | 5.0   | 5.0   | 5.0   |
| Minimum Split (s)    | 22.5  | 9.5   | 22.5  | 22.5  | 22.5  |
| Total Split (s)      | 80.0  | 15.0  | 95.0  | 25.0  | 25.0  |
| Total Split (%)      | 66.7% | 12.5% | 79.2% | 20.8% | 20.8% |
| Yellow Time (s)      | 3.5   | 3.5   | 3.5   | 3.5   | 3.5   |
| All-Red Time (s)     | 1.0   | 1.0   | 1.0   | 1.0   | 1.0   |
| Lost Time Adjust (s) | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| Total Lost Time (s)  | 4.5   | 4.5   | 4.5   | 4.5   | 4.5   |
| Lead/Lag             | Lag   | Lead  |       |       |       |
| Lead-Lag Optimize?   | Yes   | Yes   |       |       |       |
| Recall Mode          | None  | None  | None  | Max   | Max   |
| Act Effect Green (s) | 66.4  | 76.0  | 76.0  | 21.0  | 21.0  |
| Actuated g/C Ratio   | 0.63  | 0.72  | 0.72  | 0.20  | 0.20  |
| v/c Ratio            | 0.82  | 0.47  | 0.15  | 0.24  | 0.31  |
| Control Delay        | 19.6  | 20.2  | 4.6   | 43.1  | 9.7   |
| Queue Delay          | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| Total Delay          | 19.6  | 20.2  | 4.6   | 43.1  | 9.7   |
| LOS                  | B     | C     | A     | D     | A     |
| Approach Delay       | 19.6  |       | 7.7   | 23.0  |       |
| Approach LOS         | B     |       | A     | C     |       |

### Intersection Summary

Cycle Length: 120

Actuated Cycle Length: 106.2

Natural Cycle: 80

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 0.82

Intersection Signal Delay: 17.6

Intersection LOS: B

Intersection Capacity Utilization 67.7%

ICU Level of Service C

Analysis Period (min) 15

### Splits and Phases: 1: W Meadows & Midland Ave

|      |      |      |
|------|------|------|
| ↖ 02 | ↖ 03 | → 04 |
| 25 s | 15 s | 80 s |
|      | ↖ 08 |      |
|      | 05 s |      |

HCM 6th Signalized Intersection Summary  
1: W Meadows & Midland Ave

2040 Total AM.syn  
02/25/2021

|                              |  |  |  |  |  |  |
|------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|
| Movement                     | EBT                                                                               | EBR                                                                               | WBL                                                                               | WBT                                                                               | NBL                                                                               | NBR                                                                               |
| Lane Configurations          | ↑↑                                                                                |                                                                                   | ↵                                                                                 | ↑↑                                                                                | ↵                                                                                 | ↵                                                                                 |
| Traffic Volume (veh/h)       | 1536                                                                              | 155                                                                               | 86                                                                                | 344                                                                               | 77                                                                                | 117                                                                               |
| Future Volume (veh/h)        | 1536                                                                              | 155                                                                               | 86                                                                                | 344                                                                               | 77                                                                                | 117                                                                               |
| Initial Q (Qb), veh          | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 |
| Ped-Bike Adj(A_pbT)          |                                                                                   | 1.00                                                                              | 1.00                                                                              |                                                                                   | 1.00                                                                              | 1.00                                                                              |
| Parking Bus, Adj             | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              |
| Work Zone On Approach        | No                                                                                |                                                                                   |                                                                                   | No                                                                                | No                                                                                |                                                                                   |
| Adj Sat Flow, veh/h/ln       | 1870                                                                              | 1870                                                                              | 1870                                                                              | 1870                                                                              | 1870                                                                              | 1870                                                                              |
| Adj Flow Rate, veh/h         | 1634                                                                              | 165                                                                               | 93                                                                                | 374                                                                               | 84                                                                                | 127                                                                               |
| Peak Hour Factor             | 0.94                                                                              | 0.94                                                                              | 0.92                                                                              | 0.92                                                                              | 0.92                                                                              | 0.92                                                                              |
| Percent Heavy Veh, %         | 2                                                                                 | 2                                                                                 | 2                                                                                 | 2                                                                                 | 2                                                                                 | 2                                                                                 |
| Cap, veh/h                   | 2002                                                                              | 200                                                                               | 211                                                                               | 2504                                                                              | 366                                                                               | 325                                                                               |
| Arrive On Green              | 0.61                                                                              | 0.61                                                                              | 0.05                                                                              | 0.70                                                                              | 0.21                                                                              | 0.21                                                                              |
| Sat Flow, veh/h              | 3357                                                                              | 325                                                                               | 1781                                                                              | 3647                                                                              | 1781                                                                              | 1585                                                                              |
| Grp Volume(v), veh/h         | 880                                                                               | 919                                                                               | 93                                                                                | 374                                                                               | 84                                                                                | 127                                                                               |
| Grp Sat Flow(s),veh/h/ln     | 1777                                                                              | 1812                                                                              | 1781                                                                              | 1777                                                                              | 1781                                                                              | 1585                                                                              |
| Q Serve(g_s), s              | 37.9                                                                              | 39.7                                                                              | 1.8                                                                               | 3.5                                                                               | 3.9                                                                               | 6.9                                                                               |
| Cycle Q Clear(g_c), s        | 37.9                                                                              | 39.7                                                                              | 1.8                                                                               | 3.5                                                                               | 3.9                                                                               | 6.9                                                                               |
| Prop In Lane                 |                                                                                   | 0.18                                                                              | 1.00                                                                              |                                                                                   | 1.00                                                                              | 1.00                                                                              |
| Lane Grp Cap(c), veh/h       | 1090                                                                              | 1111                                                                              | 211                                                                               | 2504                                                                              | 366                                                                               | 325                                                                               |
| V/C Ratio(X)                 | 0.81                                                                              | 0.83                                                                              | 0.44                                                                              | 0.15                                                                              | 0.23                                                                              | 0.39                                                                              |
| Avail Cap(c_a), veh/h        | 1343                                                                              | 1369                                                                              | 316                                                                               | 3219                                                                              | 366                                                                               | 325                                                                               |
| HCM Platoon Ratio            | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              |
| Upstream Filter(I)           | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              |
| Uniform Delay (d), s/veh     | 14.8                                                                              | 15.1                                                                              | 18.9                                                                              | 4.9                                                                               | 33.1                                                                              | 34.3                                                                              |
| Incr Delay (d2), s/veh       | 3.1                                                                               | 3.6                                                                               | 1.4                                                                               | 0.0                                                                               | 1.5                                                                               | 3.5                                                                               |
| Initial Q Delay(d3),s/veh    | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               |
| %ile BackOfQ(50%),veh/ln     | 14.6                                                                              | 15.7                                                                              | 1.3                                                                               | 1.1                                                                               | 1.8                                                                               | 3.0                                                                               |
| Unsig. Movement Delay, s/veh |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |
| LnGrp Delay(d),s/veh         | 17.9                                                                              | 18.7                                                                              | 20.3                                                                              | 4.9                                                                               | 34.6                                                                              | 37.8                                                                              |
| LnGrp LOS                    | B                                                                                 | B                                                                                 | C                                                                                 | A                                                                                 | C                                                                                 | D                                                                                 |
| Approach Vol, veh/h          | 1799                                                                              |                                                                                   |                                                                                   | 467                                                                               | 211                                                                               |                                                                                   |
| Approach Delay, s/veh        | 18.3                                                                              |                                                                                   |                                                                                   | 8.0                                                                               | 36.5                                                                              |                                                                                   |
| Approach LOS                 | B                                                                                 |                                                                                   |                                                                                   | A                                                                                 | D                                                                                 |                                                                                   |
| Timer - Assigned Phs         | 2                                                                                 |                                                                                   | 3                                                                                 | 4                                                                                 | 8                                                                                 |                                                                                   |
| Phs Duration (G+Y+Rc), s     | 25.0                                                                              |                                                                                   | 9.1                                                                               | 65.8                                                                              | 74.9                                                                              |                                                                                   |
| Change Period (Y+Rc), s      | 4.5                                                                               |                                                                                   | 4.5                                                                               | 4.5                                                                               | 4.5                                                                               |                                                                                   |
| Max Green Setting (Gmax), s  | 20.5                                                                              |                                                                                   | 10.5                                                                              | 75.5                                                                              | 90.5                                                                              |                                                                                   |
| Max Q Clear Time (g_c+l1), s | 8.9                                                                               |                                                                                   | 3.8                                                                               | 41.7                                                                              | 5.5                                                                               |                                                                                   |
| Green Ext Time (p_c), s      | 0.5                                                                               |                                                                                   | 0.1                                                                               | 19.6                                                                              | 2.8                                                                               |                                                                                   |
| Intersection Summary         |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |
| HCM 6th Ctrl Delay           |                                                                                   |                                                                                   | 17.9                                                                              |                                                                                   |                                                                                   |                                                                                   |
| HCM 6th LOS                  |                                                                                   |                                                                                   | B                                                                                 |                                                                                   |                                                                                   |                                                                                   |

# Timings

## 1: W Meadows & Midland Ave

2040 Total PM.syn

02/25/2021

|                      | →     | ↖     | ←     | ↙     | ↗     |
|----------------------|-------|-------|-------|-------|-------|
| Lane Group           | EBT   | WBL   | WBT   | NBL   | NBR   |
| Lane Configurations  | ↑↑    | ↖     | ↑↑    | ↖     | ↗     |
| Traffic Volume (vph) | 356   | 88    | 710   | 391   | 87    |
| Future Volume (vph)  | 356   | 88    | 710   | 391   | 87    |
| Turn Type            | NA    | pm+pt | NA    | Prot  | Perm  |
| Protected Phases     | 4     | 3     | 8     | 2     |       |
| Permitted Phases     |       | 8     |       |       | 2     |
| Detector Phase       | 4     | 3     | 8     | 2     | 2     |
| Switch Phase         |       |       |       |       |       |
| Minimum Initial (s)  | 5.0   | 5.0   | 5.0   | 5.0   | 5.0   |
| Minimum Split (s)    | 22.5  | 9.5   | 22.5  | 22.5  | 22.5  |
| Total Split (s)      | 40.0  | 17.0  | 57.0  | 63.0  | 63.0  |
| Total Split (%)      | 33.3% | 14.2% | 47.5% | 52.5% | 52.5% |
| Yellow Time (s)      | 3.5   | 3.5   | 3.5   | 3.5   | 3.5   |
| All-Red Time (s)     | 1.0   | 1.0   | 1.0   | 1.0   | 1.0   |
| Lost Time Adjust (s) | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| Total Lost Time (s)  | 4.5   | 4.5   | 4.5   | 4.5   | 4.5   |
| Lead/Lag             | Lag   | Lead  |       |       |       |
| Lead-Lag Optimize?   | Yes   | Yes   |       |       |       |
| Recall Mode          | None  | None  | None  | Max   | Max   |
| Act Effect Green (s) | 22.7  | 33.9  | 33.9  | 58.9  | 58.9  |
| Actuated g/C Ratio   | 0.22  | 0.33  | 0.33  | 0.58  | 0.58  |
| v/c Ratio            | 0.70  | 0.39  | 0.66  | 0.42  | 0.10  |
| Control Delay        | 38.2  | 27.7  | 31.3  | 15.1  | 3.0   |
| Queue Delay          | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| Total Delay          | 38.2  | 27.7  | 31.3  | 15.1  | 3.0   |
| LOS                  | D     | C     | C     | B     | A     |
| Approach Delay       | 38.2  |       | 30.9  | 12.9  |       |
| Approach LOS         | D     |       | C     | B     |       |

### Intersection Summary

Cycle Length: 120

Actuated Cycle Length: 101.9

Natural Cycle: 55

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 0.70

Intersection Signal Delay: 28.2

Intersection LOS: C

Intersection Capacity Utilization 52.8%

ICU Level of Service A

Analysis Period (min) 15

Splits and Phases: 1: W Meadows & Midland Ave

|      |      |      |
|------|------|------|
| ↖ 02 | ↖ 03 | → 04 |
| 63 s | 17 s | 40 s |
|      | ↖ 08 |      |
|      | 57 s |      |



HCM 6th Signalized Intersection Summary  
1: W Meadows & Midland Ave

2040 Total PM.syn  
02/25/2021

|                              |  |  |  |  |  |  |
|------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|
| Movement                     | EBT                                                                               | EBR                                                                               | WBL                                                                               | WBT                                                                               | NBL                                                                               | NBR                                                                               |
| Lane Configurations          | ↑↑                                                                                |                                                                                   | ↵                                                                                 | ↑↑                                                                                | ↵                                                                                 | ↵                                                                                 |
| Traffic Volume (veh/h)       | 356                                                                               | 162                                                                               | 88                                                                                | 710                                                                               | 391                                                                               | 87                                                                                |
| Future Volume (veh/h)        | 356                                                                               | 162                                                                               | 88                                                                                | 710                                                                               | 391                                                                               | 87                                                                                |
| Initial Q (Qb), veh          | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 |
| Ped-Bike Adj(A_pbT)          |                                                                                   | 1.00                                                                              | 1.00                                                                              |                                                                                   | 1.00                                                                              | 1.00                                                                              |
| Parking Bus, Adj             | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              |
| Work Zone On Approach        | No                                                                                |                                                                                   |                                                                                   | No                                                                                | No                                                                                |                                                                                   |
| Adj Sat Flow, veh/h/ln       | 1870                                                                              | 1870                                                                              | 1870                                                                              | 1870                                                                              | 1870                                                                              | 1870                                                                              |
| Adj Flow Rate, veh/h         | 387                                                                               | 176                                                                               | 96                                                                                | 772                                                                               | 425                                                                               | 95                                                                                |
| Peak Hour Factor             | 0.92                                                                              | 0.92                                                                              | 0.92                                                                              | 0.92                                                                              | 0.92                                                                              | 0.92                                                                              |
| Percent Heavy Veh, %         | 2                                                                                 | 2                                                                                 | 2                                                                                 | 2                                                                                 | 2                                                                                 | 2                                                                                 |
| Cap, veh/h                   | 501                                                                               | 225                                                                               | 222                                                                               | 1113                                                                              | 1060                                                                              | 943                                                                               |
| Arrive On Green              | 0.21                                                                              | 0.21                                                                              | 0.06                                                                              | 0.31                                                                              | 0.60                                                                              | 0.60                                                                              |
| Sat Flow, veh/h              | 2478                                                                              | 1070                                                                              | 1781                                                                              | 3647                                                                              | 1781                                                                              | 1585                                                                              |
| Grp Volume(v), veh/h         | 287                                                                               | 276                                                                               | 96                                                                                | 772                                                                               | 425                                                                               | 95                                                                                |
| Grp Sat Flow(s),veh/h/ln     | 1777                                                                              | 1678                                                                              | 1781                                                                              | 1777                                                                              | 1781                                                                              | 1585                                                                              |
| Q Serve(g_s), s              | 15.0                                                                              | 15.3                                                                              | 4.0                                                                               | 18.7                                                                              | 12.5                                                                              | 2.5                                                                               |
| Cycle Q Clear(g_c), s        | 15.0                                                                              | 15.3                                                                              | 4.0                                                                               | 18.7                                                                              | 12.5                                                                              | 2.5                                                                               |
| Prop In Lane                 |                                                                                   | 0.64                                                                              | 1.00                                                                              |                                                                                   | 1.00                                                                              | 1.00                                                                              |
| Lane Grp Cap(c), veh/h       | 373                                                                               | 352                                                                               | 222                                                                               | 1113                                                                              | 1060                                                                              | 943                                                                               |
| V/C Ratio(X)                 | 0.77                                                                              | 0.78                                                                              | 0.43                                                                              | 0.69                                                                              | 0.40                                                                              | 0.10                                                                              |
| Avail Cap(c_a), veh/h        | 642                                                                               | 606                                                                               | 346                                                                               | 1898                                                                              | 1060                                                                              | 943                                                                               |
| HCM Platoon Ratio            | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              |
| Upstream Filter(I)           | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              |
| Uniform Delay (d), s/veh     | 36.6                                                                              | 36.7                                                                              | 28.1                                                                              | 29.6                                                                              | 10.6                                                                              | 8.6                                                                               |
| Incr Delay (d2), s/veh       | 3.4                                                                               | 3.8                                                                               | 1.3                                                                               | 0.8                                                                               | 1.1                                                                               | 0.2                                                                               |
| Initial Q Delay(d3),s/veh    | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               |
| %ile BackOfQ(50%),veh/ln     | 6.7                                                                               | 6.5                                                                               | 1.8                                                                               | 7.9                                                                               | 4.9                                                                               | 0.9                                                                               |
| Unsig. Movement Delay, s/veh |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |
| LnGrp Delay(d),s/veh         | 39.9                                                                              | 40.6                                                                              | 29.4                                                                              | 30.4                                                                              | 11.7                                                                              | 8.8                                                                               |
| LnGrp LOS                    | D                                                                                 | D                                                                                 | C                                                                                 | C                                                                                 | B                                                                                 | A                                                                                 |
| Approach Vol, veh/h          | 563                                                                               |                                                                                   |                                                                                   | 868                                                                               | 520                                                                               |                                                                                   |
| Approach Delay, s/veh        | 40.2                                                                              |                                                                                   |                                                                                   | 30.3                                                                              | 11.2                                                                              |                                                                                   |
| Approach LOS                 | D                                                                                 |                                                                                   |                                                                                   | C                                                                                 | B                                                                                 |                                                                                   |
| Timer - Assigned Phs         | 2                                                                                 |                                                                                   | 3                                                                                 | 4                                                                                 | 8                                                                                 |                                                                                   |
| Phs Duration (G+Y+Rc), s     | 63.0                                                                              |                                                                                   | 10.1                                                                              | 25.1                                                                              | 35.3                                                                              |                                                                                   |
| Change Period (Y+Rc), s      | 4.5                                                                               |                                                                                   | 4.5                                                                               | 4.5                                                                               | 4.5                                                                               |                                                                                   |
| Max Green Setting (Gmax), s  | 58.5                                                                              |                                                                                   | 12.5                                                                              | 35.5                                                                              | 52.5                                                                              |                                                                                   |
| Max Q Clear Time (g_c+l1), s | 14.5                                                                              |                                                                                   | 6.0                                                                               | 17.3                                                                              | 20.7                                                                              |                                                                                   |
| Green Ext Time (p_c), s      | 1.7                                                                               |                                                                                   | 0.1                                                                               | 3.3                                                                               | 6.2                                                                               |                                                                                   |
| Intersection Summary         |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |
| HCM 6th Ctrl Delay           |                                                                                   |                                                                                   | 28.1                                                                              |                                                                                   |                                                                                   |                                                                                   |
| HCM 6th LOS                  |                                                                                   |                                                                                   | C                                                                                 |                                                                                   |                                                                                   |                                                                                   |

| Intersection             |            |       |       |        |      |       |        |       |       |        |       |       |
|--------------------------|------------|-------|-------|--------|------|-------|--------|-------|-------|--------|-------|-------|
| Int Delay, s/veh         | 3          |       |       |        |      |       |        |       |       |        |       |       |
| Movement                 | EBL        | EBT   | EBR   | WBL    | WBT  | WBR   | NBL    | NBT   | NBR   | SBL    | SBT   | SBR   |
| Lane Configurations      |            | ↕     |       |        | ↕    |       | ↕      | ↕     |       |        | ↕     |       |
| Traffic Vol, veh/h       | 6          | 87    | 4     | 7      | 27   | 0     | 13     | 1     | 25    | 4      | 4     | 1     |
| Future Vol, veh/h        | 6          | 87    | 4     | 7      | 27   | 0     | 13     | 1     | 25    | 4      | 4     | 1     |
| Conflicting Peds, #/hr   | 0          | 0     | 0     | 0      | 0    | 0     | 0      | 0     | 0     | 0      | 0     | 0     |
| Sign Control             | Free       | Free  | Free  | Free   | Free | Free  | Stop   | Stop  | Stop  | Stop   | Stop  | Stop  |
| RT Channelized           | -          | -     | None  | -      | -    | None  | -      | -     | None  | -      | -     | None  |
| Storage Length           | -          | -     | -     | -      | -    | -     | 0      | -     | -     | -      | -     | -     |
| Veh in Median Storage, # | -          | 0     | -     | -      | 0    | -     | -      | 0     | -     | -      | 0     | -     |
| Grade, %                 | -          | 0     | -     | -      | 0    | -     | -      | 0     | -     | -      | 0     | -     |
| Peak Hour Factor         | 51         | 51    | 51    | 61     | 61   | 61    | 60     | 60    | 60    | 58     | 58    | 58    |
| Heavy Vehicles, %        | 2          | 2     | 2     | 2      | 2    | 2     | 2      | 2     | 2     | 2      | 2     | 2     |
| Mvmt Flow                | 12         | 171   | 8     | 11     | 44   | 0     | 22     | 2     | 42    | 7      | 7     | 2     |
| Major/Minor              | Major1     |       |       | Major2 |      |       | Minor1 |       |       | Minor2 |       |       |
| Conflicting Flow All     | 44         | 0     | 0     | 179    | 0    | 0     | 270    | 265   | 175   | 287    | 269   | 44    |
| Stage 1                  | -          | -     | -     | -      | -    | -     | 199    | 199   | -     | 66     | 66    | -     |
| Stage 2                  | -          | -     | -     | -      | -    | -     | 71     | 66    | -     | 221    | 203   | -     |
| Critical Hdwy            | 4.12       | -     | -     | 4.12   | -    | -     | 7.12   | 6.52  | 6.22  | 7.12   | 6.52  | 6.22  |
| Critical Hdwy Stg 1      | -          | -     | -     | -      | -    | -     | 6.12   | 5.52  | -     | 6.12   | 5.52  | -     |
| Critical Hdwy Stg 2      | -          | -     | -     | -      | -    | -     | 6.12   | 5.52  | -     | 6.12   | 5.52  | -     |
| Follow-up Hdwy           | 2.218      | -     | -     | 2.218  | -    | -     | 3.518  | 4.018 | 3.318 | 3.518  | 4.018 | 3.318 |
| Pot Cap-1 Maneuver       | 1564       | -     | -     | 1397   | -    | -     | 683    | 640   | 868   | 665    | 637   | 1026  |
| Stage 1                  | -          | -     | -     | -      | -    | -     | 803    | 736   | -     | 945    | 840   | -     |
| Stage 2                  | -          | -     | -     | -      | -    | -     | 939    | 840   | -     | 781    | 733   | -     |
| Platoon blocked, %       | -          | -     | -     | -      | -    | -     | -      | -     | -     | -      | -     | -     |
| Mov Cap-1 Maneuver       | 1564       | -     | -     | 1397   | -    | -     | 667    | 629   | 868   | 624    | 626   | 1026  |
| Mov Cap-2 Maneuver       | -          | -     | -     | -      | -    | -     | 667    | 629   | -     | 624    | 626   | -     |
| Stage 1                  | -          | -     | -     | -      | -    | -     | 796    | 729   | -     | 936    | 833   | -     |
| Stage 2                  | -          | -     | -     | -      | -    | -     | 922    | 833   | -     | 735    | 726   | -     |
| Approach                 | EB         |       |       | WB     |      |       | NB     |       |       | SB     |       |       |
| HCM Control Delay, s     | 0.5        |       |       | 1.6    |      |       | 9.8    |       |       | 10.6   |       |       |
| HCM LOS                  |            |       |       |        |      |       | A      |       |       | B      |       |       |
| Minor Lane/Major Mvmt    | NBLn1NBLn2 |       | EBL   | EBT    | EBR  | WBL   | WBT    | WBR   | SBLn1 |        |       |       |
| Capacity (veh/h)         | 667        | 855   | 1564  | -      | -    | 1397  | -      | -     | 653   |        |       |       |
| HCM Lane V/C Ratio       | 0.032      | 0.051 | 0.008 | -      | -    | 0.008 | -      | -     | 0.024 |        |       |       |
| HCM Control Delay (s)    | 10.6       | 9.4   | 7.3   | 0      | -    | 7.6   | 0      | -     | 10.6  |        |       |       |
| HCM Lane LOS             | B          | A     | A     | A      | -    | A     | A      | -     | B     |        |       |       |
| HCM 95th %tile Q(veh)    | 0.1        | 0.2   | 0     | -      | -    | 0     | -      | -     | 0.1   |        |       |       |

| Intersection             |            |       |       |        |      |       |        |       |       |        |       |       |
|--------------------------|------------|-------|-------|--------|------|-------|--------|-------|-------|--------|-------|-------|
| Int Delay, s/veh         | 3.7        |       |       |        |      |       |        |       |       |        |       |       |
| Movement                 | EBL        | EBT   | EBR   | WBL    | WBT  | WBR   | NBL    | NBT   | NBR   | SBL    | SBT   | SBR   |
| Lane Configurations      |            | ↕     |       |        | ↕    |       | ↕      | ↕     |       |        | ↕     |       |
| Traffic Vol, veh/h       | 8          | 43    | 6     | 25     | 97   | 31    | 6      | 6     | 13    | 21     | 6     | 14    |
| Future Vol, veh/h        | 8          | 43    | 6     | 25     | 97   | 31    | 6      | 6     | 13    | 21     | 6     | 14    |
| Conflicting Peds, #/hr   | 0          | 0     | 0     | 0      | 0    | 0     | 0      | 0     | 0     | 0      | 0     | 0     |
| Sign Control             | Free       | Free  | Free  | Free   | Free | Free  | Stop   | Stop  | Stop  | Stop   | Stop  | Stop  |
| RT Channelized           | -          | -     | None  | -      | -    | None  | -      | -     | None  | -      | -     | None  |
| Storage Length           | -          | -     | -     | -      | -    | -     | 0      | -     | -     | -      | -     | -     |
| Veh in Median Storage, # | -          | 0     | -     | -      | 0    | -     | -      | 0     | -     | -      | 0     | -     |
| Grade, %                 | -          | 0     | -     | -      | 0    | -     | -      | 0     | -     | -      | 0     | -     |
| Peak Hour Factor         | 70         | 70    | 70    | 93     | 93   | 93    | 61     | 61    | 61    | 75     | 75    | 75    |
| Heavy Vehicles, %        | 2          | 2     | 2     | 2      | 2    | 2     | 2      | 2     | 2     | 2      | 2     | 2     |
| Mvmt Flow                | 11         | 61    | 9     | 27     | 104  | 33    | 10     | 10    | 21    | 28     | 8     | 19    |
| Major/Minor              | Major1     |       |       | Major2 |      |       | Minor1 |       |       | Minor2 |       |       |
| Conflicting Flow All     | 137        | 0     | 0     | 70     | 0    | 0     | 276    | 279   | 66    | 278    | 267   | 121   |
| Stage 1                  | -          | -     | -     | -      | -    | -     | 88     | 88    | -     | 175    | 175   | -     |
| Stage 2                  | -          | -     | -     | -      | -    | -     | 188    | 191   | -     | 103    | 92    | -     |
| Critical Hdwy            | 4.12       | -     | -     | 4.12   | -    | -     | 7.12   | 6.52  | 6.22  | 7.12   | 6.52  | 6.22  |
| Critical Hdwy Stg 1      | -          | -     | -     | -      | -    | -     | 6.12   | 5.52  | -     | 6.12   | 5.52  | -     |
| Critical Hdwy Stg 2      | -          | -     | -     | -      | -    | -     | 6.12   | 5.52  | -     | 6.12   | 5.52  | -     |
| Follow-up Hdwy           | 2.218      | -     | -     | 2.218  | -    | -     | 3.518  | 4.018 | 3.318 | 3.518  | 4.018 | 3.318 |
| Pot Cap-1 Maneuver       | 1447       | -     | -     | 1531   | -    | -     | 676    | 629   | 998   | 674    | 639   | 930   |
| Stage 1                  | -          | -     | -     | -      | -    | -     | 920    | 822   | -     | 827    | 754   | -     |
| Stage 2                  | -          | -     | -     | -      | -    | -     | 814    | 742   | -     | 903    | 819   | -     |
| Platoon blocked, %       | -          | -     | -     | -      | -    | -     | -      | -     | -     | -      | -     | -     |
| Mov Cap-1 Maneuver       | 1447       | -     | -     | 1531   | -    | -     | 642    | 612   | 998   | 638    | 622   | 930   |
| Mov Cap-2 Maneuver       | -          | -     | -     | -      | -    | -     | 642    | 612   | -     | 638    | 622   | -     |
| Stage 1                  | -          | -     | -     | -      | -    | -     | 913    | 815   | -     | 820    | 740   | -     |
| Stage 2                  | -          | -     | -     | -      | -    | -     | 774    | 728   | -     | 866    | 812   | -     |
| Approach                 | EB         |       |       | WB     |      |       | NB     |       |       | SB     |       |       |
| HCM Control Delay, s     | 1.1        |       |       | 1.2    |      |       | 9.8    |       |       | 10.5   |       |       |
| HCM LOS                  |            |       |       |        |      |       | A      |       |       | B      |       |       |
| Minor Lane/Major Mvmt    | NBLn1NBLn2 |       | EBL   | EBT    | EBR  | WBL   | WBT    | WBR   | SBLn1 |        |       |       |
| Capacity (veh/h)         | 642        | 832   | 1447  | -      | -    | 1531  | -      | -     | 712   |        |       |       |
| HCM Lane V/C Ratio       | 0.015      | 0.037 | 0.008 | -      | -    | 0.018 | -      | -     | 0.077 |        |       |       |
| HCM Control Delay (s)    | 10.7       | 9.5   | 7.5   | 0      | -    | 7.4   | 0      | -     | 10.5  |        |       |       |
| HCM Lane LOS             | B          | A     | A     | A      | -    | A     | A      | -     | B     |        |       |       |
| HCM 95th %tile Q(veh)    | 0          | 0.1   | 0     | -      | -    | 0.1   | -      | -     | 0.2   |        |       |       |

| Intersection             |            |       |       |        |      |       |        |       |       |        |       |       |
|--------------------------|------------|-------|-------|--------|------|-------|--------|-------|-------|--------|-------|-------|
| Int Delay, s/veh         | 3.1        |       |       |        |      |       |        |       |       |        |       |       |
| Movement                 | EBL        | EBT   | EBR   | WBL    | WBT  | WBR   | NBL    | NBT   | NBR   | SBL    | SBT   | SBR   |
| Lane Configurations      |            | ↕     |       |        | ↕    |       | ↕      | ↕     |       |        | ↕     |       |
| Traffic Vol, veh/h       | 6          | 91    | 4     | 7      | 28   | 2     | 13     | 1     | 26    | 9      | 4     | 1     |
| Future Vol, veh/h        | 6          | 91    | 4     | 7      | 28   | 2     | 13     | 1     | 26    | 9      | 4     | 1     |
| Conflicting Peds, #/hr   | 0          | 0     | 0     | 0      | 0    | 0     | 0      | 0     | 0     | 0      | 0     | 0     |
| Sign Control             | Free       | Free  | Free  | Free   | Free | Free  | Stop   | Stop  | Stop  | Stop   | Stop  | Stop  |
| RT Channelized           | -          | -     | None  | -      | -    | None  | -      | -     | None  | -      | -     | None  |
| Storage Length           | -          | -     | -     | -      | -    | -     | 0      | -     | -     | -      | -     | -     |
| Veh in Median Storage, # | -          | 0     | -     | -      | 0    | -     | -      | 0     | -     | -      | 0     | -     |
| Grade, %                 | -          | 0     | -     | -      | 0    | -     | -      | 0     | -     | -      | 0     | -     |
| Peak Hour Factor         | 51         | 51    | 51    | 61     | 61   | 61    | 60     | 60    | 60    | 58     | 58    | 58    |
| Heavy Vehicles, %        | 2          | 2     | 2     | 2      | 2    | 2     | 2      | 2     | 2     | 2      | 2     | 2     |
| Mvmt Flow                | 12         | 178   | 8     | 11     | 46   | 3     | 22     | 2     | 43    | 16     | 7     | 2     |
| Major/Minor              | Major1     |       |       | Major2 |      |       | Minor1 |       |       | Minor2 |       |       |
| Conflicting Flow All     | 49         | 0     | 0     | 186    | 0    | 0     | 280    | 277   | 182   | 299    | 280   | 48    |
| Stage 1                  | -          | -     | -     | -      | -    | -     | 206    | 206   | -     | 70     | 70    | -     |
| Stage 2                  | -          | -     | -     | -      | -    | -     | 74     | 71    | -     | 229    | 210   | -     |
| Critical Hdwy            | 4.12       | -     | -     | 4.12   | -    | -     | 7.12   | 6.52  | 6.22  | 7.12   | 6.52  | 6.22  |
| Critical Hdwy Stg 1      | -          | -     | -     | -      | -    | -     | 6.12   | 5.52  | -     | 6.12   | 5.52  | -     |
| Critical Hdwy Stg 2      | -          | -     | -     | -      | -    | -     | 6.12   | 5.52  | -     | 6.12   | 5.52  | -     |
| Follow-up Hdwy           | 2.218      | -     | -     | 2.218  | -    | -     | 3.518  | 4.018 | 3.318 | 3.518  | 4.018 | 3.318 |
| Pot Cap-1 Maneuver       | 1558       | -     | -     | 1388   | -    | -     | 672    | 631   | 861   | 653    | 628   | 1021  |
| Stage 1                  | -          | -     | -     | -      | -    | -     | 796    | 731   | -     | 940    | 837   | -     |
| Stage 2                  | -          | -     | -     | -      | -    | -     | 935    | 836   | -     | 774    | 728   | -     |
| Platoon blocked, %       | -          | -     | -     | -      | -    | -     | -      | -     | -     | -      | -     | -     |
| Mov Cap-1 Maneuver       | 1558       | -     | -     | 1388   | -    | -     | 657    | 620   | 861   | 611    | 617   | 1021  |
| Mov Cap-2 Maneuver       | -          | -     | -     | -      | -    | -     | 657    | 620   | -     | 611    | 617   | -     |
| Stage 1                  | -          | -     | -     | -      | -    | -     | 789    | 724   | -     | 932    | 830   | -     |
| Stage 2                  | -          | -     | -     | -      | -    | -     | 918    | 829   | -     | 727    | 721   | -     |
| Approach                 | EB         |       |       | WB     |      |       | NB     |       |       | SB     |       |       |
| HCM Control Delay, s     | 0.4        |       |       | 1.4    |      |       | 9.9    |       |       | 10.9   |       |       |
| HCM LOS                  |            |       |       |        |      |       | A      |       |       | B      |       |       |
| Minor Lane/Major Mvmt    | NBLn1NBLn2 |       | EBL   | EBT    | EBR  | WBL   | WBT    | WBR   | SBLn1 |        |       |       |
| Capacity (veh/h)         | 657        | 849   | 1558  | -      | -    | 1388  | -      | -     | 631   |        |       |       |
| HCM Lane V/C Ratio       | 0.033      | 0.053 | 0.008 | -      | -    | 0.008 | -      | -     | 0.038 |        |       |       |
| HCM Control Delay (s)    | 10.7       | 9.5   | 7.3   | 0      | -    | 7.6   | 0      | -     | 10.9  |        |       |       |
| HCM Lane LOS             | B          | A     | A     | A      | -    | A     | A      | -     | B     |        |       |       |
| HCM 95th %tile Q(veh)    | 0.1        | 0.2   | 0     | -      | -    | 0     | -      | -     | 0.1   |        |       |       |

| Intersection             |            |       |       |        |      |       |        |       |       |        |       |       |
|--------------------------|------------|-------|-------|--------|------|-------|--------|-------|-------|--------|-------|-------|
| Int Delay, s/veh         | 3.7        |       |       |        |      |       |        |       |       |        |       |       |
| Movement                 | EBL        | EBT   | EBR   | WBL    | WBT  | WBR   | NBL    | NBT   | NBR   | SBL    | SBT   | SBR   |
| Lane Configurations      |            | ↕     |       |        | ↕    |       | ↕      | ↕     |       |        | ↕     |       |
| Traffic Vol, veh/h       | 8          | 46    | 6     | 26     | 102  | 37    | 6      | 6     | 13    | 25     | 6     | 14    |
| Future Vol, veh/h        | 8          | 46    | 6     | 26     | 102  | 37    | 6      | 6     | 13    | 25     | 6     | 14    |
| Conflicting Peds, #/hr   | 0          | 0     | 0     | 0      | 0    | 0     | 0      | 0     | 0     | 0      | 0     | 0     |
| Sign Control             | Free       | Free  | Free  | Free   | Free | Free  | Stop   | Stop  | Stop  | Stop   | Stop  | Stop  |
| RT Channelized           | -          | -     | None  | -      | -    | None  | -      | -     | None  | -      | -     | None  |
| Storage Length           | -          | -     | -     | -      | -    | -     | 0      | -     | -     | -      | -     | -     |
| Veh in Median Storage, # | -          | 0     | -     | -      | 0    | -     | -      | 0     | -     | -      | 0     | -     |
| Grade, %                 | -          | 0     | -     | -      | 0    | -     | -      | 0     | -     | -      | 0     | -     |
| Peak Hour Factor         | 70         | 70    | 70    | 93     | 93   | 93    | 61     | 61    | 61    | 75     | 75    | 75    |
| Heavy Vehicles, %        | 2          | 2     | 2     | 2      | 2    | 2     | 2      | 2     | 2     | 2      | 2     | 2     |
| Mvmt Flow                | 11         | 66    | 9     | 28     | 110  | 40    | 10     | 10    | 21    | 33     | 8     | 19    |
| Major/Minor              | Major1     |       |       | Major2 |      |       | Minor1 |       |       | Minor2 |       |       |
| Conflicting Flow All     | 150        | 0     | 0     | 75     | 0    | 0     | 293    | 299   | 71    | 294    | 283   | 130   |
| Stage 1                  | -          | -     | -     | -      | -    | -     | 93     | 93    | -     | 186    | 186   | -     |
| Stage 2                  | -          | -     | -     | -      | -    | -     | 200    | 206   | -     | 108    | 97    | -     |
| Critical Hdwy            | 4.12       | -     | -     | 4.12   | -    | -     | 7.12   | 6.52  | 6.22  | 7.12   | 6.52  | 6.22  |
| Critical Hdwy Stg 1      | -          | -     | -     | -      | -    | -     | 6.12   | 5.52  | -     | 6.12   | 5.52  | -     |
| Critical Hdwy Stg 2      | -          | -     | -     | -      | -    | -     | 6.12   | 5.52  | -     | 6.12   | 5.52  | -     |
| Follow-up Hdwy           | 2.218      | -     | -     | 2.218  | -    | -     | 3.518  | 4.018 | 3.318 | 3.518  | 4.018 | 3.318 |
| Pot Cap-1 Maneuver       | 1431       | -     | -     | 1524   | -    | -     | 659    | 613   | 991   | 658    | 626   | 920   |
| Stage 1                  | -          | -     | -     | -      | -    | -     | 914    | 818   | -     | 816    | 746   | -     |
| Stage 2                  | -          | -     | -     | -      | -    | -     | 802    | 731   | -     | 897    | 815   | -     |
| Platoon blocked, %       | -          | -     | -     | -      | -    | -     | -      | -     | -     | -      | -     | -     |
| Mov Cap-1 Maneuver       | 1431       | -     | -     | 1524   | -    | -     | 625    | 596   | 991   | 622    | 608   | 920   |
| Mov Cap-2 Maneuver       | -          | -     | -     | -      | -    | -     | 625    | 596   | -     | 622    | 608   | -     |
| Stage 1                  | -          | -     | -     | -      | -    | -     | 907    | 811   | -     | 809    | 731   | -     |
| Stage 2                  | -          | -     | -     | -      | -    | -     | 762    | 716   | -     | 860    | 808   | -     |
| Approach                 | EB         |       |       | WB     |      |       | NB     |       |       | SB     |       |       |
| HCM Control Delay, s     | 1          |       |       | 1.2    |      |       | 9.9    |       |       | 10.7   |       |       |
| HCM LOS                  |            |       |       |        |      |       | A      |       |       | B      |       |       |
| Minor Lane/Major Mvmt    | NBLn1NBLn2 |       | EBL   | EBT    | EBR  | WBL   | WBT    | WBR   | SBLn1 |        |       |       |
| Capacity (veh/h)         | 625        | 819   | 1431  | -      | -    | 1524  | -      | -     | 689   |        |       |       |
| HCM Lane V/C Ratio       | 0.016      | 0.038 | 0.008 | -      | -    | 0.018 | -      | -     | 0.087 |        |       |       |
| HCM Control Delay (s)    | 10.9       | 9.6   | 7.5   | 0      | -    | 7.4   | 0      | -     | 10.7  |        |       |       |
| HCM Lane LOS             | B          | A     | A     | A      | -    | A     | A      | -     | B     |        |       |       |
| HCM 95th %tile Q(veh)    | 0          | 0.1   | 0     | -      | -    | 0.1   | -      | -     | 0.3   |        |       |       |

| Intersection             |            |       |       |        |      |       |        |       |       |        |       |       |
|--------------------------|------------|-------|-------|--------|------|-------|--------|-------|-------|--------|-------|-------|
| Int Delay, s/veh         | 3.2        |       |       |        |      |       |        |       |       |        |       |       |
| Movement                 | EBL        | EBT   | EBR   | WBL    | WBT  | WBR   | NBL    | NBT   | NBR   | SBL    | SBT   | SBR   |
| Lane Configurations      |            | ↕     |       |        | ↕    |       | ↕      | ↕     |       |        | ↕     |       |
| Traffic Vol, veh/h       | 6          | 92    | 4     | 7      | 29   | 4     | 13     | 1     | 26    | 12     | 4     | 1     |
| Future Vol, veh/h        | 6          | 92    | 4     | 7      | 29   | 4     | 13     | 1     | 26    | 12     | 4     | 1     |
| Conflicting Peds, #/hr   | 0          | 0     | 0     | 0      | 0    | 0     | 0      | 0     | 0     | 0      | 0     | 0     |
| Sign Control             | Free       | Free  | Free  | Free   | Free | Free  | Stop   | Stop  | Stop  | Stop   | Stop  | Stop  |
| RT Channelized           | -          | -     | None  | -      | -    | None  | -      | -     | None  | -      | -     | None  |
| Storage Length           | -          | -     | -     | -      | -    | -     | 0      | -     | -     | -      | -     | -     |
| Veh in Median Storage, # | -          | 0     | -     | -      | 0    | -     | -      | 0     | -     | -      | 0     | -     |
| Grade, %                 | -          | 0     | -     | -      | 0    | -     | -      | 0     | -     | -      | 0     | -     |
| Peak Hour Factor         | 51         | 51    | 51    | 61     | 61   | 61    | 60     | 60    | 60    | 58     | 58    | 58    |
| Heavy Vehicles, %        | 2          | 2     | 2     | 2      | 2    | 2     | 2      | 2     | 2     | 2      | 2     | 2     |
| Mvmt Flow                | 12         | 180   | 8     | 11     | 48   | 7     | 22     | 2     | 43    | 21     | 7     | 2     |
| Major/Minor              | Major1     |       |       | Major2 |      |       | Minor1 |       |       | Minor2 |       |       |
| Conflicting Flow All     | 55         | 0     | 0     | 188    | 0    | 0     | 286    | 285   | 184   | 305    | 286   | 52    |
| Stage 1                  | -          | -     | -     | -      | -    | -     | 208    | 208   | -     | 74     | 74    | -     |
| Stage 2                  | -          | -     | -     | -      | -    | -     | 78     | 77    | -     | 231    | 212   | -     |
| Critical Hdwy            | 4.12       | -     | -     | 4.12   | -    | -     | 7.12   | 6.52  | 6.22  | 7.12   | 6.52  | 6.22  |
| Critical Hdwy Stg 1      | -          | -     | -     | -      | -    | -     | 6.12   | 5.52  | -     | 6.12   | 5.52  | -     |
| Critical Hdwy Stg 2      | -          | -     | -     | -      | -    | -     | 6.12   | 5.52  | -     | 6.12   | 5.52  | -     |
| Follow-up Hdwy           | 2.218      | -     | -     | 2.218  | -    | -     | 3.518  | 4.018 | 3.318 | 3.518  | 4.018 | 3.318 |
| Pot Cap-1 Maneuver       | 1550       | -     | -     | 1386   | -    | -     | 666    | 624   | 858   | 647    | 623   | 1016  |
| Stage 1                  | -          | -     | -     | -      | -    | -     | 794    | 730   | -     | 935    | 833   | -     |
| Stage 2                  | -          | -     | -     | -      | -    | -     | 931    | 831   | -     | 772    | 727   | -     |
| Platoon blocked, %       | -          | -     | -     | -      | -    | -     | -      | -     | -     | -      | -     | -     |
| Mov Cap-1 Maneuver       | 1550       | -     | -     | 1386   | -    | -     | 651    | 613   | 858   | 605    | 612   | 1016  |
| Mov Cap-2 Maneuver       | -          | -     | -     | -      | -    | -     | 651    | 613   | -     | 605    | 612   | -     |
| Stage 1                  | -          | -     | -     | -      | -    | -     | 787    | 723   | -     | 927    | 826   | -     |
| Stage 2                  | -          | -     | -     | -      | -    | -     | 914    | 824   | -     | 725    | 720   | -     |
| Approach                 | EB         |       |       | WB     |      |       | NB     |       |       | SB     |       |       |
| HCM Control Delay, s     | 0.4        |       |       | 1.3    |      |       | 9.9    |       |       | 11.1   |       |       |
| HCM LOS                  |            |       |       |        |      |       | A      |       |       | B      |       |       |
| Minor Lane/Major Mvmt    | NBLn1NBLn2 |       | EBL   | EBT    | EBR  | WBL   | WBT    | WBR   | SBLn1 |        |       |       |
| Capacity (veh/h)         | 651        | 845   | 1550  | -      | -    | 1386  | -      | -     | 621   |        |       |       |
| HCM Lane V/C Ratio       | 0.033      | 0.053 | 0.008 | -      | -    | 0.008 | -      | -     | 0.047 |        |       |       |
| HCM Control Delay (s)    | 10.7       | 9.5   | 7.3   | 0      | -    | 7.6   | 0      | -     | 11.1  |        |       |       |
| HCM Lane LOS             | B          | A     | A     | A      | -    | A     | A      | -     | B     |        |       |       |
| HCM 95th %tile Q(veh)    | 0.1        | 0.2   | 0     | -      | -    | 0     | -      | -     | 0.1   |        |       |       |

| Intersection             |            |       |       |        |      |       |        |       |       |        |       |       |
|--------------------------|------------|-------|-------|--------|------|-------|--------|-------|-------|--------|-------|-------|
| Int Delay, s/veh         | 3.8        |       |       |        |      |       |        |       |       |        |       |       |
| Movement                 | EBL        | EBT   | EBR   | WBL    | WBT  | WBR   | NBL    | NBT   | NBR   | SBL    | SBT   | SBR   |
| Lane Configurations      |            | ↕     |       |        | ↕    |       | ↕      | ↕     |       |        | ↕     |       |
| Traffic Vol, veh/h       | 8          | 51    | 6     | 26     | 108  | 48    | 6      | 6     | 13    | 34     | 6     | 14    |
| Future Vol, veh/h        | 8          | 51    | 6     | 26     | 108  | 48    | 6      | 6     | 13    | 34     | 6     | 14    |
| Conflicting Peds, #/hr   | 0          | 0     | 0     | 0      | 0    | 0     | 0      | 0     | 0     | 0      | 0     | 0     |
| Sign Control             | Free       | Free  | Free  | Free   | Free | Free  | Stop   | Stop  | Stop  | Stop   | Stop  | Stop  |
| RT Channelized           | -          | -     | None  | -      | -    | None  | -      | -     | None  | -      | -     | None  |
| Storage Length           | -          | -     | -     | -      | -    | -     | 0      | -     | -     | -      | -     | -     |
| Veh in Median Storage, # | -          | 0     | -     | -      | 0    | -     | -      | 0     | -     | -      | 0     | -     |
| Grade, %                 | -          | 0     | -     | -      | 0    | -     | -      | 0     | -     | -      | 0     | -     |
| Peak Hour Factor         | 70         | 70    | 70    | 93     | 93   | 93    | 61     | 61    | 61    | 75     | 75    | 75    |
| Heavy Vehicles, %        | 2          | 2     | 2     | 2      | 2    | 2     | 2      | 2     | 2     | 2      | 2     | 2     |
| Mvmt Flow                | 11         | 73    | 9     | 28     | 116  | 52    | 10     | 10    | 21    | 45     | 8     | 19    |
| Major/Minor              | Major1     |       |       | Major2 |      |       | Minor1 |       |       | Minor2 |       |       |
| Conflicting Flow All     | 168        | 0     | 0     | 82     | 0    | 0     | 312    | 324   | 78    | 313    | 302   | 142   |
| Stage 1                  | -          | -     | -     | -      | -    | -     | 100    | 100   | -     | 198    | 198   | -     |
| Stage 2                  | -          | -     | -     | -      | -    | -     | 212    | 224   | -     | 115    | 104   | -     |
| Critical Hdwy            | 4.12       | -     | -     | 4.12   | -    | -     | 7.12   | 6.52  | 6.22  | 7.12   | 6.52  | 6.22  |
| Critical Hdwy Stg 1      | -          | -     | -     | -      | -    | -     | 6.12   | 5.52  | -     | 6.12   | 5.52  | -     |
| Critical Hdwy Stg 2      | -          | -     | -     | -      | -    | -     | 6.12   | 5.52  | -     | 6.12   | 5.52  | -     |
| Follow-up Hdwy           | 2.218      | -     | -     | 2.218  | -    | -     | 3.518  | 4.018 | 3.318 | 3.518  | 4.018 | 3.318 |
| Pot Cap-1 Maneuver       | 1410       | -     | -     | 1515   | -    | -     | 641    | 594   | 983   | 640    | 611   | 906   |
| Stage 1                  | -          | -     | -     | -      | -    | -     | 906    | 812   | -     | 804    | 737   | -     |
| Stage 2                  | -          | -     | -     | -      | -    | -     | 790    | 718   | -     | 890    | 809   | -     |
| Platoon blocked, %       | -          | -     | -     | -      | -    | -     | -      | -     | -     | -      | -     | -     |
| Mov Cap-1 Maneuver       | 1410       | -     | -     | 1515   | -    | -     | 608    | 577   | 983   | 604    | 593   | 906   |
| Mov Cap-2 Maneuver       | -          | -     | -     | -      | -    | -     | 608    | 577   | -     | 604    | 593   | -     |
| Stage 1                  | -          | -     | -     | -      | -    | -     | 899    | 806   | -     | 798    | 722   | -     |
| Stage 2                  | -          | -     | -     | -      | -    | -     | 749    | 703   | -     | 853    | 803   | -     |
| Approach                 | EB         |       |       | WB     |      |       | NB     |       |       | SB     |       |       |
| HCM Control Delay, s     | 0.9        |       |       | 1.1    |      |       | 10     |       |       | 11.1   |       |       |
| HCM LOS                  |            |       |       |        |      |       | B      |       |       | B      |       |       |
| Minor Lane/Major Mvmt    | NBLn1NBLn2 |       | EBL   | EBT    | EBR  | WBL   | WBT    | WBR   | SBLn1 |        |       |       |
| Capacity (veh/h)         | 608        | 804   | 1410  | -      | -    | 1515  | -      | -     | 660   |        |       |       |
| HCM Lane V/C Ratio       | 0.016      | 0.039 | 0.008 | -      | -    | 0.018 | -      | -     | 0.109 |        |       |       |
| HCM Control Delay (s)    | 11         | 9.7   | 7.6   | 0      | -    | 7.4   | 0      | -     | 11.1  |        |       |       |
| HCM Lane LOS             | B          | A     | A     | A      | -    | A     | A      | -     | B     |        |       |       |
| HCM 95th %tile Q(veh)    | 0          | 0.1   | 0     | -      | -    | 0.1   | -      | -     | 0.4   |        |       |       |

| Intersection             |            |       |       |        |      |       |        |       |       |        |       |       |
|--------------------------|------------|-------|-------|--------|------|-------|--------|-------|-------|--------|-------|-------|
| Int Delay, s/veh         | 3.2        |       |       |        |      |       |        |       |       |        |       |       |
| Movement                 | EBL        | EBT   | EBR   | WBL    | WBT  | WBR   | NBL    | NBT   | NBR   | SBL    | SBT   | SBR   |
| Lane Configurations      |            | ↕     |       |        | ↕    |       | ↕      | ↕     |       |        | ↕     |       |
| Traffic Vol, veh/h       | 7          | 110   | 5     | 9      | 34   | 2     | 16     | 1     | 31    | 10     | 5     | 1     |
| Future Vol, veh/h        | 7          | 110   | 5     | 9      | 34   | 2     | 16     | 1     | 31    | 10     | 5     | 1     |
| Conflicting Peds, #/hr   | 0          | 0     | 0     | 0      | 0    | 0     | 0      | 0     | 0     | 0      | 0     | 0     |
| Sign Control             | Free       | Free  | Free  | Free   | Free | Free  | Stop   | Stop  | Stop  | Stop   | Stop  | Stop  |
| RT Channelized           | -          | -     | None  | -      | -    | None  | -      | -     | None  | -      | -     | None  |
| Storage Length           | -          | -     | -     | -      | -    | -     | 0      | -     | -     | -      | -     | -     |
| Veh in Median Storage, # | -          | 0     | -     | -      | 0    | -     | -      | 0     | -     | -      | 0     | -     |
| Grade, %                 | -          | 0     | -     | -      | 0    | -     | -      | 0     | -     | -      | 0     | -     |
| Peak Hour Factor         | 92         | 92    | 92    | 92     | 92   | 92    | 92     | 92    | 92    | 92     | 92    | 92    |
| Heavy Vehicles, %        | 2          | 2     | 2     | 2      | 2    | 2     | 2      | 2     | 2     | 2      | 2     | 2     |
| Mvmt Flow                | 8          | 120   | 5     | 10     | 37   | 2     | 17     | 1     | 34    | 11     | 5     | 1     |
| Major/Minor              | Major1     |       |       | Major2 |      |       | Minor1 |       |       | Minor2 |       |       |
| Conflicting Flow All     | 39         | 0     | 0     | 125    | 0    | 0     | 200    | 198   | 123   | 214    | 199   | 38    |
| Stage 1                  | -          | -     | -     | -      | -    | -     | 139    | 139   | -     | 58     | 58    | -     |
| Stage 2                  | -          | -     | -     | -      | -    | -     | 61     | 59    | -     | 156    | 141   | -     |
| Critical Hdwy            | 4.12       | -     | -     | 4.12   | -    | -     | 7.12   | 6.52  | 6.22  | 7.12   | 6.52  | 6.22  |
| Critical Hdwy Stg 1      | -          | -     | -     | -      | -    | -     | 6.12   | 5.52  | -     | 6.12   | 5.52  | -     |
| Critical Hdwy Stg 2      | -          | -     | -     | -      | -    | -     | 6.12   | 5.52  | -     | 6.12   | 5.52  | -     |
| Follow-up Hdwy           | 2.218      | -     | -     | 2.218  | -    | -     | 3.518  | 4.018 | 3.318 | 3.518  | 4.018 | 3.318 |
| Pot Cap-1 Maneuver       | 1571       | -     | -     | 1462   | -    | -     | 759    | 698   | 928   | 743    | 697   | 1034  |
| Stage 1                  | -          | -     | -     | -      | -    | -     | 864    | 782   | -     | 954    | 847   | -     |
| Stage 2                  | -          | -     | -     | -      | -    | -     | 950    | 846   | -     | 846    | 780   | -     |
| Platoon blocked, %       | -          | -     | -     | -      | -    | -     | -      | -     | -     | -      | -     | -     |
| Mov Cap-1 Maneuver       | 1571       | -     | -     | 1462   | -    | -     | 747    | 690   | 928   | 709    | 689   | 1034  |
| Mov Cap-2 Maneuver       | -          | -     | -     | -      | -    | -     | 747    | 690   | -     | 709    | 689   | -     |
| Stage 1                  | -          | -     | -     | -      | -    | -     | 860    | 778   | -     | 949    | 841   | -     |
| Stage 2                  | -          | -     | -     | -      | -    | -     | 936    | 840   | -     | 810    | 776   | -     |
| Approach                 | EB         |       |       | WB     |      |       | NB     |       |       | SB     |       |       |
| HCM Control Delay, s     | 0.4        |       |       | 1.5    |      |       | 9.4    |       |       | 10.1   |       |       |
| HCM LOS                  |            |       |       |        |      |       | A      |       |       | B      |       |       |
| Minor Lane/Major Mvmt    | NBLn1NBLn2 |       | EBL   | EBT    | EBR  | WBL   | WBT    | WBR   | SBLn1 |        |       |       |
| Capacity (veh/h)         | 747        | 918   | 1571  | -      | -    | 1462  | -      | -     | 717   |        |       |       |
| HCM Lane V/C Ratio       | 0.023      | 0.038 | 0.005 | -      | -    | 0.007 | -      | -     | 0.024 |        |       |       |
| HCM Control Delay (s)    | 9.9        | 9.1   | 7.3   | 0      | -    | 7.5   | 0      | -     | 10.1  |        |       |       |
| HCM Lane LOS             | A          | A     | A     | A      | -    | A     | A      | -     | B     |        |       |       |
| HCM 95th %tile Q(veh)    | 0.1        | 0.1   | 0     | -      | -    | 0     | -      | -     | 0.1   |        |       |       |



| Intersection             |            |       |       |        |      |       |        |       |       |        |       |       |
|--------------------------|------------|-------|-------|--------|------|-------|--------|-------|-------|--------|-------|-------|
| Int Delay, s/veh         | 3.4        |       |       |        |      |       |        |       |       |        |       |       |
| Movement                 | EBL        | EBT   | EBR   | WBL    | WBT  | WBR   | NBL    | NBT   | NBR   | SBL    | SBT   | SBR   |
| Lane Configurations      |            | ↕     |       |        | ↕    |       | ↕      | ↕     |       |        | ↕     |       |
| Traffic Vol, veh/h       | 10         | 55    | 7     | 31     | 123  | 43    | 7      | 7     | 16    | 29     | 7     | 17    |
| Future Vol, veh/h        | 10         | 55    | 7     | 31     | 123  | 43    | 7      | 7     | 16    | 29     | 7     | 17    |
| Conflicting Peds, #/hr   | 0          | 0     | 0     | 0      | 0    | 0     | 0      | 0     | 0     | 0      | 0     | 0     |
| Sign Control             | Free       | Free  | Free  | Free   | Free | Free  | Stop   | Stop  | Stop  | Stop   | Stop  | Stop  |
| RT Channelized           | -          | -     | None  | -      | -    | None  | -      | -     | None  | -      | -     | None  |
| Storage Length           | -          | -     | -     | -      | -    | -     | 0      | -     | -     | -      | -     | -     |
| Veh in Median Storage, # | -          | 0     | -     | -      | 0    | -     | -      | 0     | -     | -      | 0     | -     |
| Grade, %                 | -          | 0     | -     | -      | 0    | -     | -      | 0     | -     | -      | 0     | -     |
| Peak Hour Factor         | 92         | 92    | 92    | 93     | 93   | 93    | 92     | 92    | 92    | 92     | 92    | 92    |
| Heavy Vehicles, %        | 2          | 2     | 2     | 2      | 2    | 2     | 2      | 2     | 2     | 2      | 2     | 2     |
| Mvmt Flow                | 11         | 60    | 8     | 33     | 132  | 46    | 8      | 8     | 17    | 32     | 8     | 18    |
| Major/Minor              | Major1     |       |       | Major2 |      |       | Minor1 |       |       | Minor2 |       |       |
| Conflicting Flow All     | 178        | 0     | 0     | 68     | 0    | 0     | 320    | 330   | 64    | 320    | 311   | 155   |
| Stage 1                  | -          | -     | -     | -      | -    | -     | 86     | 86    | -     | 221    | 221   | -     |
| Stage 2                  | -          | -     | -     | -      | -    | -     | 234    | 244   | -     | 99     | 90    | -     |
| Critical Hdwy            | 4.12       | -     | -     | 4.12   | -    | -     | 7.12   | 6.52  | 6.22  | 7.12   | 6.52  | 6.22  |
| Critical Hdwy Stg 1      | -          | -     | -     | -      | -    | -     | 6.12   | 5.52  | -     | 6.12   | 5.52  | -     |
| Critical Hdwy Stg 2      | -          | -     | -     | -      | -    | -     | 6.12   | 5.52  | -     | 6.12   | 5.52  | -     |
| Follow-up Hdwy           | 2.218      | -     | -     | 2.218  | -    | -     | 3.518  | 4.018 | 3.318 | 3.518  | 4.018 | 3.318 |
| Pot Cap-1 Maneuver       | 1398       | -     | -     | 1533   | -    | -     | 633    | 589   | 1000  | 633    | 604   | 891   |
| Stage 1                  | -          | -     | -     | -      | -    | -     | 922    | 824   | -     | 781    | 720   | -     |
| Stage 2                  | -          | -     | -     | -      | -    | -     | 769    | 704   | -     | 907    | 820   | -     |
| Platoon blocked, %       | -          | -     | -     | -      | -    | -     | -      | -     | -     | -      | -     | -     |
| Mov Cap-1 Maneuver       | 1398       | -     | -     | 1533   | -    | -     | 599    | 570   | 1000  | 601    | 585   | 891   |
| Mov Cap-2 Maneuver       | -          | -     | -     | -      | -    | -     | 599    | 570   | -     | 601    | 585   | -     |
| Stage 1                  | -          | -     | -     | -      | -    | -     | 915    | 817   | -     | 775    | 703   | -     |
| Stage 2                  | -          | -     | -     | -      | -    | -     | 727    | 687   | -     | 876    | 813   | -     |
| Approach                 | EB         |       |       | WB     |      |       | NB     |       |       | SB     |       |       |
| HCM Control Delay, s     | 1.1        |       |       | 1.2    |      |       | 10     |       |       | 10.9   |       |       |
| HCM LOS                  |            |       |       |        |      |       | B      |       |       | B      |       |       |
| Minor Lane/Major Mvmt    | NBLn1NBLn2 |       | EBL   | EBT    | EBR  | WBL   | WBT    | WBR   | SBLn1 |        |       |       |
| Capacity (veh/h)         | 599        | 813   | 1398  | -      | -    | 1533  | -      | -     | 668   |        |       |       |
| HCM Lane V/C Ratio       | 0.013      | 0.031 | 0.008 | -      | -    | 0.022 | -      | -     | 0.086 |        |       |       |
| HCM Control Delay (s)    | 11.1       | 9.6   | 7.6   | 0      | -    | 7.4   | 0      | -     | 10.9  |        |       |       |
| HCM Lane LOS             | B          | A     | A     | A      | -    | A     | A      | -     | B     |        |       |       |
| HCM 95th %tile Q(veh)    | 0          | 0.1   | 0     | -      | -    | 0.1   | -      | -     | 0.3   |        |       |       |

| Intersection             |            |       |       |        |      |       |        |       |       |        |       |       |
|--------------------------|------------|-------|-------|--------|------|-------|--------|-------|-------|--------|-------|-------|
| Int Delay, s/veh         | 3.2        |       |       |        |      |       |        |       |       |        |       |       |
| Movement                 | EBL        | EBT   | EBR   | WBL    | WBT  | WBR   | NBL    | NBT   | NBR   | SBL    | SBT   | SBR   |
| Lane Configurations      |            | ↕     |       |        | ↕    |       | ↕      | ↕     |       |        | ↕     |       |
| Traffic Vol, veh/h       | 7          | 111   | 5     | 9      | 35   | 4     | 16     | 1     | 31    | 13     | 5     | 1     |
| Future Vol, veh/h        | 7          | 111   | 5     | 9      | 35   | 4     | 16     | 1     | 31    | 13     | 5     | 1     |
| Conflicting Peds, #/hr   | 0          | 0     | 0     | 0      | 0    | 0     | 0      | 0     | 0     | 0      | 0     | 0     |
| Sign Control             | Free       | Free  | Free  | Free   | Free | Free  | Stop   | Stop  | Stop  | Stop   | Stop  | Stop  |
| RT Channelized           | -          | -     | None  | -      | -    | None  | -      | -     | None  | -      | -     | None  |
| Storage Length           | -          | -     | -     | -      | -    | -     | 0      | -     | -     | -      | -     | -     |
| Veh in Median Storage, # | -          | 0     | -     | -      | 0    | -     | -      | 0     | -     | -      | 0     | -     |
| Grade, %                 | -          | 0     | -     | -      | 0    | -     | -      | 0     | -     | -      | 0     | -     |
| Peak Hour Factor         | 92         | 92    | 92    | 92     | 92   | 92    | 92     | 92    | 92    | 92     | 92    | 92    |
| Heavy Vehicles, %        | 2          | 2     | 2     | 2      | 2    | 2     | 2      | 2     | 2     | 2      | 2     | 2     |
| Mvmt Flow                | 8          | 121   | 5     | 10     | 38   | 4     | 17     | 1     | 34    | 14     | 5     | 1     |
| Major/Minor              | Major1     |       |       | Major2 |      |       | Minor1 |       |       | Minor2 |       |       |
| Conflicting Flow All     | 42         | 0     | 0     | 126    | 0    | 0     | 203    | 202   | 124   | 217    | 202   | 40    |
| Stage 1                  | -          | -     | -     | -      | -    | -     | 140    | 140   | -     | 60     | 60    | -     |
| Stage 2                  | -          | -     | -     | -      | -    | -     | 63     | 62    | -     | 157    | 142   | -     |
| Critical Hdwy            | 4.12       | -     | -     | 4.12   | -    | -     | 7.12   | 6.52  | 6.22  | 7.12   | 6.52  | 6.22  |
| Critical Hdwy Stg 1      | -          | -     | -     | -      | -    | -     | 6.12   | 5.52  | -     | 6.12   | 5.52  | -     |
| Critical Hdwy Stg 2      | -          | -     | -     | -      | -    | -     | 6.12   | 5.52  | -     | 6.12   | 5.52  | -     |
| Follow-up Hdwy           | 2.218      | -     | -     | 2.218  | -    | -     | 3.518  | 4.018 | 3.318 | 3.518  | 4.018 | 3.318 |
| Pot Cap-1 Maneuver       | 1567       | -     | -     | 1460   | -    | -     | 755    | 694   | 927   | 739    | 694   | 1031  |
| Stage 1                  | -          | -     | -     | -      | -    | -     | 863    | 781   | -     | 951    | 845   | -     |
| Stage 2                  | -          | -     | -     | -      | -    | -     | 948    | 843   | -     | 845    | 779   | -     |
| Platoon blocked, %       | -          | -     | -     | -      | -    | -     | -      | -     | -     | -      | -     | -     |
| Mov Cap-1 Maneuver       | 1567       | -     | -     | 1460   | -    | -     | 743    | 686   | 927   | 705    | 686   | 1031  |
| Mov Cap-2 Maneuver       | -          | -     | -     | -      | -    | -     | 743    | 686   | -     | 705    | 686   | -     |
| Stage 1                  | -          | -     | -     | -      | -    | -     | 859    | 777   | -     | 946    | 839   | -     |
| Stage 2                  | -          | -     | -     | -      | -    | -     | 934    | 837   | -     | 809    | 775   | -     |
| Approach                 | EB         |       |       | WB     |      |       | NB     |       |       | SB     |       |       |
| HCM Control Delay, s     | 0.4        |       |       | 1.4    |      |       | 9.4    |       |       | 10.2   |       |       |
| HCM LOS                  |            |       |       |        |      |       | A      |       |       | B      |       |       |
| Minor Lane/Major Mvmt    | NBLn1NBLn2 |       | EBL   | EBT    | EBR  | WBL   | WBT    | WBR   | SBLn1 |        |       |       |
| Capacity (veh/h)         | 743        | 917   | 1567  | -      | -    | 1460  | -      | -     | 712   |        |       |       |
| HCM Lane V/C Ratio       | 0.023      | 0.038 | 0.005 | -      | -    | 0.007 | -      | -     | 0.029 |        |       |       |
| HCM Control Delay (s)    | 10         | 9.1   | 7.3   | 0      | -    | 7.5   | 0      | -     | 10.2  |        |       |       |
| HCM Lane LOS             | B          | A     | A     | A      | -    | A     | A      | -     | B     |        |       |       |
| HCM 95th %tile Q(veh)    | 0.1        | 0.1   | 0     | -      | -    | 0     | -      | -     | 0.1   |        |       |       |

| Intersection             |      |      |      |      |      |      |      |      |      |      |      |      |
|--------------------------|------|------|------|------|------|------|------|------|------|------|------|------|
| Int Delay, s/veh         | 3.4  |      |      |      |      |      |      |      |      |      |      |      |
| Movement                 | EBL  | EBT  | EBR  | WBL  | WBT  | WBR  | NBL  | NBT  | NBR  | SBL  | SBT  | SBR  |
| Lane Configurations      |      | ↔    |      |      | ↔    |      | ↔    | ↔    |      |      | ↔    |      |
| Traffic Vol, veh/h       | 10   | 60   | 7    | 31   | 129  | 54   | 7    | 7    | 16   | 38   | 7    | 17   |
| Future Vol, veh/h        | 10   | 60   | 7    | 31   | 129  | 54   | 7    | 7    | 16   | 38   | 7    | 17   |
| Conflicting Peds, #/hr   | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    |
| Sign Control             | Free | Free | Free | Free | Free | Free | Stop | Stop | Stop | Stop | Stop | Stop |
| RT Channelized           | -    | -    | None | -    | -    | None | -    | -    | None | -    | -    | None |
| Storage Length           | -    | -    | -    | -    | -    | -    | 0    | -    | -    | -    | -    | -    |
| Veh in Median Storage, # | -    | 0    | -    | -    | 0    | -    | -    | 0    | -    | -    | 0    | -    |
| Grade, %                 | -    | 0    | -    | -    | 0    | -    | -    | 0    | -    | -    | 0    | -    |
| Peak Hour Factor         | 92   | 92   | 92   | 93   | 93   | 93   | 92   | 92   | 92   | 92   | 92   | 92   |
| Heavy Vehicles, %        | 2    | 2    | 2    | 2    | 2    | 2    | 2    | 2    | 2    | 2    | 2    | 2    |
| Mvmt Flow                | 11   | 65   | 8    | 33   | 139  | 58   | 8    | 8    | 17   | 41   | 8    | 18   |

| Major/Minor          | Major1 |   |   | Major2 |   |   | Minor1 |       |       | Minor2 |       |       |
|----------------------|--------|---|---|--------|---|---|--------|-------|-------|--------|-------|-------|
| Conflicting Flow All | 197    | 0 | 0 | 73     | 0 | 0 | 338    | 354   | 69    | 338    | 329   | 168   |
| Stage 1              | -      | - | - | -      | - | - | 91     | 91    | -     | 234    | 234   | -     |
| Stage 2              | -      | - | - | -      | - | - | 247    | 263   | -     | 104    | 95    | -     |
| Critical Hdwy        | 4.12   | - | - | 4.12   | - | - | 7.12   | 6.52  | 6.22  | 7.12   | 6.52  | 6.22  |
| Critical Hdwy Stg 1  | -      | - | - | -      | - | - | 6.12   | 5.52  | -     | 6.12   | 5.52  | -     |
| Critical Hdwy Stg 2  | -      | - | - | -      | - | - | 6.12   | 5.52  | -     | 6.12   | 5.52  | -     |
| Follow-up Hdwy       | 2.218  | - | - | 2.218  | - | - | 3.518  | 4.018 | 3.318 | 3.518  | 4.018 | 3.318 |
| Pot Cap-1 Maneuver   | 1376   | - | - | 1527   | - | - | 616    | 571   | 994   | 616    | 590   | 876   |
| Stage 1              | -      | - | - | -      | - | - | 916    | 820   | -     | 769    | 711   | -     |
| Stage 2              | -      | - | - | -      | - | - | 757    | 691   | -     | 902    | 816   | -     |
| Platoon blocked, %   | -      | - | - | -      | - | - | -      | -     | -     | -      | -     | -     |
| Mov Cap-1 Maneuver   | 1376   | - | - | 1527   | - | - | 582    | 553   | 994   | 585    | 571   | 876   |
| Mov Cap-2 Maneuver   | -      | - | - | -      | - | - | 582    | 553   | -     | 585    | 571   | -     |
| Stage 1              | -      | - | - | -      | - | - | 909    | 813   | -     | 763    | 694   | -     |
| Stage 2              | -      | - | - | -      | - | - | 715    | 674   | -     | 871    | 809   | -     |

| Approach             | EB |  |  | WB  |  |  | NB |  |  | SB   |  |  |
|----------------------|----|--|--|-----|--|--|----|--|--|------|--|--|
| HCM Control Delay, s | 1  |  |  | 1.1 |  |  | 10 |  |  | 11.3 |  |  |
| HCM LOS              |    |  |  |     |  |  | B  |  |  | B    |  |  |

| Minor Lane/Major Mvmt | NBLn1 | NBLn2 | EBL   | EBT | EBR | WBL   | WBT | WBR | SBLn1 |
|-----------------------|-------|-------|-------|-----|-----|-------|-----|-----|-------|
| Capacity (veh/h)      | 582   | 800   | 1376  | -   | -   | 1527  | -   | -   | 642   |
| HCM Lane V/C Ratio    | 0.013 | 0.031 | 0.008 | -   | -   | 0.022 | -   | -   | 0.105 |
| HCM Control Delay (s) | 11.3  | 9.6   | 7.6   | 0   | -   | 7.4   | 0   | -   | 11.3  |
| HCM Lane LOS          | B     | A     | A     | A   | -   | A     | A   | -   | B     |
| HCM 95th %tile Q(veh) | 0     | 0.1   | 0     | -   | -   | 0.1   | -   | -   | 0.3   |

| Intersection                |       |       |       |       |
|-----------------------------|-------|-------|-------|-------|
| Intersection Delay, s/veh   | 2.8   |       |       |       |
| Intersection LOS            | A     |       |       |       |
| Approach                    | EB    | WB    | NB    | SB    |
| Entry Lanes                 | 1     | 1     | 1     | 1     |
| Conflicting Circle Lanes    | 1     | 1     | 1     | 1     |
| Adj Approach Flow, veh/h    | 12    | 16    | 10    | 45    |
| Demand Flow Rate, veh/h     | 12    | 16    | 10    | 45    |
| Vehicles Circulating, veh/h | 26    | 18    | 25    | 4     |
| Vehicles Exiting, veh/h     | 23    | 17    | 13    | 30    |
| Ped Vol Crossing Leg, #/h   | 0     | 0     | 0     | 0     |
| Ped Cap Adj                 | 1.000 | 1.000 | 1.000 | 1.000 |
| Approach Delay, s/veh       | 2.7   | 2.8   | 2.8   | 2.9   |
| Approach LOS                | A     | A     | A     | A     |
| Lane                        | Left  | Left  | Left  | Left  |
| Designated Moves            | LTR   | LTR   | LTR   | LTR   |
| Assumed Moves               | LTR   | LTR   | LTR   | LTR   |
| RT Channelized              |       |       |       |       |
| Lane Util                   | 1.000 | 1.000 | 1.000 | 1.000 |
| Follow-Up Headway, s        | 2.609 | 2.609 | 2.609 | 2.609 |
| Critical Headway, s         | 4.976 | 4.976 | 4.976 | 4.976 |
| Entry Flow, veh/h           | 12    | 16    | 10    | 45    |
| Cap Entry Lane, veh/h       | 1344  | 1355  | 1345  | 1374  |
| Entry HV Adj Factor         | 1.000 | 0.998 | 0.988 | 0.995 |
| Flow Entry, veh/h           | 12    | 16    | 10    | 45    |
| Cap Entry, veh/h            | 1344  | 1351  | 1329  | 1368  |
| V/C Ratio                   | 0.009 | 0.012 | 0.007 | 0.033 |
| Control Delay, s/veh        | 2.7   | 2.8   | 2.8   | 2.9   |
| LOS                         | A     | A     | A     | A     |
| 95th %tile Queue, veh       | 0     | 0     | 0     | 0     |

| Intersection                |       |       |       |       |
|-----------------------------|-------|-------|-------|-------|
| Intersection Delay, s/veh   | 3.3   |       |       |       |
| Intersection LOS            | A     |       |       |       |
| Approach                    | EB    | WB    | NB    | SB    |
| Entry Lanes                 | 1     | 1     | 1     | 1     |
| Conflicting Circle Lanes    | 1     | 1     | 1     | 1     |
| Adj Approach Flow, veh/h    | 120   | 28    | 47    | 52    |
| Demand Flow Rate, veh/h     | 122   | 28    | 48    | 53    |
| Vehicles Circulating, veh/h | 36    | 138   | 107   | 43    |
| Vehicles Exiting, veh/h     | 60    | 17    | 51    | 123   |
| Ped Vol Crossing Leg, #/h   | 0     | 0     | 0     | 0     |
| Ped Cap Adj                 | 1.000 | 1.000 | 1.000 | 1.000 |
| Approach Delay, s/veh       | 3.5   | 3.2   | 3.3   | 3.1   |
| Approach LOS                | A     | A     | A     | A     |
| Lane                        | Left  | Left  | Left  | Left  |
| Designated Moves            | LTR   | LTR   | LTR   | LTR   |
| Assumed Moves               | LTR   | LTR   | LTR   | LTR   |
| RT Channelized              |       |       |       |       |
| Lane Util                   | 1.000 | 1.000 | 1.000 | 1.000 |
| Follow-Up Headway, s        | 2.609 | 2.609 | 2.609 | 2.609 |
| Critical Headway, s         | 4.976 | 4.976 | 4.976 | 4.976 |
| Entry Flow, veh/h           | 122   | 28    | 48    | 53    |
| Cap Entry Lane, veh/h       | 1330  | 1199  | 1237  | 1321  |
| Entry HV Adj Factor         | 0.982 | 0.991 | 0.972 | 0.990 |
| Flow Entry, veh/h           | 120   | 28    | 47    | 52    |
| Cap Entry, veh/h            | 1307  | 1188  | 1202  | 1307  |
| V/C Ratio                   | 0.092 | 0.023 | 0.039 | 0.040 |
| Control Delay, s/veh        | 3.5   | 3.2   | 3.3   | 3.1   |
| LOS                         | A     | A     | A     | A     |
| 95th %tile Queue, veh       | 0     | 0     | 0     | 0     |

| Intersection                |       |       |       |       |
|-----------------------------|-------|-------|-------|-------|
| Intersection Delay, s/veh   | 2.9   |       |       |       |
| Intersection LOS            | A     |       |       |       |
| Approach                    | EB    | WB    | NB    | SB    |
| Entry Lanes                 | 1     | 1     | 1     | 1     |
| Conflicting Circle Lanes    | 1     | 1     | 1     | 1     |
| Adj Approach Flow, veh/h    | 31    | 16    | 14    | 50    |
| Demand Flow Rate, veh/h     | 31    | 16    | 14    | 50    |
| Vehicles Circulating, veh/h | 26    | 33    | 36    | 8     |
| Vehicles Exiting, veh/h     | 32    | 17    | 21    | 41    |
| Ped Vol Crossing Leg, #/h   | 0     | 0     | 0     | 0     |
| Ped Cap Adj                 | 1.000 | 1.000 | 1.000 | 1.000 |
| Approach Delay, s/veh       | 2.9   | 2.8   | 2.8   | 2.9   |
| Approach LOS                | A     | A     | A     | A     |
| Lane                        | Left  | Left  | Left  | Left  |
| Designated Moves            | LTR   | LTR   | LTR   | LTR   |
| Assumed Moves               | LTR   | LTR   | LTR   | LTR   |
| RT Channelized              |       |       |       |       |
| Lane Util                   | 1.000 | 1.000 | 1.000 | 1.000 |
| Follow-Up Headway, s        | 2.609 | 2.609 | 2.609 | 2.609 |
| Critical Headway, s         | 4.976 | 4.976 | 4.976 | 4.976 |
| Entry Flow, veh/h           | 31    | 16    | 14    | 50    |
| Cap Entry Lane, veh/h       | 1344  | 1334  | 1330  | 1369  |
| Entry HV Adj Factor         | 1.000 | 0.998 | 0.992 | 0.996 |
| Flow Entry, veh/h           | 31    | 16    | 14    | 50    |
| Cap Entry, veh/h            | 1344  | 1331  | 1319  | 1363  |
| V/C Ratio                   | 0.023 | 0.012 | 0.011 | 0.037 |
| Control Delay, s/veh        | 2.9   | 2.8   | 2.8   | 2.9   |
| LOS                         | A     | A     | A     | A     |
| 95th %tile Queue, veh       | 0     | 0     | 0     | 0     |

| Intersection                |       |       |       |       |
|-----------------------------|-------|-------|-------|-------|
| Intersection Delay, s/veh   | 3.4   |       |       |       |
| Intersection LOS            | A     |       |       |       |
| Approach                    | EB    | WB    | NB    | SB    |
| Entry Lanes                 | 1     | 1     | 1     | 1     |
| Conflicting Circle Lanes    | 1     | 1     | 1     | 1     |
| Adj Approach Flow, veh/h    | 133   | 28    | 53    | 65    |
| Demand Flow Rate, veh/h     | 136   | 28    | 54    | 67    |
| Vehicles Circulating, veh/h | 36    | 152   | 115   | 49    |
| Vehicles Exiting, veh/h     | 80    | 17    | 57    | 131   |
| Ped Vol Crossing Leg, #/h   | 0     | 0     | 0     | 0     |
| Ped Cap Adj                 | 1.000 | 1.000 | 1.000 | 1.000 |
| Approach Delay, s/veh       | 3.6   | 3.3   | 3.4   | 3.2   |
| Approach LOS                | A     | A     | A     | A     |
| Lane                        | Left  | Left  | Left  | Left  |
| Designated Moves            | LTR   | LTR   | LTR   | LTR   |
| Assumed Moves               | LTR   | LTR   | LTR   | LTR   |
| RT Channelized              |       |       |       |       |
| Lane Util                   | 1.000 | 1.000 | 1.000 | 1.000 |
| Follow-Up Headway, s        | 2.609 | 2.609 | 2.609 | 2.609 |
| Critical Headway, s         | 4.976 | 4.976 | 4.976 | 4.976 |
| Entry Flow, veh/h           | 136   | 28    | 54    | 67    |
| Cap Entry Lane, veh/h       | 1330  | 1182  | 1227  | 1313  |
| Entry HV Adj Factor         | 0.977 | 0.991 | 0.975 | 0.977 |
| Flow Entry, veh/h           | 133   | 28    | 53    | 65    |
| Cap Entry, veh/h            | 1299  | 1171  | 1196  | 1283  |
| V/C Ratio                   | 0.102 | 0.024 | 0.044 | 0.051 |
| Control Delay, s/veh        | 3.6   | 3.3   | 3.4   | 3.2   |
| LOS                         | A     | A     | A     | A     |
| 95th %tile Queue, veh       | 0     | 0     | 0     | 0     |

| Intersection                |       |       |       |       |
|-----------------------------|-------|-------|-------|-------|
| Intersection Delay, s/veh   | 3.0   |       |       |       |
| Intersection LOS            | A     |       |       |       |
| Approach                    | EB    | WB    | NB    | SB    |
| Entry Lanes                 | 1     | 1     | 1     | 1     |
| Conflicting Circle Lanes    | 1     | 1     | 1     | 1     |
| Adj Approach Flow, veh/h    | 41    | 16    | 18    | 55    |
| Demand Flow Rate, veh/h     | 42    | 16    | 18    | 56    |
| Vehicles Circulating, veh/h | 26    | 44    | 43    | 12    |
| Vehicles Exiting, veh/h     | 42    | 17    | 25    | 48    |
| Ped Vol Crossing Leg, #/h   | 0     | 0     | 0     | 0     |
| Ped Cap Adj                 | 1.000 | 1.000 | 1.000 | 1.000 |
| Approach Delay, s/veh       | 3.0   | 2.8   | 2.8   | 3.0   |
| Approach LOS                | A     | A     | A     | A     |
| Lane                        | Left  | Left  | Left  | Left  |
| Designated Moves            | LTR   | LTR   | LTR   | LTR   |
| Assumed Moves               | LTR   | LTR   | LTR   | LTR   |
| RT Channelized              |       |       |       |       |
| Lane Util                   | 1.000 | 1.000 | 1.000 | 1.000 |
| Follow-Up Headway, s        | 2.609 | 2.609 | 2.609 | 2.609 |
| Critical Headway, s         | 4.976 | 4.976 | 4.976 | 4.976 |
| Entry Flow, veh/h           | 42    | 16    | 18    | 56    |
| Cap Entry Lane, veh/h       | 1344  | 1319  | 1321  | 1363  |
| Entry HV Adj Factor         | 0.976 | 0.998 | 0.993 | 0.978 |
| Flow Entry, veh/h           | 41    | 16    | 18    | 55    |
| Cap Entry, veh/h            | 1312  | 1316  | 1312  | 1333  |
| V/C Ratio                   | 0.031 | 0.012 | 0.014 | 0.041 |
| Control Delay, s/veh        | 3.0   | 2.8   | 2.8   | 3.0   |
| LOS                         | A     | A     | A     | A     |
| 95th %tile Queue, veh       | 0     | 0     | 0     | 0     |



| Intersection                |       |       |       |       |
|-----------------------------|-------|-------|-------|-------|
| Intersection Delay, s/veh   | 3.6   |       |       |       |
| Intersection LOS            | A     |       |       |       |
| Approach                    | EB    | WB    | NB    | SB    |
| Entry Lanes                 | 1     | 1     | 1     | 1     |
| Conflicting Circle Lanes    | 1     | 1     | 1     | 1     |
| Adj Approach Flow, veh/h    | 163   | 28    | 66    | 93    |
| Demand Flow Rate, veh/h     | 166   | 28    | 67    | 95    |
| Vehicles Circulating, veh/h | 36    | 183   | 133   | 62    |
| Vehicles Exiting, veh/h     | 121   | 17    | 69    | 149   |
| Ped Vol Crossing Leg, #/h   | 0     | 0     | 0     | 0     |
| Ped Cap Adj                 | 1.000 | 1.000 | 1.000 | 1.000 |
| Approach Delay, s/veh       | 3.8   | 3.4   | 3.5   | 3.4   |
| Approach LOS                | A     | A     | A     | A     |
| Lane                        | Left  | Left  | Left  | Left  |
| Designated Moves            | LTR   | LTR   | LTR   | LTR   |
| Assumed Moves               | LTR   | LTR   | LTR   | LTR   |
| RT Channelized              |       |       |       |       |
| Lane Util                   | 1.000 | 1.000 | 1.000 | 1.000 |
| Follow-Up Headway, s        | 2.609 | 2.609 | 2.609 | 2.609 |
| Critical Headway, s         | 4.976 | 4.976 | 4.976 | 4.976 |
| Entry Flow, veh/h           | 166   | 28    | 67    | 95    |
| Cap Entry Lane, veh/h       | 1330  | 1145  | 1205  | 1295  |
| Entry HV Adj Factor         | 0.981 | 0.991 | 0.980 | 0.984 |
| Flow Entry, veh/h           | 163   | 28    | 66    | 93    |
| Cap Entry, veh/h            | 1305  | 1134  | 1180  | 1274  |
| V/C Ratio                   | 0.125 | 0.024 | 0.056 | 0.073 |
| Control Delay, s/veh        | 3.8   | 3.4   | 3.5   | 3.4   |
| LOS                         | A     | A     | A     | A     |
| 95th %tile Queue, veh       | 0     | 0     | 0     | 0     |

| Intersection                |       |       |       |       |
|-----------------------------|-------|-------|-------|-------|
| Intersection Delay, s/veh   | 2.8   |       |       |       |
| Intersection LOS            | A     |       |       |       |
| Approach                    | EB    | WB    | NB    | SB    |
| Entry Lanes                 | 1     | 1     | 1     | 1     |
| Conflicting Circle Lanes    | 1     | 1     | 1     | 1     |
| Adj Approach Flow, veh/h    | 22    | 11    | 8     | 49    |
| Demand Flow Rate, veh/h     | 22    | 11    | 8     | 49    |
| Vehicles Circulating, veh/h | 26    | 22    | 30    | 4     |
| Vehicles Exiting, veh/h     | 27    | 16    | 18    | 29    |
| Ped Vol Crossing Leg, #/h   | 0     | 0     | 0     | 0     |
| Ped Cap Adj                 | 1.000 | 1.000 | 1.000 | 1.000 |
| Approach Delay, s/veh       | 2.8   | 2.7   | 2.8   | 2.9   |
| Approach LOS                | A     | A     | A     | A     |
| Lane                        | Left  | Left  | Left  | Left  |
| Designated Moves            | LTR   | LTR   | LTR   | LTR   |
| Assumed Moves               | LTR   | LTR   | LTR   | LTR   |
| RT Channelized              |       |       |       |       |
| Lane Util                   | 1.000 | 1.000 | 1.000 | 1.000 |
| Follow-Up Headway, s        | 2.609 | 2.609 | 2.609 | 2.609 |
| Critical Headway, s         | 4.976 | 4.976 | 4.976 | 4.976 |
| Entry Flow, veh/h           | 22    | 11    | 8     | 49    |
| Cap Entry Lane, veh/h       | 1344  | 1349  | 1338  | 1374  |
| Entry HV Adj Factor         | 1.000 | 0.998 | 0.990 | 0.996 |
| Flow Entry, veh/h           | 22    | 11    | 8     | 49    |
| Cap Entry, veh/h            | 1344  | 1347  | 1325  | 1368  |
| V/C Ratio                   | 0.016 | 0.008 | 0.006 | 0.036 |
| Control Delay, s/veh        | 2.8   | 2.7   | 2.8   | 2.9   |
| LOS                         | A     | A     | A     | A     |
| 95th %tile Queue, veh       | 0     | 0     | 0     | 0     |

| Intersection                |       |       |       |       |
|-----------------------------|-------|-------|-------|-------|
| Intersection Delay, s/veh   | 3.4   |       |       |       |
| Intersection LOS            | A     |       |       |       |
| Approach                    | EB    | WB    | NB    | SB    |
| Entry Lanes                 | 1     | 1     | 1     | 1     |
| Conflicting Circle Lanes    | 1     | 1     | 1     | 1     |
| Adj Approach Flow, veh/h    | 132   | 18    | 59    | 65    |
| Demand Flow Rate, veh/h     | 135   | 18    | 60    | 67    |
| Vehicles Circulating, veh/h | 38    | 158   | 116   | 47    |
| Vehicles Exiting, veh/h     | 76    | 18    | 57    | 129   |
| Ped Vol Crossing Leg, #/h   | 0     | 0     | 0     | 0     |
| Ped Cap Adj                 | 1.000 | 1.000 | 1.000 | 1.000 |
| Approach Delay, s/veh       | 3.6   | 3.2   | 3.4   | 3.2   |
| Approach LOS                | A     | A     | A     | A     |
| Lane                        | Left  | Left  | Left  | Left  |
| Designated Moves            | LTR   | LTR   | LTR   | LTR   |
| Assumed Moves               | LTR   | LTR   | LTR   | LTR   |
| RT Channelized              |       |       |       |       |
| Lane Util                   | 1.000 | 1.000 | 1.000 | 1.000 |
| Follow-Up Headway, s        | 2.609 | 2.609 | 2.609 | 2.609 |
| Critical Headway, s         | 4.976 | 4.976 | 4.976 | 4.976 |
| Entry Flow, veh/h           | 135   | 18    | 60    | 67    |
| Cap Entry Lane, veh/h       | 1327  | 1174  | 1226  | 1315  |
| Entry HV Adj Factor         | 0.977 | 0.991 | 0.976 | 0.977 |
| Flow Entry, veh/h           | 132   | 18    | 59    | 65    |
| Cap Entry, veh/h            | 1296  | 1164  | 1197  | 1285  |
| V/C Ratio                   | 0.102 | 0.015 | 0.049 | 0.051 |
| Control Delay, s/veh        | 3.6   | 3.2   | 3.4   | 3.2   |
| LOS                         | A     | A     | A     | A     |
| 95th %tile Queue, veh       | 0     | 0     | 0     | 0     |

| Intersection                |       |       |       |       |
|-----------------------------|-------|-------|-------|-------|
| Intersection Delay, s/veh   | 2.9   |       |       |       |
| Intersection LOS            | A     |       |       |       |
| Approach                    | EB    | WB    | NB    | SB    |
| Entry Lanes                 | 1     | 1     | 1     | 1     |
| Conflicting Circle Lanes    | 1     | 1     | 1     | 1     |
| Adj Approach Flow, veh/h    | 30    | 11    | 10    | 53    |
| Demand Flow Rate, veh/h     | 30    | 11    | 10    | 54    |
| Vehicles Circulating, veh/h | 26    | 29    | 35    | 6     |
| Vehicles Exiting, veh/h     | 34    | 16    | 21    | 34    |
| Ped Vol Crossing Leg, #/h   | 0     | 0     | 0     | 0     |
| Ped Cap Adj                 | 1.000 | 1.000 | 1.000 | 1.000 |
| Approach Delay, s/veh       | 2.9   | 2.8   | 2.8   | 3.0   |
| Approach LOS                | A     | A     | A     | A     |
| Lane                        | Left  | Left  | Left  | Left  |
| Designated Moves            | LTR   | LTR   | LTR   | LTR   |
| Assumed Moves               | LTR   | LTR   | LTR   | LTR   |
| RT Channelized              |       |       |       |       |
| Lane Util                   | 1.000 | 1.000 | 1.000 | 1.000 |
| Follow-Up Headway, s        | 2.609 | 2.609 | 2.609 | 2.609 |
| Critical Headway, s         | 4.976 | 4.976 | 4.976 | 4.976 |
| Entry Flow, veh/h           | 30    | 11    | 10    | 54    |
| Cap Entry Lane, veh/h       | 1344  | 1340  | 1331  | 1371  |
| Entry HV Adj Factor         | 1.000 | 0.998 | 0.992 | 0.977 |
| Flow Entry, veh/h           | 30    | 11    | 10    | 53    |
| Cap Entry, veh/h            | 1344  | 1337  | 1321  | 1341  |
| V/C Ratio                   | 0.022 | 0.008 | 0.008 | 0.039 |
| Control Delay, s/veh        | 2.9   | 2.8   | 2.8   | 3.0   |
| LOS                         | A     | A     | A     | A     |
| 95th %tile Queue, veh       | 0     | 0     | 0     | 0     |

| Intersection                |       |       |       |       |
|-----------------------------|-------|-------|-------|-------|
| Intersection Delay, s/veh   | 3.6   |       |       |       |
| Intersection LOS            | A     |       |       |       |
| Approach                    | EB    | WB    | NB    | SB    |
| Entry Lanes                 | 1     | 1     | 1     | 1     |
| Conflicting Circle Lanes    | 1     | 1     | 1     | 1     |
| Adj Approach Flow, veh/h    | 157   | 18    | 71    | 89    |
| Demand Flow Rate, veh/h     | 160   | 18    | 72    | 91    |
| Vehicles Circulating, veh/h | 38    | 185   | 131   | 59    |
| Vehicles Exiting, veh/h     | 112   | 18    | 67    | 144   |
| Ped Vol Crossing Leg, #/h   | 0     | 0     | 0     | 0     |
| Ped Cap Adj                 | 1.000 | 1.000 | 1.000 | 1.000 |
| Approach Delay, s/veh       | 3.7   | 3.3   | 3.5   | 3.4   |
| Approach LOS                | A     | A     | A     | A     |
| Lane                        | Left  | Left  | Left  | Left  |
| Designated Moves            | LTR   | LTR   | LTR   | LTR   |
| Assumed Moves               | LTR   | LTR   | LTR   | LTR   |
| RT Channelized              |       |       |       |       |
| Lane Util                   | 1.000 | 1.000 | 1.000 | 1.000 |
| Follow-Up Headway, s        | 2.609 | 2.609 | 2.609 | 2.609 |
| Critical Headway, s         | 4.976 | 4.976 | 4.976 | 4.976 |
| Entry Flow, veh/h           | 160   | 18    | 72    | 91    |
| Cap Entry Lane, veh/h       | 1327  | 1143  | 1207  | 1299  |
| Entry HV Adj Factor         | 0.980 | 0.991 | 0.980 | 0.983 |
| Flow Entry, veh/h           | 157   | 18    | 71    | 89    |
| Cap Entry, veh/h            | 1301  | 1133  | 1184  | 1277  |
| V/C Ratio                   | 0.121 | 0.016 | 0.060 | 0.070 |
| Control Delay, s/veh        | 3.7   | 3.3   | 3.5   | 3.4   |
| LOS                         | A     | A     | A     | A     |
| 95th %tile Queue, veh       | 0     | 0     | 0     | 0     |

Intersection

Int Delay, s/veh 1.1

| Movement                 | EBT  | EBR  | WBL  | WBT  | NBL  | NBR  |
|--------------------------|------|------|------|------|------|------|
| Lane Configurations      | ↑    | ↗    | ↘    | ↑    |      | ↗    |
| Traffic Vol, veh/h       | 1299 | 29   | 45   | 344  | 0    | 32   |
| Future Vol, veh/h        | 1299 | 29   | 45   | 344  | 0    | 32   |
| Conflicting Peds, #/hr   | 0    | 0    | 0    | 0    | 0    | 0    |
| Sign Control             | Free | Free | Free | Free | Stop | Stop |
| RT Channelized           | -    | None | -    | None | -    | None |
| Storage Length           | -    | 175  | 250  | -    | -    | 0    |
| Veh in Median Storage, # | 0    | -    | -    | 0    | 0    | -    |
| Grade, %                 | 0    | -    | -    | 0    | 0    | -    |
| Peak Hour Factor         | 96   | 96   | 83   | 83   | 75   | 75   |
| Heavy Vehicles, %        | 2    | 2    | 2    | 2    | 2    | 2    |
| Mvmt Flow                | 1353 | 30   | 54   | 414  | 0    | 43   |

| Major/Minor          | Major1 | Major2 | Minor1 |
|----------------------|--------|--------|--------|
| Conflicting Flow All | 0      | 0      | 1383   |
| Stage 1              | -      | -      | -      |
| Stage 2              | -      | -      | -      |
| Critical Hdwy        | -      | -      | 4.12   |
| Critical Hdwy Stg 1  | -      | -      | -      |
| Critical Hdwy Stg 2  | -      | -      | -      |
| Follow-up Hdwy       | -      | -      | 2.218  |
| Pot Cap-1 Maneuver   | -      | -      | 495    |
| Stage 1              | -      | -      | -      |
| Stage 2              | -      | -      | -      |
| Platoon blocked, %   | -      | -      | -      |
| Mov Cap-1 Maneuver   | -      | -      | 495    |
| Mov Cap-2 Maneuver   | -      | -      | -      |
| Stage 1              | -      | -      | -      |
| Stage 2              | -      | -      | -      |

| Approach             | EB | WB  | NB   |
|----------------------|----|-----|------|
| HCM Control Delay, s | 0  | 1.5 | 30.6 |
| HCM LOS              |    |     | D    |

| Minor Lane/Major Mvmt | NBLn1 | EBT | EBR | WBL  | WBT |
|-----------------------|-------|-----|-----|------|-----|
| Capacity (veh/h)      | 183   | -   | -   | 495  | -   |
| HCM Lane V/C Ratio    | 0.233 | -   | -   | 0.11 | -   |
| HCM Control Delay (s) | 30.6  | -   | -   | 13.2 | -   |
| HCM Lane LOS          | D     | -   | -   | B    | -   |
| HCM 95th %tile Q(veh) | 0.9   | -   | -   | 0.4  | -   |

| Intersection             |      |      |      |      |      |      |
|--------------------------|------|------|------|------|------|------|
| Int Delay, s/veh         | 2.8  |      |      |      |      |      |
| Movement                 | EBT  | EBR  | WBL  | WBT  | NBL  | NBR  |
| Lane Configurations      | ↑    | ↑    | ↑    | ↑    |      | ↑    |
| Traffic Vol, veh/h       | 326  | 24   | 181  | 643  | 0    | 175  |
| Future Vol, veh/h        | 326  | 24   | 181  | 643  | 0    | 175  |
| Conflicting Peds, #/hr   | 0    | 0    | 0    | 0    | 0    | 0    |
| Sign Control             | Free | Free | Free | Free | Stop | Stop |
| RT Channelized           | -    | None | -    | None | -    | None |
| Storage Length           | -    | 175  | 250  | -    | -    | 0    |
| Veh in Median Storage, # | 0    | -    | -    | 0    | 0    | -    |
| Grade, %                 | 0    | -    | -    | 0    | 0    | -    |
| Peak Hour Factor         | 89   | 89   | 80   | 80   | 85   | 85   |
| Heavy Vehicles, %        | 2    | 2    | 2    | 2    | 2    | 2    |
| Mvmt Flow                | 366  | 27   | 226  | 804  | 0    | 206  |

| Major/Minor          | Major1 | Major2 | Minor1 |
|----------------------|--------|--------|--------|
| Conflicting Flow All | 0      | 0      | 393    |
| Stage 1              | -      | -      | -      |
| Stage 2              | -      | -      | -      |
| Critical Hdwy        | -      | -      | 4.12   |
| Critical Hdwy Stg 1  | -      | -      | -      |
| Critical Hdwy Stg 2  | -      | -      | -      |
| Follow-up Hdwy       | -      | -      | 2.218  |
| Pot Cap-1 Maneuver   | -      | -      | 1166   |
| Stage 1              | -      | -      | -      |
| Stage 2              | -      | -      | -      |
| Platoon blocked, %   | -      | -      | -      |
| Mov Cap-1 Maneuver   | -      | -      | 1166   |
| Mov Cap-2 Maneuver   | -      | -      | -      |
| Stage 1              | -      | -      | -      |
| Stage 2              | -      | -      | -      |

| Approach             | EB | WB  | NB   |
|----------------------|----|-----|------|
| HCM Control Delay, s | 0  | 1.9 | 12.6 |
| HCM LOS              |    |     | B    |

| Minor Lane/Major Mvmt | NBLn1 | EBT | EBR | WBL   | WBT |
|-----------------------|-------|-----|-----|-------|-----|
| Capacity (veh/h)      | 679   | -   | -   | 1166  | -   |
| HCM Lane V/C Ratio    | 0.303 | -   | -   | 0.194 | -   |
| HCM Control Delay (s) | 12.6  | -   | -   | 8.8   | -   |
| HCM Lane LOS          | B     | -   | -   | A     | -   |
| HCM 95th %tile Q(veh) | 1.3   | -   | -   | 0.7   | -   |

| Intersection             |        |      |        |      |        |       |
|--------------------------|--------|------|--------|------|--------|-------|
| Int Delay, s/veh         | 1.3    |      |        |      |        |       |
| Movement                 | EBT    | EBR  | WBL    | WBT  | NBL    | NBR   |
| Lane Configurations      | ↑      | ↗    | ↖      | ↑    |        | ↗     |
| Traffic Vol, veh/h       | 1329   | 30   | 48     | 352  | 0      | 40    |
| Future Vol, veh/h        | 1329   | 30   | 48     | 352  | 0      | 40    |
| Conflicting Peds, #/hr   | 0      | 0    | 0      | 0    | 0      | 0     |
| Sign Control             | Free   | Free | Free   | Free | Stop   | Stop  |
| RT Channelized           | -      | None | -      | None | -      | None  |
| Storage Length           | -      | 175  | 250    | -    | -      | 0     |
| Veh in Median Storage, # | 0      | -    | -      | 0    | 0      | -     |
| Grade, %                 | 0      | -    | -      | 0    | 0      | -     |
| Peak Hour Factor         | 96     | 96   | 83     | 83   | 75     | 75    |
| Heavy Vehicles, %        | 2      | 2    | 2      | 2    | 2      | 2     |
| Mvmt Flow                | 1384   | 31   | 58     | 424  | 0      | 53    |
|                          |        |      |        |      |        |       |
| Major/Minor              | Major1 |      | Major2 |      | Minor1 |       |
| Conflicting Flow All     | 0      | 0    | 1415   | 0    | -      | 1384  |
| Stage 1                  | -      | -    | -      | -    | -      | -     |
| Stage 2                  | -      | -    | -      | -    | -      | -     |
| Critical Hdwy            | -      | -    | 4.12   | -    | -      | 6.22  |
| Critical Hdwy Stg 1      | -      | -    | -      | -    | -      | -     |
| Critical Hdwy Stg 2      | -      | -    | -      | -    | -      | -     |
| Follow-up Hdwy           | -      | -    | 2.218  | -    | -      | 3.318 |
| Pot Cap-1 Maneuver       | -      | -    | 482    | -    | 0      | 176   |
| Stage 1                  | -      | -    | -      | -    | 0      | -     |
| Stage 2                  | -      | -    | -      | -    | 0      | -     |
| Platoon blocked, %       | -      | -    |        | -    |        |       |
| Mov Cap-1 Maneuver       | -      | -    | 482    | -    | -      | 176   |
| Mov Cap-2 Maneuver       | -      | -    | -      | -    | -      | -     |
| Stage 1                  | -      | -    | -      | -    | -      | -     |
| Stage 2                  | -      | -    | -      | -    | -      | -     |
|                          |        |      |        |      |        |       |
|                          |        |      |        |      |        |       |
| Approach                 | EB     |      | WB     |      | NB     |       |
| HCM Control Delay, s     | 0      |      | 1.6    |      | 34.1   |       |
| HCM LOS                  |        |      |        |      | D      |       |
|                          |        |      |        |      |        |       |
| Minor Lane/Major Mvmt    | NBLn1  | EBT  | EBR    | WBL  | WBT    |       |
| Capacity (veh/h)         | 176    | -    | -      | 482  | -      |       |
| HCM Lane V/C Ratio       | 0.303  | -    | -      | 0.12 | -      |       |
| HCM Control Delay (s)    | 34.1   | -    | -      | 13.5 | -      |       |
| HCM Lane LOS             | D      | -    | -      | B    | -      |       |
| HCM 95th %tile Q(veh)    | 1.2    | -    | -      | 0.4  | -      |       |



| Intersection             |        |      |        |       |        |       |
|--------------------------|--------|------|--------|-------|--------|-------|
| Int Delay, s/veh         | 2.9    |      |        |       |        |       |
| Movement                 | EBT    | EBR  | WBL    | WBT   | NBL    | NBR   |
| Lane Configurations      | ↑      | ↗    | ↘      | ↑     |        | ↗     |
| Traffic Vol, veh/h       | 334    | 27   | 192    | 658   | 0      | 184   |
| Future Vol, veh/h        | 334    | 27   | 192    | 658   | 0      | 184   |
| Conflicting Peds, #/hr   | 0      | 0    | 0      | 0     | 0      | 0     |
| Sign Control             | Free   | Free | Free   | Free  | Stop   | Stop  |
| RT Channelized           | -      | None | -      | None  | -      | None  |
| Storage Length           | -      | 175  | 250    | -     | -      | 0     |
| Veh in Median Storage, # | 0      | -    | -      | 0     | 0      | -     |
| Grade, %                 | 0      | -    | -      | 0     | 0      | -     |
| Peak Hour Factor         | 89     | 89   | 80     | 80    | 85     | 85    |
| Heavy Vehicles, %        | 2      | 2    | 2      | 2     | 2      | 2     |
| Mvmt Flow                | 375    | 30   | 240    | 823   | 0      | 216   |
|                          |        |      |        |       |        |       |
| Major/Minor              | Major1 |      | Major2 |       | Minor1 |       |
| Conflicting Flow All     | 0      | 0    | 405    | 0     | -      | 375   |
| Stage 1                  | -      | -    | -      | -     | -      | -     |
| Stage 2                  | -      | -    | -      | -     | -      | -     |
| Critical Hdwy            | -      | -    | 4.12   | -     | -      | 6.22  |
| Critical Hdwy Stg 1      | -      | -    | -      | -     | -      | -     |
| Critical Hdwy Stg 2      | -      | -    | -      | -     | -      | -     |
| Follow-up Hdwy           | -      | -    | 2.218  | -     | -      | 3.318 |
| Pot Cap-1 Maneuver       | -      | -    | 1154   | -     | 0      | 671   |
| Stage 1                  | -      | -    | -      | -     | 0      | -     |
| Stage 2                  | -      | -    | -      | -     | 0      | -     |
| Platoon blocked, %       | -      | -    |        | -     |        |       |
| Mov Cap-1 Maneuver       | -      | -    | 1154   | -     | -      | 671   |
| Mov Cap-2 Maneuver       | -      | -    | -      | -     | -      | -     |
| Stage 1                  | -      | -    | -      | -     | -      | -     |
| Stage 2                  | -      | -    | -      | -     | -      | -     |
|                          |        |      |        |       |        |       |
|                          |        |      |        |       |        |       |
| Approach                 | EB     |      | WB     |       | NB     |       |
| HCM Control Delay, s     | 0      |      | 2      |       | 12.9   |       |
| HCM LOS                  |        |      |        |       | B      |       |
|                          |        |      |        |       |        |       |
|                          |        |      |        |       |        |       |
| Minor Lane/Major Mvmt    | NBLn1  | EBT  | EBR    | WBL   | WBT    |       |
| Capacity (veh/h)         | 671    | -    | -      | 1154  | -      |       |
| HCM Lane V/C Ratio       | 0.323  | -    | -      | 0.208 | -      |       |
| HCM Control Delay (s)    | 12.9   | -    | -      | 8.9   | -      |       |
| HCM Lane LOS             | B      | -    | -      | A     | -      |       |
| HCM 95th %tile Q(veh)    | 1.4    | -    | -      | 0.8   | -      |       |

| Intersection             |        |      |        |       |        |       |
|--------------------------|--------|------|--------|-------|--------|-------|
| Int Delay, s/veh         | 1.5    |      |        |       |        |       |
| Movement                 | EBT    | EBR  | WBL    | WBT   | NBL    | NBR   |
| Lane Configurations      | ↑      | ↗    | ↘      | ↑     |        | ↗     |
| Traffic Vol, veh/h       | 1329   | 31   | 51     | 352   | 0      | 44    |
| Future Vol, veh/h        | 1329   | 31   | 51     | 352   | 0      | 44    |
| Conflicting Peds, #/hr   | 0      | 0    | 0      | 0     | 0      | 0     |
| Sign Control             | Free   | Free | Free   | Free  | Stop   | Stop  |
| RT Channelized           | -      | None | -      | None  | -      | None  |
| Storage Length           | -      | 175  | 250    | -     | -      | 0     |
| Veh in Median Storage, # | 0      | -    | -      | 0     | 0      | -     |
| Grade, %                 | 0      | -    | -      | 0     | 0      | -     |
| Peak Hour Factor         | 96     | 96   | 83     | 83    | 75     | 75    |
| Heavy Vehicles, %        | 2      | 2    | 2      | 2     | 2      | 2     |
| Mvmt Flow                | 1384   | 32   | 61     | 424   | 0      | 59    |
|                          |        |      |        |       |        |       |
| Major/Minor              | Major1 |      | Major2 |       | Minor1 |       |
| Conflicting Flow All     | 0      | 0    | 1416   | 0     | -      | 1384  |
| Stage 1                  | -      | -    | -      | -     | -      | -     |
| Stage 2                  | -      | -    | -      | -     | -      | -     |
| Critical Hdwy            | -      | -    | 4.12   | -     | -      | 6.22  |
| Critical Hdwy Stg 1      | -      | -    | -      | -     | -      | -     |
| Critical Hdwy Stg 2      | -      | -    | -      | -     | -      | -     |
| Follow-up Hdwy           | -      | -    | 2.218  | -     | -      | 3.318 |
| Pot Cap-1 Maneuver       | -      | -    | 481    | -     | 0      | 176   |
| Stage 1                  | -      | -    | -      | -     | 0      | -     |
| Stage 2                  | -      | -    | -      | -     | 0      | -     |
| Platoon blocked, %       | -      | -    |        | -     |        |       |
| Mov Cap-1 Maneuver       | -      | -    | 481    | -     | -      | 176   |
| Mov Cap-2 Maneuver       | -      | -    | -      | -     | -      | -     |
| Stage 1                  | -      | -    | -      | -     | -      | -     |
| Stage 2                  | -      | -    | -      | -     | -      | -     |
|                          |        |      |        |       |        |       |
|                          |        |      |        |       |        |       |
| Approach                 | EB     |      | WB     |       | NB     |       |
| HCM Control Delay, s     | 0      |      | 1.7    |       | 35.4   |       |
| HCM LOS                  |        |      |        |       | E      |       |
|                          |        |      |        |       |        |       |
|                          |        |      |        |       |        |       |
| Minor Lane/Major Mvmt    | NBLn1  | EBT  | EBR    | WBL   | WBT    |       |
| Capacity (veh/h)         | 176    | -    | -      | 481   | -      |       |
| HCM Lane V/C Ratio       | 0.333  | -    | -      | 0.128 | -      |       |
| HCM Control Delay (s)    | 35.4   | -    | -      | 13.6  | -      |       |
| HCM Lane LOS             | E      | -    | -      | B     | -      |       |
| HCM 95th %tile Q(veh)    | 1.4    | -    | -      | 0.4   | -      |       |

| Intersection             |      |      |      |      |      |      |
|--------------------------|------|------|------|------|------|------|
| Int Delay, s/veh         | 3.2  |      |      |      |      |      |
| Movement                 | EBT  | EBR  | WBL  | WBT  | NBL  | NBR  |
| Lane Configurations      | ↑    | ↑    | ↑    | ↑    |      | ↑    |
| Traffic Vol, veh/h       | 334  | 33   | 209  | 658  | 0    | 198  |
| Future Vol, veh/h        | 334  | 33   | 209  | 658  | 0    | 198  |
| Conflicting Peds, #/hr   | 0    | 0    | 0    | 0    | 0    | 0    |
| Sign Control             | Free | Free | Free | Free | Stop | Stop |
| RT Channelized           | -    | None | -    | None | -    | None |
| Storage Length           | -    | 175  | 250  | -    | -    | 0    |
| Veh in Median Storage, # | 0    | -    | -    | 0    | 0    | -    |
| Grade, %                 | 0    | -    | -    | 0    | 0    | -    |
| Peak Hour Factor         | 89   | 89   | 80   | 80   | 85   | 85   |
| Heavy Vehicles, %        | 2    | 2    | 2    | 2    | 2    | 2    |
| Mvmt Flow                | 375  | 37   | 261  | 823  | 0    | 233  |

| Major/Minor          | Major1 | Major2 | Minor1 |
|----------------------|--------|--------|--------|
| Conflicting Flow All | 0      | 0      | 412    |
| Stage 1              | -      | -      | -      |
| Stage 2              | -      | -      | -      |
| Critical Hdwy        | -      | -      | 4.12   |
| Critical Hdwy Stg 1  | -      | -      | -      |
| Critical Hdwy Stg 2  | -      | -      | -      |
| Follow-up Hdwy       | -      | -      | 2.218  |
| Pot Cap-1 Maneuver   | -      | -      | 1147   |
| Stage 1              | -      | -      | -      |
| Stage 2              | -      | -      | -      |
| Platoon blocked, %   | -      | -      | -      |
| Mov Cap-1 Maneuver   | -      | -      | 1147   |
| Mov Cap-2 Maneuver   | -      | -      | -      |
| Stage 1              | -      | -      | -      |
| Stage 2              | -      | -      | -      |

| Approach             | EB | WB  | NB   |
|----------------------|----|-----|------|
| HCM Control Delay, s | 0  | 2.2 | 13.2 |
| HCM LOS              |    |     | B    |

| Minor Lane/Major Mvmt | NBLn1 | EBT | EBR | WBL   | WBT |
|-----------------------|-------|-----|-----|-------|-----|
| Capacity (veh/h)      | 671   | -   | -   | 1147  | -   |
| HCM Lane V/C Ratio    | 0.347 | -   | -   | 0.228 | -   |
| HCM Control Delay (s) | 13.2  | -   | -   | 9.1   | -   |
| HCM Lane LOS          | B     | -   | -   | A     | -   |
| HCM 95th %tile Q(veh) | 1.6   | -   | -   | 0.9   | -   |

Intersection

Int Delay, s/veh 0.4

| Movement                 | EBT  | EBR  | WBL  | WBT  | NBL  | NBR  |
|--------------------------|------|------|------|------|------|------|
| Lane Configurations      | ↑    | ↗    | ↘    | ↑    |      | ↗    |
| Traffic Vol, veh/h       | 1329 | 31   | 51   | 352  | 0    | 44   |
| Future Vol, veh/h        | 1329 | 31   | 51   | 352  | 0    | 44   |
| Conflicting Peds, #/hr   | 0    | 0    | 0    | 0    | 0    | 0    |
| Sign Control             | Free | Free | Free | Free | Stop | Stop |
| RT Channelized           | -    | None | -    | None | -    | Free |
| Storage Length           | -    | 175  | 250  | -    | -    | 0    |
| Veh in Median Storage, # | 0    | -    | -    | 0    | 0    | -    |
| Grade, %                 | 0    | -    | -    | 0    | 0    | -    |
| Peak Hour Factor         | 96   | 96   | 83   | 83   | 75   | 75   |
| Heavy Vehicles, %        | 2    | 2    | 2    | 2    | 2    | 2    |
| Mvmt Flow                | 1384 | 32   | 61   | 424  | 0    | 59   |

| Major/Minor          | Major1 | Major2 | Minor1 |
|----------------------|--------|--------|--------|
| Conflicting Flow All | 0      | 0      | 1416   |
| Stage 1              | -      | -      | -      |
| Stage 2              | -      | -      | -      |
| Critical Hdwy        | -      | -      | 4.12   |
| Critical Hdwy Stg 1  | -      | -      | -      |
| Critical Hdwy Stg 2  | -      | -      | -      |
| Follow-up Hdwy       | -      | -      | 2.218  |
| Pot Cap-1 Maneuver   | -      | -      | 481    |
| Stage 1              | -      | -      | -      |
| Stage 2              | -      | -      | -      |
| Platoon blocked, %   | -      | -      | -      |
| Mov Cap-1 Maneuver   | -      | -      | 481    |
| Mov Cap-2 Maneuver   | -      | -      | -      |
| Stage 1              | -      | -      | -      |
| Stage 2              | -      | -      | -      |

| Approach             | EB | WB  | NB |
|----------------------|----|-----|----|
| HCM Control Delay, s | 0  | 1.7 | 0  |
| HCM LOS              |    |     | A  |

| Minor Lane/Major Mvmt | NBLn1 | EBT | EBR | WBL   | WBT |
|-----------------------|-------|-----|-----|-------|-----|
| Capacity (veh/h)      | -     | -   | -   | 481   | -   |
| HCM Lane V/C Ratio    | -     | -   | -   | 0.128 | -   |
| HCM Control Delay (s) | 0     | -   | -   | 13.6  | -   |
| HCM Lane LOS          | A     | -   | -   | B     | -   |
| HCM 95th %tile Q(veh) | -     | -   | -   | 0.4   | -   |

| Intersection             |        |      |        |       |        |      |
|--------------------------|--------|------|--------|-------|--------|------|
| Int Delay, s/veh         | 1.6    |      |        |       |        |      |
| Movement                 | EBT    | EBR  | WBL    | WBT   | NBL    | NBR  |
| Lane Configurations      | ↑      | ↗    | ↘      | ↑     |        | ↗    |
| Traffic Vol, veh/h       | 334    | 33   | 209    | 658   | 0      | 198  |
| Future Vol, veh/h        | 334    | 33   | 209    | 658   | 0      | 198  |
| Conflicting Peds, #/hr   | 0      | 0    | 0      | 0     | 0      | 0    |
| Sign Control             | Free   | Free | Free   | Free  | Stop   | Stop |
| RT Channelized           | -      | None | -      | None  | -      | Free |
| Storage Length           | -      | 175  | 250    | -     | -      | 0    |
| Veh in Median Storage, # | 0      | -    | -      | 0     | 0      | -    |
| Grade, %                 | 0      | -    | -      | 0     | 0      | -    |
| Peak Hour Factor         | 89     | 89   | 80     | 80    | 85     | 85   |
| Heavy Vehicles, %        | 2      | 2    | 2      | 2     | 2      | 2    |
| Mvmt Flow                | 375    | 37   | 261    | 823   | 0      | 233  |
|                          |        |      |        |       |        |      |
| Major/Minor              | Major1 |      | Major2 |       | Minor1 |      |
| Conflicting Flow All     | 0      | 0    | 412    | 0     | -      | -    |
| Stage 1                  | -      | -    | -      | -     | -      | -    |
| Stage 2                  | -      | -    | -      | -     | -      | -    |
| Critical Hdwy            | -      | -    | 4.12   | -     | -      | -    |
| Critical Hdwy Stg 1      | -      | -    | -      | -     | -      | -    |
| Critical Hdwy Stg 2      | -      | -    | -      | -     | -      | -    |
| Follow-up Hdwy           | -      | -    | 2.218  | -     | -      | -    |
| Pot Cap-1 Maneuver       | -      | -    | 1147   | -     | 0      | 0    |
| Stage 1                  | -      | -    | -      | -     | 0      | 0    |
| Stage 2                  | -      | -    | -      | -     | 0      | 0    |
| Platoon blocked, %       | -      | -    |        | -     |        |      |
| Mov Cap-1 Maneuver       | -      | -    | 1147   | -     | -      | -    |
| Mov Cap-2 Maneuver       | -      | -    | -      | -     | -      | -    |
| Stage 1                  | -      | -    | -      | -     | -      | -    |
| Stage 2                  | -      | -    | -      | -     | -      | -    |
|                          |        |      |        |       |        |      |
|                          |        |      |        |       |        |      |
| Approach                 | EB     |      | WB     |       | NB     |      |
| HCM Control Delay, s     | 0      |      | 2.2    |       | 0      |      |
| HCM LOS                  |        |      |        |       | A      |      |
|                          |        |      |        |       |        |      |
|                          |        |      |        |       |        |      |
| Minor Lane/Major Mvmt    | NBLn1  | EBT  | EBR    | WBL   | WBT    |      |
| Capacity (veh/h)         | -      | -    | -      | 1147  | -      |      |
| HCM Lane V/C Ratio       | -      | -    | -      | 0.228 | -      |      |
| HCM Control Delay (s)    | 0      | -    | -      | 9.1   | -      |      |
| HCM Lane LOS             | A      | -    | -      | A     | -      |      |
| HCM 95th %tile Q(veh)    | -      | -    | -      | 0.9   | -      |      |

Intersection

Int Delay, s/veh 1.7

| Movement                 | EBT  | EBR  | WBL  | WBT  | NBL  | NBR  |
|--------------------------|------|------|------|------|------|------|
| Lane Configurations      | ↑    | ↑    | ↑    | ↑    |      | ↑    |
| Traffic Vol, veh/h       | 1614 | 37   | 58   | 427  | 0    | 47   |
| Future Vol, veh/h        | 1614 | 37   | 58   | 427  | 0    | 47   |
| Conflicting Peds, #/hr   | 0    | 0    | 0    | 0    | 0    | 0    |
| Sign Control             | Free | Free | Free | Free | Stop | Stop |
| RT Channelized           | -    | None | -    | None | -    | None |
| Storage Length           | -    | 175  | 250  | -    | -    | 0    |
| Veh in Median Storage, # | 0    | -    | -    | 0    | 0    | -    |
| Grade, %                 | 0    | -    | -    | 0    | 0    | -    |
| Peak Hour Factor         | 96   | 96   | 92   | 92   | 92   | 92   |
| Heavy Vehicles, %        | 2    | 2    | 2    | 2    | 2    | 2    |
| Mvmt Flow                | 1681 | 39   | 63   | 464  | 0    | 51   |

| Major/Minor          | Major1 | Major2 | Minor1 |
|----------------------|--------|--------|--------|
| Conflicting Flow All | 0      | 0      | 1720   |
| Stage 1              | -      | -      | -      |
| Stage 2              | -      | -      | -      |
| Critical Hdwy        | -      | -      | 4.12   |
| Critical Hdwy Stg 1  | -      | -      | -      |
| Critical Hdwy Stg 2  | -      | -      | -      |
| Follow-up Hdwy       | -      | -      | 2.218  |
| Pot Cap-1 Maneuver   | -      | -      | 368    |
| Stage 1              | -      | -      | -      |
| Stage 2              | -      | -      | -      |
| Platoon blocked, %   | -      | -      | -      |
| Mov Cap-1 Maneuver   | -      | -      | 368    |
| Mov Cap-2 Maneuver   | -      | -      | -      |
| Stage 1              | -      | -      | -      |
| Stage 2              | -      | -      | -      |

| Approach             | EB | WB | NB   |
|----------------------|----|----|------|
| HCM Control Delay, s | 0  | 2  | 57.7 |
| HCM LOS              |    |    | F    |

| Minor Lane/Major Mvmt | NBLn1 | EBT | EBR | WBL   | WBT |
|-----------------------|-------|-----|-----|-------|-----|
| Capacity (veh/h)      | 117   | -   | -   | 368   | -   |
| HCM Lane V/C Ratio    | 0.437 | -   | -   | 0.171 | -   |
| HCM Control Delay (s) | 57.7  | -   | -   | 16.8  | -   |
| HCM Lane LOS          | F     | -   | -   | C     | -   |
| HCM 95th %tile Q(veh) | 1.9   | -   | -   | 0.6   | -   |

Intersection

Int Delay, s/veh 3.2

| Movement                 | EBT  | EBR  | WBL  | WBT  | NBL  | NBR  |
|--------------------------|------|------|------|------|------|------|
| Lane Configurations      | ↑    | ↑    | ↑    | ↑    |      | ↑    |
| Traffic Vol, veh/h       | 405  | 32   | 232  | 799  | 0    | 222  |
| Future Vol, veh/h        | 405  | 32   | 232  | 799  | 0    | 222  |
| Conflicting Peds, #/hr   | 0    | 0    | 0    | 0    | 0    | 0    |
| Sign Control             | Free | Free | Free | Free | Stop | Stop |
| RT Channelized           | -    | None | -    | None | -    | None |
| Storage Length           | -    | 175  | 250  | -    | -    | 0    |
| Veh in Median Storage, # | 0    | -    | -    | 0    | 0    | -    |
| Grade, %                 | 0    | -    | -    | 0    | 0    | -    |
| Peak Hour Factor         | 92   | 92   | 92   | 92   | 92   | 92   |
| Heavy Vehicles, %        | 2    | 2    | 2    | 2    | 2    | 2    |
| Mvmt Flow                | 440  | 35   | 252  | 868  | 0    | 241  |

| Major/Minor          | Major1 | Major2 | Minor1 |
|----------------------|--------|--------|--------|
| Conflicting Flow All | 0      | 0      | 475    |
| Stage 1              | -      | -      | -      |
| Stage 2              | -      | -      | -      |
| Critical Hdwy        | -      | -      | 4.12   |
| Critical Hdwy Stg 1  | -      | -      | -      |
| Critical Hdwy Stg 2  | -      | -      | -      |
| Follow-up Hdwy       | -      | -      | 2.218  |
| Pot Cap-1 Maneuver   | -      | -      | 1087   |
| Stage 1              | -      | -      | -      |
| Stage 2              | -      | -      | -      |
| Platoon blocked, %   | -      | -      | -      |
| Mov Cap-1 Maneuver   | -      | -      | 1087   |
| Mov Cap-2 Maneuver   | -      | -      | -      |
| Stage 1              | -      | -      | -      |
| Stage 2              | -      | -      | -      |

| Approach             | EB | WB  | NB   |
|----------------------|----|-----|------|
| HCM Control Delay, s | 0  | 2.1 | 14.5 |
| HCM LOS              |    |     | B    |

| Minor Lane/Major Mvmt | NBLn1 | EBT | EBR | WBL   | WBT |
|-----------------------|-------|-----|-----|-------|-----|
| Capacity (veh/h)      | 617   | -   | -   | 1087  | -   |
| HCM Lane V/C Ratio    | 0.391 | -   | -   | 0.232 | -   |
| HCM Control Delay (s) | 14.5  | -   | -   | 9.3   | -   |
| HCM Lane LOS          | B     | -   | -   | A     | -   |
| HCM 95th %tile Q(veh) | 1.9   | -   | -   | 0.9   | -   |

| Intersection             |      |      |      |      |      |      |
|--------------------------|------|------|------|------|------|------|
| Int Delay, s/veh         | 0.9  |      |      |      |      |      |
| Movement                 | EBT  | EBR  | WBL  | WBT  | NBL  | NBR  |
| Lane Configurations      | ↑↑   |      | ↑    | ↑↑   |      | ↑    |
| Traffic Vol, veh/h       | 1614 | 37   | 58   | 427  | 0    | 47   |
| Future Vol, veh/h        | 1614 | 37   | 58   | 427  | 0    | 47   |
| Conflicting Peds, #/hr   | 0    | 0    | 0    | 0    | 0    | 0    |
| Sign Control             | Free | Free | Free | Free | Stop | Stop |
| RT Channelized           | -    | None | -    | None | -    | None |
| Storage Length           | -    | -    | 250  | -    | -    | 0    |
| Veh in Median Storage, # | 0    | -    | -    | 0    | 0    | -    |
| Grade, %                 | 0    | -    | -    | 0    | 0    | -    |
| Peak Hour Factor         | 96   | 96   | 92   | 92   | 92   | 92   |
| Heavy Vehicles, %        | 2    | 2    | 2    | 2    | 2    | 2    |
| Mvmt Flow                | 1681 | 39   | 63   | 464  | 0    | 51   |

| Major/Minor          | Major1 | Major2 | Minor1 |
|----------------------|--------|--------|--------|
| Conflicting Flow All | 0      | 0      | 1720   |
| Stage 1              | -      | -      | -      |
| Stage 2              | -      | -      | -      |
| Critical Hdwy        | -      | -      | 4.14   |
| Critical Hdwy Stg 1  | -      | -      | -      |
| Critical Hdwy Stg 2  | -      | -      | -      |
| Follow-up Hdwy       | -      | -      | 2.22   |
| Pot Cap-1 Maneuver   | -      | -      | 364    |
| Stage 1              | -      | -      | -      |
| Stage 2              | -      | -      | -      |
| Platoon blocked, %   | -      | -      | -      |
| Mov Cap-1 Maneuver   | -      | -      | 364    |
| Mov Cap-2 Maneuver   | -      | -      | -      |
| Stage 1              | -      | -      | -      |
| Stage 2              | -      | -      | -      |

| Approach             | EB | WB | NB   |
|----------------------|----|----|------|
| HCM Control Delay, s | 0  | 2  | 19.5 |
| HCM LOS              |    |    | C    |

| Minor Lane/Major Mvmt | NBLn1 | EBT | EBR | WBL   | WBT |
|-----------------------|-------|-----|-----|-------|-----|
| Capacity (veh/h)      | 299   | -   | -   | 364   | -   |
| HCM Lane V/C Ratio    | 0.171 | -   | -   | 0.173 | -   |
| HCM Control Delay (s) | 19.5  | -   | -   | 16.9  | -   |
| HCM Lane LOS          | C     | -   | -   | C     | -   |
| HCM 95th %tile Q(veh) | 0.6   | -   | -   | 0.6   | -   |



| Intersection             |        |      |        |       |        |      |
|--------------------------|--------|------|--------|-------|--------|------|
| Int Delay, s/veh         | 2.8    |      |        |       |        |      |
| Movement                 | EBT    | EBR  | WBL    | WBT   | NBL    | NBR  |
| Lane Configurations      | ↑↑↱    |      | ↱      | ↑↑    |        | ↱    |
| Traffic Vol, veh/h       | 405    | 32   | 232    | 799   | 0      | 222  |
| Future Vol, veh/h        | 405    | 32   | 232    | 799   | 0      | 222  |
| Conflicting Peds, #/hr   | 0      | 0    | 0      | 0     | 0      | 0    |
| Sign Control             | Free   | Free | Free   | Free  | Stop   | Stop |
| RT Channelized           | -      | None | -      | None  | -      | None |
| Storage Length           | -      | -    | 250    | -     | -      | 0    |
| Veh in Median Storage, # | 0      | -    | -      | 0     | 0      | -    |
| Grade, %                 | 0      | -    | -      | 0     | 0      | -    |
| Peak Hour Factor         | 92     | 92   | 92     | 92    | 92     | 92   |
| Heavy Vehicles, %        | 2      | 2    | 2      | 2     | 2      | 2    |
| Mvmt Flow                | 440    | 35   | 252    | 868   | 0      | 241  |
|                          |        |      |        |       |        |      |
| Major/Minor              | Major1 |      | Major2 |       | Minor1 |      |
| Conflicting Flow All     | 0      | 0    | 475    | 0     | -      | 238  |
| Stage 1                  | -      | -    | -      | -     | -      | -    |
| Stage 2                  | -      | -    | -      | -     | -      | -    |
| Critical Hdwy            | -      | -    | 4.14   | -     | -      | 6.94 |
| Critical Hdwy Stg 1      | -      | -    | -      | -     | -      | -    |
| Critical Hdwy Stg 2      | -      | -    | -      | -     | -      | -    |
| Follow-up Hdwy           | -      | -    | 2.22   | -     | -      | 3.32 |
| Pot Cap-1 Maneuver       | -      | -    | 1083   | -     | 0      | 763  |
| Stage 1                  | -      | -    | -      | -     | 0      | -    |
| Stage 2                  | -      | -    | -      | -     | 0      | -    |
| Platoon blocked, %       | -      | -    |        | -     |        |      |
| Mov Cap-1 Maneuver       | -      | -    | 1083   | -     | -      | 763  |
| Mov Cap-2 Maneuver       | -      | -    | -      | -     | -      | -    |
| Stage 1                  | -      | -    | -      | -     | -      | -    |
| Stage 2                  | -      | -    | -      | -     | -      | -    |
|                          |        |      |        |       |        |      |
|                          |        |      |        |       |        |      |
| Approach                 | EB     |      | WB     |       | NB     |      |
| HCM Control Delay, s     | 0      |      | 2.1    |       | 11.9   |      |
| HCM LOS                  |        |      |        |       | B      |      |
|                          |        |      |        |       |        |      |
|                          |        |      |        |       |        |      |
| Minor Lane/Major Mvmt    | NBLn1  | EBT  | EBR    | WBL   | WBT    |      |
| Capacity (veh/h)         | 763    | -    | -      | 1083  | -      |      |
| HCM Lane V/C Ratio       | 0.316  | -    | -      | 0.233 | -      |      |
| HCM Control Delay (s)    | 11.9   | -    | -      | 9.3   | -      |      |
| HCM Lane LOS             | B      | -    | -      | A     | -      |      |
| HCM 95th %tile Q(veh)    | 1.4    | -    | -      | 0.9   | -      |      |

Intersection

Int Delay, s/veh 1

| Movement                 | EBT  | EBR  | WBL  | WBT  | NBL  | NBR  |
|--------------------------|------|------|------|------|------|------|
| Lane Configurations      | ↑↑   |      | ↑    | ↑↑   |      | ↑    |
| Traffic Vol, veh/h       | 1614 | 38   | 61   | 427  | 0    | 51   |
| Future Vol, veh/h        | 1614 | 38   | 61   | 427  | 0    | 51   |
| Conflicting Peds, #/hr   | 0    | 0    | 0    | 0    | 0    | 0    |
| Sign Control             | Free | Free | Free | Free | Stop | Stop |
| RT Channelized           | -    | None | -    | None | -    | None |
| Storage Length           | -    | -    | 250  | -    | -    | 0    |
| Veh in Median Storage, # | 0    | -    | -    | 0    | 0    | -    |
| Grade, %                 | 0    | -    | -    | 0    | 0    | -    |
| Peak Hour Factor         | 96   | 96   | 92   | 92   | 92   | 92   |
| Heavy Vehicles, %        | 2    | 2    | 2    | 2    | 2    | 2    |
| Mvmt Flow                | 1681 | 40   | 66   | 464  | 0    | 55   |

| Major/Minor          | Major1 | Major2 | Minor1 |
|----------------------|--------|--------|--------|
| Conflicting Flow All | 0      | 0      | 1721   |
| Stage 1              | -      | -      | -      |
| Stage 2              | -      | -      | -      |
| Critical Hdwy        | -      | -      | 4.14   |
| Critical Hdwy Stg 1  | -      | -      | -      |
| Critical Hdwy Stg 2  | -      | -      | -      |
| Follow-up Hdwy       | -      | -      | 2.22   |
| Pot Cap-1 Maneuver   | -      | -      | 364    |
| Stage 1              | -      | -      | -      |
| Stage 2              | -      | -      | -      |
| Platoon blocked, %   | -      | -      | -      |
| Mov Cap-1 Maneuver   | -      | -      | 364    |
| Mov Cap-2 Maneuver   | -      | -      | -      |
| Stage 1              | -      | -      | -      |
| Stage 2              | -      | -      | -      |

| Approach             | EB | WB  | NB   |
|----------------------|----|-----|------|
| HCM Control Delay, s | 0  | 2.1 | 19.8 |
| HCM LOS              |    |     | C    |

| Minor Lane/Major Mvmt | NBLn1 | EBT | EBR | WBL   | WBT |
|-----------------------|-------|-----|-----|-------|-----|
| Capacity (veh/h)      | 299   | -   | -   | 364   | -   |
| HCM Lane V/C Ratio    | 0.185 | -   | -   | 0.182 | -   |
| HCM Control Delay (s) | 19.8  | -   | -   | 17.1  | -   |
| HCM Lane LOS          | C     | -   | -   | C     | -   |
| HCM 95th %tile Q(veh) | 0.7   | -   | -   | 0.7   | -   |

| Intersection             |        |      |        |       |        |      |
|--------------------------|--------|------|--------|-------|--------|------|
| Int Delay, s/veh         | 3      |      |        |       |        |      |
| Movement                 | EBT    | EBR  | WBL    | WBT   | NBL    | NBR  |
| Lane Configurations      | ↑↑↱    |      | ↱      | ↑↑    |        | ↱    |
| Traffic Vol, veh/h       | 405    | 38   | 249    | 799   | 0      | 236  |
| Future Vol, veh/h        | 405    | 38   | 249    | 799   | 0      | 236  |
| Conflicting Peds, #/hr   | 0      | 0    | 0      | 0     | 0      | 0    |
| Sign Control             | Free   | Free | Free   | Free  | Stop   | Stop |
| RT Channelized           | -      | None | -      | None  | -      | None |
| Storage Length           | -      | -    | 250    | -     | -      | 0    |
| Veh in Median Storage, # | 0      | -    | -      | 0     | 0      | -    |
| Grade, %                 | 0      | -    | -      | 0     | 0      | -    |
| Peak Hour Factor         | 92     | 92   | 92     | 92    | 92     | 92   |
| Heavy Vehicles, %        | 2      | 2    | 2      | 2     | 2      | 2    |
| Mvmt Flow                | 440    | 41   | 271    | 868   | 0      | 257  |
|                          |        |      |        |       |        |      |
| Major/Minor              | Major1 |      | Major2 |       | Minor1 |      |
| Conflicting Flow All     | 0      | 0    | 481    | 0     | -      | 241  |
| Stage 1                  | -      | -    | -      | -     | -      | -    |
| Stage 2                  | -      | -    | -      | -     | -      | -    |
| Critical Hdwy            | -      | -    | 4.14   | -     | -      | 6.94 |
| Critical Hdwy Stg 1      | -      | -    | -      | -     | -      | -    |
| Critical Hdwy Stg 2      | -      | -    | -      | -     | -      | -    |
| Follow-up Hdwy           | -      | -    | 2.22   | -     | -      | 3.32 |
| Pot Cap-1 Maneuver       | -      | -    | 1078   | -     | 0      | 760  |
| Stage 1                  | -      | -    | -      | -     | 0      | -    |
| Stage 2                  | -      | -    | -      | -     | 0      | -    |
| Platoon blocked, %       | -      | -    |        | -     |        |      |
| Mov Cap-1 Maneuver       | -      | -    | 1078   | -     | -      | 760  |
| Mov Cap-2 Maneuver       | -      | -    | -      | -     | -      | -    |
| Stage 1                  | -      | -    | -      | -     | -      | -    |
| Stage 2                  | -      | -    | -      | -     | -      | -    |
|                          |        |      |        |       |        |      |
|                          |        |      |        |       |        |      |
| Approach                 | EB     |      | WB     |       | NB     |      |
| HCM Control Delay, s     | 0      |      | 2.2    |       | 12.1   |      |
| HCM LOS                  |        |      |        |       | B      |      |
|                          |        |      |        |       |        |      |
|                          |        |      |        |       |        |      |
| Minor Lane/Major Mvmt    | NBLn1  | EBT  | EBR    | WBL   | WBT    |      |
| Capacity (veh/h)         | 760    | -    | -      | 1078  | -      |      |
| HCM Lane V/C Ratio       | 0.338  | -    | -      | 0.251 | -      |      |
| HCM Control Delay (s)    | 12.1   | -    | -      | 9.5   | -      |      |
| HCM Lane LOS             | B      | -    | -      | A     | -      |      |
| HCM 95th %tile Q(veh)    | 1.5    | -    | -      | 1     | -      |      |

| Intersection             |        |       |        |      |        |       |
|--------------------------|--------|-------|--------|------|--------|-------|
| Int Delay, s/veh         | 0.6    |       |        |      |        |       |
| Movement                 | EBT    | EBR   | WBL    | WBT  | NBL    | NBR   |
| Lane Configurations      | ↑      | ↗     | ↖      | ↑    | ↖      | ↗     |
| Traffic Vol, veh/h       | 1301   | 13    | 55     | 388  | 11     | 141   |
| Future Vol, veh/h        | 1301   | 13    | 55     | 388  | 11     | 141   |
| Conflicting Peds, #/hr   | 0      | 0     | 0      | 0    | 0      | 0     |
| Sign Control             | Free   | Free  | Free   | Free | Stop   | Stop  |
| RT Channelized           | -      | None  | -      | None | -      | Free  |
| Storage Length           | -      | 175   | 250    | -    | 275    | 0     |
| Veh in Median Storage, # | 0      | -     | -      | 0    | 1      | -     |
| Grade, %                 | 0      | -     | -      | 0    | 0      | -     |
| Peak Hour Factor         | 98     | 98    | 91     | 91   | 76     | 76    |
| Heavy Vehicles, %        | 2      | 2     | 2      | 2    | 2      | 2     |
| Mvmt Flow                | 1328   | 13    | 60     | 426  | 14     | 186   |
|                          |        |       |        |      |        |       |
| Major/Minor              | Major1 |       | Major2 |      | Minor1 |       |
| Conflicting Flow All     | 0      | 0     | 1341   | 0    | 1874   | -     |
| Stage 1                  | -      | -     | -      | -    | 1328   | -     |
| Stage 2                  | -      | -     | -      | -    | 546    | -     |
| Critical Hdwy            | -      | -     | 4.12   | -    | 6.42   | -     |
| Critical Hdwy Stg 1      | -      | -     | -      | -    | 5.42   | -     |
| Critical Hdwy Stg 2      | -      | -     | -      | -    | 5.42   | -     |
| Follow-up Hdwy           | -      | -     | 2.218  | -    | 3.518  | -     |
| Pot Cap-1 Maneuver       | -      | -     | 514    | -    | 79     | 0     |
| Stage 1                  | -      | -     | -      | -    | 247    | 0     |
| Stage 2                  | -      | -     | -      | -    | 580    | 0     |
| Platoon blocked, %       | -      | -     |        | -    |        |       |
| Mov Cap-1 Maneuver       | -      | -     | 514    | -    | 70     | -     |
| Mov Cap-2 Maneuver       | -      | -     | -      | -    | 179    | -     |
| Stage 1                  | -      | -     | -      | -    | 247    | -     |
| Stage 2                  | -      | -     | -      | -    | 512    | -     |
|                          |        |       |        |      |        |       |
|                          |        |       |        |      |        |       |
| Approach                 | EB     |       | WB     |      | NB     |       |
| HCM Control Delay, s     | 0      |       | 1.6    |      | 26.9   |       |
| HCM LOS                  | D      |       |        |      |        |       |
|                          |        |       |        |      |        |       |
|                          |        |       |        |      |        |       |
| Minor Lane/Major Mvmt    | NBLn1  | NBLn2 | EBT    | EBR  | WBL    | WBT   |
| Capacity (veh/h)         | 179    |       | -      | -    | -      | 514   |
| HCM Lane V/C Ratio       | 0.081  |       | -      | -    | -      | 0.118 |
| HCM Control Delay (s)    | 26.9   |       | 0      | -    | -      | 12.9  |
| HCM Lane LOS             | D      |       | A      | -    | -      | B     |
| HCM 95th %tile Q(veh)    | 0.3    |       | -      | -    | -      | 0.4   |

| Intersection             |        |       |        |      |        |       |
|--------------------------|--------|-------|--------|------|--------|-------|
| Int Delay, s/veh         | 1.3    |       |        |      |        |       |
| Movement                 | EBT    | EBR   | WBL    | WBT  | NBL    | NBR   |
| Lane Configurations      | ↑      | ↗     | ↘      | ↑    | ↘      | ↗     |
| Traffic Vol, veh/h       | 484    | 24    | 171    | 826  | 10     | 115   |
| Future Vol, veh/h        | 484    | 24    | 171    | 826  | 10     | 115   |
| Conflicting Peds, #/hr   | 0      | 0     | 0      | 0    | 0      | 0     |
| Sign Control             | Free   | Free  | Free   | Free | Stop   | Stop  |
| RT Channelized           | -      | None  | -      | None | -      | Free  |
| Storage Length           | -      | 175   | 250    | -    | 275    | 0     |
| Veh in Median Storage, # | 0      | -     | -      | 0    | 1      | -     |
| Grade, %                 | 0      | -     | -      | 0    | 0      | -     |
| Peak Hour Factor         | 91     | 91    | 80     | 80   | 80     | 80    |
| Heavy Vehicles, %        | 2      | 2     | 2      | 2    | 2      | 2     |
| Mvmt Flow                | 532    | 26    | 214    | 1033 | 13     | 144   |
|                          |        |       |        |      |        |       |
| Major/Minor              | Major1 |       | Major2 |      | Minor1 |       |
| Conflicting Flow All     | 0      | 0     | 558    | 0    | 1993   | -     |
| Stage 1                  | -      | -     | -      | -    | 532    | -     |
| Stage 2                  | -      | -     | -      | -    | 1461   | -     |
| Critical Hdwy            | -      | -     | 4.12   | -    | 6.42   | -     |
| Critical Hdwy Stg 1      | -      | -     | -      | -    | 5.42   | -     |
| Critical Hdwy Stg 2      | -      | -     | -      | -    | 5.42   | -     |
| Follow-up Hdwy           | -      | -     | 2.218  | -    | 3.518  | -     |
| Pot Cap-1 Maneuver       | -      | -     | 1013   | -    | 66     | 0     |
| Stage 1                  | -      | -     | -      | -    | 589    | 0     |
| Stage 2                  | -      | -     | -      | -    | 213    | 0     |
| Platoon blocked, %       | -      | -     |        | -    |        |       |
| Mov Cap-1 Maneuver       | -      | -     | 1013   | -    | 52     | -     |
| Mov Cap-2 Maneuver       | -      | -     | -      | -    | 135    | -     |
| Stage 1                  | -      | -     | -      | -    | 589    | -     |
| Stage 2                  | -      | -     | -      | -    | 168    | -     |
|                          |        |       |        |      |        |       |
|                          |        |       |        |      |        |       |
| Approach                 | EB     |       | WB     |      | NB     |       |
| HCM Control Delay, s     | 0      |       | 1.6    |      | 34.4   |       |
| HCM LOS                  | D      |       |        |      |        |       |
|                          |        |       |        |      |        |       |
| Minor Lane/Major Mvmt    | NBLn1  | NBLn2 | EBT    | EBR  | WBL    | WBT   |
| Capacity (veh/h)         | 135    |       | -      | -    | -      | 1013  |
| HCM Lane V/C Ratio       | 0.093  |       | -      | -    | -      | 0.211 |
| HCM Control Delay (s)    | 34.4   |       | 0      | -    | -      | 9.5   |
| HCM Lane LOS             | D      |       | A      | -    | -      | A     |
| HCM 95th %tile Q(veh)    | 0.3    |       | -      | -    | -      | 0.8   |

| Intersection             |        |       |        |      |        |      |
|--------------------------|--------|-------|--------|------|--------|------|
| Int Delay, s/veh         | 0.7    |       |        |      |        |      |
| Movement                 | EBT    | EBR   | WBL    | WBT  | NBL    | NBR  |
| Lane Configurations      | ↑      | ↗     | ↘      | ↑    | ↘      | ↗    |
| Traffic Vol, veh/h       | 1338   | 13    | 59     | 399  | 11     | 151  |
| Future Vol, veh/h        | 1338   | 13    | 59     | 399  | 11     | 151  |
| Conflicting Peds, #/hr   | 0      | 0     | 0      | 0    | 0      | 0    |
| Sign Control             | Free   | Free  | Free   | Free | Stop   | Stop |
| RT Channelized           | -      | None  | -      | None | -      | Free |
| Storage Length           | -      | 175   | 250    | -    | 275    | 0    |
| Veh in Median Storage, # | 0      | -     | -      | 0    | 1      | -    |
| Grade, %                 | 0      | -     | -      | 0    | 0      | -    |
| Peak Hour Factor         | 98     | 98    | 91     | 91   | 76     | 76   |
| Heavy Vehicles, %        | 2      | 2     | 2      | 2    | 2      | 2    |
| Mvmt Flow                | 1365   | 13    | 65     | 438  | 14     | 199  |
|                          |        |       |        |      |        |      |
| Major/Minor              | Major1 |       | Major2 |      | Minor1 |      |
| Conflicting Flow All     | 0      | 0     | 1378   | 0    | 1933   | -    |
| Stage 1                  | -      | -     | -      | -    | 1365   | -    |
| Stage 2                  | -      | -     | -      | -    | 568    | -    |
| Critical Hdwy            | -      | -     | 4.12   | -    | 6.42   | -    |
| Critical Hdwy Stg 1      | -      | -     | -      | -    | 5.42   | -    |
| Critical Hdwy Stg 2      | -      | -     | -      | -    | 5.42   | -    |
| Follow-up Hdwy           | -      | -     | 2.218  | -    | 3.518  | -    |
| Pot Cap-1 Maneuver       | -      | -     | 498    | -    | 73     | 0    |
| Stage 1                  | -      | -     | -      | -    | 237    | 0    |
| Stage 2                  | -      | -     | -      | -    | 567    | 0    |
| Platoon blocked, %       | -      | -     |        | -    |        |      |
| Mov Cap-1 Maneuver       | -      | -     | 498    | -    | 63     | -    |
| Mov Cap-2 Maneuver       | -      | -     | -      | -    | 171    | -    |
| Stage 1                  | -      | -     | -      | -    | 237    | -    |
| Stage 2                  | -      | -     | -      | -    | 493    | -    |
|                          |        |       |        |      |        |      |
|                          |        |       |        |      |        |      |
| Approach                 | EB     |       | WB     |      | NB     |      |
| HCM Control Delay, s     | 0      |       | 1.7    |      | 28     |      |
| HCM LOS                  |        |       |        |      | D      |      |
|                          |        |       |        |      |        |      |
| Minor Lane/Major Mvmt    | NBLn1  | NBLn2 | EBT    | EBR  | WBL    | WBT  |
| Capacity (veh/h)         | 171    | -     | -      | -    | 498    | -    |
| HCM Lane V/C Ratio       | 0.085  | -     | -      | -    | 0.13   | -    |
| HCM Control Delay (s)    | 28     | 0     | -      | -    | 13.3   | -    |
| HCM Lane LOS             | D      | A     | -      | -    | B      | -    |
| HCM 95th %tile Q(veh)    | 0.3    | -     | -      | -    | 0.4    | -    |

| Intersection             |        |       |        |      |        |       |
|--------------------------|--------|-------|--------|------|--------|-------|
| Int Delay, s/veh         | 1.4    |       |        |      |        |       |
| Movement                 | EBT    | EBR   | WBL    | WBT  | NBL    | NBR   |
| Lane Configurations      | ↑      | ↗     | ↘      | ↑    | ↘      | ↗     |
| Traffic Vol, veh/h       | 500    | 25    | 182    | 852  | 10     | 122   |
| Future Vol, veh/h        | 500    | 25    | 182    | 852  | 10     | 122   |
| Conflicting Peds, #/hr   | 0      | 0     | 0      | 0    | 0      | 0     |
| Sign Control             | Free   | Free  | Free   | Free | Stop   | Stop  |
| RT Channelized           | -      | None  | -      | None | -      | Free  |
| Storage Length           | -      | 175   | 250    | -    | 275    | 0     |
| Veh in Median Storage, # | 0      | -     | -      | 0    | 1      | -     |
| Grade, %                 | 0      | -     | -      | 0    | 0      | -     |
| Peak Hour Factor         | 91     | 91    | 80     | 80   | 80     | 80    |
| Heavy Vehicles, %        | 2      | 2     | 2      | 2    | 2      | 2     |
| Mvmt Flow                | 549    | 27    | 228    | 1065 | 13     | 153   |
|                          |        |       |        |      |        |       |
| Major/Minor              | Major1 |       | Major2 |      | Minor1 |       |
| Conflicting Flow All     | 0      | 0     | 576    | 0    | 2070   | -     |
| Stage 1                  | -      | -     | -      | -    | 549    | -     |
| Stage 2                  | -      | -     | -      | -    | 1521   | -     |
| Critical Hdwy            | -      | -     | 4.12   | -    | 6.42   | -     |
| Critical Hdwy Stg 1      | -      | -     | -      | -    | 5.42   | -     |
| Critical Hdwy Stg 2      | -      | -     | -      | -    | 5.42   | -     |
| Follow-up Hdwy           | -      | -     | 2.218  | -    | 3.518  | -     |
| Pot Cap-1 Maneuver       | -      | -     | 997    | -    | 59     | 0     |
| Stage 1                  | -      | -     | -      | -    | 579    | 0     |
| Stage 2                  | -      | -     | -      | -    | 199    | 0     |
| Platoon blocked, %       | -      | -     |        | -    |        |       |
| Mov Cap-1 Maneuver       | -      | -     | 997    | -    | 45     | -     |
| Mov Cap-2 Maneuver       | -      | -     | -      | -    | 123    | -     |
| Stage 1                  | -      | -     | -      | -    | 579    | -     |
| Stage 2                  | -      | -     | -      | -    | 153    | -     |
|                          |        |       |        |      |        |       |
|                          |        |       |        |      |        |       |
| Approach                 | EB     |       | WB     |      | NB     |       |
| HCM Control Delay, s     | 0      |       | 1.7    |      | 37.6   |       |
| HCM LOS                  | E      |       |        |      |        |       |
|                          |        |       |        |      |        |       |
|                          |        |       |        |      |        |       |
| Minor Lane/Major Mvmt    | NBLn1  | NBLn2 | EBT    | EBR  | WBL    | WBT   |
| Capacity (veh/h)         | 123    |       | -      | -    | -      | 997   |
| HCM Lane V/C Ratio       | 0.102  |       | -      | -    | -      | 0.228 |
| HCM Control Delay (s)    | 37.6   |       | 0      | -    | -      | 9.7   |
| HCM Lane LOS             | E      |       | A      | -    | -      | A     |
| HCM 95th %tile Q(veh)    | 0.3    |       | -      | -    | -      | 0.9   |

| Intersection             |        |       |        |      |        |       |
|--------------------------|--------|-------|--------|------|--------|-------|
| Int Delay, s/veh         | 0.7    |       |        |      |        |       |
| Movement                 | EBT    | EBR   | WBL    | WBT  | NBL    | NBR   |
| Lane Configurations      | ↑      | ↗     | ↖      | ↑    | ↖      | ↗     |
| Traffic Vol, veh/h       | 1342   | 13    | 62     | 402  | 11     | 155   |
| Future Vol, veh/h        | 1342   | 13    | 62     | 402  | 11     | 155   |
| Conflicting Peds, #/hr   | 0      | 0     | 0      | 0    | 0      | 0     |
| Sign Control             | Free   | Free  | Free   | Free | Stop   | Stop  |
| RT Channelized           | -      | None  | -      | None | -      | Free  |
| Storage Length           | -      | 175   | 250    | -    | 275    | 0     |
| Veh in Median Storage, # | 0      | -     | -      | 0    | 1      | -     |
| Grade, %                 | 0      | -     | -      | 0    | 0      | -     |
| Peak Hour Factor         | 98     | 98    | 91     | 91   | 76     | 76    |
| Heavy Vehicles, %        | 2      | 2     | 2      | 2    | 2      | 2     |
| Mvmt Flow                | 1369   | 13    | 68     | 442  | 14     | 204   |
|                          |        |       |        |      |        |       |
| Major/Minor              | Major1 |       | Major2 |      | Minor1 |       |
| Conflicting Flow All     | 0      | 0     | 1382   | 0    | 1947   | -     |
| Stage 1                  | -      | -     | -      | -    | 1369   | -     |
| Stage 2                  | -      | -     | -      | -    | 578    | -     |
| Critical Hdwy            | -      | -     | 4.12   | -    | 6.42   | -     |
| Critical Hdwy Stg 1      | -      | -     | -      | -    | 5.42   | -     |
| Critical Hdwy Stg 2      | -      | -     | -      | -    | 5.42   | -     |
| Follow-up Hdwy           | -      | -     | 2.218  | -    | 3.518  | -     |
| Pot Cap-1 Maneuver       | -      | -     | 496    | -    | 71     | 0     |
| Stage 1                  | -      | -     | -      | -    | 236    | 0     |
| Stage 2                  | -      | -     | -      | -    | 561    | 0     |
| Platoon blocked, %       | -      | -     |        | -    |        |       |
| Mov Cap-1 Maneuver       | -      | -     | 496    | -    | 61     | -     |
| Mov Cap-2 Maneuver       | -      | -     | -      | -    | 169    | -     |
| Stage 1                  | -      | -     | -      | -    | 236    | -     |
| Stage 2                  | -      | -     | -      | -    | 484    | -     |
|                          |        |       |        |      |        |       |
|                          |        |       |        |      |        |       |
| Approach                 | EB     |       | WB     |      | NB     |       |
| HCM Control Delay, s     | 0      |       | 1.8    |      | 28.3   |       |
| HCM LOS                  | D      |       |        |      |        |       |
|                          |        |       |        |      |        |       |
| Minor Lane/Major Mvmt    | NBLn1  | NBLn2 | EBT    | EBR  | WBL    | WBT   |
| Capacity (veh/h)         | 169    |       | -      | -    | -      | 496   |
| HCM Lane V/C Ratio       | 0.086  |       | -      | -    | -      | 0.137 |
| HCM Control Delay (s)    | 28.3   |       | 0      | -    | -      | 13.4  |
| HCM Lane LOS             | D      |       | A      | -    | -      | B     |
| HCM 95th %tile Q(veh)    | 0.3    |       | -      | -    | -      | 0.5   |



Intersection

Int Delay, s/veh 1.5

| Movement                 | EBT  | EBR  | WBL  | WBT  | NBL  | NBR  |
|--------------------------|------|------|------|------|------|------|
| Lane Configurations      | ↑    | ↗    | ↘    | ↑    | ↘    | ↗    |
| Traffic Vol, veh/h       | 514  | 25   | 199  | 869  | 10   | 136  |
| Future Vol, veh/h        | 514  | 25   | 199  | 869  | 10   | 136  |
| Conflicting Peds, #/hr   | 0    | 0    | 0    | 0    | 0    | 0    |
| Sign Control             | Free | Free | Free | Free | Stop | Stop |
| RT Channelized           | -    | None | -    | None | -    | Free |
| Storage Length           | -    | 175  | 250  | -    | 275  | 0    |
| Veh in Median Storage, # | 0    | -    | -    | 0    | 1    | -    |
| Grade, %                 | 0    | -    | -    | 0    | 0    | -    |
| Peak Hour Factor         | 91   | 91   | 80   | 80   | 80   | 80   |
| Heavy Vehicles, %        | 2    | 2    | 2    | 2    | 2    | 2    |
| Mvmt Flow                | 565  | 27   | 249  | 1086 | 13   | 170  |

| Major/Minor          | Major1 | Major2 | Minor1 |
|----------------------|--------|--------|--------|
| Conflicting Flow All | 0      | 0      | 592    |
| Stage 1              | -      | -      | -      |
| Stage 2              | -      | -      | -      |
| Critical Hdwy        | -      | -      | 4.12   |
| Critical Hdwy Stg 1  | -      | -      | -      |
| Critical Hdwy Stg 2  | -      | -      | -      |
| Follow-up Hdwy       | -      | -      | 2.218  |
| Pot Cap-1 Maneuver   | -      | -      | 984    |
| Stage 1              | -      | -      | -      |
| Stage 2              | -      | -      | -      |
| Platoon blocked, %   | -      | -      | -      |
| Mov Cap-1 Maneuver   | -      | -      | 984    |
| Mov Cap-2 Maneuver   | -      | -      | -      |
| Stage 1              | -      | -      | -      |
| Stage 2              | -      | -      | -      |

| Approach             | EB | WB  | NB   |
|----------------------|----|-----|------|
| HCM Control Delay, s | 0  | 1.8 | 41.1 |
| HCM LOS              |    |     | E    |

| Minor Lane/Major Mvmt | NBLn1 | NBLn2 | EBT | EBR | WBL   | WBT |
|-----------------------|-------|-------|-----|-----|-------|-----|
| Capacity (veh/h)      | 112   | -     | -   | -   | 984   | -   |
| HCM Lane V/C Ratio    | 0.112 | -     | -   | -   | 0.253 | -   |
| HCM Control Delay (s) | 41.1  | 0     | -   | -   | 9.9   | -   |
| HCM Lane LOS          | E     | A     | -   | -   | A     | -   |
| HCM 95th %tile Q(veh) | 0.4   | -     | -   | -   | 1     | -   |

| Intersection             |        |       |        |      |        |      |
|--------------------------|--------|-------|--------|------|--------|------|
| Int Delay, s/veh         | 0.8    |       |        |      |        |      |
| Movement                 | EBT    | EBR   | WBL    | WBT  | NBL    | NBR  |
| Lane Configurations      | ↑      | ↗     | ↘      | ↑    | ↘      | ↗    |
| Traffic Vol, veh/h       | 1624   | 16    | 71     | 485  | 14     | 182  |
| Future Vol, veh/h        | 1624   | 16    | 71     | 485  | 14     | 182  |
| Conflicting Peds, #/hr   | 0      | 0     | 0      | 0    | 0      | 0    |
| Sign Control             | Free   | Free  | Free   | Free | Stop   | Stop |
| RT Channelized           | -      | None  | -      | None | -      | Free |
| Storage Length           | -      | 175   | 250    | -    | 275    | 0    |
| Veh in Median Storage, # | 0      | -     | -      | 0    | 1      | -    |
| Grade, %                 | 0      | -     | -      | 0    | 0      | -    |
| Peak Hour Factor         | 98     | 98    | 92     | 92   | 92     | 92   |
| Heavy Vehicles, %        | 2      | 2     | 2      | 2    | 2      | 2    |
| Mvmt Flow                | 1657   | 16    | 77     | 527  | 15     | 198  |
|                          |        |       |        |      |        |      |
| Major/Minor              | Major1 |       | Major2 |      | Minor1 |      |
| Conflicting Flow All     | 0      | 0     | 1673   | 0    | 2338   | -    |
| Stage 1                  | -      | -     | -      | -    | 1657   | -    |
| Stage 2                  | -      | -     | -      | -    | 681    | -    |
| Critical Hdwy            | -      | -     | 4.12   | -    | 6.42   | -    |
| Critical Hdwy Stg 1      | -      | -     | -      | -    | 5.42   | -    |
| Critical Hdwy Stg 2      | -      | -     | -      | -    | 5.42   | -    |
| Follow-up Hdwy           | -      | -     | 2.218  | -    | 3.518  | -    |
| Pot Cap-1 Maneuver       | -      | -     | 383    | -    | 40     | 0    |
| Stage 1                  | -      | -     | -      | -    | 171    | 0    |
| Stage 2                  | -      | -     | -      | -    | 503    | 0    |
| Platoon blocked, %       | -      | -     |        | -    |        |      |
| Mov Cap-1 Maneuver       | -      | -     | 383    | -    | 32     | -    |
| Mov Cap-2 Maneuver       | -      | -     | -      | -    | 121    | -    |
| Stage 1                  | -      | -     | -      | -    | 171    | -    |
| Stage 2                  | -      | -     | -      | -    | 402    | -    |
|                          |        |       |        |      |        |      |
|                          |        |       |        |      |        |      |
| Approach                 | EB     |       | WB     |      | NB     |      |
| HCM Control Delay, s     | 0      |       | 2.1    |      | 39     |      |
| HCM LOS                  |        |       |        |      | E      |      |
|                          |        |       |        |      |        |      |
|                          |        |       |        |      |        |      |
| Minor Lane/Major Mvmt    | NBLn1  | NBLn2 | EBT    | EBR  | WBL    | WBT  |
| Capacity (veh/h)         | 121    | -     | -      | -    | 383    | -    |
| HCM Lane V/C Ratio       | 0.126  | -     | -      | -    | 0.201  | -    |
| HCM Control Delay (s)    | 39     | 0     | -      | -    | 16.8   | -    |
| HCM Lane LOS             | E      | A     | -      | -    | C      | -    |
| HCM 95th %tile Q(veh)    | 0.4    | -     | -      | -    | 0.7    | -    |

| Intersection             |        |       |        |      |        |       |
|--------------------------|--------|-------|--------|------|--------|-------|
| Int Delay, s/veh         | 1.5    |       |        |      |        |       |
| Movement                 | EBT    | EBR   | WBL    | WBT  | NBL    | NBR   |
| Lane Configurations      | ↑      | ↗     | ↘      | ↑    | ↘      | ↗     |
| Traffic Vol, veh/h       | 606    | 30    | 220    | 1034 | 12     | 148   |
| Future Vol, veh/h        | 606    | 30    | 220    | 1034 | 12     | 148   |
| Conflicting Peds, #/hr   | 0      | 0     | 0      | 0    | 0      | 0     |
| Sign Control             | Free   | Free  | Free   | Free | Stop   | Stop  |
| RT Channelized           | -      | None  | -      | None | -      | Free  |
| Storage Length           | -      | 175   | 250    | -    | 275    | 0     |
| Veh in Median Storage, # | 0      | -     | -      | 0    | 1      | -     |
| Grade, %                 | 0      | -     | -      | 0    | 0      | -     |
| Peak Hour Factor         | 92     | 92    | 92     | 92   | 92     | 92    |
| Heavy Vehicles, %        | 2      | 2     | 2      | 2    | 2      | 2     |
| Mvmt Flow                | 659    | 33    | 239    | 1124 | 13     | 161   |
|                          |        |       |        |      |        |       |
| Major/Minor              | Major1 |       | Major2 |      | Minor1 |       |
| Conflicting Flow All     | 0      | 0     | 692    | 0    | 2261   | -     |
| Stage 1                  | -      | -     | -      | -    | 659    | -     |
| Stage 2                  | -      | -     | -      | -    | 1602   | -     |
| Critical Hdwy            | -      | -     | 4.12   | -    | 6.42   | -     |
| Critical Hdwy Stg 1      | -      | -     | -      | -    | 5.42   | -     |
| Critical Hdwy Stg 2      | -      | -     | -      | -    | 5.42   | -     |
| Follow-up Hdwy           | -      | -     | 2.218  | -    | 3.518  | -     |
| Pot Cap-1 Maneuver       | -      | -     | 903    | -    | 45     | 0     |
| Stage 1                  | -      | -     | -      | -    | 515    | 0     |
| Stage 2                  | -      | -     | -      | -    | 182    | 0     |
| Platoon blocked, %       | -      | -     |        | -    |        |       |
| Mov Cap-1 Maneuver       | -      | -     | 903    | -    | 33     | -     |
| Mov Cap-2 Maneuver       | -      | -     | -      | -    | 106    | -     |
| Stage 1                  | -      | -     | -      | -    | 515    | -     |
| Stage 2                  | -      | -     | -      | -    | 134    | -     |
|                          |        |       |        |      |        |       |
|                          |        |       |        |      |        |       |
| Approach                 | EB     |       | WB     |      | NB     |       |
| HCM Control Delay, s     | 0      |       | 1.8    |      | 43.7   |       |
| HCM LOS                  | E      |       |        |      |        |       |
|                          |        |       |        |      |        |       |
|                          |        |       |        |      |        |       |
| Minor Lane/Major Mvmt    | NBLn1  | NBLn2 | EBT    | EBR  | WBL    | WBT   |
| Capacity (veh/h)         | 106    |       | -      | -    | -      | 903   |
| HCM Lane V/C Ratio       | 0.123  |       | -      | -    | -      | 0.265 |
| HCM Control Delay (s)    | 43.7   |       | 0      | -    | -      | 10.4  |
| HCM Lane LOS             | E      |       | A      | -    | -      | B     |
| HCM 95th %tile Q(veh)    | 0.4    |       | -      | -    | -      | 1.1   |

| Intersection             |        |       |        |      |        |       |
|--------------------------|--------|-------|--------|------|--------|-------|
| Int Delay, s/veh         | 0.9    |       |        |      |        |       |
| Movement                 | EBT    | EBR   | WBL    | WBT  | NBL    | NBR   |
| Lane Configurations      | ↑↑     |       | ↱      | ↑↑   | ↱      | ↱     |
| Traffic Vol, veh/h       | 1624   | 16    | 71     | 485  | 14     | 182   |
| Future Vol, veh/h        | 1624   | 16    | 71     | 485  | 14     | 182   |
| Conflicting Peds, #/hr   | 0      | 0     | 0      | 0    | 0      | 0     |
| Sign Control             | Free   | Free  | Free   | Free | Stop   | Stop  |
| RT Channelized           | -      | None  | -      | None | -      | Free  |
| Storage Length           | -      | -     | 250    | -    | 275    | 0     |
| Veh in Median Storage, # | 0      | -     | -      | 0    | 1      | -     |
| Grade, %                 | 0      | -     | -      | 0    | 0      | -     |
| Peak Hour Factor         | 98     | 98    | 92     | 92   | 92     | 92    |
| Heavy Vehicles, %        | 2      | 2     | 2      | 2    | 2      | 2     |
| Mvmt Flow                | 1657   | 16    | 77     | 527  | 15     | 198   |
|                          |        |       |        |      |        |       |
| Major/Minor              | Major1 |       | Major2 |      | Minor1 |       |
| Conflicting Flow All     | 0      | 0     | 1673   | 0    | 2083   | -     |
| Stage 1                  | -      | -     | -      | -    | 1665   | -     |
| Stage 2                  | -      | -     | -      | -    | 418    | -     |
| Critical Hdwy            | -      | -     | 4.14   | -    | 6.84   | -     |
| Critical Hdwy Stg 1      | -      | -     | -      | -    | 5.84   | -     |
| Critical Hdwy Stg 2      | -      | -     | -      | -    | 5.84   | -     |
| Follow-up Hdwy           | -      | -     | 2.22   | -    | 3.52   | -     |
| Pot Cap-1 Maneuver       | -      | -     | 380    | -    | 46     | 0     |
| Stage 1                  | -      | -     | -      | -    | 139    | 0     |
| Stage 2                  | -      | -     | -      | -    | 632    | 0     |
| Platoon blocked, %       | -      | -     |        | -    |        |       |
| Mov Cap-1 Maneuver       | -      | -     | 380    | -    | 37     | -     |
| Mov Cap-2 Maneuver       | -      | -     | -      | -    | 110    | -     |
| Stage 1                  | -      | -     | -      | -    | 139    | -     |
| Stage 2                  | -      | -     | -      | -    | 504    | -     |
|                          |        |       |        |      |        |       |
|                          |        |       |        |      |        |       |
| Approach                 | EB     |       | WB     |      | NB     |       |
| HCM Control Delay, s     | 0      |       | 2.2    |      | 42.9   |       |
| HCM LOS                  | E      |       |        |      |        |       |
|                          |        |       |        |      |        |       |
|                          |        |       |        |      |        |       |
| Minor Lane/Major Mvmt    | NBLn1  | NBLn2 | EBT    | EBR  | WBL    | WBT   |
| Capacity (veh/h)         | 110    |       | -      | -    | -      | 380   |
| HCM Lane V/C Ratio       | 0.138  |       | -      | -    | -      | 0.203 |
| HCM Control Delay (s)    | 42.9   |       | 0      | -    | -      | 16.9  |
| HCM Lane LOS             | E      |       | A      | -    | -      | C     |
| HCM 95th %tile Q(veh)    | 0.5    |       | -      | -    | -      | 0.8   |

| Intersection             |        |       |        |      |        |       |
|--------------------------|--------|-------|--------|------|--------|-------|
| Int Delay, s/veh         | 1.4    |       |        |      |        |       |
| Movement                 | EBT    | EBR   | WBL    | WBT  | NBL    | NBR   |
| Lane Configurations      | ↑↑     |       | ↘      | ↑↑   | ↘      | ↘     |
| Traffic Vol, veh/h       | 606    | 30    | 220    | 1034 | 12     | 148   |
| Future Vol, veh/h        | 606    | 30    | 220    | 1034 | 12     | 148   |
| Conflicting Peds, #/hr   | 0      | 0     | 0      | 0    | 0      | 0     |
| Sign Control             | Free   | Free  | Free   | Free | Stop   | Stop  |
| RT Channelized           | -      | None  | -      | None | -      | Free  |
| Storage Length           | -      | -     | 250    | -    | 275    | 0     |
| Veh in Median Storage, # | 0      | -     | -      | 0    | 1      | -     |
| Grade, %                 | 0      | -     | -      | 0    | 0      | -     |
| Peak Hour Factor         | 92     | 92    | 92     | 92   | 92     | 92    |
| Heavy Vehicles, %        | 2      | 2     | 2      | 2    | 2      | 2     |
| Mvmt Flow                | 659    | 33    | 239    | 1124 | 13     | 161   |
|                          |        |       |        |      |        |       |
| Major/Minor              | Major1 |       | Major2 |      | Minor1 |       |
| Conflicting Flow All     | 0      | 0     | 692    | 0    | 1716   | -     |
| Stage 1                  | -      | -     | -      | -    | 676    | -     |
| Stage 2                  | -      | -     | -      | -    | 1040   | -     |
| Critical Hdwy            | -      | -     | 4.14   | -    | 6.84   | -     |
| Critical Hdwy Stg 1      | -      | -     | -      | -    | 5.84   | -     |
| Critical Hdwy Stg 2      | -      | -     | -      | -    | 5.84   | -     |
| Follow-up Hdwy           | -      | -     | 2.22   | -    | 3.52   | -     |
| Pot Cap-1 Maneuver       | -      | -     | 899    | -    | 81     | 0     |
| Stage 1                  | -      | -     | -      | -    | 467    | 0     |
| Stage 2                  | -      | -     | -      | -    | 302    | 0     |
| Platoon blocked, %       | -      | -     |        | -    |        |       |
| Mov Cap-1 Maneuver       | -      | -     | 899    | -    | 59     | -     |
| Mov Cap-2 Maneuver       | -      | -     | -      | -    | 160    | -     |
| Stage 1                  | -      | -     | -      | -    | 467    | -     |
| Stage 2                  | -      | -     | -      | -    | 222    | -     |
|                          |        |       |        |      |        |       |
|                          |        |       |        |      |        |       |
| Approach                 | EB     |       | WB     |      | NB     |       |
| HCM Control Delay, s     | 0      |       | 1.8    |      | 29.5   |       |
| HCM LOS                  |        |       |        |      | D      |       |
|                          |        |       |        |      |        |       |
|                          |        |       |        |      |        |       |
| Minor Lane/Major Mvmt    | NBLn1  | NBLn2 | EBT    | EBR  | WBL    | WBT   |
| Capacity (veh/h)         | 160    |       | -      | -    | -      | 899   |
| HCM Lane V/C Ratio       | 0.082  |       | -      | -    | -      | 0.266 |
| HCM Control Delay (s)    | 29.5   |       | 0      | -    | -      | 10.4  |
| HCM Lane LOS             | D      |       | A      | -    | -      | B     |
| HCM 95th %tile Q(veh)    | 0.3    |       | -      | -    | -      | 1.1   |

Intersection

Int Delay, s/veh 0.9

| Movement                 | EBT  | EBR  | WBL  | WBT  | NBL  | NBR  |
|--------------------------|------|------|------|------|------|------|
| Lane Configurations      | ↑↑   |      | ↖    | ↑↑   | ↖    | ↖    |
| Traffic Vol, veh/h       | 1628 | 16   | 74   | 488  | 14   | 186  |
| Future Vol, veh/h        | 1628 | 16   | 74   | 488  | 14   | 186  |
| Conflicting Peds, #/hr   | 0    | 0    | 0    | 0    | 0    | 0    |
| Sign Control             | Free | Free | Free | Free | Stop | Stop |
| RT Channelized           | -    | None | -    | None | -    | Free |
| Storage Length           | -    | -    | 250  | -    | 275  | 0    |
| Veh in Median Storage, # | 0    | -    | -    | 0    | 1    | -    |
| Grade, %                 | 0    | -    | -    | 0    | 0    | -    |
| Peak Hour Factor         | 98   | 98   | 92   | 92   | 92   | 92   |
| Heavy Vehicles, %        | 2    | 2    | 2    | 2    | 2    | 2    |
| Mvmt Flow                | 1661 | 16   | 80   | 530  | 15   | 202  |

| Major/Minor          | Major1 | Major2 | Minor1 |
|----------------------|--------|--------|--------|
| Conflicting Flow All | 0      | 0      | 1677   |
| Stage 1              | -      | -      | -      |
| Stage 2              | -      | -      | -      |
| Critical Hdwy        | -      | -      | 4.14   |
| Critical Hdwy Stg 1  | -      | -      | -      |
| Critical Hdwy Stg 2  | -      | -      | -      |
| Follow-up Hdwy       | -      | -      | 2.22   |
| Pot Cap-1 Maneuver   | -      | -      | 378    |
| Stage 1              | -      | -      | -      |
| Stage 2              | -      | -      | -      |
| Platoon blocked, %   | -      | -      | -      |
| Mov Cap-1 Maneuver   | -      | -      | 378    |
| Mov Cap-2 Maneuver   | -      | -      | -      |
| Stage 1              | -      | -      | -      |
| Stage 2              | -      | -      | -      |

| Approach             | EB | WB  | NB   |
|----------------------|----|-----|------|
| HCM Control Delay, s | 0  | 2.2 | 43.3 |
| HCM LOS              |    |     | E    |

| Minor Lane/Major Mvmt | NBLn1 | NBLn2 | EBT | EBR | WBL   | WBT |
|-----------------------|-------|-------|-----|-----|-------|-----|
| Capacity (veh/h)      | 109   | -     | -   | -   | 378   | -   |
| HCM Lane V/C Ratio    | 0.14  | -     | -   | -   | 0.213 | -   |
| HCM Control Delay (s) | 43.3  | 0     | -   | -   | 17.1  | -   |
| HCM Lane LOS          | E     | A     | -   | -   | C     | -   |
| HCM 95th %tile Q(veh) | 0.5   | -     | -   | -   | 0.8   | -   |

Intersection

Int Delay, s/veh 1.5

| Movement                 | EBT  | EBR  | WBL  | WBT  | NBL  | NBR  |
|--------------------------|------|------|------|------|------|------|
| Lane Configurations      | ↑↑   |      | ↖    | ↑↑   | ↖    | ↖    |
| Traffic Vol, veh/h       | 620  | 30   | 237  | 1051 | 12   | 162  |
| Future Vol, veh/h        | 620  | 30   | 237  | 1051 | 12   | 162  |
| Conflicting Peds, #/hr   | 0    | 0    | 0    | 0    | 0    | 0    |
| Sign Control             | Free | Free | Free | Free | Stop | Stop |
| RT Channelized           | -    | None | -    | None | -    | Free |
| Storage Length           | -    | -    | 250  | -    | 275  | 0    |
| Veh in Median Storage, # | 0    | -    | -    | 0    | 1    | -    |
| Grade, %                 | 0    | -    | -    | 0    | 0    | -    |
| Peak Hour Factor         | 92   | 92   | 92   | 92   | 92   | 92   |
| Heavy Vehicles, %        | 2    | 2    | 2    | 2    | 2    | 2    |
| Mvmt Flow                | 674  | 33   | 258  | 1142 | 13   | 176  |

| Major/Minor          | Major1 | Major2 | Minor1 |
|----------------------|--------|--------|--------|
| Conflicting Flow All | 0      | 0      | 707    |
| Stage 1              | -      | -      | -      |
| Stage 2              | -      | -      | -      |
| Critical Hdwy        | -      | -      | 4.14   |
| Critical Hdwy Stg 1  | -      | -      | -      |
| Critical Hdwy Stg 2  | -      | -      | -      |
| Follow-up Hdwy       | -      | -      | 2.22   |
| Pot Cap-1 Maneuver   | -      | -      | 887    |
| Stage 1              | -      | -      | -      |
| Stage 2              | -      | -      | -      |
| Platoon blocked, %   | -      | -      | -      |
| Mov Cap-1 Maneuver   | -      | -      | 887    |
| Mov Cap-2 Maneuver   | -      | -      | -      |
| Stage 1              | -      | -      | -      |
| Stage 2              | -      | -      | -      |

| Approach             | EB | WB | NB   |
|----------------------|----|----|------|
| HCM Control Delay, s | 0  | 2  | 31.7 |
| HCM LOS              |    |    | D    |

| Minor Lane/Major Mvmt | NBLn1 | NBLn2 | EBT | EBR | WBL  | WBT |
|-----------------------|-------|-------|-----|-----|------|-----|
| Capacity (veh/h)      | 148   | -     | -   | -   | 887  | -   |
| HCM Lane V/C Ratio    | 0.088 | -     | -   | -   | 0.29 | -   |
| HCM Control Delay (s) | 31.7  | 0     | -   | -   | 10.7 | -   |
| HCM Lane LOS          | D     | A     | -   | -   | B    | -   |
| HCM 95th %tile Q(veh) | 0.3   | -     | -   | -   | 1.2  | -   |

# APPENDIX E

## Queues Analysis Worksheets

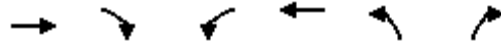


## Queues

2023 Total AM.syn

02/25/2021

## 1: W Meadows &amp; Midland Ave



| Lane Group              | EBT   | EBR  | WBL  | WBT  | NBL  | NBR  |
|-------------------------|-------|------|------|------|------|------|
| Lane Group Flow (vph)   | 1346  | 136  | 78   | 311  | 87   | 126  |
| v/c Ratio               | 1.02  | 0.12 | 0.57 | 0.22 | 0.32 | 0.36 |
| Control Delay           | 49.3  | 3.3  | 30.3 | 4.1  | 49.2 | 10.9 |
| Queue Delay             | 0.0   | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  |
| Total Delay             | 49.3  | 3.3  | 30.3 | 4.1  | 49.2 | 10.9 |
| Queue Length 50th (ft)  | ~1125 | 15   | 12   | 55   | 61   | 0    |
| Queue Length 95th (ft)  | #1387 | 34   | #69  | 80   | 94   | 32   |
| Internal Link Dist (ft) | 864   |      |      | 883  | 389  |      |
| Turn Bay Length (ft)    |       | 150  | 200  |      |      |      |
| Base Capacity (vph)     | 1318  | 1140 | 136  | 1468 | 270  | 348  |
| Starvation Cap Reductn  | 0     | 0    | 0    | 0    | 0    | 0    |
| Spillback Cap Reductn   | 0     | 0    | 0    | 0    | 0    | 0    |
| Storage Cap Reductn     | 0     | 0    | 0    | 0    | 0    | 0    |
| Reduced v/c Ratio       | 1.02  | 0.12 | 0.57 | 0.21 | 0.32 | 0.36 |

## Intersection Summary

- ~ Volume exceeds capacity, queue is theoretically infinite.  
Queue shown is maximum after two cycles.
- # 95th percentile volume exceeds capacity, queue may be longer.  
Queue shown is maximum after two cycles.

## Queues

2023 Total PM.syn

## 1: W Meadows &amp; Midland Ave

02/25/2021

|                         |  |  |  |  |  |  |
|-------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|
| Lane Group              | EBT                                                                               | EBR                                                                               | WBL                                                                               | WBT                                                                               | NBL                                                                               | NBR                                                                               |
| Lane Group Flow (vph)   | 343                                                                               | 160                                                                               | 95                                                                                | 758                                                                               | 370                                                                               | 82                                                                                |
| v/c Ratio               | 0.48                                                                              | 0.23                                                                              | 0.25                                                                              | 0.87                                                                              | 0.48                                                                              | 0.11                                                                              |
| Control Delay           | 24.7                                                                              | 3.7                                                                               | 15.0                                                                              | 34.5                                                                              | 24.4                                                                              | 5.7                                                                               |
| Queue Delay             | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               |
| Total Delay             | 24.7                                                                              | 3.7                                                                               | 15.0                                                                              | 34.5                                                                              | 24.4                                                                              | 5.7                                                                               |
| Queue Length 50th (ft)  | 160                                                                               | 0                                                                                 | 31                                                                                | 395                                                                               | 152                                                                               | 0                                                                                 |
| Queue Length 95th (ft)  | 219                                                                               | 31                                                                                | 48                                                                                | 414                                                                               | 311                                                                               | 31                                                                                |
| Internal Link Dist (ft) | 864                                                                               |                                                                                   |                                                                                   | 883                                                                               | 389                                                                               |                                                                                   |
| Turn Bay Length (ft)    |                                                                                   | 150                                                                               | 200                                                                               |                                                                                   |                                                                                   |                                                                                   |
| Base Capacity (vph)     | 1168                                                                              | 1052                                                                              | 382                                                                               | 1369                                                                              | 776                                                                               | 740                                                                               |
| Starvation Cap Reductn  | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 |
| Spillback Cap Reductn   | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 |
| Storage Cap Reductn     | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 |
| Reduced v/c Ratio       | 0.29                                                                              | 0.15                                                                              | 0.25                                                                              | 0.55                                                                              | 0.48                                                                              | 0.11                                                                              |
| Intersection Summary    |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |

## Queues

2040 Total AM.syn

## 1: W Meadows &amp; Midland Ave

02/25/2021



| Lane Group              | EBT  | WBL  | WBT  | NBL  | NBR  |
|-------------------------|------|------|------|------|------|
| Lane Group Flow (vph)   | 1799 | 93   | 374  | 84   | 127  |
| v/c Ratio               | 0.82 | 0.47 | 0.15 | 0.24 | 0.31 |
| Control Delay           | 19.6 | 20.2 | 4.6  | 43.1 | 9.7  |
| Queue Delay             | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  |
| Total Delay             | 19.6 | 20.2 | 4.6  | 43.1 | 9.7  |
| Queue Length 50th (ft)  | 471  | 16   | 35   | 53   | 0    |
| Queue Length 95th (ft)  | 626  | 65   | 49   | 107  | 54   |
| Internal Link Dist (ft) | 864  |      | 883  | 389  |      |
| Turn Bay Length (ft)    |      | 200  |      |      |      |
| Base Capacity (vph)     | 2546 | 243  | 2982 | 350  | 414  |
| Starvation Cap Reductn  | 0    | 0    | 0    | 0    | 0    |
| Spillback Cap Reductn   | 0    | 0    | 0    | 0    | 0    |
| Storage Cap Reductn     | 0    | 0    | 0    | 0    | 0    |
| Reduced v/c Ratio       | 0.71 | 0.38 | 0.13 | 0.24 | 0.31 |
| Intersection Summary    |      |      |      |      |      |

## Queues

2040 Total PM.syn

02/25/2021

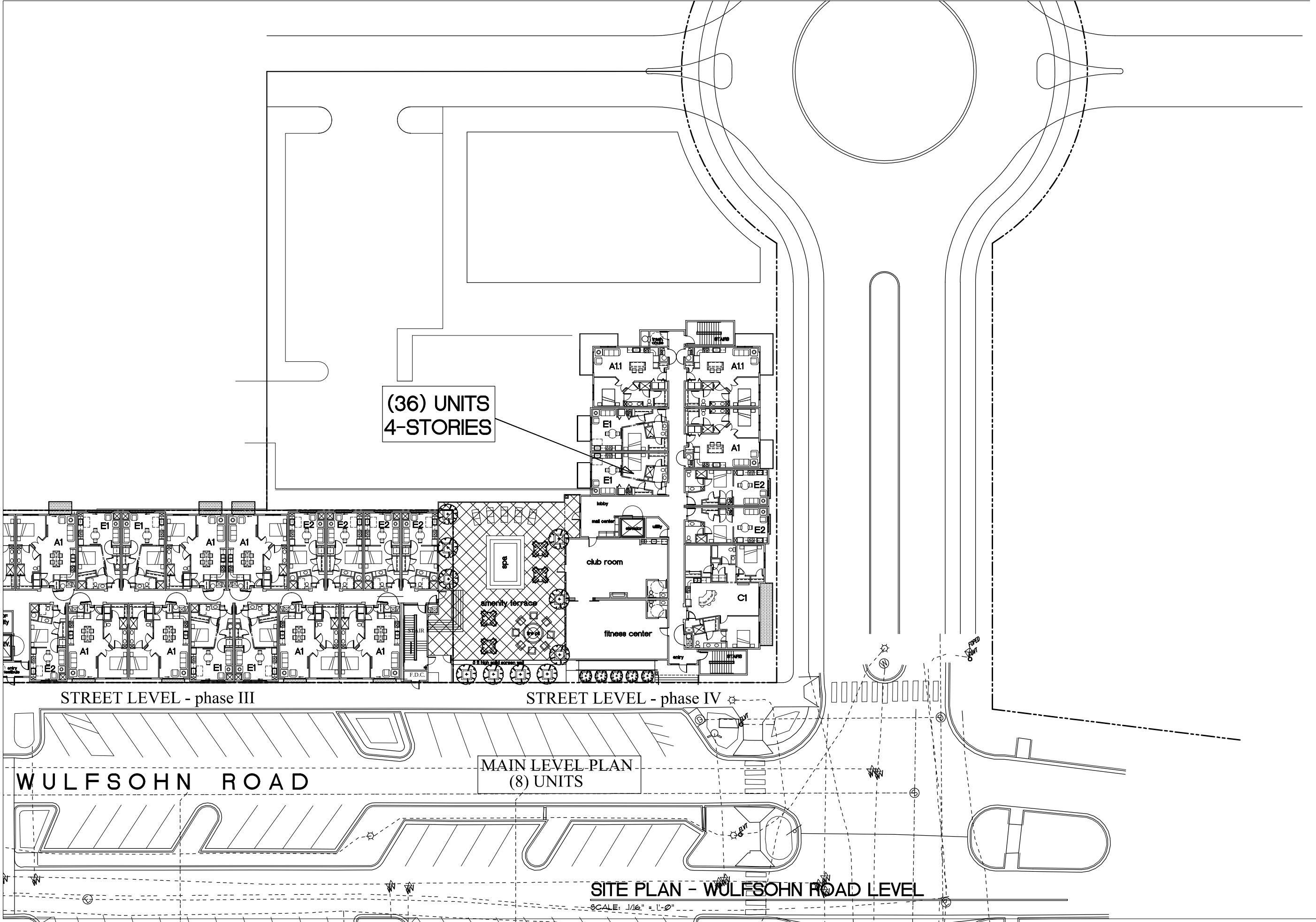
## 1: W Meadows &amp; Midland Ave

|                         |  |  |  |  |  |
|-------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|
| Lane Group              | EBT                                                                               | WBL                                                                               | WBT                                                                               | NBL                                                                               | NBR                                                                               |
| Lane Group Flow (vph)   | 563                                                                               | 96                                                                                | 772                                                                               | 425                                                                               | 95                                                                                |
| v/c Ratio               | 0.70                                                                              | 0.39                                                                              | 0.66                                                                              | 0.42                                                                              | 0.10                                                                              |
| Control Delay           | 38.2                                                                              | 27.7                                                                              | 31.3                                                                              | 15.1                                                                              | 3.0                                                                               |
| Queue Delay             | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               |
| Total Delay             | 38.2                                                                              | 27.7                                                                              | 31.3                                                                              | 15.1                                                                              | 3.0                                                                               |
| Queue Length 50th (ft)  | 163                                                                               | 43                                                                                | 222                                                                               | 148                                                                               | 0                                                                                 |
| Queue Length 95th (ft)  | 231                                                                               | 79                                                                                | 282                                                                               | 276                                                                               | 26                                                                                |
| Internal Link Dist (ft) | 864                                                                               |                                                                                   | 883                                                                               | 389                                                                               |                                                                                   |
| Turn Bay Length (ft)    |                                                                                   | 200                                                                               |                                                                                   |                                                                                   |                                                                                   |
| Base Capacity (vph)     | 1223                                                                              | 290                                                                               | 1836                                                                              | 1023                                                                              | 955                                                                               |
| Starvation Cap Reductn  | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 |
| Spillback Cap Reductn   | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 |
| Storage Cap Reductn     | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 |
| Reduced v/c Ratio       | 0.46                                                                              | 0.33                                                                              | 0.42                                                                              | 0.42                                                                              | 0.10                                                                              |
| Intersection Summary    |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |

# APPENDIX F

## Conceptual Site Plan





PROJECT NUMBER

20-029

SHEET TITLE

SITE PLAN  
STREET LEVEL (WULFSOHN RD)  
SCALE: 1/16" = 1'-0"

PROJECT/OWNER

LOFTS AT RED MOUNTAIN  
PHASE IV  
WULFSOHN ROAD / EAST MEADOWS  
LOT 8  
GLENWOOD SPRINGS, CO  
STONELEIGH COMPANIES, LLC

ARCHITECT



architecture  
2033 dan drive  
layton, utah 84040  
(801) 593-9338  
(801) 593-9328 FAX

REVISION DATE

XX

DATE

15 FEB 2021

SHEET NUMBER

A1.1





**GLENWOOD MEADOWS NO. 2**  
A RESUBDIVISION OF PARCEL B, GLENWOOD MEADOWS NO. 1,  
BEING A PARCEL OF LAND LOCATED IN SECTIONS 5, 6, 8 & 9, TOWNSHIP 6 SOUTH, RANGE 89 WEST,  
OF THE SIXTH PRINCIPAL MERIDIAN, CITY OF GLENWOOD SPRINGS, COUNTY OF GARFIELD, STATE OF COLORADO

**CERTIFICATE OF DEDICATION AND OWNERSHIP**

KNOW ALL MEN BY THESE PRESENTS THAT GLENWOOD MEADOWS, LLC, A COLORADO LIMITED LIABILITY COMPANY BEING SOLE OWNER(S) IN FEE SIMPLE OF ALL THAT REAL PROPERTY DESCRIBED AS FOLLOWS:

PARCEL B,  
GLENWOOD MEADOWS NO. 1  
CITY OF GLENWOOD SPRINGS  
COUNTY OF GARFIELD  
STATE OF COLORADO

AND CONTAINING 339.597 ACRES, MORE OR LESS: HAVE BY THESE PRESENTS LAID OUT, PLATTED AND SUBDIVIDED THE SAME INTO LOTS AND TRACTS AS SHOWN HEREON AND DESIGNATE THE SAME AS GLENWOOD MEADOWS NO. 2 IN THE CITY OF GLENWOOD SPRINGS, COUNTY OF GARFIELD, COLORADO; AND DO HEREBY GRANT TO THE CITY OF GLENWOOD SPRINGS, COUNTY OF GARFIELD, COLORADO, FOR PUBLIC USE TRACT A, TRACT B, TRACT D, AND TRACT E AS SHOWN HEREON FOR USE AS PARKLAND/OPEN SPACE; TRACT C FOR USE AS PUBLIC STREETS AS SHOWN HEREON INCLUDING AVENUES, DRIVES, COURTS, PLACES AND ALLYS, AND THE UTILITY EASEMENTS SHOWN HEREON FOR UTILITY PURPOSES ONLY; AND SO FURTHER STATE THAT THIS SUBDIVISION SHALL BE SUBJECT TO THE SUBDIVISION AND DEVELOPMENT IMPROVEMENTS AGREEMENT FILED AND RECORDED FOR THIS SUBDIVISION IN THE OFFICE OF THE CLERK AND RECORDER OF GARFIELD COUNTY, COLORADO AS RECEPTION NO. 657444

EXECUTED THIS 6 DAY OF August, A.D., 2004

OWNER: GLENWOOD MEADOWS, LLC, A COLORADO LIMITED LIABILITY COMPANY.

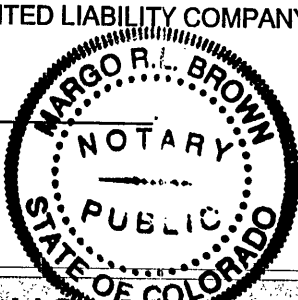
BY: DUNRENE MANAGEMENT, INC., A COLORADO LIMITED LIABILITY CORPORATION, ITS MANAGER

BY: Robert Duncan Macgregor, ITS PRESIDENT

STATE OF COLORADO )  
                                  ) SS.  
COUNTY OF GARFIELD )

THE FOREGOING DEDICATION WAS ACKNOWLEDGED BEFORE ME THIS 6th DAY OF August, A.D., 2004 BY Robert Duncan Macgregor AS PRESIDENT OF DUNRENE MANAGEMENT, INC., A COLORADO CORPORATION, THE MANAGER OF GLENWOOD MEADOWS, LLC, A COLORADO LIMITED LIABILITY COMPANY.

MY COMMISSION EXPIRES 12-3-2007  
WITNESS MY HAND AND SEAL



**DEED OF TRUST HOLDER**

ALPINE BANK, ASPEN

Alpine Bank  
ALPINE BANK, ASPEN

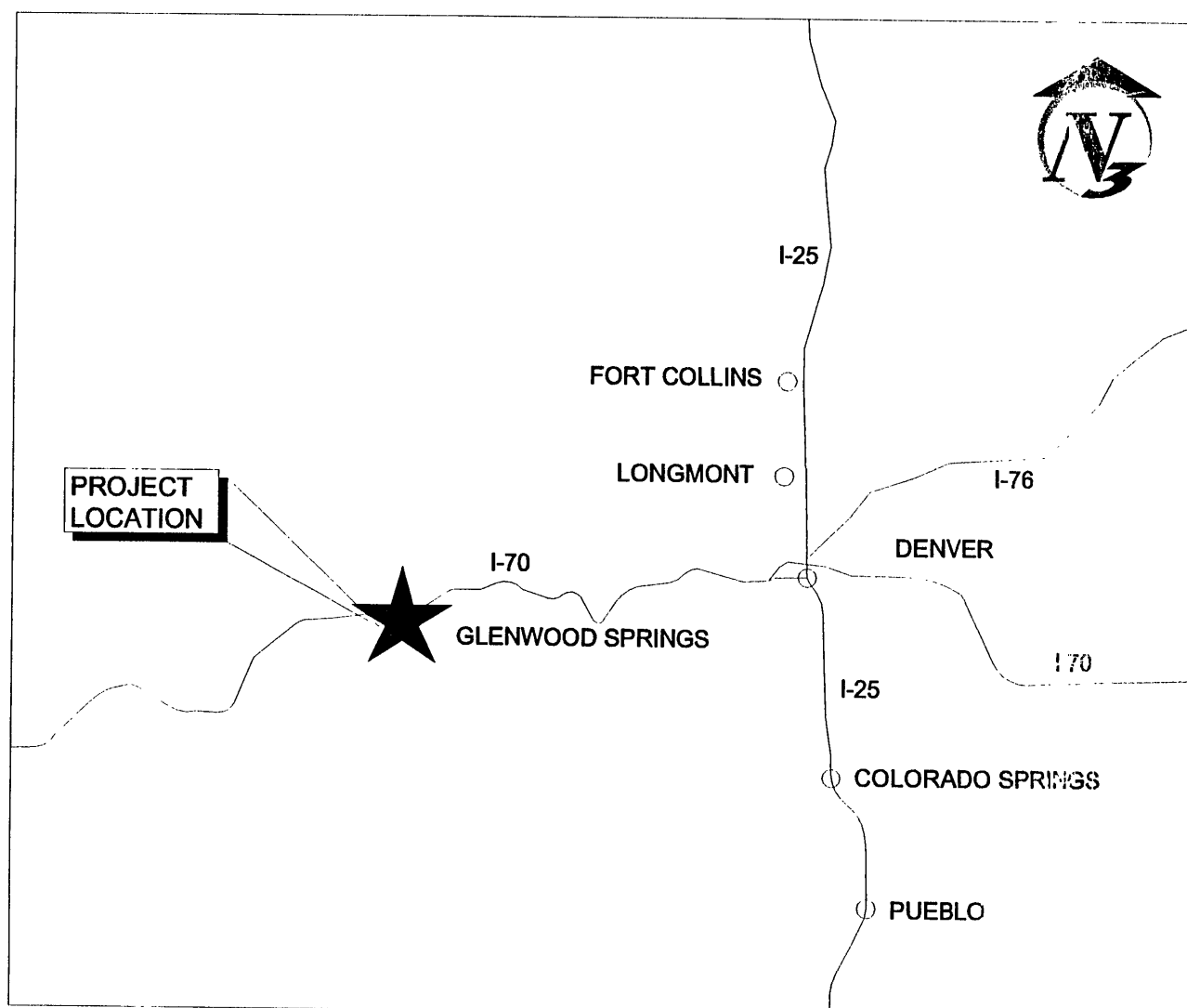
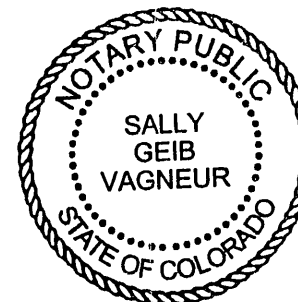
STATE OF COLORADO )  
                                  ) SS.  
COUNTY OF GARFIELD )

THE FOREGOING SIGNATURE WAS ACKNOWLEDGED BEFORE ME THIS 4th DAY OF August, A.D., 2004 BY Ken Wilson AS V.P. of Alpine Bank, Aspen.

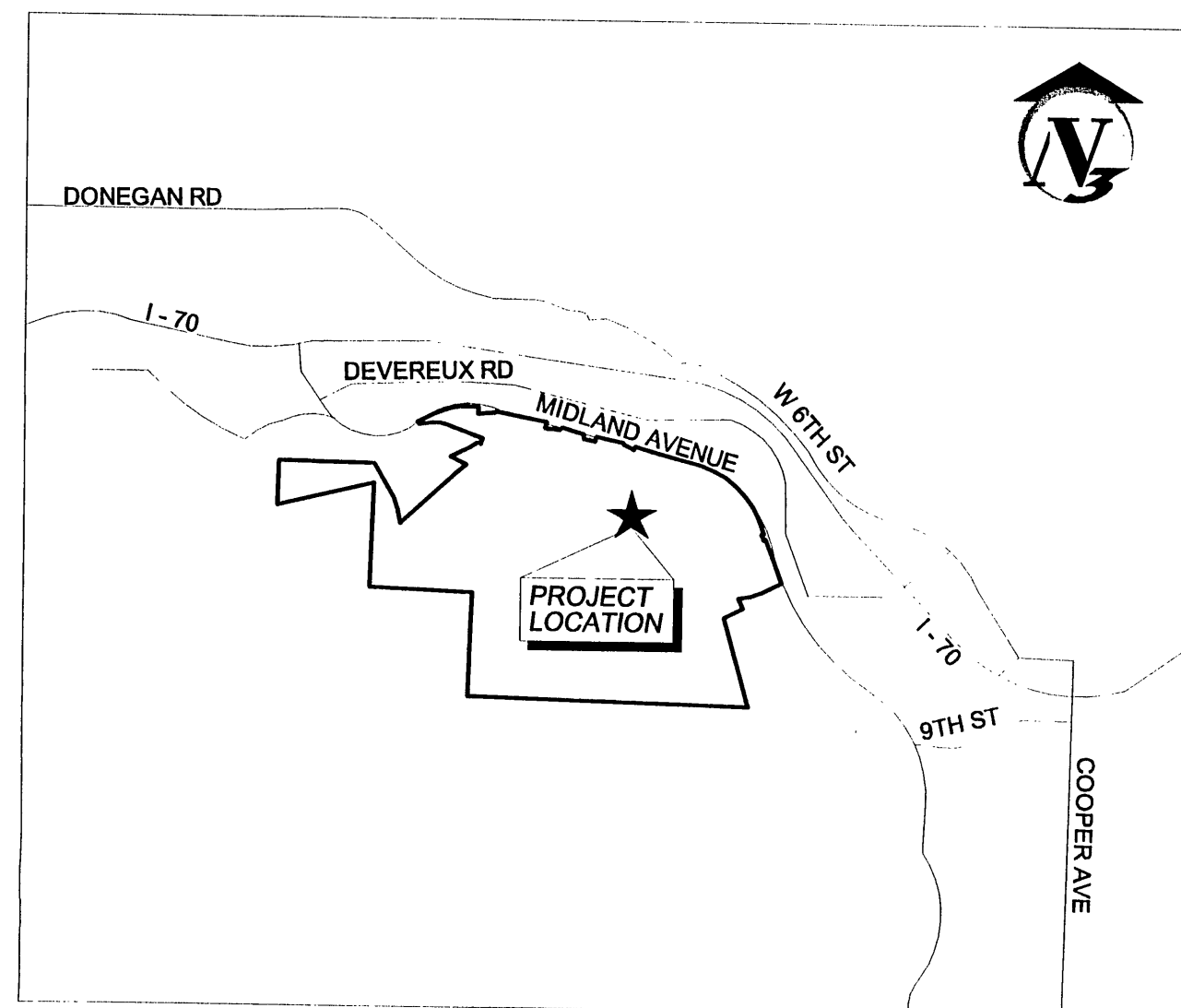
MY COMMISSION EXPIRES May 1, 2005

WITNESS MY HAND AND SEAL

Sally Gieb Vagneur



**LOCATION MAP**  
NO SCALE



**VICINITY MAP**  
NO SCALE

**GENERAL NOTES**

**NOTES:**

1. NOTICE: ACCORDING TO COLORADO LAW YOU MUST COMMENCE ANY LEGAL ACTION BASED UPON ANY DEFECT IN THIS SURVEY WITHIN THREE YEARS AFTER YOU FIRST DISCOVER SUCH DEFECT. IN NO EVENT MAY ANY ACTION BASED UPON ANY DEFECT IN THIS SURVEY BE COMMENCED MORE THAN TEN YEARS FROM THE DATE OF THE CERTIFICATION SHOWN HEREON.
2. THIS SURVEY DOES NOT CONSTITUTE A TITLE SEARCH BY V3 CONSULTANTS TO DETERMINE OWNERSHIP OR EASEMENTS OF RECORD. V3 CONSULTANTS RELIED UPON INFORMATION PROVIDED BY OLD REPUBLIC NATIONAL TITLE COMPANY COMMITMENT NO. GW241878-2, EFFECTIVE DATE: APRIL 16, 2004 AT 5:00 P.M. FOR ALL INFORMATION REGARDING EASEMENTS, RIGHTS-OF-WAY AND TITLES OF RECORD.
3. BASIS OF BEARINGS FOR THIS SURVEY IS A BEARING OF N 88°28'00" W BETWEEN THE STREET MONUMENT AT THE INTERSECTION OF 8TH STREET AND PALMER AVENUE AND THE STREET MONUMENT AT THE INTERSECTION OF 8TH STREET AND MIDLAND AVENUE.
4. PROJECT BENCHMARK: THE NORTHEAST BOUNDARY CORNER COMMON TO PARCEL "A" GLENWOOD MEADOWS NO. 1 AND THE SOUTHERLY RIGHT-OF-WAY OF MIDLAND AVENUE BEING THE TOP OF A REBAR WITH CAP STAMPED "LS NO. 15710" - ELEVATION = 5770.26 (1929 DATUM).
5. ACCESS AND MAINTENANCE EASEMENTS FOR THE DEBRIS FLOW STRUCTURES LOCATED ON LOT 11 AS SHOWN HEREON SHALL BE GRANTED TO THE CITY OF GLENWOOD SPRINGS UPON COMPLETION OF CONSTRUCTION.
6. DEVELOPMENT OF LOTS 7, 10, 11, 12, 13, AND 14 SHALL REQUIRE THE THEN OWNERS' SUBMITTAL OF MAJOR DEVELOPMENT PERMIT APPLICATIONS AND THE APPROVAL OF SUCH APPLICATIONS BY THE CITY OF GLENWOOD SPRINGS IN ACCORDANCE WITH THE GLENWOOD SPRINGS MUNICIPAL CODE AND THE ANNEXATION AND DEVELOPMENT AGREEMENT RECORDED IN BOOK 1414 AT PAGE 528, AS MAY BE AMENDED FROM TIME TO TIME.
7. THE OWNERS OF LOTS 1 THROUGH 9 INCLUSIVE, SHALL BE RESPONSIBLE FOR MAINTENANCE OF TRACTS A AND TRACT B, EXCLUDING BIKE/PEDESTRIAN TRAILS AND TUNNELS. THE CITY OF GLENWOOD SPRINGS SHALL BE RESPONSIBLE FOR THE MAINTENANCE OF THE BIKE/PEDESTRIAN TRAILS AND TUNNELS LOCATED ON TRACT A AND TRACT B.
8. EFFECTIVE UPON CONVEYANCE OF TRACTS A AND B TO THE CITY, CITY OF GLENWOOD SPRINGS HEREBY GRANTS EASEMENTS OVER TRACTS A AND B TO THE OWNERS OF LOTS 1 THROUGH 9 INCLUSIVE, FOR THE PURPOSE OF OPERATING AND MAINTAINING STORM WATER RUN-OFF FACILITIES AND MAINTAINING LANDSCAPING ON TRACTS A AND B. UPON THE CONVEYANCE OF TRACTS A AND B TO THE CITY, THE CITY OF GLENWOOD SPRINGS ALSO HEREBY GRANTS EASEMENTS TO GLENWOOD MEADOWS METROPOLITAN DISTRICT NO. 1 AND GLENWOOD MEADOWS METROPOLITAN DISTRICT NO. 3 FOR PURPOSES OF CONSTRUCTING STORM WATER RUN-OFF FACILITIES, LANDSCAPING AND OTHER PUBLIC IMPROVEMENTS ON TRACTS A AND B.
9. NO OCCUPIED BUILDING STRUCTURE SHALL BE CONSTRUCTED ON TRACT A OR TRACT B. THIS RESTRICTION RUNS TO THE BENEFIT OF LOTS 1 THROUGH 9.
10. CITY OF GLENWOOD SPRINGS SHALL MAINTAIN THE PUBLIC ROADWAYS WITHIN TRACT C BETWEEN THE PUBLIC ROADWAY BACK OF CURB TO THE OPPOSITE PUBLIC ROADWAY BACK OF CURB AND STREET LIGHTING FOR THE PUBLIC ROADWAYS.

**NOTES CONTINUED:**

11. IN ACCORDANCE WITH CITY ORDINANCES, EACH OWNER OF ADJACENT PROPERTY SHALL MAINTAIN THE SIDEWALKS AND LANDSCAPED AREAS WITHIN TRACT C STARTING AT THE PUBLIC ROADWAY BACK OF CURB AND EXTENDING TO THE PROPERTY LINE OF SUCH OWNERS PROPERTY. UPON CONVEYANCE OF TRACT C TO THE CITY, CITY OF GLENWOOD SPRINGS HEREBY GRANTS ACCESS EASEMENTS OVER TRACT C TO THE OWNERS OF ADJACENT PROPERTIES FOR THE PURPOSE OF PERFORMING SUCH MAINTENANCE. UPON THE CONVEYANCE OF TRACT C TO THE CITY, THE CITY OF GLENWOOD SPRINGS ALSO HEREBY GRANTS EASEMENTS TO GLENWOOD MEADOWS METROPOLITAN DISTRICT NO. 1 AND GLENWOOD MEADOWS METROPOLITAN DISTRICT NO. 3 FOR PURPOSES OF ROADWAY IMPROVEMENTS, UTILITY LINES AND OTHER PUBLIC IMPROVEMENTS ON TRACT C.
12. THE OWNERS OF LOTS 2 THROUGH 6, 8 AND 9 HAVE GRANTED RECIPROCAL ACCESS RIGHTS TO EACH OTHER UNDER AN OPERATION AND EASEMENT AGREEMENT RECORDED AT 657452 IN THE REAL PROPERTY RECORDS OF GARFIELD COUNTY, COLORADO.
13. THE OWNERS OF LOTS 5, 6, 8, AND 9 HAVE GRANTED RECIPROCAL ACCESS RIGHTS TO LOT 7 BY SEPARATE INSTRUMENT RECORDED AT 657447 IN THE REAL PROPERTY RECORDS OF GARFIELD COUNTY, COLORADO.
14. UPON THE DEVELOPMENT OF LOT 7, IF AND WHEN THE THEN OWNERS OF SAID LOT 7 SUBMIT A MAJOR DEVELOPMENT PERMIT APPLICATION IN ACCORDANCE WITH GENERAL PLAT NOTE NO. 8 HEREOF, SAID APPLICATION FOR ANTICIPATED BUILDINGS NO. 7 AND NO. 8, SHALL BE DESIGNED IN SUBSTANTIAL ACCORDANCE WITH THE CONCEPTUAL REPRESENTATIONS MADE AS A PART OF THE GLENWOOD MEADOWS MAJOR DEVELOPMENT SUBMITTAL APPLICATION DATED JULY 3, 2003, APPROVED BY THE CITY OF GLENWOOD SPRINGS ON OCTOBER 6, 2003 AT THAT TIME. THE EARLIER CONCEPTUAL REVIEW OF BUILDINGS NO. 7 AND NO. 8 OF LOT 7 AS REFERRED TO HEREIN DO NOT REQUIRE THE DESIGN AND CONSTRUCTION OF SUCH BUILDINGS PRIOR TO THE RIGHT OF THE OWNERS OF OTHER LOTS WITHIN THIS SUBDIVISION TO PROCEED WITH DEVELOPMENT APPLICATION AND CONSTRUCTION WITH RESPECT TO ANY SUCH OTHER LOT.
15. THE CITY OF GLENWOOD SPRINGS HEREBY GRANTS EASEMENTS OVER TRACT E TO GLENWOOD MEADOWS METROPOLITAN DISTRICT NO. 1 AND THE OWNER, FOR THE PURPOSES OF CONSTRUCTING, OPERATING AND MAINTAINING THE DEBRIS FLOW STRUCTURES LOCATED ON TRACT E. THE EXACT SIZE AND LOCATION OF SUCH EASEMENTS SHALL BE DETERMINED BASED ON AS-BUILT DATA UPON COMPLETION OF SAID DEBRIS FLOW STRUCTURES.
16. ALL DEVELOPMENT SHALL BE IN CONFORMANCE WITH THE GLENWOOD MEADOWS ANNEXATION AND DEVELOPMENT AGREEMENT RECORDED IN BOOK 1414 AT PAGE 528, AS AMENDED, AND SUBSEQUENT SITE SPECIFIC DEVELOPMENT APPROVALS REGARDING GEOTECHNICAL MITIGATION.
17. ALL UTILITY EASEMENTS SHOWN ON THIS PLAT ARE NON-EXCLUSIVE EASEMENTS. ALL UTILITY LINES AND FACILITIES INSTALLED WITH SUCH EASEMENTS SHALL BE UNDERGROUND, EXCEPT FOR ELECTRICAL TRANSFORMERS, GAS AND ELECTRICAL METERS, FIRE HYDRANTS AND SUCH OTHER FACILITIES THAT ARE REQUIRED BY THE UTILITY PROVIDERS TO BE PLACED ABOVE GROUND IN CONNECTION WITH UNDERGROUND UTILITY INSTALLATIONS. EACH UTILITY PROVIDER SHALL MAINTAIN ITS LINES AND FACILITIES INSTALLED WITHIN SUCH EASEMENTS AND, IF THE UTILITY PROVIDER DISTURBS THE SURFACE OF THE EASEMENT IN CONNECTION WITH THE MAINTENANCE, REPAIR OR REPLACEMENT OF ITS LINES AND FACILITIES, SHALL RESTORE THE SURFACE OF THE EASEMENT AS NEARLY AS POSSIBLE TO ITS CONDITION PRIOR TO SUCH MAINTENANCE, REPAIR OR REPLACEMENT.

**PLANNING COMMISSION CERTIFICATE**

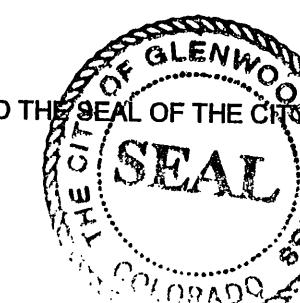
THIS PLAT WAS APPROVED BY THE CITY OF GLENWOOD SPRINGS, PLANNING AND ZONING COMMISSION THIS 3rd DAY OF August, A.D., 2004

Donna R. H.  
CHAIRMAN

**CITY COUNCIL CERTIFICATE**

THIS PLAT WAS APPROVED BY THE CITY COUNCIL OF GLENWOOD SPRINGS, GARFIELD COUNTY, COLORADO THIS 4 DAY OF August, A.D., 2004 FOR FILING WITH THE CLERK AND RECORDER OF GARFIELD COUNTY AND FOR CONVEYANCE TO THE CITY OF THE PUBLIC DEDICATIONS SHOWN HEREON SUBJECT TO THE PROVISION THAT THE APPROVAL IN NO WAY OBLIGATES THE CITY OF GLENWOOD SPRINGS FOR FINANCING OR CONSTRUCTION OF IMPROVEMENTS ON LAND, STREETS OR EASEMENTS DEDICATED TO THE PUBLIC EXCEPT AS SPECIFICALLY AGREED TO BY THE CITY COUNCIL IN THE SUBDIVISION AGREEMENT.

WITNESS MY HAND AND THE SEAL OF THE CITY OF GLENWOOD SPRINGS.



Raymond  
MAYOR  
Robert S. Unsworth  
CITY CLERK

**SURVEYOR'S CERTIFICATE**

I, KENNETH A. PERRY, DO HEREBY CERTIFY THAT I AM A REGISTERED LAND SURVEYOR LICENSED UNDER THE LAWS OF THE STATE OF COLORADO, THAT THIS PLAT IS A TRUE, CORRECT AND COMPLETE PLAT OF THE GLENWOOD MEADOWS NO. 2 AS LAID OUT, PLATTED, DEDICATED AND SHOWN HEREON, THAT SUCH PLAT WAS MADE FROM AN ACCURATE SURVEY OF SAID PROPERTY BY ME AND UNDER MY SUPERVISION AND CORRECTLY SHOWS THE LOCATION AND DIMENSIONS OF THE LOTS, TRACTS, AND EASEMENTS OF SAID SUBDIVISION AS THE SAME ARE STAKED UPON THE GROUND IN COMPLIANCE WITH THE CITY OF GLENWOOD SPRINGS REGULATIONS GOVERNING THE SUBDIVISION OF LAND.

IN WITNESS WHEREOF I HAVE SET MY HAND AND SEAL THIS \_\_\_\_\_ DAY OF \_\_\_\_\_, A.D., 2004.



KENNETH A. PERRY, PLS NO. 25981  
COLORADO PROFESSIONAL LAND SURVEYOR,  
FOR AND ON BEHALF OF V3 CONSULTANTS.

**CLERK AND RECORDER'S CERTIFICATE**

THIS PLAT WAS FILED FOR RECORD IN THE OFFICE OF THE CLERK AND RECORDER OF GARFIELD COUNTY AT 8:49 O'CLOCK A M., AS RECEPTION NO. 657439

8-9-2004 Fee: \$81.00  
Drawer: 13-A

Mildred Osdorf  
CLERK AND RECORDER  
BY Kathryn Coleman  
DEPUTY

FINAL PLAT

GLENWOOD MEADOWS NO. 2

GLENWOOD SPRINGS

DRAWING NO.

1 OF 8

REVISONS

| NO. | DATE      | DESCRIPTION               |
|-----|-----------|---------------------------|
| 1   | 5/4/2004  | REVISED PER CITY COMMENTS |
| 2   | 6/11/2004 | REVISED PER CITY COMMENTS |
| 3   | 6/16/2004 | REVISED PER CITY COMMENTS |
| 4   | 7/19/2004 | REVISED PER COMMENTS      |
| 5   | 7/15/2004 | REVISED PER COMMENTS      |
| 6   | 7/28/2004 | REVISED PER COMMENTS      |

DESIGNED BY:

DRAWN BY:

FILE NAME:

DATE:

SCALE:

PROJ. NO.:

PROJ. MANAGER:

CHECKED BY:

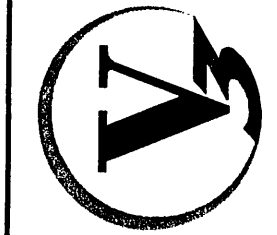
KAP

GB

1"=60'

COLORADO

Engineers  
Scientists  
Surveyors

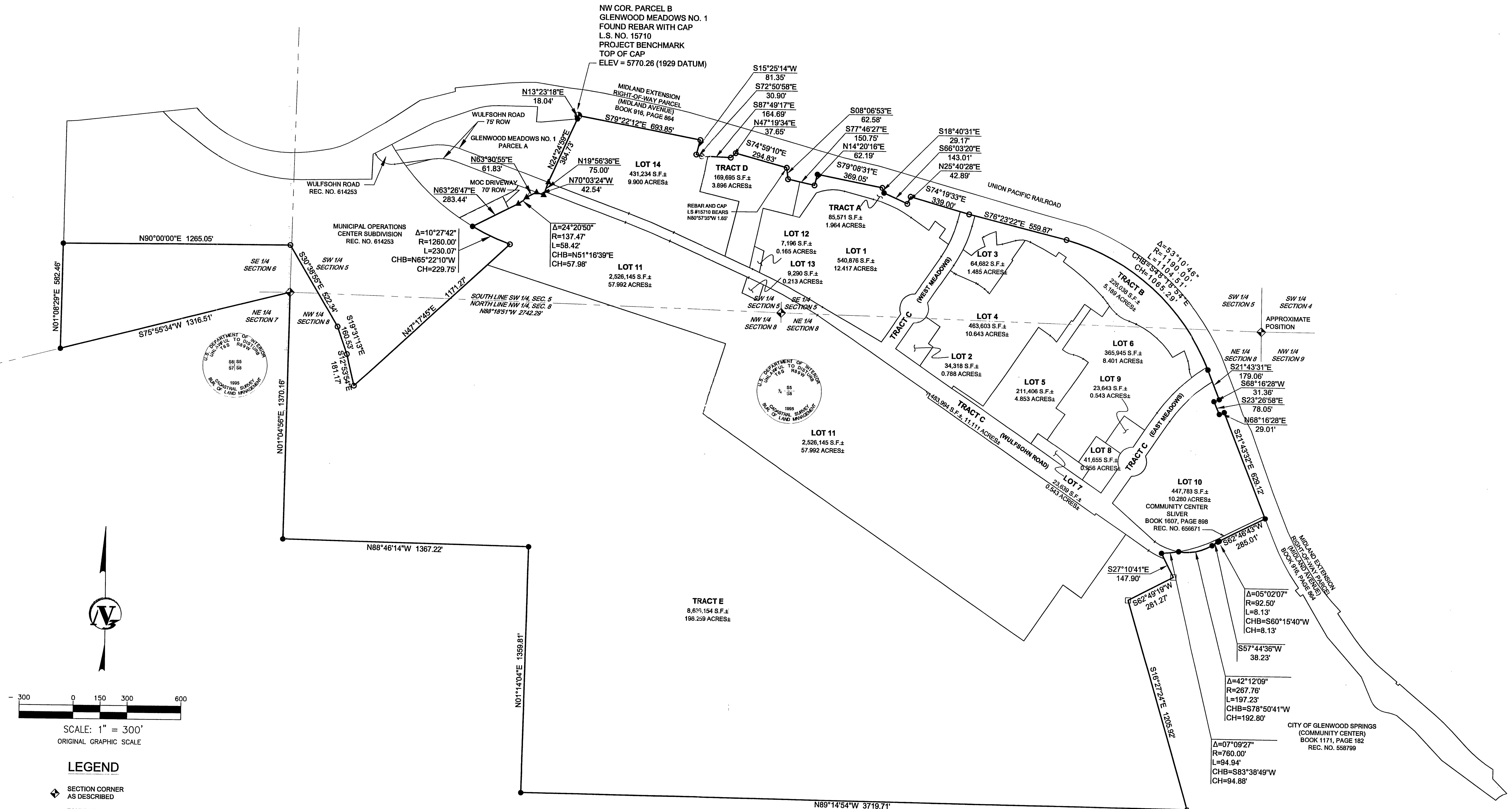


200 Union Boulevard, Suite 200  
Glenwood, CO 80229  
303.989.8888 voice  
303.989.9832 fax  
v3consultants.com



# GLENWOOD MEADOWS NO. 2

A RESUBDIVISION OF PARCEL B, GLENWOOD MEADOWS NO. 1,  
BEING A PARCEL OF LAND LOCATED IN SECTIONS 5, 6, 8 & 9, TOWNSHIP 6 SOUTH, RANGE 89 WEST,  
OF THE SIXTH PRINCIPAL MERIDIAN, CITY OF GLENWOOD SPRINGS, COUNTY OF GARFIELD, STATE OF COLORADO



- LEGEND**
- SECTION CORNER AS DESCRIBED
  - FOUND NO. 5 REBAR WITH CAP LS NO. 15710
  - FOUND NO. 5 REBAR WITH CAP LS NO. 19598
  - MONUMENTS AS DESCRIBED ON PLAT OF GLENWOOD MEADOWS NO. 1
  - SET NO. 5 REBAR WITH CAP LS 25961

## REVISIONS

| NO. | DATE      | DESCRIPTION               |
|-----|-----------|---------------------------|
| 1   | 5/4/2004  | REVISED PER CITY COMMENTS |
| 2   | 6/11/2004 | REVISED PER CITY COMMENTS |
| 3   | 6/16/2004 | REVISED PER CITY COMMENTS |
| 4   | 7/09/2004 | REVISED PER COMMENTS      |
| 5   | 7/15/2004 | REVISED PER COMMENTS      |
| 6   | 7/22/2004 | REVISED PER COMMENTS      |

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FILE NAME: D02049-PLAT  
DATE: 08/05/03  
SCALE: 1"=300'

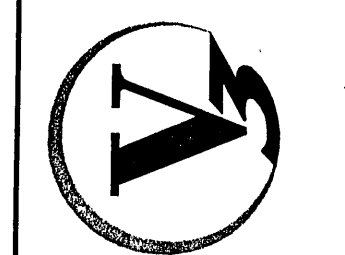
## FINAL PLAT

GLENWOOD MEADOWS NO. 2  
GLENWOOD SPRINGS  
COLORADO

DRAWING NO.  
2 OF 8

Engineers  
Scientists  
Surveyors

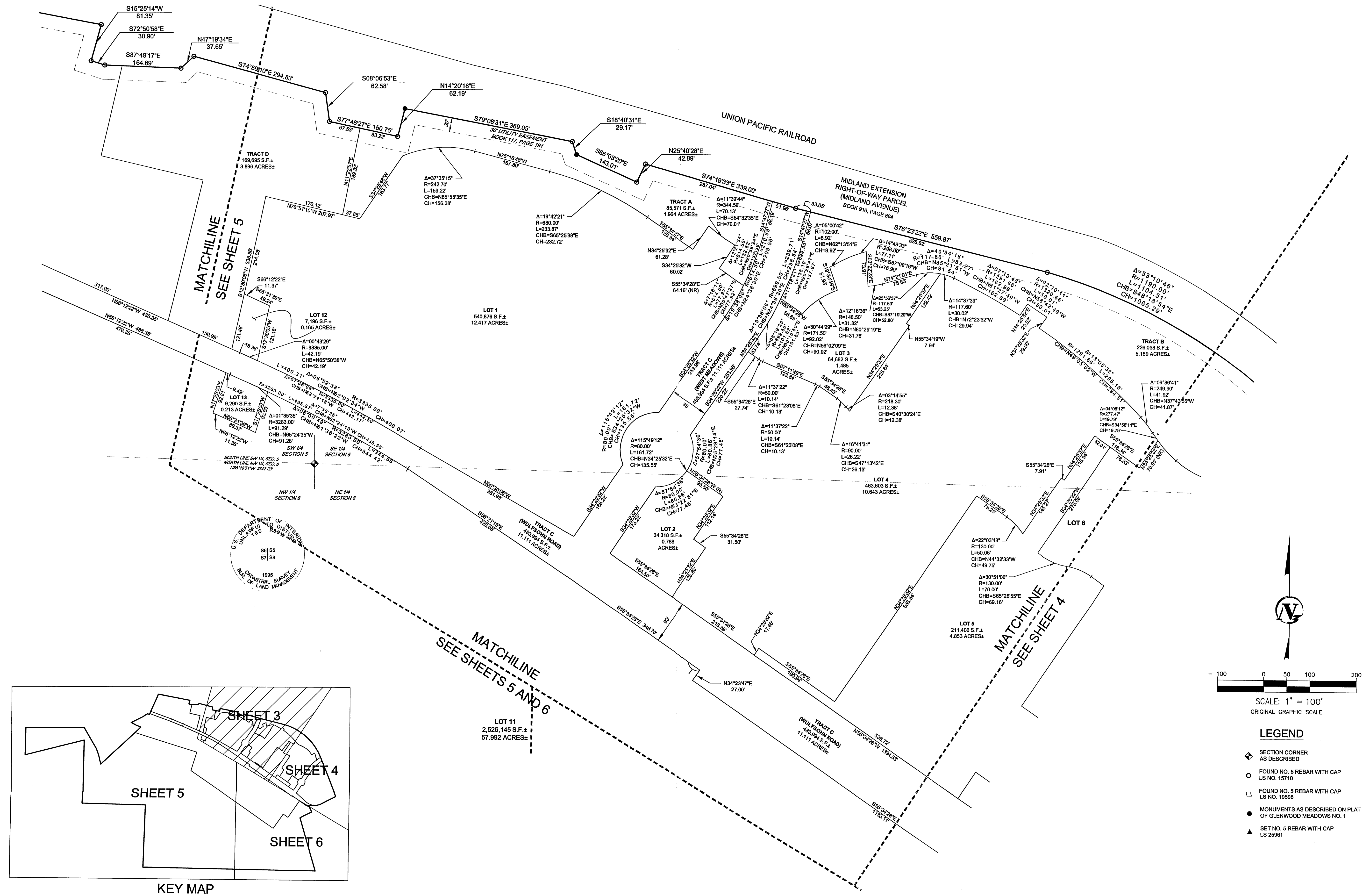
200 Union Boulevard, Suite 200  
Lakewood, CO 80226  
303.989.8500 Voice  
303.989.8502 Fax  
V3consultants.com



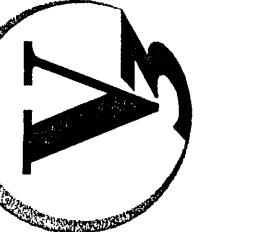


# GLENWOOD MEADOWS NO. 2

A RESUBDIVISION OF PARCEL B, GLENWOOD MEADOWS NO. 1,  
BEING A PARCEL OF LAND LOCATED IN SECTIONS 5, 6, 8 & 9, TOWNSHIP 6 SOUTH, RANGE 89 WEST,  
OF THE SIXTH PRINCIPAL MERIDIAN, CITY OF GLENWOOD SPRINGS, COUNTY OF GARFIELD, STATE OF COLORADO



Engineers  
Scientists  
Surveyors



| REVISIONS |           |
|-----------|-----------|
| NO.       | DATE      |
| 1         | 5/4/2004  |
| 2         | 6/11/2004 |
| 3         | 6/16/2004 |
| 4         | 7/9/2004  |
| 5         | 7/15/2004 |
| 6         | 7/28/2004 |

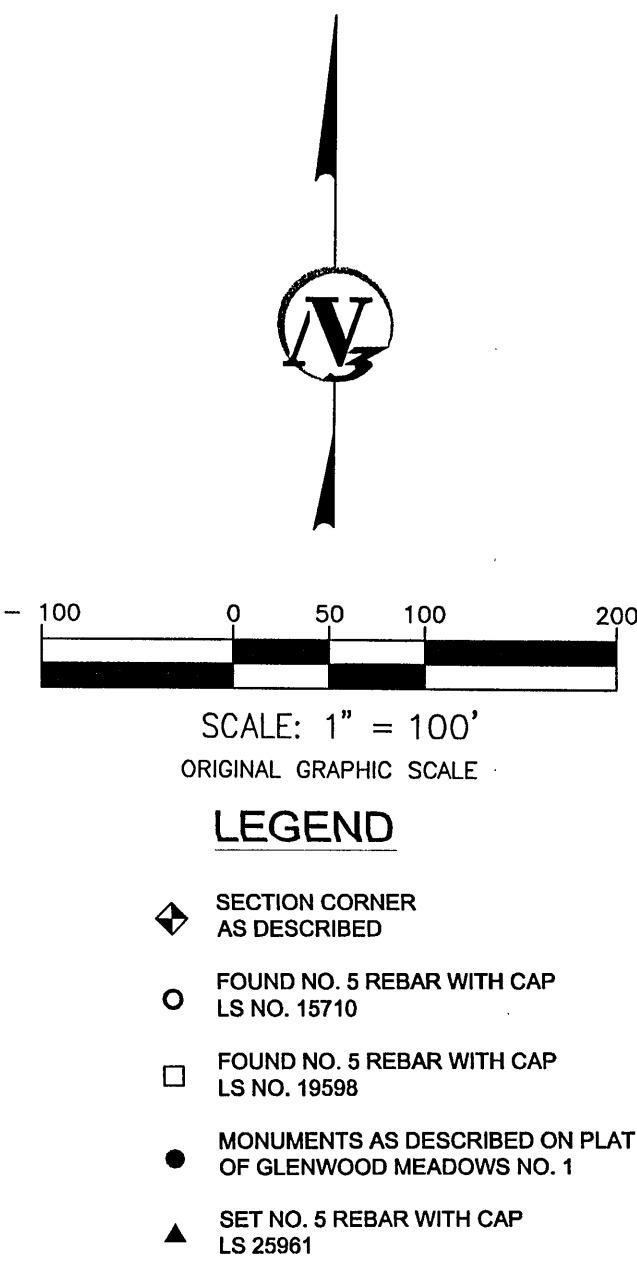
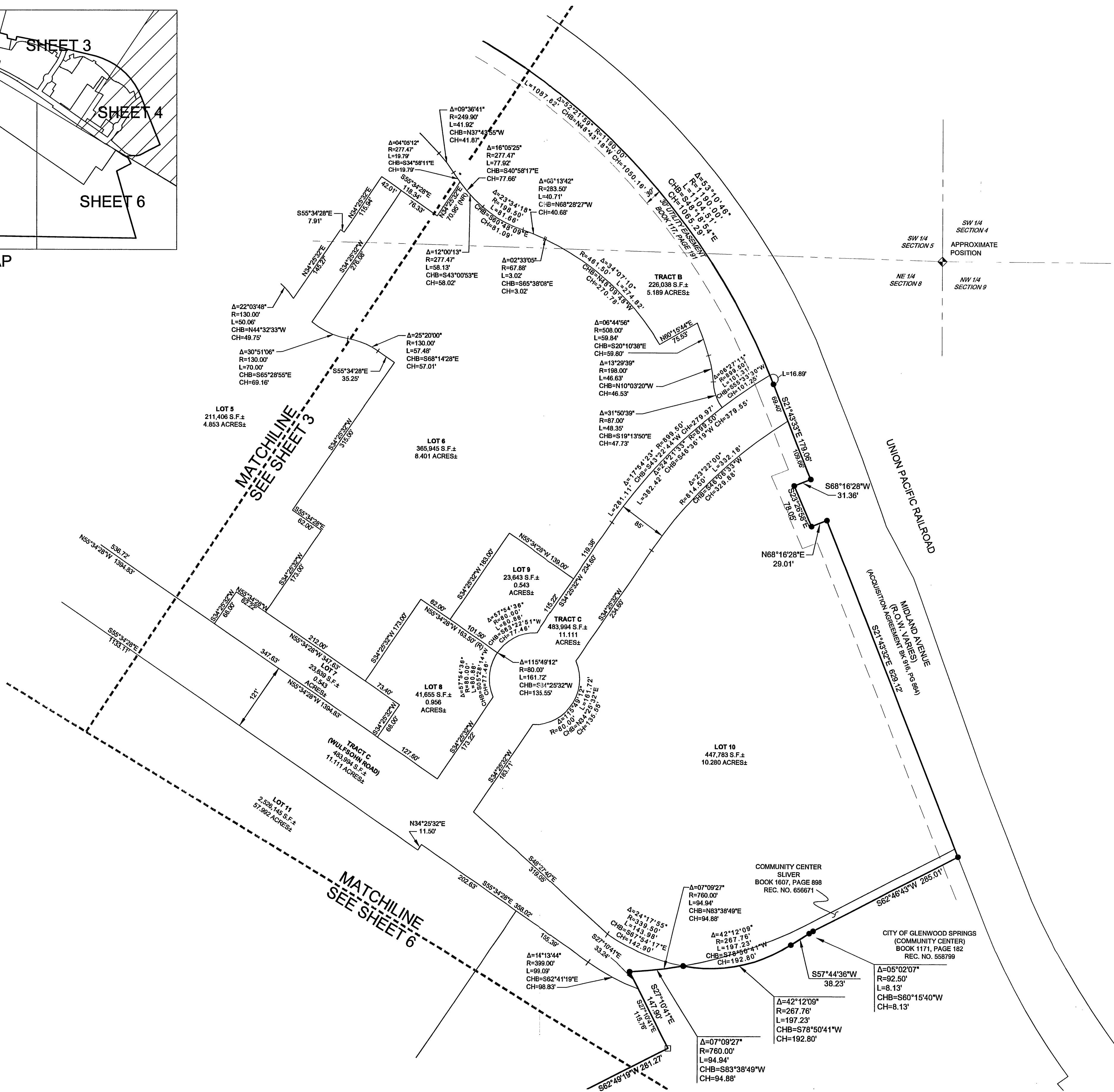
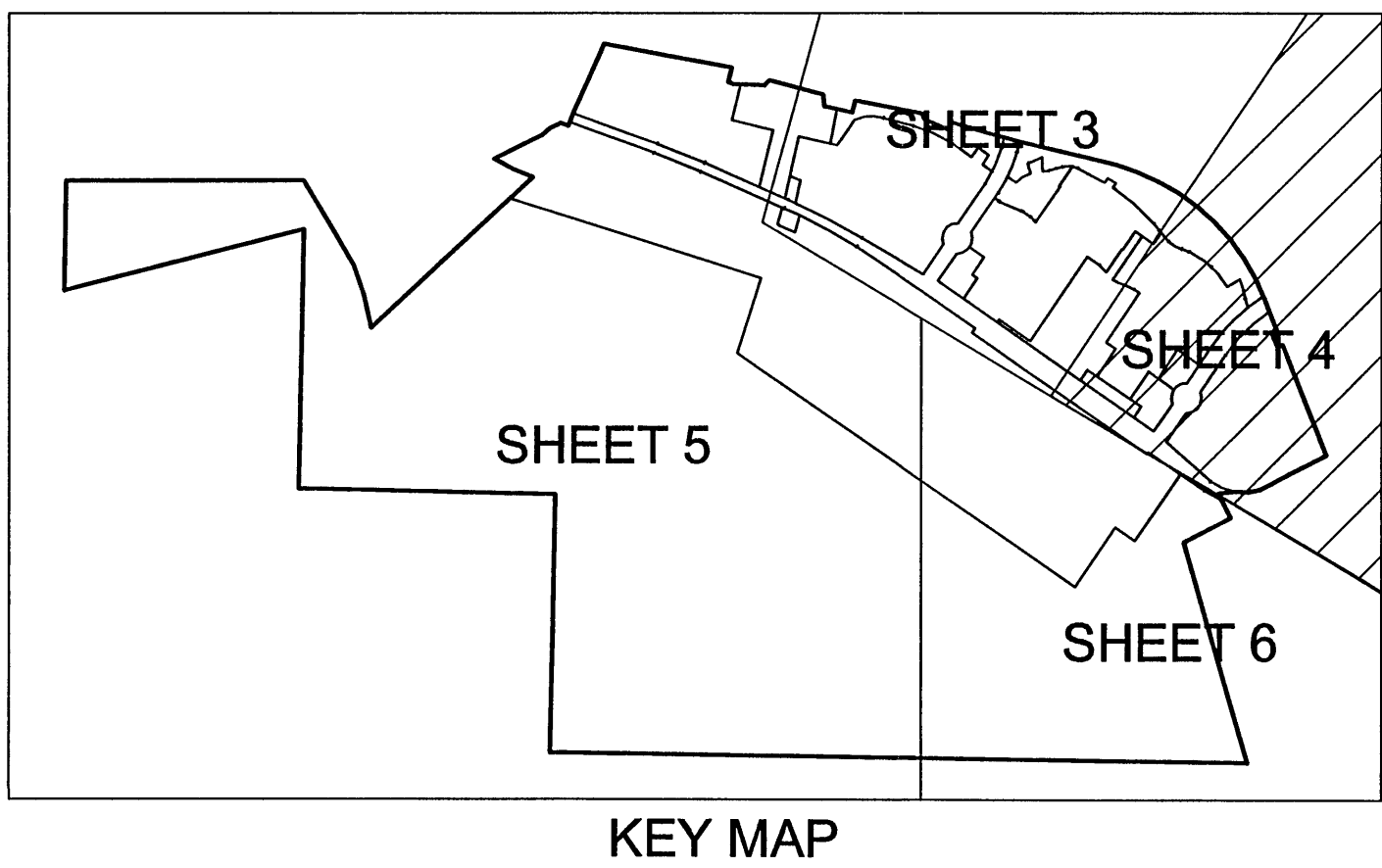
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| DRAWN BY:    | SEH     |
| 02049FFLAT   |         |
| CHECKED BY:  |         |
| 08/05/03     |         |
| SCALE:       | 1"=100' |

FINAL PLAT  
GLENWOOD MEADOWS NO. 2  
GLENWOOD SPRINGS, COLORADO



# GLENWOOD MEADOWS NO. 2

A RESUBDIVISION OF PARCEL B, GLENWOOD MEADOWS NO. 1,  
BEING A PARCEL OF LAND LOCATED IN SECTIONS 5, 6, 8 & 9, TOWNSHIP 6 SOUTH, RANGE 89 WEST,  
OF THE SIXTH PRINCIPAL MERIDIAN, CITY OF GLENWOOD SPRINGS, COUNTY OF GARFIELD, STATE OF COLORADO



FINAL PLAT

GLENWOOD MEADOWS NO. 2

GLENWOOD SPRINGS

DRAWING NO.

4 OF 8

REVISIONS

| NO. | DATE      | DESCRIPTION               |
|-----|-----------|---------------------------|
| 1   | 5/4/2004  | REVISED PER CITY COMMENTS |
| 2   | 8/11/2004 | REVISED PER CITY COMMENTS |
| 3   | 8/16/2004 | REVISED PER CITY COMMENTS |
| 4   | 7/6/2004  | REVISED PER COMMENTS      |
| 5   | 7/15/2004 | REVISED PER COMMENTS      |
| 6   | 7/28/2004 | REVISED PER COMMENTS      |

SEAL:

|                  |          |
|------------------|----------|
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| DRAWN BY:        | SEH      |
| CHECKED BY:      | 08/05/03 |
| PROJECT MANAGER: | GB       |

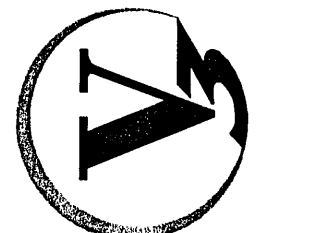
PROJ. NO.: 02049  
FILE NAME: 02049FPLAT  
DATE: 08/05/03  
SCALE: 1"=100'

COLORADO

DRAWING NO.

4 OF 8

Engineers  
Scientists  
Surveyors

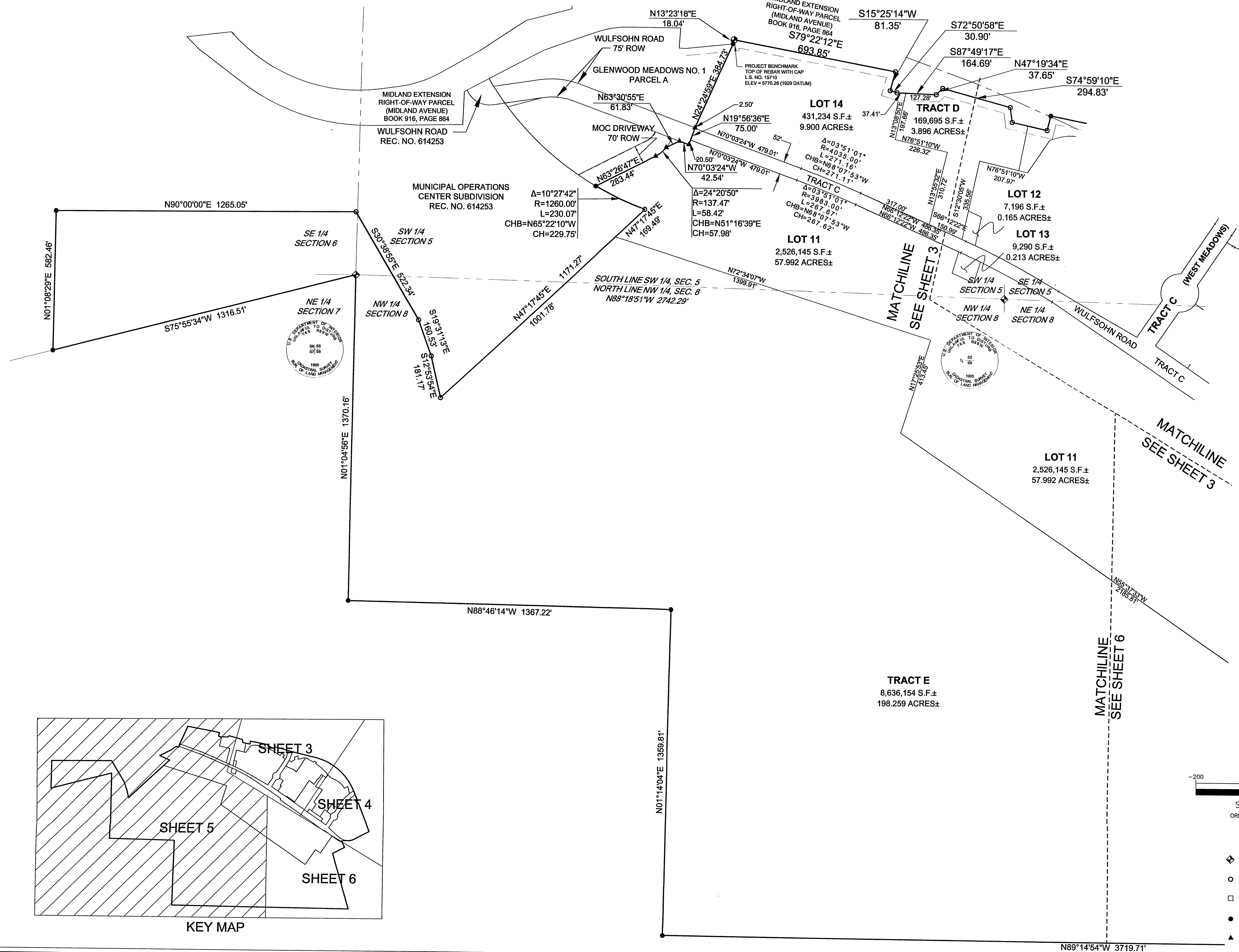


200 Union Boulevard, Suite 200  
Glenwood, CO 81728  
303.989.6588 voice  
303.989.6582 fax  
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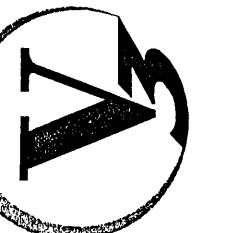


# GLENWOOD MEADOWS NO. 2

A RESUBDIVISION OF PARCEL B, GLENWOOD MEADOWS NO. 1,  
BEING A PARCEL OF LAND LOCATED IN SECTIONS 5, 6, 8 & 9, TOWNSHIP 6 SOUTH, RANGE 89 WEST,  
OF THE SIXTH PRINCIPAL MERIDIAN, CITY OF GLENWOOD SPRINGS, COUNTY OF GARFIELD, STATE OF COLORADO



Engineers  
Scientists  
Surveyors



| REVISIONS |                           |
|-----------|---------------------------|
| NO.       | DESCRIPTION               |
| 1         | REVISED PER CITY COMMENTS |
| 2         | REVISED PER CITY COMMENTS |
| 3         | REVISED PER CITY COMMENTS |
| 4         | REVISED PER CITY COMMENTS |
| 5         | REVISED PER CITY COMMENTS |
| 6         | REVISED PER CITY COMMENTS |

| DESIGNED BY: | D02049   |
|--------------|----------|
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| CHECKED BY:  | 08/05/03 |
| DATE:        | 08/05/03 |
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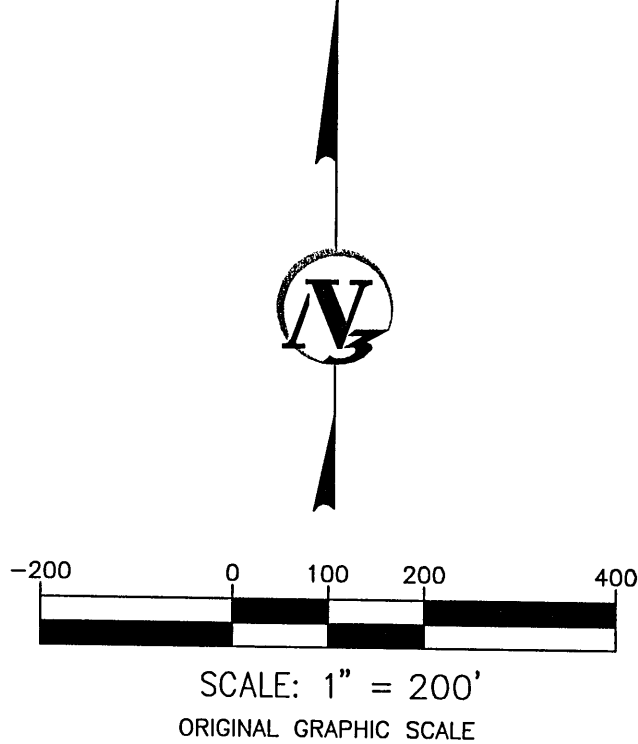
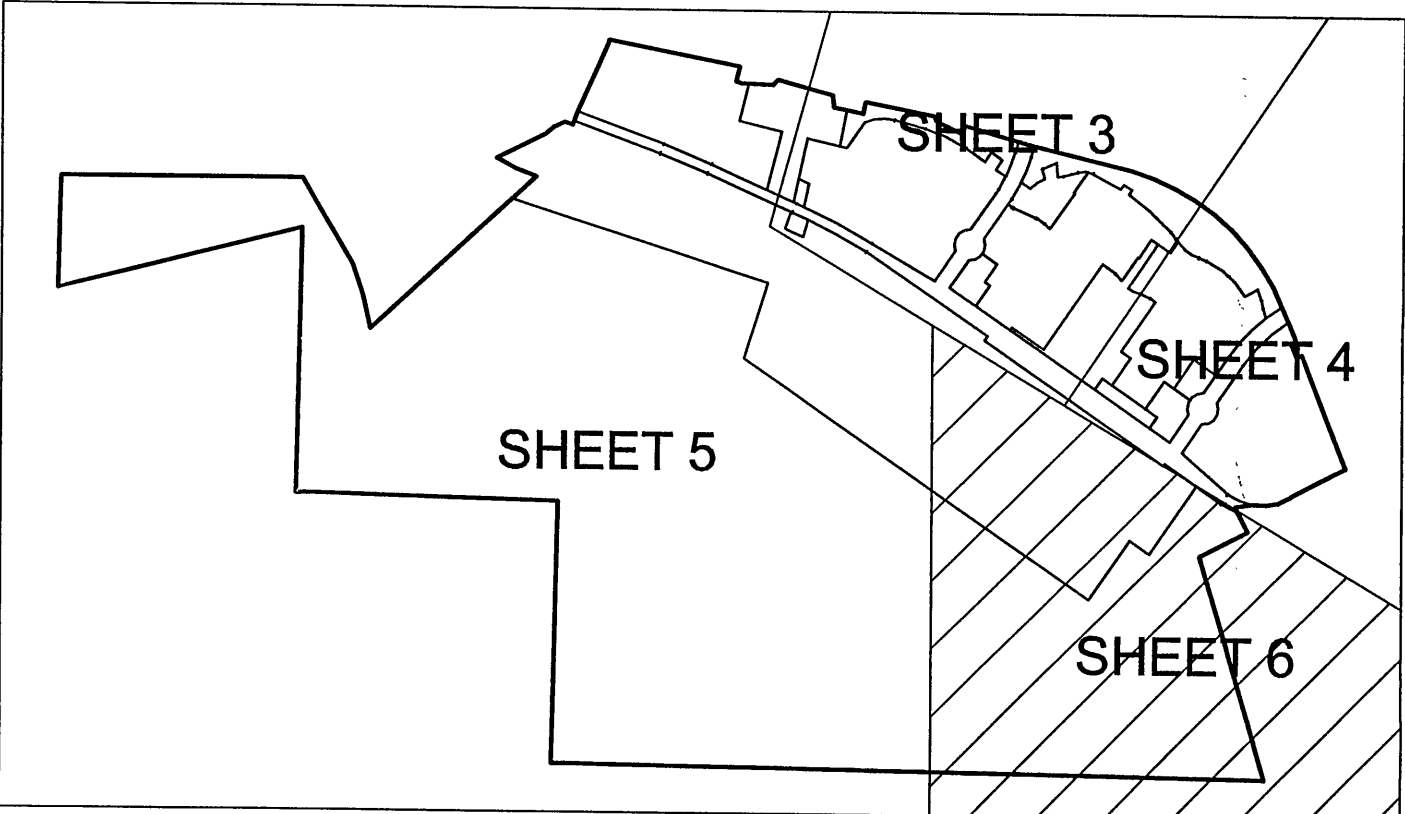
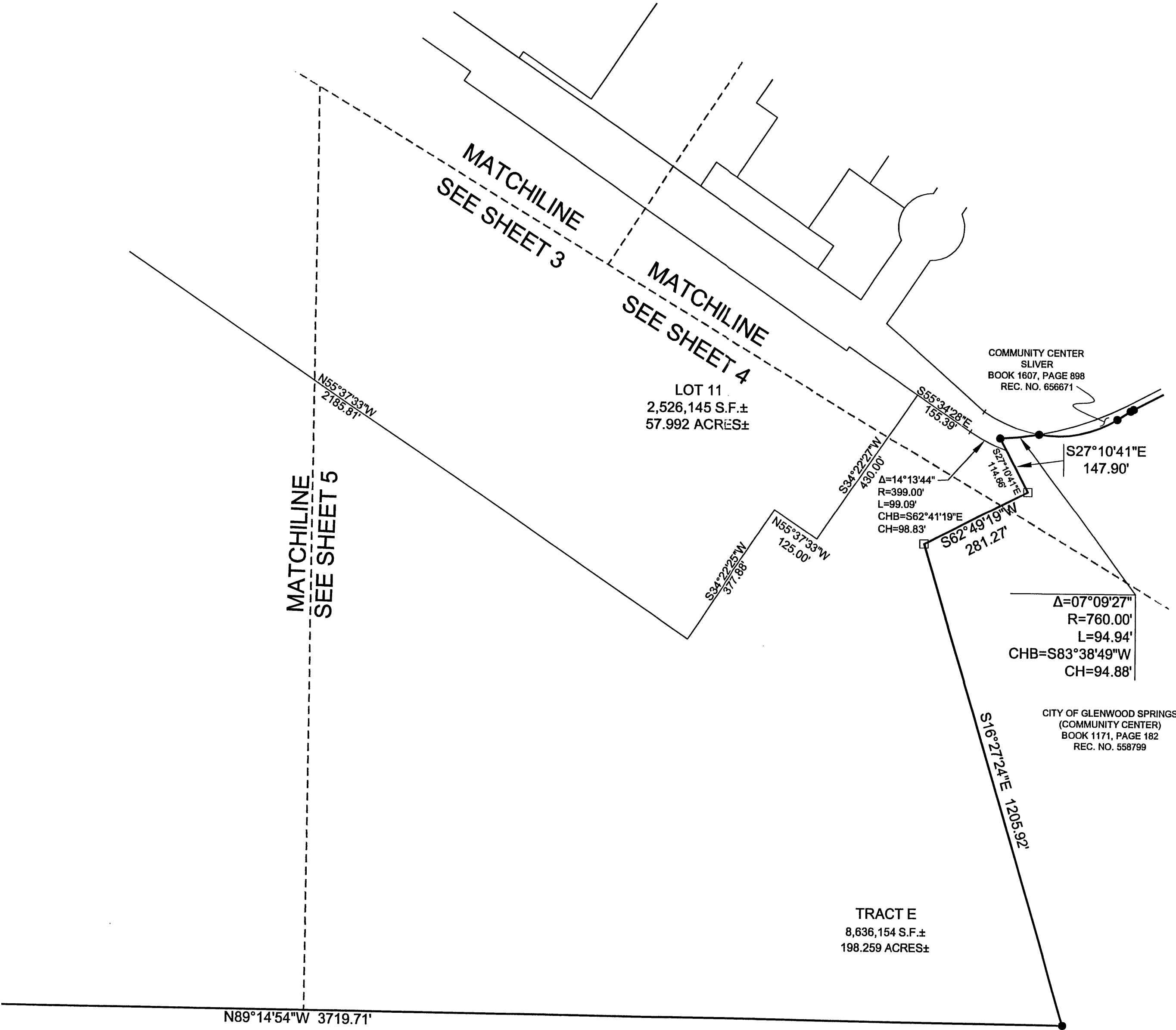
FINAL PLAT  
GLENWOOD MEADOWS NO. 2  
GLENWOOD SPRINGS  
COLORADO

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GLENWOOD MEADOWS NO. 2

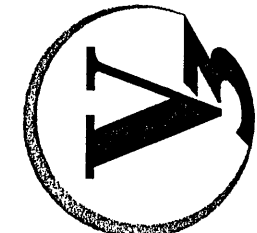
A RESUBDIVISION OF PARCEL B, GLENWOOD MEADOWS NO. 1,  
BEING A PARCEL OF LAND LOCATED IN SECTIONS 5, 6, 8 & 9, TOWNSHIP 6 SOUTH, RANGE 89 WEST,  
OF THE SIXTH PRINCIPAL MERIDIAN, CITY OF GLENWOOD SPRINGS, COUNTY OF GARFIELD, STATE OF COLORADO



LEGEND

- SECTION CORNER AS DESCRIBED
- FOUND NO. 5 REBAR WITH CAP LS NO. 15710
- FOUND NO. 5 REBAR WITH CAP LS NO. 19598
- MONUMENTS AS DESCRIBED ON PLAT OF GLENWOOD MEADOWS NO. 1
- SET NO. 5 REBAR WITH CAP LS 25961

Engineers  
Scientists  
Surveyors



| REVISIONS |           | DESCRIPTION               |
|-----------|-----------|---------------------------|
| NO.       | DATE      |                           |
| 1         | 5/4/2004  | REVISED PER CITY COMMENTS |
| 2         | 6/11/2004 | REVISED PER CITY COMMENTS |
| 3         | 6/16/2004 | REVISED PER CITY COMMENTS |
| 4         | 7/09/2004 | REVISED PER CITY COMMENTS |
| 5         | 7/15/2004 | REVISED PER CITY COMMENTS |
| 6         | 7/28/2004 | REVISED PER CITY COMMENTS |

| DESIGNED BY: | FILE NAME:  | DATE:          | SCALE:  |
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| D02049       | 02049FFLAT  | 08/05/03       | 1"=200' |
| DRAWN BY:    | CHECKED BY: | PROJ. MANAGER: |         |
| SEH          |             | GB             |         |

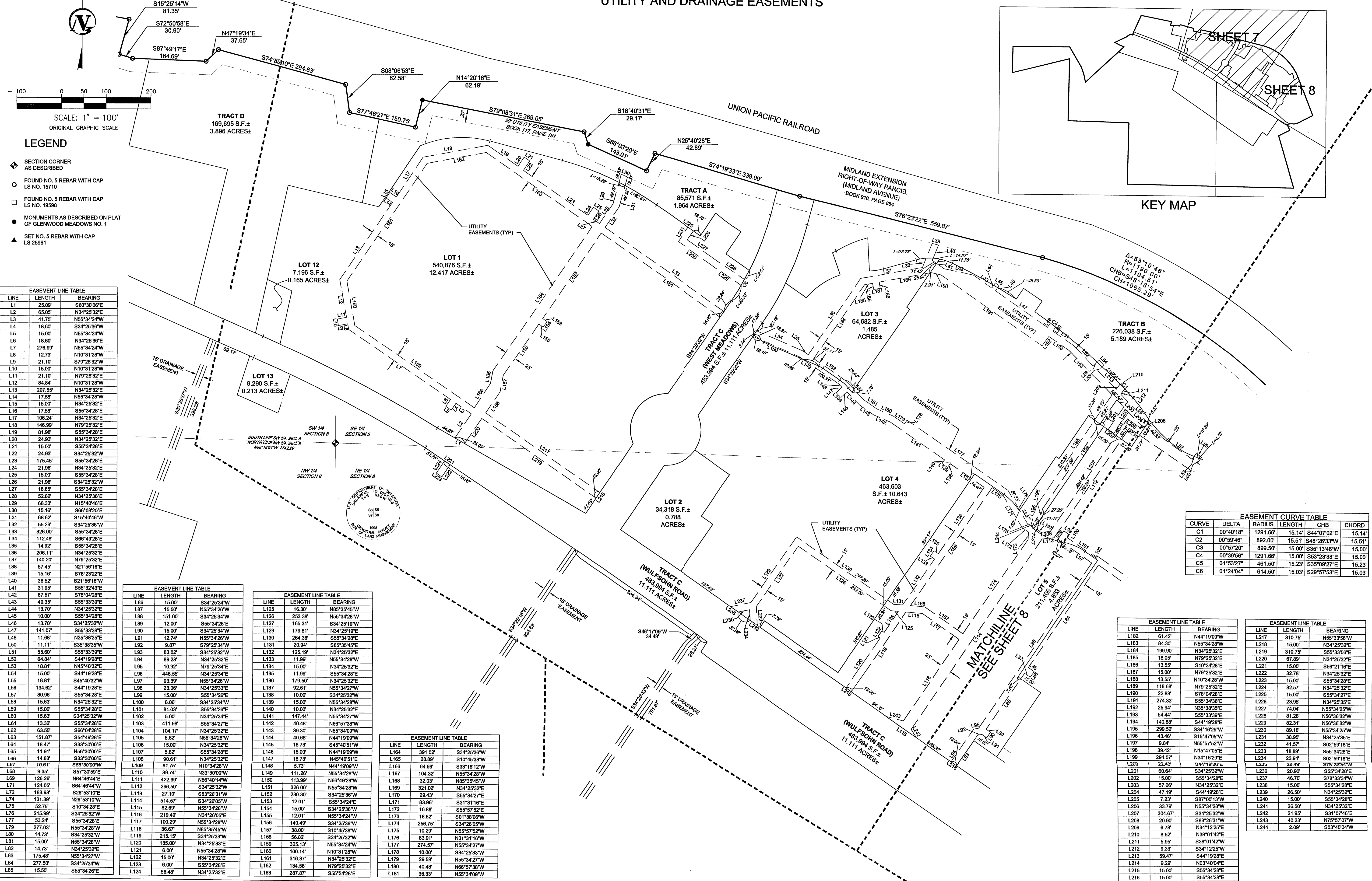
FINAL PLAT  
GLENWOOD MEADOWS NO. 2  
GLENWOOD SPRINGS COLORADO

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# GLENWOOD MEADOWS NO. 2

A RESUBDIVISION OF PARCEL B, GLENWOOD MEADOWS NO. 1,  
BEING A PARCEL OF LAND LOCATED IN SECTIONS 5, 6, 8 & 9, TOWNSHIP 6 SOUTH, RANGE 89 WEST,  
OF THE SIXTH PRINCIPAL MERIDIAN, CITY OF GLENWOOD SPRINGS, COUNTY OF GARFIELD, STATE OF COLORADO  
UTILITY AND DRAINAGE EASEMENTS



| EASEMENT LINE TABLE |         |             |
|---------------------|---------|-------------|
| LINE                | LENGTH  | BEARING     |
| L1                  | 25.00'  | S80°30'00"E |
| L2                  | 65.00'  | N34°25'32"E |
| L3                  | 41.75'  | N55°34'24"W |
| L4                  | 18.60'  | S34°25'36"W |
| L5                  | 15.00'  | N55°34'24"W |
| L6                  | 18.60'  | N34°25'36"E |
| L7                  | 276.89' | N55°34'24"W |
| L8                  | 12.75'  | N10°31'28"W |
| L9                  | 21.10'  | S79°28'32"W |
| L10                 | 15.00'  | N10°31'28"W |
| L11                 | 21.10'  | N78°28'32"E |
| L12                 | 84.84'  | N10°31'28"W |
| L13                 | 207.55' | N34°25'32"E |
| L14                 | 17.50'  | N55°34'28"W |
| L15                 | 15.00'  | N34°25'32"E |
| L16                 | 17.58'  | S55°34'28"E |
| L17                 | 106.24' | N34°25'32"E |
| L18                 | 146.89' | N79°25'32"E |
| L19                 | 81.98'  | S55°34'28"E |
| L20                 | 24.93'  | N34°25'32"E |
| L21                 | 15.00'  | S55°34'28"E |
| L22                 | 24.93'  | S34°25'32"W |
| L23                 | 175.45' | S55°34'28"E |
| L24                 | 21.96'  | N34°25'32"E |
| L25                 | 15.00'  | S55°34'28"E |
| L26                 | 21.96'  | S34°25'32"W |
| L27                 | 16.65'  | S55°34'28"E |
| L28                 | 52.82'  | N34°25'36"E |
| L29                 | 68.33'  | N15°40'46"E |
| L30                 | 15.16'  | S66°03'20"E |
| L31                 | 68.62'  | S15°40'46"W |
| L32                 | 55.29'  | S34°25'36"W |
| L33                 | 328.00' | S55°34'28"E |
| L34                 | 112.48' | S66°49'28"E |
| L35                 | 14.92'  | S55°34'28"E |
| L36                 | 206.11' | N34°25'32"E |
| L37                 | 140.29' | N79°25'32"E |
| L38                 | 57.45'  | N21°56'16"E |
| L39                 | 15.16'  | S76°23'22"E |
| L40                 | 36.52'  | S21°56'16"W |
| L41                 | 31.95'  | S55°32'43"E |
| L42                 | 67.57'  | S78°04'28"E |
| L43                 | 49.35'  | S55°33'39"E |
| L44                 | 13.70'  | N34°25'32"E |
| L45                 | 10.00'  | S55°34'28"W |
| L46                 | 13.70'  | S34°25'32"W |
| L47                 | 141.07' | S55°33'39"E |
| L48                 | 11.68'  | N35°38'35"E |
| L49                 | 11.11'  | S35°38'35"W |
| L50                 | 55.60'  | S55°33'39"E |
| L51                 | 64.84'  | S44°19'28"E |
| L52                 | 18.81'  | N45°40'32"E |
| L53                 | 15.00'  | S44°19'28"E |
| L54                 | 15.00'  | S44°19'28"E |
| L55                 | 18.61'  | S45°40'32"W |
| L56                 | 134.62' | S44°19'28"E |
| L57                 | 80.96'  | S55°34'28"E |
| L58                 | 15.63'  | N34°25'32"E |
| L59                 | 15.00'  | S55°34'28"E |
| L60                 | 15.63'  | S34°25'32"W |
| L61                 | 13.32'  | S55°34'28"E |
| L62                 | 63.55'  | S66°04'28"E |
| L63                 | 151.87' | S54°49'28"E |
| L64                 | 16.47'  | S33°30'00"E |
| L65                 | 11.91'  | N56°30'00"E |
| L66                 | 14.83'  | S33°30'00"W |
| L67                 | 10.61'  | S56°30'00"W |
| L68                 | 9.35'   | S57°30'59"E |
| L69                 | 126.28' | N64°48'44"E |
| L70                 | 124.05' | S64°48'44"W |
| L71                 | 183.93' | S26°53'10"E |
| L72                 | 183.93' | S26°53'10"W |
| L73                 | 131.39' | N26°53'10"W |
| L74                 | 52.75'  | S10°34'28"W |
| L75                 | 215.99' | S34°25'32"W |
| L76                 | 53.24'  | N55°34'28"W |
| L77                 | 277.03' | N55°34'28"W |
| L78                 | 147.3'  | S34°25'32"W |
| L79                 | 15.00'  | N55°34'28"W |
| L80                 | 147.3'  | N34°25'32"E |
| L81                 | 175.48' | N55°34'27"W |
| L82                 | 277.50' | S34°25'34"W |
| L83                 | 15.50'  | S55°34'28"E |

| EASEMENT LINE TABLE |         |             |
|---------------------|---------|-------------|
| LINE                | LENGTH  | BEARING     |
| L86                 | 15.00'  | S34°25'34"W |
| L87                 | 13.70'  | N34°25'32"E |
| L88                 | 151.00' | S34°25'34"W |
| L89                 | 12.00'  | S55°34'28"E |
| L90                 | 15.00'  | S34°25'34"W |
| L91                 | 12.74'  | N55°34'28"W |
| L92                 | 9.87'   | S79°25'34"W |
| L93                 | 83.02'  | S34°25'32"W |
| L94                 | 88.23'  | N34°25'32"E |
| L95                 | 10.92'  | N79°25'34"E |
| L96                 | 446.55' | N34°25'34"E |
| L97                 | 93.39'  | N55°34'28"W |
| L98                 | 23.06'  | N34°25'33"E |
| L99                 | 15.00'  | S55°34'28"E |
| L100                | 8.06'   | S34°25'34"W |
| L101                | 81.03'  | S55°34'28"E |
| L102                | 5.00'   | N34°25'34"E |
| L103                | 411.88' | S55°34'27"E |
| L104                | 104.17' | N34°25'32"E |
| L105                | 5.82'   | N55°34'28"W |
| L106                | 15.00'  | N34°25'32"E |
| L107                | 5.82'   | S55°34'28"E |
| L108                | 90.61'  | N34°25'32"E |
| L109                | 81.75'  | N10°34'28"W |
| L110                | 39.74'  | S33°30'00"W |
| L111                | 422.39' | N56°40'14"W |
| L112                | 296.50' | S34°25'32"W |
| L113                | 27.10'  | S33°28'31"W |
| L114                | 514.57' | S34°26'05"W |
| L115                | 82.69'  | N55°34'28"W |
| L116                | 219.49' | N34°26'05"E |
| L117                | 100.29' | S55°34'28"W |
| L118                | 36.67'  | N55°34'28"W |
| L119                | 215.19' | S34°25'33"W |
| L120                | 135.00' | N34°25'33"E |
| L121                | 6.00'   | N55°34'28"W |
| L122                | 15.00'  | N34°25'32"E |
| L123                | 6.00'   | S55°34'28"E |
| L124                | 56.48'  | N34°25'32"E |

| EASEMENT LINE TABLE |         |             |
|---------------------|---------|-------------|
| LINE                | LENGTH  | BEARING     |
| L125                | 15.30'  | N85°35'45"W |
| L126                | 253.38' | N55°34'28"W |
| L127                | 165.31' | S34°25'19"W |
| L128                | 179.81' | N34°25'19"E |
| L129                | 20.94'  | S85°35'45"E |
| L130                | 264.36' | S55°34'28"E |
| L131                | 11.99'  | N55°34'28"W |
| L132                | 125.19' | N34°25'32"E |
| L133                | 11.99'  | N55°34'28"W |
| L134                | 15.00'  | N34°25'32"E |
| L135                | 11.99'  | S55°34'28"E |
| L136                | 179.50' | N34°25'32"E |
| L137                | 92.61'  | N55°34'27"W |
| L138                | 10.00'  | S34°25'32"W |
| L139                | 15.00'  | N55°34'28"W |
| L140                | 10.00'  | N34°25'32"E |
| L141                | 147.44' | N55°34'27"W |
| L142                | 40.48'  | N66°57'38"W |
| L143                | 39.30'  | N55°34'09"W |
| L144                | 40.68'  | N44°19'09"W |
| L145                | 18.73'  | S45°40'51"W |
| L146                | 15.00'  | N44°19'09"W |
| L147                | 18.73'  | N45°40'51"E |
| L148                | 5.73'   | N44°19'09"W |
| L149                | 111.26' | N55°34'28"W |
| L150                | 113.99' | N66°49'28"W |
| L151                | 326.00' | N55°34'28"W |
| L152                | 230.30' | S34°25'38"W |
| L153                | 12.01'  | S55°34'24"E |
| L154                | 15.00'  | S34°25'36"W |
| L155                | 12.01'  | N55°34'24"W |
| L156                | 140.49' | S34°25'36"W |
| L157                | 38.00'  | S10°45'38"W |
| L158                | 56.82'  | S34°25'32"W |
| L159                | 325.13' | N55°34'24"W |
| L160                | 100.14' | N10°31'28"W |
| L161                | 316.37' | N34°25'32"E |
| L162                | 134.56' | N79°25'32"E |
| L163                | 287.87' | S55°34'28"E |

| EASEMENT LINE TABLE |         |             |
|---------------------|---------|-------------|
| LINE                | LENGTH  | BEARING     |
| L164                | 391.02' | S34°25'36"W |
| L165                | 28.89'  | S10°45'38"W |
| L166                | 64.83'  | S33°16'12"W |
| L167                | 104.32' | N55°34'28"W |
| L168                | 32.03'  | N85°35'45"E |
| L169                | 321.02' | N34°25'32"E |
| L170                | 29.43'  | S55°34'27"E |
| L171                | 83.96'  | S31°11'16"E |
| L172                | 16.89'  | S55°57'52"E |
| L173                | 16.82'  | S01°38'06"W |
| L174                | 256.75' | S34°26'05"W |
| L175                | 10.29'  | N55°57'52"W |
| L176                | 83.91'  | N31°11'16"W |
| L177                | 274.57' | N55°34'27"W |
| L178                | 10.00'  | S34°25'33"W |
| L179                | 29.59'  | N55°34'27"W |
| L180                | 40.48'  | N66°57'38"W |
| L181                | 36.33'  | N55°34'09"W |

| EASEMENT CURVE TABLE |           |          |        |                    |
|----------------------|-----------|----------|--------|--------------------|
| CURVE                | DELTA     | RADIUS   | LENGTH | CHORD              |
| C1                   | 00°40'18" | 1291.66' | 15.14' | S44°07'02"E 15.14' |
| C2                   | 00°59'46" | 892.00'  | 15.51' | S48°26'33"W 15.51' |
| C3                   | 00°57'20" | 899.50'  | 15.00' | S35°13'46"W 15.00' |
| C4                   | 00°39'56" | 1291.66' | 15.00' | S53°23'38"E 15.00' |
| C5                   | 01°53'27" | 461.50'  | 15.23' | S35°09'27"E 15.23' |
| C6                   | 01°24'04" | 614.50'  | 15.03' | S29°57'53"E 15.03' |

| EASEMENT LINE TABLE |         |             |
|---------------------|---------|-------------|
| LINE                | LENGTH  | BEARING     |
| L182                | 61.42'  | N44°19'09"W |
| L183                | 84.30'  | N55°34'28"W |
| L184                | 199.90' | N34°25'32"E |
| L185                | 18.05'  | N79°25'32"E |
| L186                | 13.55'  | S10°34'28"E |
| L187                | 15.00'  | N79°25'32"E |
| L188                | 13.55'  | N10°34'28"W |
| L189                | 118.68' | N79°25'32"E |
| L190                | 22.83'  | S78°04'28"E |
| L191                | 274.33' | S55°34'36"E |
| L192                | 25.94'  | N35°38'35"E |
| L193                | 54.44'  | S55°33'39"E |
| L194                | 140.88' | S44°19'28"E |
| L195                | 299.52' | S34°16'29"W |
| L196                | 43.46'  | S15°47'05"W |
| L197                | 9.84'   | N55°57'52"W |
| L198                | 39.42'  | N15°47'05"E |
| L199                | 294.07' | N34°16'29"E |
| L200                | 22.43'  | S44°19'28"W |
| L201                | 60.64'  | S34°25'32"W |
| L202                | 15.00'  | S55°34'28"E |
| L203                | 57.66'  | N34°25'32"E |
| L204                | 47.19'  | N34°25'32"E |
| L205                | 7.23'   | S87°00'13"W |
| L206                | 33.79'  | N55°34'28"W |
| L207                | 304.67' | S34°25'32"W |
| L208                | 20.90'  | S55°34'28"E |
| L209                | 6.79'   | N34°12'25"E |
| L210                | 8.52'   | N38°01'42"E |
| L211                | 5.95'   | S38°01'42"W |
| L212                | 9.33'   | S34°12'25"W |
| L213                | 59.47'  | S44°19'28"E |
| L214                | 9.29'   | N03°40'04"E |
| L215                | 15.00'  | S55°34'28"E |
| L216                | 15.00'  | S55°34'28"E |

| EASEMENT LINE TABLE |         |             |
|---------------------|---------|-------------|
| LINE                | LENGTH  | BEARING     |
| L217                | 310.75' | N55°33'56"W |
| L218                | 15.00'  | N34°25'32"E |
| L219                | 310.75' | S55°33'56"E |
| L220                | 67.85'  | N34°25'32"E |
| L221                | 15.00'  | S56°21'16"E |
| L222                | 32.78'  | N34°25'32"E |
| L223                | 15.00'  | S55°34'28"E |
| L224                | 32.57'  | N34°25'32"E |
| L225                | 15.00'  | S55°34'27"E |
| L226                | 23.95'  | N34°25'38"E |
| L227                | 74.04'  | N55°34'25"W |
| L228                | 81.28'  | N56°36'32"W |
| L229                | 82.31'  | N56°36'32"W |
| L230                | 89.18'  | N55°34'25"W |
| L231                | 38.95'  | N34°25'36"E |
| L232                | 41.57'  | S02°59'16"E |
| L233                | 18.89'  | S55°34'28"E |
| L234                | 23.94'  | S02°59'16"E |
| L235                | 26.49'  | S78°33'34"W |
| L236                | 20.90'  | S55°34'28"E |
| L237                | 46.79'  | S78°33'34"W |
| L238                | 15.00'  | S55°34'28"E |
| L239                | 26.50'  | N34°25'32"E |
| L240                | 15.00'  | S55°34'28"E |
| L241                | 26.50'  | N34°25'32"E |
| L242                | 21.95'  | S31°07'46"E |
| L243                | 40.23'  | N75°57'07"W |
| L244                | 2.09'   | S03°40'04"W |

| REVISIONS |           |
|-----------|-----------|
| NO.       | DATE      |
| 1         | 5/4/2004  |
| 2         | 6/11/2004 |
| 3         | 6/16/2004 |
| 4         | 7/16/2004 |
| 5         | 7/16/2004 |
| 6         | 7/28/2004 |

| DESIGNED BY: |     |
|--------------|-----|
| D02049       | SEH |
| DRAWN BY:    |     |
| 02049FLAT    | SEH |
| CHECKED BY:  |     |
| 08/05/03     | GB  |
| SCALE:       |     |
| 1"=100'      | GB  |

FINAL PLAT  
GLENWOOD MEADOWS NO. 2  
GLENWOOD SPRINGS  
DRAWING NO. 7 OF 8

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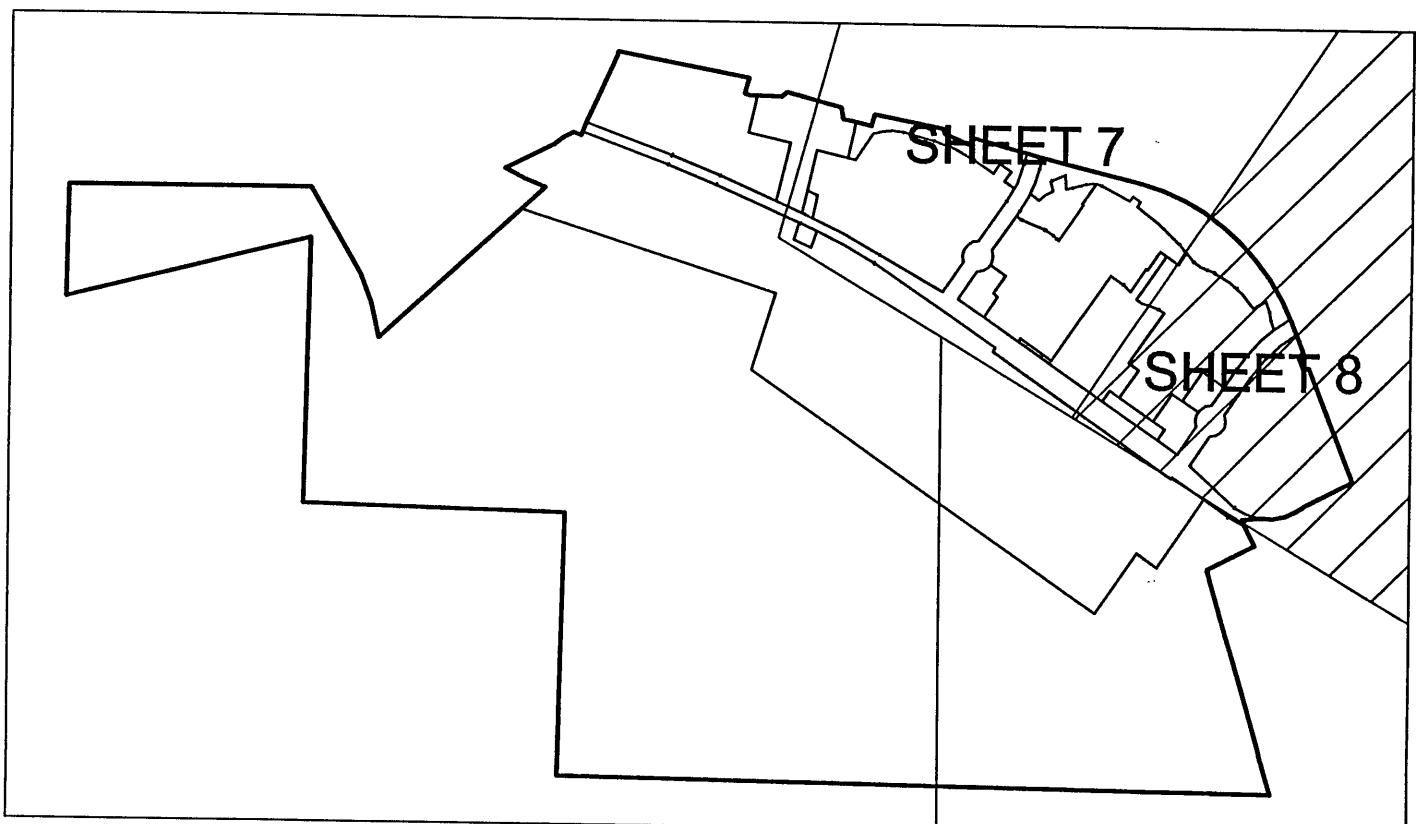
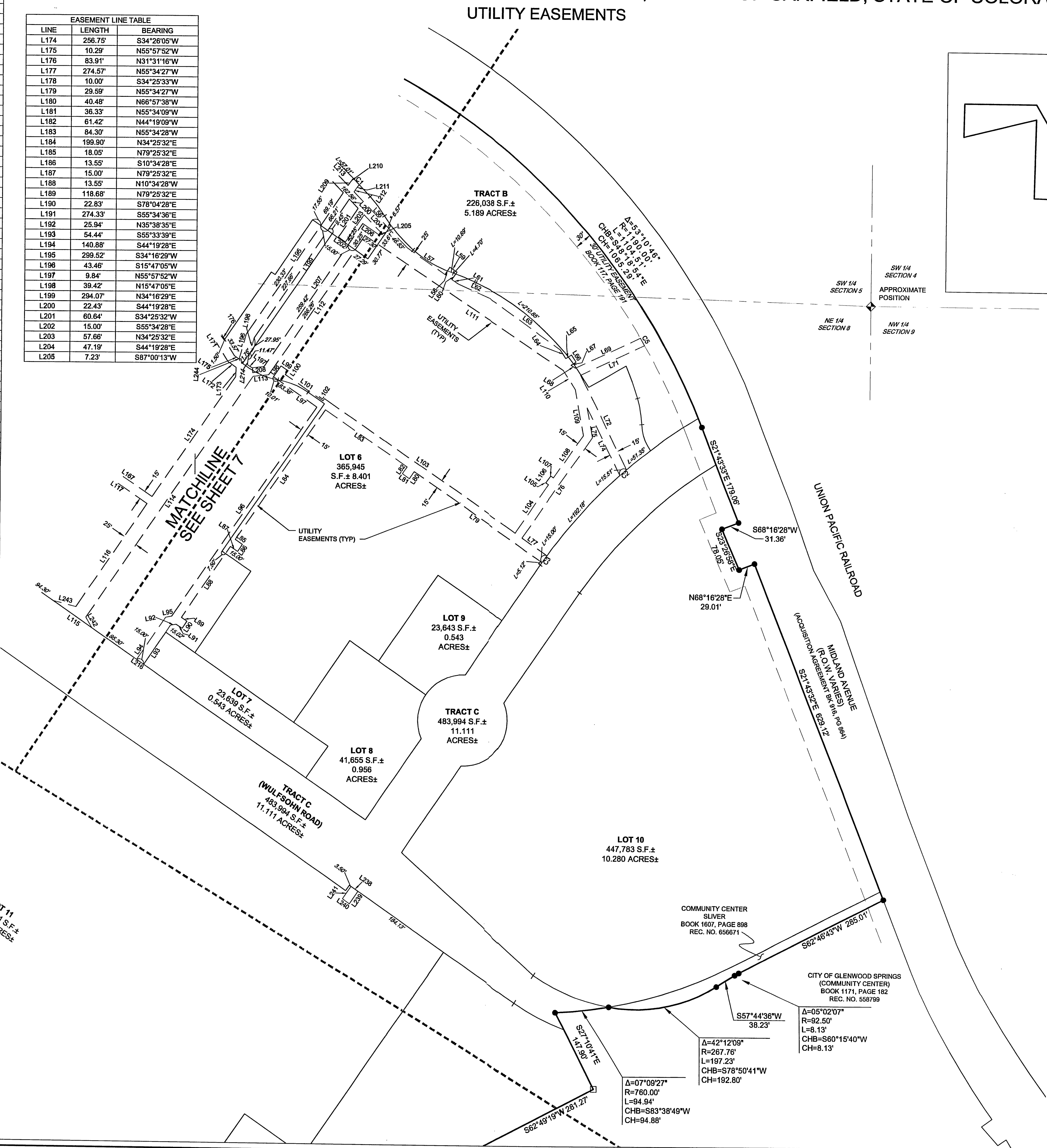
# GLENWOOD MEADOWS NO. 2

A RESUBDIVISION OF PARCEL B, GLENWOOD MEADOWS NO. 1,  
BEING A PARCEL OF LAND LOCATED IN SECTIONS 5, 6, 7, 8 & 9, TOWNSHIP 6 SOUTH, RANGE 89 WEST,  
OF THE SIXTH PRINCIPAL MERIDIAN, CITY OF GLENWOOD SPRINGS, COUNTY OF GARFIELD, STATE OF COLORADO

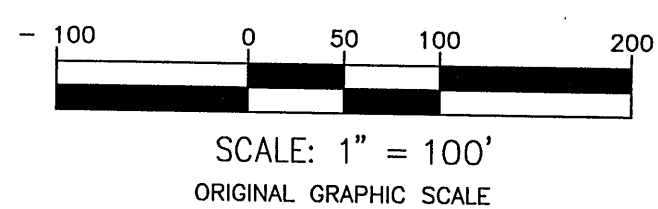
| EASEMENT LINE TABLE |         |             |
|---------------------|---------|-------------|
| LINE                | LENGTH  | BEARING     |
| L1                  | 25.09'  | S60°30'06"E |
| L2                  | 65.05'  | N34°25'32"E |
| L3                  | 41.75'  | N55°34'24"W |
| L4                  | 18.60'  | S34°25'36"W |
| L5                  | 15.00'  | N55°34'24"W |
| L6                  | 18.60'  | N34°25'36"E |
| L7                  | 276.99' | N55°34'24"W |
| L8                  | 12.73'  | N10°31'28"W |
| L9                  | 21.10'  | S79°28'32"W |
| L10                 | 15.00'  | N10°31'28"W |
| L11                 | 21.10'  | N79°28'32"E |
| L12                 | 84.84'  | N10°31'28"W |
| L13                 | 207.55' | N34°25'32"E |
| L14                 | 17.58'  | N55°34'28"W |
| L15                 | 15.00'  | N34°25'32"E |
| L16                 | 17.58'  | S55°34'28"E |
| L17                 | 106.24' | N34°25'32"E |
| L18                 | 146.99' | N79°25'32"E |
| L19                 | 81.98'  | S55°34'28"E |
| L20                 | 24.93'  | N34°25'32"E |
| L21                 | 15.00'  | S55°34'28"E |
| L22                 | 24.93'  | S34°25'32"W |
| L23                 | 175.45' | S55°34'28"E |
| L24                 | 21.96'  | N34°25'32"E |
| L25                 | 15.00'  | S55°34'28"E |
| L26                 | 21.96'  | S34°25'32"W |
| L27                 | 16.65'  | S55°34'28"E |
| L28                 | 52.82'  | N34°25'36"E |
| L29                 | 68.33'  | N15°40'46"E |
| L30                 | 15.16'  | S66°03'20"E |
| L31                 | 68.62'  | S15°40'48"W |
| L32                 | 55.29'  | S34°25'38"W |
| L33                 | 375.53' | S55°34'28"E |
| L34                 | 148.65' | S66°49'28"E |
| L35                 | 14.92'  | S55°34'28"E |
| L36                 | 206.11' | N34°25'32"E |
| L37                 | 140.20' | N79°25'32"E |
| L38                 | 57.45'  | S76°23'22"E |
| L39                 | 15.16'  | S76°23'22"E |
| L40                 | 36.52'  | S21°56'16"W |
| L41                 | 31.95'  | S55°32'43"E |
| L42                 | 67.57'  | S78°04'28"E |
| L43                 | 49.35'  | S55°33'39"E |
| L44                 | 13.70'  | N34°25'32"E |
| L45                 | 10.00'  | S55°34'28"E |
| L46                 | 13.70'  | S34°25'32"W |
| L47                 | 141.07' | S55°33'39"E |
| L48                 | 11.68'  | N35°38'35"E |
| L49                 | 11.11'  | S35°38'35"W |
| L50                 | 55.80'  | S55°33'39"E |
| L51                 | 84.84'  | S45°40'32"E |
| L52                 | 18.81'  | N45°40'32"E |
| L53                 | 15.00'  | S44°19'28"E |
| L54                 | 18.81'  | S45°40'32"W |
| L55                 | 134.62' | S44°19'28"E |
| L56                 | 80.96'  | S55°34'28"E |
| L57                 | 15.63'  | N34°25'32"E |
| L58                 | 15.00'  | S55°34'28"E |
| L59                 | 15.63'  | S34°25'32"W |
| L60                 | 13.32'  | S55°34'28"E |
| L61                 | 63.55'  | S66°04'28"E |
| L62                 | 151.87' | S54°49'28"E |
| L63                 | 18.47'  | S33°30'00"E |
| L64                 | 11.91'  | N56°30'00"E |
| L65                 | 14.83'  | S33°30'00"E |
| L66                 | 10.61'  | S56°30'00"W |
| L67                 | 9.35'   | S57°30'59"E |
| L68                 | 126.28' | N64°46'44"E |
| L69                 | 124.05' | S64°46'44"W |
| L70                 | 183.93' | S26°53'10"E |
| L71                 | 131.39' | N26°53'10"W |
| L72                 | 52.75'  | S10°34'28"E |
| L73                 | 215.99' | S34°25'32"W |
| L74                 | 53.24'  | S55°34'28"E |
| L75                 | 277.04' | N55°34'28"W |
| L76                 | 14.73'  | S34°25'32"W |
| L77                 | 15.00'  | N55°34'28"W |
| L78                 | 14.73'  | N34°25'32"E |
| L79                 | 175.48' | N55°34'27"W |
| L80                 | 277.50' | S34°25'34"W |
| L81                 | 15.00'  | S55°34'26"E |
| L82                 | 15.00'  | S34°25'34"W |
| L83                 | 15.00'  | N55°34'26"W |
| L84                 | 15.00'  | S34°25'34"W |
| L85                 | 15.00'  | S55°34'26"E |
| L86                 | 15.00'  | S34°25'34"W |
| L87                 | 15.00'  | N55°34'26"W |
| L88                 | 151.00' | S34°25'34"W |
| L89                 | 12.00'  | S55°34'26"E |
| L90                 | 15.00'  | S34°25'34"W |
| L91                 | 12.74'  | N55°34'28"W |
| L92                 | 9.87'   | S79°25'34"W |
| L93                 | 83.02'  | S34°25'32"W |
| L94                 | 89.23'  | N34°25'32"E |
| L95                 | 10.92'  | N79°25'34"E |
| L96                 | 446.55' | N34°25'34"E |
| L97                 | 93.39'  | N55°34'26"W |
| L98                 | 23.06'  | N34°25'33"E |
| L99                 | 15.00'  | S55°34'26"E |
| L100                | 6.06'   | S34°25'34"W |
| L101                | 81.03'  | S55°34'26"E |
| L102                | 5.00'   | N34°25'34"E |
| L103                | 411.98' | S55°34'27"E |
| L104                | 104.17' | N34°25'32"E |
| L105                | 5.82'   | N55°34'28"W |
| L106                | 15.00'  | N34°25'32"E |
| L107                | 5.82'   | S55°34'28"E |
| L108                | 90.61'  | N34°25'32"E |
| L109                | 81.75'  | N10°34'28"W |
| L110                | 39.74'  | N33°30'00"W |
| L111                | 422.39' | N56°40'14"W |

| EASEMENT LINE TABLE |         |             |
|---------------------|---------|-------------|
| LINE                | LENGTH  | BEARING     |
| L112                | 296.50' | S34°25'32"W |
| L113                | 27.10'  | S83°26'31"W |
| L114                | 514.57' | S34°26'05"W |
| L115                | 82.69'  | N55°34'28"W |
| L116                | 219.49' | N34°26'05"E |
| L117                | 100.29' | N55°34'28"W |
| L118                | 36.67'  | N85°35'45"W |
| L119                | 215.15' | S34°25'33"W |
| L120                | 135.00' | N34°25'33"E |
| L121                | 6.00'   | N55°34'28"W |
| L122                | 15.00'  | N34°25'32"E |
| L123                | 6.00'   | S55°34'28"E |
| L124                | 56.48'  | N34°25'32"E |
| L125                | 16.30'  | N85°36'46"W |
| L126                | 253.38' | N55°34'28"W |
| L127                | 165.31' | S34°25'19"W |
| L128                | 179.81' | N34°25'19"E |
| L129                | 264.36' | S55°34'28"E |
| L130                | 20.94'  | S85°35'45"E |
| L131                | 125.19' | N34°25'32"E |
| L132                | 11.99'  | N55°34'28"W |
| L133                | 15.00'  | N34°25'32"E |
| L134                | 11.99'  | S55°34'28"E |
| L135                | 179.50' | N34°25'32"E |
| L136                | 92.61'  | N55°34'27"W |
| L137                | 10.00'  | S34°25'32"W |
| L138                | 10.00'  | N55°34'28"W |
| L139                | 10.00'  | N34°25'32"E |
| L140                | 147.44' | N55°34'27"W |
| L141                | 40.48'  | N66°57'38"W |
| L142                | 39.30'  | N55°34'09"W |
| L143                | 40.68'  | N44°19'09"W |
| L144                | 18.73'  | S45°40'51"W |
| L145                | 15.00'  | N44°19'09"W |
| L146                | 18.73'  | N45°40'51"E |
| L147                | 5.73'   | N44°19'09"W |
| L148                | 111.26' | N55°34'28"W |
| L149                | 148.65' | N66°49'28"W |
| L150                | 377.00' | N55°34'28"W |
| L151                | 230.30' | S34°25'36"W |
| L152                | 12.01'  | S55°34'24"E |
| L153                | 15.00'  | S34°25'36"W |
| L154                | 12.01'  | N55°34'24"W |
| L155                | 140.49' | S34°25'36"W |
| L156                | 38.00'  | S10°45'38"W |
| L157                | 56.82'  | S34°25'32"W |
| L158                | 325.13' | N55°34'24"W |
| L159                | 100.14' | N10°31'28"W |
| L160                | 316.37' | N34°25'32"E |
| L161                | 134.56' | N79°25'32"E |
| L162                | 287.87' | S55°34'28"E |
| L163                | 391.02' | S34°25'38"W |
| L164                | 28.89'  | S10°45'38"W |
| L165                | 64.93'  | S33°18'12"W |
| L166                | 104.32' | N55°34'28"W |
| L167                | 32.03'  | N85°35'45"W |
| L168                | 321.02' | N34°25'32"E |
| L169                | 29.43'  | S55°34'27"E |
| L170                | 83.96'  | S31°31'16"E |
| L171                | 16.88'  | S55°57'52"E |
| L172                | 16.82'  | S01°38'06"W |

| EASEMENT LINE TABLE |         |             |
|---------------------|---------|-------------|
| LINE                | LENGTH  | BEARING     |
| L174                | 256.75' | S34°26'05"W |
| L175                | 10.29'  | N55°57'52"W |
| L176                | 83.91'  | N31°31'16"W |
| L177                | 274.57' | N55°34'27"W |
| L178                | 10.00'  | S34°25'33"W |
| L179                | 29.59'  | N55°34'27"W |
| L180                | 40.48'  | N66°57'38"W |
| L181                | 36.33'  | N55°34'09"W |
| L182                | 61.42'  | N44°19'09"W |
| L183                | 84.30'  | N55°34'28"W |
| L184                | 199.90' | N34°25'32"E |
| L185                | 18.05'  | N79°25'32"E |
| L186                | 13.55'  | S10°34'28"E |
| L187                | 15.00'  | N79°25'32"E |
| L188                | 13.55'  | N10°34'28"W |
| L189                | 118.68' | N79°25'32"E |
| L190                | 22.83'  | S78°04'28"E |
| L191                | 274.33' | S55°34'36"E |
| L192                | 25.94'  | N35°38'35"E |
| L193                | 54.44'  | S55°33'39"E |
| L194                | 140.88' | S44°19'28"E |
| L195                | 299.52' | S34°16'29"W |
| L196                | 43.46'  | S15°47'05"W |
| L197                | 9.84'   | N55°57'52"W |
| L198                | 39.42'  | N15°47'05"E |
| L199                | 294.07' | N34°16'29"E |
| L200                | 22.43'  | S44°19'28"E |
| L201                | 60.64'  | S34°25'32"W |
| L202                | 15.00'  | S55°34'28"E |
| L203                | 57.66'  | N34°25'32"E |
| L204                | 47.19'  | S44°19'28"E |
| L205                | 7.23'   | S87°00'13"W |



KEY MAP



NOTE: ALL EASEMENT TIES  
ARE ITALICIZED ON THIS SHEET

| EASEMENT LINE TABLE |         |             |
|---------------------|---------|-------------|
| LINE                | LENGTH  | BEARING     |
| L206                | 33.79'  | N55°34'28"W |
| L207                | 304.67' | S34°25'32"W |
| L208                | 20.90'  | S83°26'31"W |
| L209                | 6.78'   | N34°12'25"E |
| L210                | 8.52'   | N38°01'42"E |
| L211                | 5.95'   | S38°01'42"W |
| L212                | 9.33'   | S34°12'25"W |
| L213                | 59.47'  | S44°19'28"E |
| L214                | 9.29'   | N03°40'04"E |
| L215                | 15.00'  | S55°34'28"E |
| L216                | 15.00'  | S55°34'28"E |
| L217                | 310.75' | N55°33'56"W |
| L218                | 15.00'  | N34°25'32"E |
| L219                | 310.75' | S55°33'56"E |
| L220                | 67.89'  | S55°21'16"E |
| L221                | 15.00'  | N34°25'32"E |
| L222                | 32.78'  | N34°25'32"E |
| L223                | 15.00'  | S55°34'28"E |
| L224                | 32.57'  | N34°25'32"E |
| L225                | 15.00'  | S55°34'27"E |
| L226                | 23.95'  | N34°25'35"E |
| L227                | 74.04'  | N55°34'25"W |
| L228                | 81.28'  | N56°36'32"W |
| L229                | 82.31'  | N56°36'32"W |
| L230                | 89.18'  | N55°34'25"W |
| L231                | 38.95'  | N34°25'35"E |
| L232                | 41.57'  | S02°59'18"E |
| L233                | 18.89'  | S55°34'28"E |
| L234                | 23.94'  | S02°59'18"E |
| L235                | 26.49'  | S78°33'34"W |
| L236                | 20.90'  | S55°34'28"E |
| L237                | 46.70'  | S78°33'34"W |
| L238                | 15.00'  | S55°34'28"E |
| L239                | 26.50'  | N34°25'32"E |
| L240                | 15.00'  | S55°34'28"E |
| L241                | 26.50'  | N34°25'32"E |
| L242                | 21.95'  | S31°07'46"E |
| L243                | 40.23'  | N75°57'07"W |
| L244                | 2.09'   | S03°40'04"W |

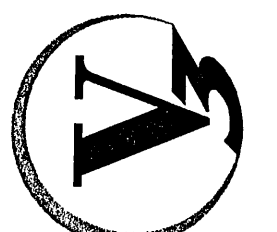
| EASEMENT CURVE TABLE |           |          |        |                    |
|----------------------|-----------|----------|--------|--------------------|
| CURVE                | DELTA     | RADIUS   | LENGTH | CHORD              |
| C1                   | 00°40'18" | 1291.66' | 15.14' | S44°07'02"E 15.14' |
| C2                   | 00°59'46" | 892.00'  | 15.51' | S49°26'33"W 15.51' |
| C3                   | 00°57'20" | 899.50'  | 15.00' | S35°13'46"W 15.00' |
| C4                   | 00°39'56" | 1291.66' | 15.00' | S53°23'38"E 15.00' |
| C5                   | 00°44'39" | 1160.00' | 15.06' | S30°29'03"E 15.06' |
| C6                   | 01°24'04" | 614.50'  | 15.03' | S29°57'53"W 15.03' |

## LEGEND

- SECTION CORNER AS DESCRIBED
- FOUND NO. 5 REBAR WITH CAP LS NO. 15710
- FOUND NO. 5 REBAR WITH CAP LS NO. 18598
- MONUMENTS AS DESCRIBED ON PLAT OF GLENWOOD MEADOWS NO. 1
- SET NO. 5 REBAR WITH CAP LS 25961

200 Union Boulevard, Suite 200  
Glenwood, CO 81728  
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V3consultants.com

Engineers  
Scientists  
Surveyors



| REVISIONS |           | DESCRIPTION               |
|-----------|-----------|---------------------------|
| NO.       | DATE      |                           |
| 1         | 5/4/2004  | REVISED PER CITY COMMENTS |
| 2         | 6/11/2004 | REVISED PER CITY COMMENTS |
| 3         | 6/16/2004 | REVISED PER CITY COMMENTS |
| 4         | 7/6/2004  | REVISED PER CITY COMMENTS |
| 5         | 7/15/2004 | REVISED PER CITY COMMENTS |
| 6         | 7/28/2004 | REVISED PER CITY COMMENTS |

|                |            |
|----------------|------------|
| DESIGNED BY:   | D02049     |
| DRAWN BY:      | SEH        |
| CHECKED BY:    |            |
| DATE:          | 08/05/03   |
| SCALE:         | 1"=100'    |
| PROJ. NO.:     | 02049-PLAT |
| FILE NAME:     |            |
| PROJ. MANAGER: | GB         |

FINAL PLAT

GLENWOOD MEADOWS NO. 2

GLENWOOD SPRINGS

COLORADO

DRAWING NO.

8 OF 8



|                                                                                                                                                        |                                                                                                                                                                                                         |
|--------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Date:</b> 2/12/2021 <b>Author:</b> BRIGID IRISH <b>Project:</b> Phase 4                                                                             | <b>Manifest</b>                                                                                                                                                                                         |
| <b>Comments:</b><br>RVC CONSTRUCTION<br>CONTINUATION FROM PHASE 3<br>PARKING AND SIDEWALK CLOSURE WULFSOHN RD.<br>GLENWOOD SPRINGS<br>MUTCD TA-1 TA-28 | 6 x W20-1 road work ahead<br>4 x W20-7a flagger<br>3 x W20-7b be prepared to stop<br>1 x R9-11(L) Sidewalk Closed Ahead, Cross Here R9-11(L)<br>1 x R9-11(R) Sidewalk Closed Ahead, Cross Here R9-11(R) |





LOT 8, GLENWOOD MEADOWS NO. 2  
LOCATED IN THE NORTHEAST QUARTER OF SECTION 8,  
TOWNSHIP 6 SOUTH, RANGE 89 WEST OF THE SIXTH PRINCIPAL MERIDIAN,  
CITY OF GLENWOOD SPRINGS, COUNTY OF GARFIELD, STATE OF COLORADO

PER LAND TITLE GUARANTEE COMPANY COMMITMENT ORDER NO. ABS63014270-2, WITH AN EFFECTIVE DATE OF 6/30/2020 AT 5:00 P.M.

LOT 8, GLENWOOD MEADOWS NO. 2, ACCORDING TO THE PLAT THEREOF RECORDED AUGUST 9, 2004 UNDER RECEPTION NO. 657439, COUNTY OF GARFIELD, STATE OF COLORADO.

BEARINGS SHOWN HEREON ARE GRID BEARINGS DERIVED FROM RTK FAST STATIC GPS OBSERVATIONS AND ARE BASED UPON THE COLORADO COORDINATE SYSTEM OF 1983 CENTRAL ZONE (NAD 83, 1992), ALONG THE SOUTHWESTERLY LINE OF LOT 8, GLENWOOD MEADOWS NO. 2, WHICH BEARS NORTH 55°33'44" WEST, BETWEEN THE MONUMENTS SHOWN HEREIN.

LAND TITLE GUARANTEE COMPANY COMMITMENT ORDER NO. ABS63014270-2, WITH AN EFFECTIVE DATE OF JUNE 30, 2020 AT 5:00 P.M. WAS RELIED UPON FOR RECORD INFORMATION REGARDING RIGHTS-OF-WAY, EASEMENTS AND ENCUMBRANCES. THIS SURVEY DOES NOT REPRESENT A TITLE SEARCH BY AZTEC CONSULTANTS, INC. TO DETERMINE OWNERSHIP, RIGHTS-OF-WAY, EASEMENTS OR OTHER MATTERS OF PUBLIC RECORD.

NOTE: THE WORD "AFFECTS" AS USED BELOW, IS HEREBY DEFINED AS: "A DETERMINATION THAT THE PROPERTY OR INTERESTS DESCRIBED, WITHIN THE ITEMS LISTED AMONG THE SCHEDULE B - SECTION 2 PROVIDED, FALLS WITHIN OR TOUCHES THE SUBJECT PROPERTY".

ITEM NUMBERS BELOW REFER TO THOSE ITEMS AS LISTED IN SCHEDULE B - SECTION 2 OF SAID TITLE COMMITMENT.

ITEM NUMBERS 1-8 ARE STANDARD EXCEPTIONS NOT TO BE ADDRESSED AS A PART OF THIS SURVEY.

- 
- DONEGAN RD.
- SOCGER FIELD RD.
- 1-70
- DONEGAN RD.
- HWY 6 FRONTAGE RD.
- MIDLAND AVE.
- WULFSOHN RD.
- 6TH ST.
- 8TH ST.
- GRAND AVE.
- 1-70
- NORTH
- NOT TO SCALE
- SITE

24. TERMS, CONDITIONS AND PROVISIONS OF ZONING VARIANCE RECORDED NOVEMBER 04, 2005 IN BOOK 1637 AT PAGE 319.  
**AFFECTS THE SUBJECT PROPERTY, BUT IS NOT A PLOTTABLE ITEM.**
25. TERMS, CONDITIONS AND PROVISIONS OF ORDER OF EXCLUSION RECORDED FEBRUARY 03, 2005 IN BOOK 1660 AT PAGE 430.  
**AFFECTS THE SUBJECT PROPERTY, BUT IS NOT A PLOTTABLE ITEM.**
26. TERMS, CONDITIONS AND PROVISIONS OF AGREEMENT RECORDED JUNE 13, 2005 IN BOOK 1696 AT PAGE 618.  
**AFFECTS THE SUBJECT PROPERTY, BUT IS NOT A PLOTTABLE ITEM.**
27. TERMS, CONDITIONS AND PROVISIONS OF MEMORANDUM OF LEASE RECORDED JUNE 16, 2005 AT RECEPTION NO. 676369.  
**AFFECTS THE SUBJECT PROPERTY, BUT IS NOT A PLOTTABLE ITEM.**
28. TERMS, CONDITIONS AND PROVISIONS OF MEMORANDUM OF SHOPPING CENTER LEASE RECORDED AUGUST 04, 2005 AT RECEPTION NO. 679538.  
**AFFECTS THE SUBJECT PROPERTY, BUT IS NOT A PLOTTABLE ITEM.**
29. TERMS, CONDITIONS AND PROVISIONS OF MEMORANDUM OF LEASE RECORDED AUGUST 26, 2005 AT RECEPTION NO. 681017.  
**AFFECTS THE SUBJECT PROPERTY, BUT IS NOT A PLOTTABLE ITEM.**
30. TERMS, CONDITIONS AND PROVISIONS OF EASEMENT DEED RECORDED NOVEMBER 17, 2005 IN BOOK 1746 AT PAGE 862.  
**DOES NOT AFFECT THE SUBJECT PROPERTY.**
31. TERMS, CONDITIONS AND PROVISIONS OF LEASE RECORDED MAY 15, 2006 IN BOOK 1800 AT PAGE 72.  
**AFFECTS THE SUBJECT PROPERTY, BUT IS NOT A PLOTTABLE ITEM.**
32. TERMS, CONDITIONS AND PROVISIONS OF MEMORANDUM OF LEASE RECORDED OCTOBER 29, 2008 AT RECEPTION NO. 757895.  
**AFFECTS THE SUBJECT PROPERTY, BUT IS NOT A PLOTTABLE ITEM.**
33. TERMS, CONDITIONS AND PROVISIONS OF MEMORANDUM OF LEASE RECORDED JUNE 29, 2012 AT RECEPTION NO. 820743.  
**AFFECTS THE SUBJECT PROPERTY, BUT IS NOT A PLOTTABLE ITEM.**
34. TERMS, CONDITIONS AND PROVISIONS OF MEMORANDUM OF LEASE RECORDED DECEMBER 01, 2015 AT RECEPTION NO. 870930.  
**AFFECTS THE SUBJECT PROPERTY, BUT IS NOT A PLOTTABLE ITEM.**

THE SURVEYED PROPERTY SHOWN HEREIN LIES WITHIN FLOOD ZONE C - AREAS OF MINIMAL FLOODING, PER FEDERAL EMERGENCY MANAGEMENT AGENCY FLOOD INSURANCE RATE MAP (FIRM) NO. 080205 1432 B, WITH A REVISED DATE OF JANUARY 3, 1986. DETERMINATION OF FLOOD ZONE CLASSIFICATION IS DEPICTED BY SCALED MAP LOCATION AND GRAPHIC PLOTTING ONLY.

1. THE FIELD WORK FOR THIS SURVEY WAS PERFORMED BY AN AZTEC CONSULTANTS, INC. SURVEY CREW AND COMPLETED ON SEPTEMBER 9, 2020.
2. PER C.R.S. 38-51-106, "ALL LINEAL UNITS DEPICTED ON THIS LAND SURVEY PLAT ARE U.S. SURVEY FEET. ONE METER EQUALS 39.37/12 U.S. SURVEY FEET, EXACTLY ACCORDING TO THE NATIONAL INSTITUTE OF STANDARDS AND TECHNOLOGY."
3. AS TO TABLE A ITEM NO. 2: SUBJECT PROPERTY ADDRESS IS 405 EAST MEADOWS DRIVE, GLENWOOD SPRINGS, CO 81601.
4. AS TO TABLE A ITEM NO. 4: THE SURVEYED PARCEL CONTAINS A TOTAL OF 0.956 ACRES OR 41,655 SQUARE FEET, MORE OR LESS.
5. AS TO TABLE A ITEM NO. 11: THIS SURVEY DOES NOT CERTIFY TO SUBSURFACE FEATURES, IMPROVEMENTS, UTILITIES OR BURIED LINES OF ANY TYPE, LOCATION DEPICTED HEREON ARE DERIVED FROM FIELD SURVEY OF UTILITY FLAGGING / PAINT MARKING, PERFORMED BY AZTEC CONSULTANTS, INC. ON SEPTEMBER 9, 2020.
6. AS TO TABLE A ITEM NO. 16: THERE WAS NO OBSERVED EVIDENCE OF CURRENT EARTH MOVING WORK, BUILDING CONSTRUCTION OR BUILDING ADDITIONS AT THE TIME OF THIS SURVEY.
7. THE PROPERTY HAS DIRECT PHYSICAL ACCESS TO EAST MEADOWS DRIVE A DEDICATED PUBLIC STREET.
8. THE PROPERTY DESCRIBED HEREON IS THE SAME AS THE PROPERTY DESCRIBED IN LAND TITLE GUARANTEE COMPANY COMMITMENT NO. ABS63014270-2, WITH AN EFFECTIVE DATE OF JUNE 30, 2020 AND THAT ALL EASEMENTS, COVENANTS AND RESTRICTIONS REFERENCED IN SAID TITLE COMMITMENT OR APPARENT FROM A PHYSICAL INSPECTION OF THE SITE OR OTHERWISE KNOWN TO ME HAVE BEEN PLOTTED HEREON OR OTHERWISE NOTED AS TO THEIR EFFECT ON THE SUBJECT PROPERTY
9. THE ACCOMPANYING SURVEY WAS MADE ON THE GROUND AND CORRECTLY SHOWS THE LOCATION OF ALL BUILDINGS, STRUCTURES AND OTHER IMPROVEMENTS SITUATED ON THE ABOVE PREMISES; THERE ARE NO VISIBLE ENCROACHMENTS ON THE SUBJECT PROPERTY OR UPON ADJACENT LAND ABUTTING SAID PROPERTY EXCEPT AS SHOWN HEREON AND WAS MADE IN ACCORDANCE WITH LAWS AND/OR MINIMUM STANDARDS OF THE STATE OF COLORADO.
10. ANY PERSON WHO KNOWINGLY REMOVES, ALTERS OR DEFACES ANY PUBLIC LAND SURVEY MONUMENT OR ACCESSORY COMMITS A CLASS TWO (2) MISDEMEANOR PURSUANT TO STATE STATUTE 18-4-508, C.R.S.

TO: STONELEIGH COMPANIES, LLC  
WMG MEADOWS LLC  
LAND TITLE GUARANTEE COMPANY  
OLD REPUBLIC NATIONAL TITLE INSURANCE COMPANY

THIS IS TO CERTIFY THAT THIS MAP OR PLAT AND THE SURVEY ON WHICH IT IS BASED WERE MADE IN ACCORDANCE WITH THE 2016 MINIMUM STANDARD DETAIL REQUIREMENTS FOR ALTA/NSPS LAND TITLE SURVEYS, JOINTLY ESTABLISHED AND ADOPTED BY ALTA AND NSPS, AND INCLUDES ITEMS 1-4, 8, 11, 13, 14, 16 AND 20 OF TABLE A THEREOF. THE FIELD WORK WAS COMPLETED ON SEPTEMBER 8, 2020.

DATE OF PLAT OR MAP: 9/28/2020

BRADY J. MOORHEAD, PLS NO. 38668  
COLORADO LICENSED PROFESSIONAL LAND SURVEYOR  
FOR AND ON BEHALF OF AZTEC CONSULTANTS, INC.

**NOTICE:** ACCORDING TO COLORADO LAW, YOU MUST COMMENCE ANY LEGAL ACTION BASED UPON ANY DEFECT IN THIS SURVEY WITHIN THREE YEARS AFTER YOU FIRST DISCOVER SUCH DEFECT. IN NO EVENT, MAY ANY ACTION BASED UPON ANY DEFECT IN THIS SURVEY BE COMMENCED MORE THAN TEN YEARS FROM THE DATE OF THE CERTIFICATION SHOWN HEREON.

**NOTICE:** PER THE STATE OF COLORADO BOARD OF LICENSURE FOR ARCHITECTS, PROFESSIONAL ENGINEERS, AND PROFESSIONAL LAND SURVEYORS RULE 1.6.B.2 THE WORD "CERTIFY" AS USED HEREON MEANS AN EXPRESSION OF PROFESSIONAL OPINION AND DOES NOT CONSTITUTE A WARRANTY OR GUARANTEE, EXPRESSED OR IMPLIED. THE SURVEY REPRESENTED HEREON HAS BEEN PERFORMED BY ME OR UNDER MY DIRECT SUPERVISION IN ACCORDANCE WITH APPLICABLE STANDARDS OF PRACTICE AND IS BASED UPON MY KNOWLEDGE, INFORMATION AND BELIEF.

THIS ALTA WAS FILED FOR RECORD IN THE OFFICE OF THE COUNTY CLERK AND RECORDER OF

GARFIELD COUNTY AT \_\_\_\_M. ON THE \_\_\_\_ DAY OF \_\_\_\_\_, 20\_\_.

RECEPTION NO. \_\_\_\_\_

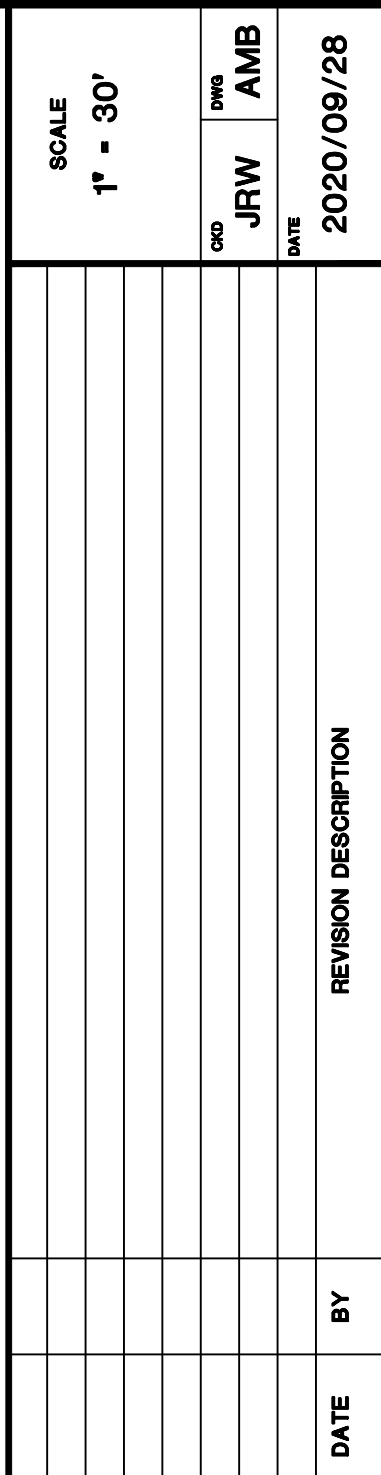
GARFIELD COUNTY CLERK AND RECORDER

BY: \_\_\_\_\_  
DEPUTY

Packet Page 516



LOT 8, GLENWOOD MEADOWS NO. 2  
LOCATED IN THE NORTHEAST QUARTER OF SECTION 8,  
TOWNSHIP 6 SOUTH, RANGE 89 WEST OF THE SIXTH PRINCIPAL MERIDIAN,  
CITY OF GLENWOOD SPRINGS, COUNTY OF GARFIELD, STATE OF COLORADO



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**AZTEC**  
CONSULTANTS, INC.

ALTA/NSPS LAND TITLE SURVEY  
GLENWOOD MEADOWS 2, LOT 8  
GLENWOOD SPRINGS, COLORADO

PREPARED FOR  
STONELEIGH COMPANIES, LLC  
760 W. MAIN STREET, SUITE 140, BARRINGTON, IL 60010

SHEET  
**TWO**  
OF 2 SHEETS  
162020-01  
JOB NO.

FOR REVIEW

FOR AND ON BEHALF OF  
AZTEC CONSULTANTS, INC





**Kumar & Associates, Inc.®**  
Geotechnical and Materials Engineers  
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Office Locations: Denver (HQ), Parker, Colorado Springs, Fort Collins, Glenwood Springs, and Summit County, Colorado

**GEOTECHNICAL ENGINEERING STUDY  
PROPOSED LOFTS AT RED MOUNTAIN  
PHASE 3 BUILDINGS  
LOT 8, GLENWOOD MEADOWS  
WULFSOHN ROAD AND EAST MEADOWS DRIVE  
GLENWOOD SPRINGS, COLORADO**

**PROJECT NO. 19-7-521.01**

**OCTOBER 6, 2020**

**PREPARED FOR:**

**STONELEIGH COMPANIES, LLC  
ATTN: JOSH WOHLREICH, VP - DEVELOPMENT  
760 WEST MAIN STREET, SUITE 140  
BARRINGTON, ILLINOIS 60010  
[jwohlreich@stoneleighcos.com](mailto:jwohlreich@stoneleighcos.com)**

## TABLE OF CONTENTS

|                                                   |        |
|---------------------------------------------------|--------|
| PURPOSE AND SCOPE OF STUDY .....                  | - 1 -  |
| PROPOSED CONSTRUCTION .....                       | - 1 -  |
| SITE CONDITIONS.....                              | - 2 -  |
| SITE GEOLOGY .....                                | - 2 -  |
| FIELD EXPLORATION .....                           | - 3 -  |
| SUBSURFACE PROFILE CONDITIONS .....               | - 3 -  |
| ENGINEERING ANALYSIS.....                         | - 4 -  |
| DESIGN RECOMMENDATIONS .....                      | - 4 -  |
| FOUNDATION .....                                  | - 4 -  |
| GRADING AND DRAINAGE CONCEPTS .....               | - 6 -  |
| RETAINING WALLS .....                             | - 7 -  |
| UNDERDRAIN SYSTEM .....                           | - 8 -  |
| SITE GRADING.....                                 | - 9 -  |
| PAVEMENT DESIGN RECOMMENDATIONS .....             | - 9 -  |
| SIGNIFICANT ASSUMPTIONS.....                      | - 11 - |
| LIMITATIONS.....                                  | - 11 - |
| FIGURE 1 - LOCATION OF EXPLORATORY BORINGS        |        |
| FIGURE 2 - LOGS OF EXPLORATORY BORINGS            |        |
| FIGURE 3 - LEGEND AND NOTES                       |        |
| FIGURES 4 TO 7 - SWELL-CONSOLIDATION TEST RESULTS |        |
| FIGURES 8 and 9 - GRADATION TEST RESULTS          |        |
| TABLE 1- SUMMARY OF LABORATORY TEST RESULTS       |        |

## **PURPOSE AND SCOPE OF STUDY**

This report presents the results of a geotechnical engineering study for the proposed Lofts at Red Mountain, Phase 3 Building located on Lot 8, Glenwood Meadows, Wulfsohn Road and East Meadows Drive, Glenwood Springs, Colorado. The project site is shown on Figure 1. The purpose of the study was primarily to develop recommendations for the foundation design of the buildings. The study was conducted in accordance with our proposal for geotechnical engineering services to Stoneleigh Companies, LLC dated August 10, 2020.

A field exploration program consisting of exploratory borings was conducted to obtain information on the subsurface conditions and ground settlement risks. Samples of the subsoils obtained during the field exploration were tested in the laboratory to determine their classification, compressibility or swell and other engineering characteristics. The results of the field exploration, laboratory testing and site characteristics were analyzed to develop recommendations for possible ground treatment methods to help mitigate settlement potential, foundation types and allowable pressures for the proposed building foundation design. This report summarizes the data obtained during this study and presents our conclusions, design recommendations and other geotechnical engineering considerations based on the proposed construction and the subsurface conditions encountered.

## **PROPOSED CONSTRUCTION**

The proposed Phase 3 apartment building consists of a 4-story structure with parking at the lower level daylighting on the downhill, north side. The building will extend east from the proposed building on Lot 7 and include a rooftop swimming pool as shown on Figure 1. The elevation difference from the uphill, street side to the downhill parking lot side is about 10 feet. The site elevation is generally just below 5800 feet which indicates the property probably lies below the highest historic field irrigation of Wulfsohn Ranch based on the old ditch line at about elevation 5805 feet. The building is proposed to have a uniform lower floor level with the uphill wall and east end wall of the building retaining earth backfill. Foundation loading will be relatively heavy, around 14.5 kips per foot for exterior walls and up to 600 kips for columns. We understand that the developer, Stoneleigh Companies, and the design and construction team are familiar with the potential for ground shifting at the project site, and that a certain level of future movement and building distress likely requiring remediation is expected and accepted. A future retail building, assumed to be a relatively lightly loaded structure, is proposed just north of the apartment building as shown on Figure 1.

If the building locations, grading or other development plans change significantly from those described above, we should be notified to re-evaluate the recommendations contained in this report.

## **SITE CONDITIONS**

The project site lies within the upper, mid area of the Glenwood Meadows development along the downhill side of Wulfsohn Road and along the west side of East Meadows Road as shown on Figure 1. The ground surface across the southern part of the lot is graded and moderately to gently sloping down to the north from Wulfsohn Road to the gently sloping asphalt paved parking lot in the north part. Vegetation consists mainly of grass and some small trees along the sidewalk that borders Wulfsohn Road.

## **SITE GEOLOGY**

The Glenwood Meadows development is mainly located on a large alluvial fan complex that has formed below several coalescing drainage basins. The debris fan complex in this area is known to be relatively deep and prone to collapse when wetted and can result in settlement related distress to facilities constructed on the fan. Ground cracks can also result from differential settlement between wetted and naturally dry soils areas, and possibly between fine to coarse grained fan deposit areas. Our experience with previous development in the project area identified ground cracks near the top of the old irrigated fields located roughly at elevation 5810 feet.

The project site appears to be located in the lower part of the area impacted by the July 24, 1977 debris flow (Lincoln-DeVore, 1978). The debris flow impact risk to the Glenwood Meadows development has been mitigated by constructing consecutive drainage collection basins located several hundred feet uphill of the project site. The effectiveness of these basins to mitigate debris flow impacts to the project site has not been evaluated by us and is beyond the scope of our study. It is our assumption that the debris flow basins effectively contain storm event runoff and the site is considered to not be potentially impacted by debris flows.

The Eagle Valley Evaporite mapped as underlying the Glenwood Meadows development is believed to be associated with sinkhole development. The exploratory borings drilled for the current study and those drilled by us for Phases 1 and 2, and the earlier Phase 3 development did not encounter subsurface voids associated with caving or piping of soil into subsurface cavities in the underlying formation rock. To our knowledge, the project site is not impacted by existing

sinkholes and the risk of future sinkhole development is considered low throughout the service life of the project but the owner should be aware of the risk.

### **FIELD EXPLORATION**

The field exploration for the project was conducted on September 8 and 14, 2020. Four exploratory borings were drilled at the locations shown on Figure 1 to evaluate the subsurface conditions. The borings were advanced with 4-inch diameter continuous flight augers powered by a truck-mounted CME-45B drill rig and were logged by a representative of Kumar & Associates.

Samples of the subsoils were taken with 1¾ and 2-inch I.D. spoon samplers. The samplers were driven into the subsoils at various depths with blows from a 140 pound hammer falling 30 inches. This test is similar to the standard penetration test described by ASTM Method D-1586. The penetration resistance values are an indication of the relative density or consistency of the subsoils. Depths at which the samples were taken and the penetration resistance values are shown on the Logs of Exploratory Borings, Figure 2. The samples were returned to our laboratory for review by the project engineer and testing.

### **SUBSURFACE PROFILE CONDITIONS**

Graphic logs of the subsurface conditions encountered at the site are shown on Figure 2. Two borings were drilled in the lower part of the lot to a depth of 31 feet in the alluvial fan soils and 2 borings were drilled in the upper part of the lot to determine the depth to dense river gravel alluvium. The borings were sampled for laboratory testing to evaluate the collapse potential typical of alluvial fan deposits. The two deep borings showed the alluvial fan deposit to extend to depths of 57½ to 66 feet in Borings 6 and 7. The alluvial fan deposits were slightly moist to moist, typically 4 to 8% moisture content with some soils of 9 to 14% moisture content with depth, notably in the areas under the existing pavement. No free water was encountered in the borings. The slightly moist soils (roughly 25 to 40% saturation level) possess a collapse potential when wetted and the somewhat higher moisture content soils (roughly 45 to 70% saturation level) should be less compressible when wetted. Drilling in the coarse granular river gravel alluvium with auger equipment was difficult due to the cobbles and possible boulders.

The subsurface profiles were generally the same as encountered in exploratory borings drilled for the previous adjacent Phase 3 Building.



Laboratory testing performed on samples obtained from the borings included natural moisture content and density and gradation analyses. Results of swell-consolidation testing performed on relatively undisturbed drive samples of the more fine-grained soils, presented on Figures 4 through 6, indicate low compressibility under existing low moisture condition and minor to low collapse potential (settlement under constant load) when wetted. The samples were moderately compressible under additional loading after wetting. Results of gradation analyses performed on small diameter drive samples (minus 1½-inch fraction) of the more granular soils are shown on Figures 7 and 8. The laboratory testing is summarized in Table 1.

## ENGINEERING ANALYSIS

The project site has inherent risks associated with geotechnical conditions which have been extensively studied for the existing developments at Glenwood Meadows and should be considered by the design and construction team for the current development. Consequently, the need for special foundation systems, such as structural post-tensioned slab foundations or deep foundation and structural slab, and the need for additional ground modification is recommended with the intent to achieve an acceptable risk of future settlement and building distress. Building at the site with special foundation types, even with ground modification, will be a calculated risk and the lowest cost option should not be the deciding factor in selecting the ground modification methods and structural foundation designs. Based on the proposed development plan and prior discussion with the design and construction team, the preferred foundation type for the apartment building consists of piles or piers with bearing down in the underlying dense, river gravel alluvium. If other ground mitigation methods and foundation types are desired for the apartment building, we should be contacted to provide additional analysis and recommendations.

Lightly loaded spread footings placed on the natural soils may be suitable for support of the retail building provided the risk of differential settlement and building distress is acceptable to the owner. If a low risk of building settlement and distress is desired, a deep pile or pier foundation support should be used.

## DESIGN RECOMMENDATIONS

### FOUNDATION

**Piles or Piers:** Piles that extend down into the underlying dense river gravel alluvium encountered at depths of about 57½ to 66 feet in the exploratory borings are a feasible foundation with low settlement potential. Deep foundations can consist of “screw piles” or

driven piles. A screw pile foundation is a heavy-duty helical pile (typically 5 to 6-inch diameter, high strength steel pipe with single or double 8 to 12-inch diameter helixes) that has been used in Colorado to provide relatively high load capacity and low foundation settlement risk. Driven piles typically used in this area consist of H-piles and concrete filled, closed-end pipe piles. The building ground level floor slab should also be supported on the pile foundation. We expect the piles will penetrate the dense river gravel up to around 5 feet to achieve the desired load capacity, but the pile installation contractor should be contacted for specific loading and design information. We expect downward allowable pile load capacity to be around 100 to 150 kips and will be achieved mainly by end bearing. Uplift capacity will depend on the pile section, helix size and embedment depth. Settlements or uplift under sustained loading are expected to be minor, ½ inch or less. Lateral capacity of screw piles is normally provided by battered piles. Pipe piles and H-piles can be analyzed for lateral load capacity based on horizontal subgrade modulus or L-Pile analysis. Piles should be spaced at least 3 feet from center to center to avoid reduction from group action. At least one pile should be load tested to confirm the assigned load capacity in both compression and tension (if used). The pile load testing should be performed under the supervision of a registered professional engineer and a summary report provided of their adequacy to support the design loading. A representative of the geotechnical engineer should observe the test pile and production pile installations. Grade beams and pile caps should have a minimum depth of 3 feet for frost cover and void form below them is not needed. When the pile or pier type has been selected, we can provide additional analysis and recommendations for the final design.

**Shallow Spread Footings (Retail Building):** Considering the subsurface conditions encountered in Borings 8 and 9, and the assumed lightly loaded construction, the retail building can be founded with spread footings bearing on the natural granular soils with potential for differential settlement and distress.

The design and construction criteria presented below can be used for preliminary design of a spread footing foundation system.

- 1) Footings placed on the undisturbed natural granular soils should be designed for an allowable bearing pressure of 1,500 psf. Based on experience, we expect initial settlement of footings designed and constructed as discussed in this section will be about 1 inch or less. Additional post-construction differential settlement of around 1 inch should be expected depending on the depth and extent of wetting below the foundation.

- 2) The footings should have a minimum width of 20 inches for continuous walls and 2 feet for isolated pads.
- 3) Exterior footings and footings beneath unheated areas should be provided with adequate soil cover above their bearing elevation for frost protection. Placement of foundations at least 36 inches below exterior grade is typically used in this area.
- 4) Continuous foundation walls should be heavily reinforced top and bottom to span local anomalies such as by assuming an unsupported length of at least 14 feet. Foundation walls acting as retaining structures should also be designed to resist lateral earth pressures as discussed in the "Foundation and Retaining Walls" section of this report.
- 5) All existing fill, topsoil and any loose or disturbed soils should be removed and the footing bearing level extended down to the natural granular soils. The exposed soils in footing area should then be moistened and compacted.
- 6) A representative of the geotechnical engineer should observe all footing excavations prior to concrete placement to evaluate bearing conditions.

## GRADING AND DRAINAGE CONCEPTS

Extraordinary grading and drainage provisions are recommended regardless of the settlement mitigation methods selected. These should include a minimum 10% slope away from the buildings for at least 10 feet. Plantings and irrigation should be minimized and not include lawn. Swales needed to collect surface runoff should have a minimum invert slope of 2% and preferably 3%. Frequent drop inlets or yard drains with solid watertight piping could be needed to achieve the desired surface drainage. Roof runoff should be 100% contained by gutters and downspouts that discharge to solid watertight restrained-joint subsurface piping. Perimeter underdrains should not be provided for the slab-at-grade foundation areas. Site retaining walls for grade change should be protected with an underdrain. The underdrain should be lined with an impervious membrane such as 30 mil PVC to contain possible drain water flow and discharge to solid pipe. All pressure and sewer pipes should have mechanical restrained joints to prevent leakage in the event of some ground movement. Proper backfill compaction will be critical to maintain site grades since ground settlement will tend to reduce the effectiveness of the site grading provisions. Typically, backfill should be compacted to at least 95% of standard Proctor density at near optimum moisture content. Even with close attention to proper grading and drainage construction, regular maintenance will be needed to correct even the smallest changes

or to provide additional improvements. A rigorous maintenance program and budget will be required throughout the project life to ensure proper grading and drainage are maintained.

## RETAINING WALLS

Retaining structures which are laterally supported and can be expected to undergo only a slight amount of deflection should be designed for a lateral earth pressure computed on the basis of an equivalent fluid unit weight of at least 50 pcf for backfill consisting of the on-site soils.

Cantilevered retaining structures which are separate from the buildings and can be expected to deflect sufficiently to mobilize the full active earth pressure condition should be designed for a lateral earth pressure computed on the basis of an equivalent fluid unit weight of at least 40 pcf for flat backslope and 45 pcf for sloping backslope of 3 horizontal to 1 vertical and backfill consisting of the on-site soils. A maximum allowable bearing pressure of 2,000 psf can be assumed for site retaining walls that can tolerate considerable differential settlement.

All retaining structures should be designed for appropriate hydrostatic and surcharge pressures such as adjacent footings, traffic, construction materials and equipment. The pressures recommended above assume drained conditions behind the walls. The buildup of water behind a wall or an upward sloping backfill surface will increase the lateral pressure imposed on a foundation wall or retaining structure. An underdrain should be provided to prevent hydrostatic pressure buildup behind walls.

Backfill should be placed in uniform lifts and compacted to at least 90% of the maximum standard Proctor density at a moisture content near optimum. Backfill placed in pavement and walkway areas should be compacted to at least 95% of the maximum standard Proctor density. Care should be taken not to overcompact the backfill or use large equipment near the wall, since this could cause excessive lateral pressure on the wall. Some settlement of deep foundation wall backfill should be expected, even if the material is placed correctly, and could result in distress to facilities constructed on the backfill.

The lateral resistance of foundation or retaining wall footings will be a combination of the sliding resistance of the footing on the foundation materials and passive earth pressure against the side of the footing. Resistance to sliding at the bottoms of the footings can be calculated based on a coefficient of friction of 0.40. Passive pressure of compacted backfill against the sides of the footings can be calculated using an equivalent fluid unit weight of 350 pcf. The coefficient of friction and passive pressure values recommended above assume ultimate soil

strength. Suitable factors of safety should be included in the design to limit the strain which will occur at the ultimate strength, particularly in the case of passive resistance. Fill placed against the sides of the footings to resist lateral loads should be a predominantly granular material compacted to at least 95% of the maximum standard Proctor density at a moisture content near optimum.

## SLABS-ON-GRADE

We understand the ground floor of the apartment building will be a structural slab constructed on-grade and supported by the building foundation. The natural on-site soils can be used to support lightly loaded slab-on-grade construction exterior to the apartment building and possibly for the retail building with a risk of settlement and distress if the bearing soils are wetted. To reduce the effects of some differential movement, non-structural slabs should be separated from all foundations and walls with expansion joints which allow unrestrained vertical movement. Floor slab control joints should be used to reduce damage due to shrinkage cracking. The requirements for joint spacing and slab reinforcement should be established by the designer based on experience and the intended slab use. A minimum 4-inch layer of relatively well graded sand and gravel such as CDOT Class 6 road base should be placed beneath exterior slabs and the at-grade slab of the retail building for subgrade support. A minimum 4-inch layer of relatively free draining gravel should be provided below the interior floor slab of the apartment building to facilitate drainage. This material should consist of minus 2-inch aggregate with at least 50% retained on the No. 4 sieve and less than 2% passing the No. 200 sieve.

All fill materials for support of slabs should be compacted to at least 95% of maximum standard Proctor density at a moisture content near optimum. Required fill can consist of the on-site granular soils devoid of vegetation, topsoil and rock larger than about 4 inches.

## UNDERDRAIN SYSTEM

Although free water was not encountered during our exploration, it has been our experience in this area that local perched groundwater can develop during times of heavy precipitation or seasonal runoff. Frozen ground during spring runoff can also create a perched condition. We recommend below-grade construction, such as retaining walls and basement areas, be protected from wetting and hydrostatic pressure buildup by an underdrain system. If shallow crawlspace is used, we do not recommend a perimeter underdrain system because the drain can result in collection of surface water sources and wetting of the bearing soils.

The drains should consist of rigid perforated drainpipe placed in the bottom of the wall backfill surrounded above the invert level with free-draining granular material. The drain should be placed at each level of excavation and at least 1 foot below lowest adjacent finish grade and sloped at a minimum ½% to a suitable gravity outlet with solid pipe. Free-draining granular material used in the underdrain system should contain less than 2% passing the No. 200 sieve, less than 50% passing the No. 4 sieve and have a maximum size of 2 inches. The drain gravel backfill should be at least 1½ feet deep. An impervious membrane such as 30 mil PVC should be placed beneath the drain gravel in a trough shape and attached to the foundation wall with mastic to prevent wetting of the bearing soils.

## SITE GRADING

We assume cut and fill depths for the apartment building project will be up to about 15 feet. Embankment fills should consist of the onsite soils processed down to about minus 4-inch material and compacted to at least 95% of the maximum standard Proctor density near optimum moisture content. Prior to fill placement, the subgrade should be carefully prepared by removing all vegetation and topsoil and compacting to at least 95% of the maximum standard Proctor density. The fill should be benched into slopes that exceed 20% grade. Permanent unretained cut and fill slopes should be graded at 2 horizontal to 1 vertical or flatter and protected against erosion by revegetation or other means. This office should review site grading plans for the project prior to construction.

## PAVEMENT DESIGN RECOMMENDATIONS

A pavement section is designed to distribute concentrated traffic loads to the subgrade. Pavement design procedures are based on strength properties of the subgrade and pavement materials assuming stable, uniform subgrade conditions. Certain soils such as the upper, silty matrix soils encountered on this site, are frost susceptible and could impact pavement performance. Frost susceptible soils are problematic when there is a free water source. If those soils are wetted, the resulting frost heave movements can be large and erratic. Therefore, pavement design procedures assume dry subgrade conditions by providing proper surface and subsurface drainage.

**Subgrade Materials:** The fine-grained matrix soils encountered at the site are mainly low plasticity which are considered a poor support for pavement materials. The soil classification tests indicate an AASHTO Soil Classification of A-4 and an 'R' value in the range of 10. For

design purposes, the soil support value of the subgrade was selected based on an Hveem 'R' value of 10 for flexible (asphalt) pavements and a modulus of subgrade reaction of 100 tcf was selected for rigid (portland cement) pavements. The soils are considered moderately to highly susceptible to frost action.

**Pavement Section:** Since anticipated traffic loading information was not available at the time of report preparation, an 18 kip equivalent daily load application (EDLA) of 5 was assumed for exterior automobile parking areas and an EDLA of 10 was assumed for combined automobile and truck traffic areas. These loadings should be checked by the project civil engineer. A Regional Factor of 2 was assumed for this area of Garfield County based on the site terrain, surface drainage and climatic conditions.

Based on the assumed parameters, the pavement section in driveway areas subjected to combined automobile and truck traffic should consist of 8 inches of high quality base course and 4 inches of asphalt surface and in parking areas should consist of 8 inches of high quality base course and 3 inches of asphalt.

As an alternative to asphalt pavement and in areas where truck turning movements are concentrated, the pavement section can consist of 6 inches of portland cement concrete above 4 inches of base course.

The section thicknesses assume structural coefficients of 0.14 for aggregate base course, 0.44 for asphalt surface and design strength of 4,500 psi for portland cement concrete. The material properties and compaction should be in accordance with the project specifications.

**Subgrade Preparation:** Design subgrade level should be established by placing and compacting at least 3 feet of the onsite soils processed to minus 4-inch material. Prior to fill placement, the entire subgrade area should be scarified to a depth of 8 inches, adjusted to a moisture content near optimum and compacted to at least 95% of the maximum standard Proctor density. The pavement subgrade should be proof-rolled with a heavily loaded pneumatic-tired vehicle. Pavement design procedures assume a stable subgrade. Areas which deform excessively under heavy wheel loads are not stable and should be removed and replaced to achieve a stable subgrade prior to placing structural fill or pavement materials.

**Drainage:** The collection and diversion of surface drainage away from paved areas is extremely important to the satisfactory performance of pavement. Drainage design should provide for the removal of water from paved areas and prevent wetting of the subgrade soils.



## SIGNIFICANT ASSUMPTIONS

- 1) Stoneleigh Companies and the other design and construction team members for the project are aware of the potential for ground shifting due to the collapse potential of the extreme debris flow deposit depth that could result in future movements and distress of the constructed facilities requiring remedial repairs.
- 2) Our study has been conducted according to the standard of care ordinarily followed in this area for geotechnical engineering. By accepting our findings, recommendations, and conditions, it is accepted that our study meets the standard of care and no other higher standard will be imposed after completion of the project.
- 3) Kumar & Associates will be retained for additional evaluations as needed, and construction observation and testing services through substantial completion of the project. If another consultant is selected to complete the project, Kumar & Associates will not be the geotechnical engineer of record on the project.
- 4) Stoneleigh Companies is assumed to keep the project as apartments at least 8 years after substantial completion. If the property changes ownership prior to that time in the future, Kumar & Associates will be contacted for possible limitations on their services provided.
- 5) The potential debris flow impacts to the project site have been mitigated by the uphill, nearby debris basins.

## LIMITATIONS

The findings and recommendations submitted in this letter are intended for selection of settlement risk mitigation methods and for preliminary foundation, grading and drainage designs based on the subsurface exploration findings and our experience with collapsible soils in this area. The risk of foundation movement may be greater than indicated in this report because of possible variations in the subsurface conditions. We encourage peer review of our findings and recommendations by a practicing professional engineer who has been the geotechnical engineer of record for multi-family housing projects built on collapsible soils requiring foundation settlement mitigation. The conclusions and recommendations submitted in this report are based upon the data obtained from the exploratory borings drilled at the locations indicated on Figure 1, the proposed type of construction and our experience in the area. Our services do not include determining the presence, prevention or possibility of mold or other biological contaminants (MOBC) developing in the future. If the client is concerned about MOBC, then a professional in this special field of practice should be consulted. Our findings include



interpolation and extrapolation of the subsurface conditions identified at the exploratory borings and variations in the subsurface conditions may not become evident until excavation is performed. If conditions encountered during construction appear different from those described in this report, we should be notified so that re-evaluation of the recommendations may be made.

This report has been prepared for the exclusive use by our client for design purposes. We are not responsible for technical interpretations by others of our information. As the project evolves, we should provide continued consultation and field services during construction to review and monitor the implementation of our recommendations, and to verify that the recommendations have been appropriately interpreted. Significant design changes may require additional analysis or modifications to the recommendations presented herein. We recommend on-site observation of excavations and foundation bearing strata and testing of structural fill by a representative of the geotechnical engineer.

Respectfully Submitted,

**Kumar & Associates, Inc.**

Steven L. Pawlak, P.E.

Reviewed by:

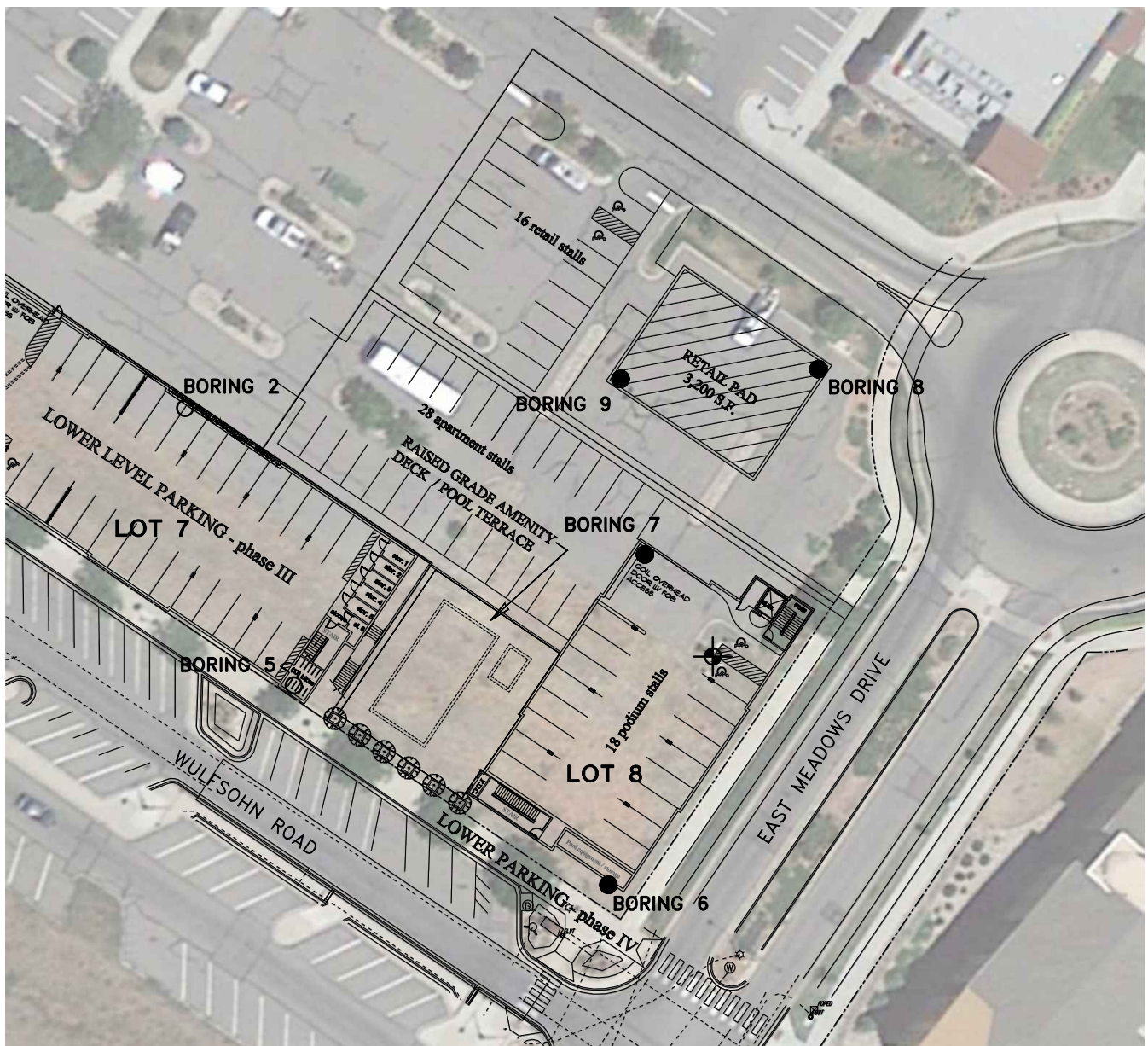
Daniel E. Hardin, P.E.

SLP/kac

cc: Stoneleigh Companies – Anthony Rodriguez ([arodriguez@stoneleighcos.com](mailto:arodriguez@stoneleighcos.com))  
Mark Cevaal ([mcevaal@redland.com](mailto:mcevaal@redland.com))  
Andres Aldave ([andresaldave@me.com](mailto:andresaldave@me.com))  
KCB Architecture – Keith Bennett ([kcbarch@comcast.net](mailto:kcbarch@comcast.net))  
Dan Soelberg ([dsoelberg@rvconst.com](mailto:dsoelberg@rvconst.com))

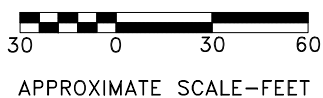
## REFERENCE

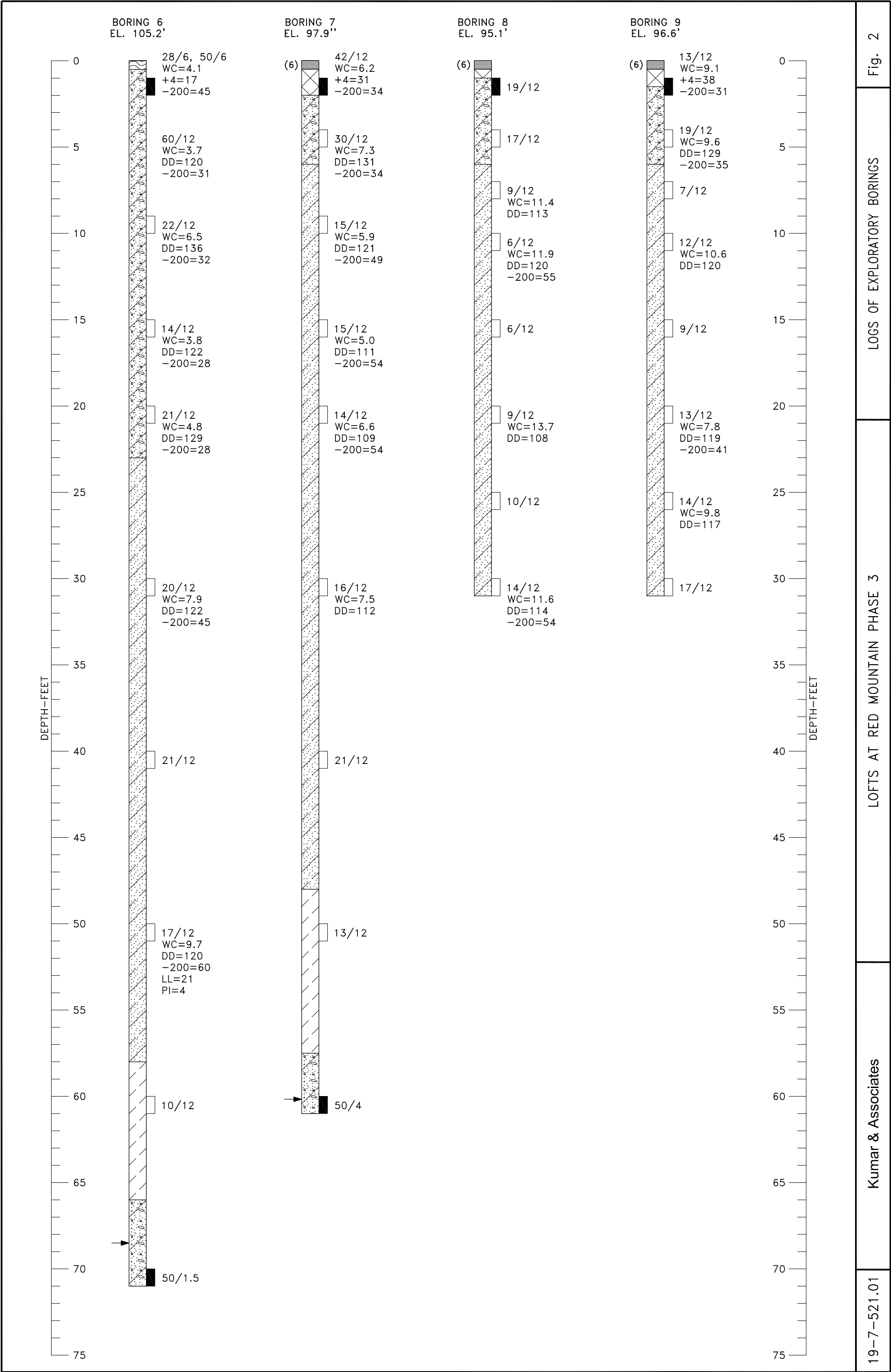
Lincoln-DeVore, 1978, *Geologic Hazards of the Glenwood Springs Metropolitan Area, Garfield County, Colorado*, Colorado Geologic Survey Open File Report 78-10.



**LEGEND:**

-  BENCHMARK SURFACE OF TRANSFORMER SLAB ELEVATION 100' ASSUMED.
-  BORING FOR CURRENT STUDY.
-  BORING FOR PREVIOUS STUDY, PROJECT NO. 19-7-521.





LEGEND

- (6)



ASPHALT, THICKNESS IN INCHES SHOWN IN PARENTHESES TO LEFT OF THE LOG.
- 

FILL: SILTY SAND AND GRAVEL WITH COBBLES, MEDIUM DENSE, SLIGHTLY MOIST, RED, SILTSTONE FRAGMENTS.
- 

CLAY (CL); SILTY, SANDY TO VERY SANDY, STIFF, MOIST TO VERY MOIST, RED, LOW PLASTICITY.
- 

SAND AND GRAVEL (SM-GM): SILTY TO VERY SILTY, SLIGHTLY CLAYEY, COBBLES MEDIUM DENSE, SLIGHTLY MOIST TO MOIST, RED, SUBANGULAR ROCK.
- 

SAND (SM-SC); SILTY, SLIGHTLY CLAYEY TO SANDY SILT AND CLAY LAYERS, SCATTERED GRAVEL, MEDIUM DENSE/MEDIUM STIFF TO STIFF, MOIST, RED.
- 

GRAVEL AND COBBLES (GM-GP); SLIGHTLY SILTY, SANDY, PROBABLE BOULDERS, DENSE, SLIGHTLY MOIST, GRAY-BROWN, ROUNDED ROCK.
- 

DRIVE SAMPLE, 2-INCH I.D. CALIFORNIA LINER SAMPLE.
- 

DRIVE SAMPLE, 1 3/8-INCH I.D. SPLIT SPOON STANDARD PENETRATION TEST.
- 19/12

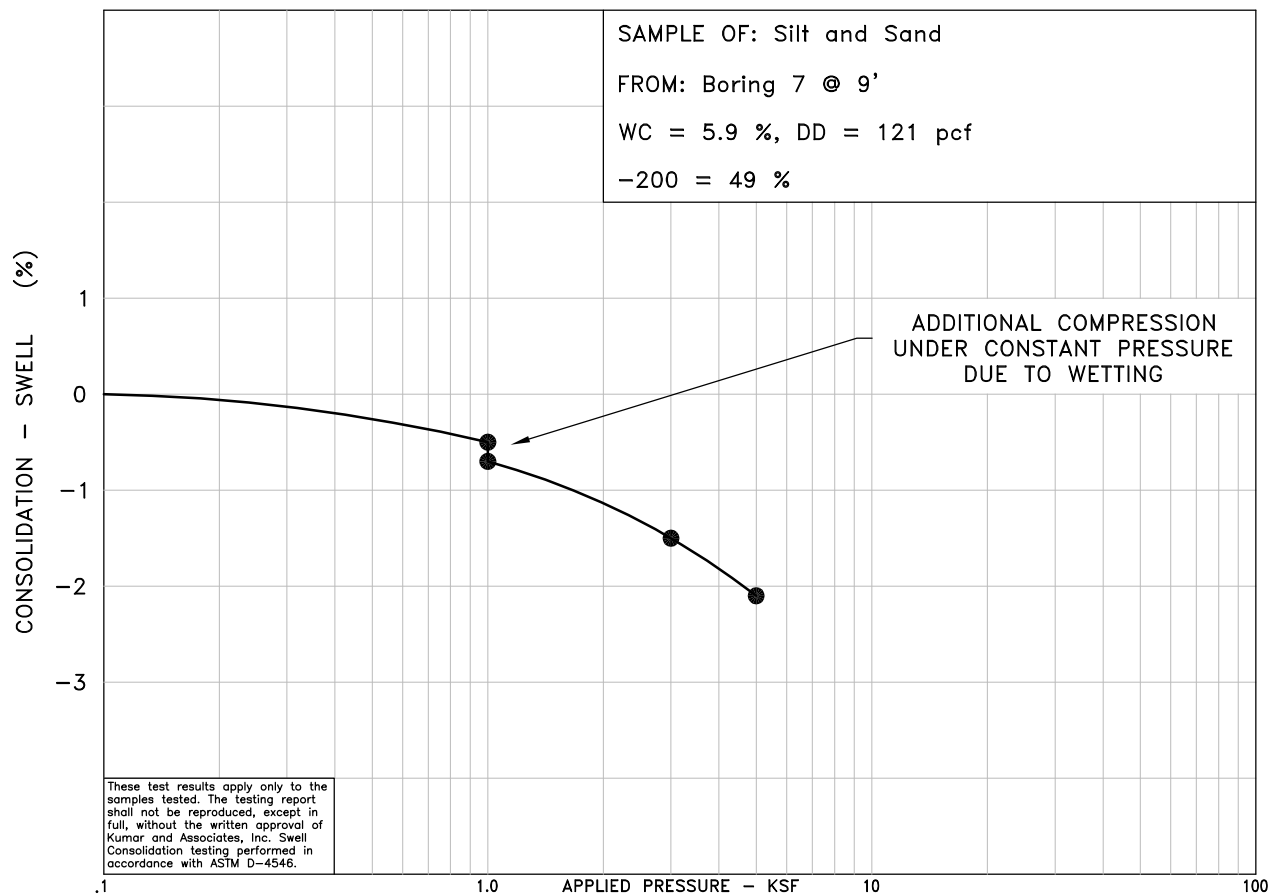
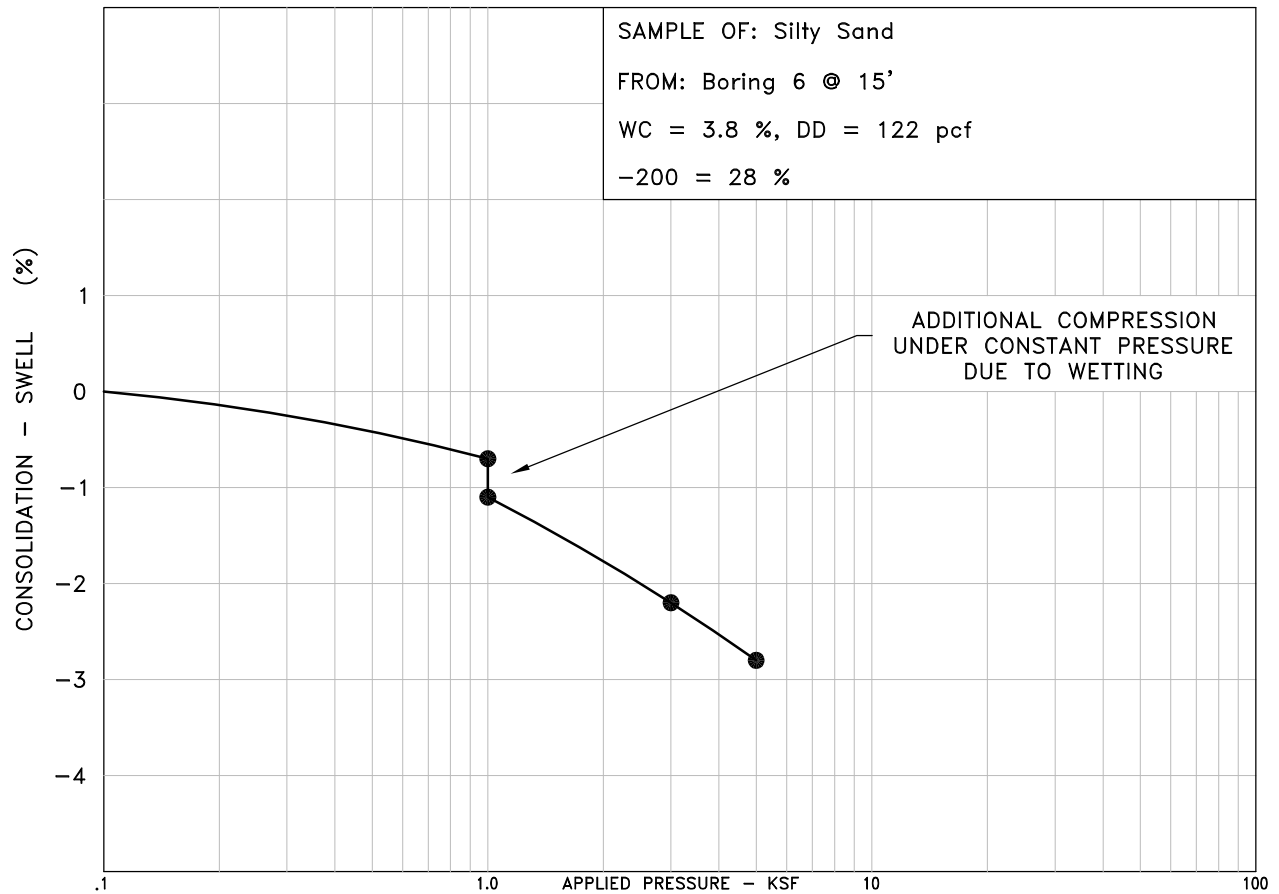
DRIVE SAMPLE BLOW COUNT. INDICATES THAT 19 BLOWS OF A 140-POUND HAMMER FALLING 30 INCHES WERE REQUIRED TO DRIVE THE SAMPLER 12 INCHES.
- 

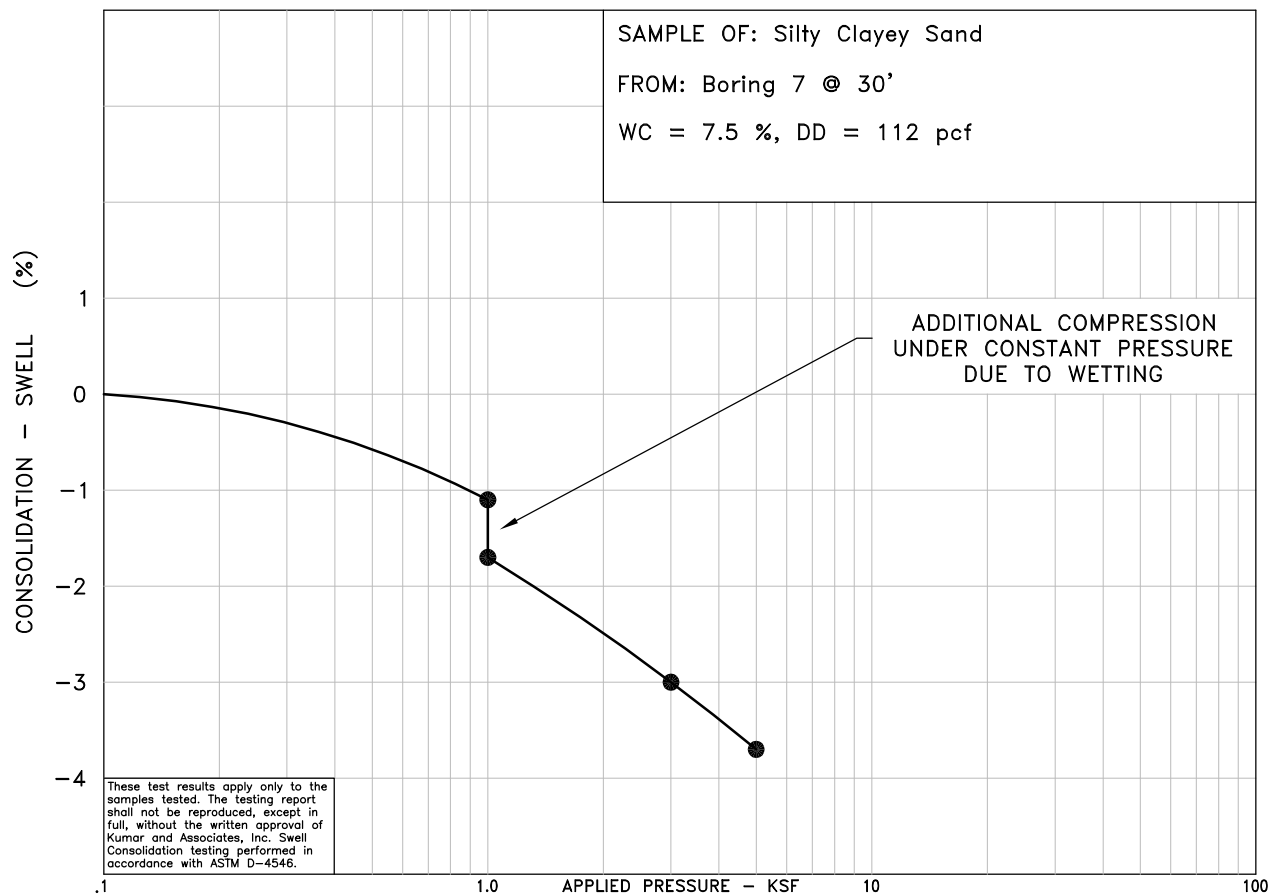
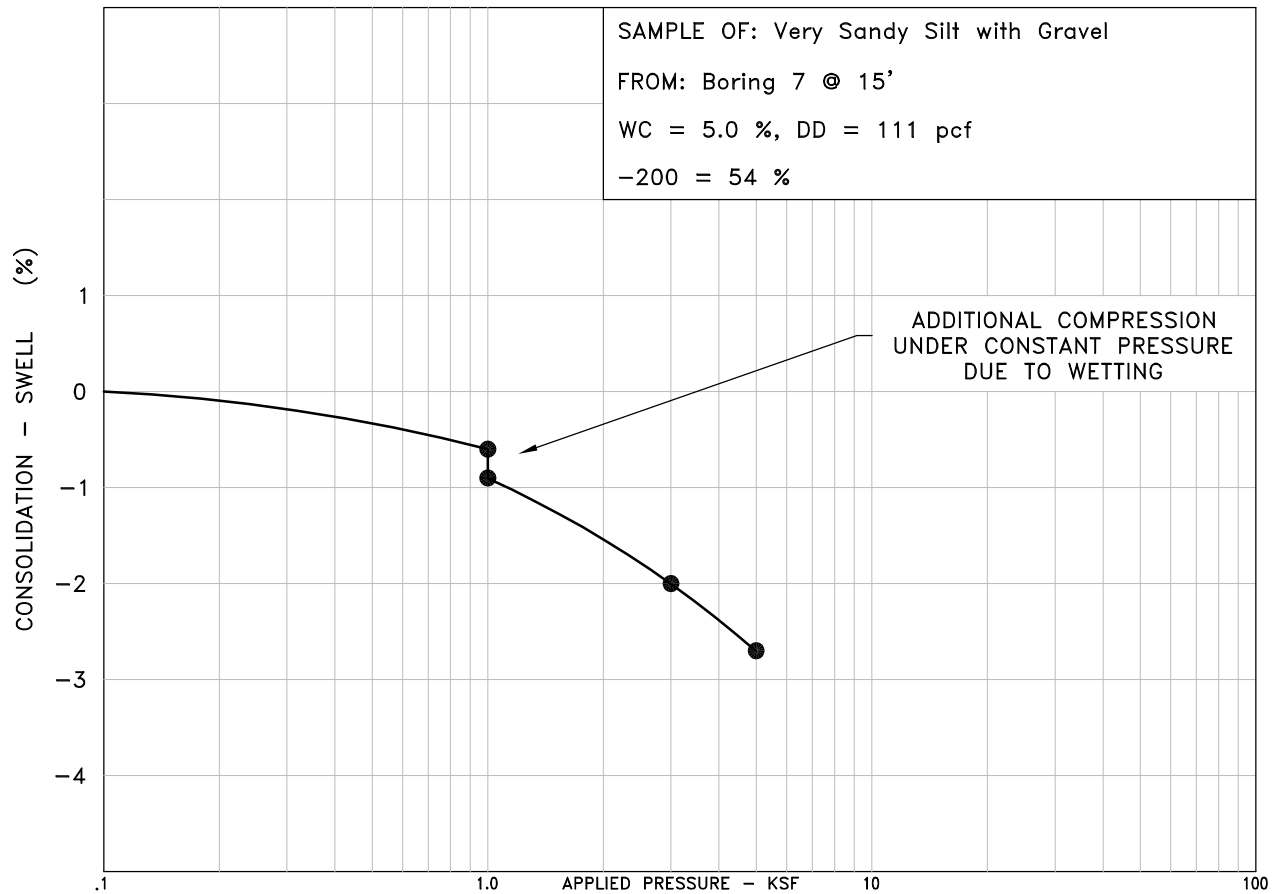
DEPTH AT WHICH BORING CAVED.

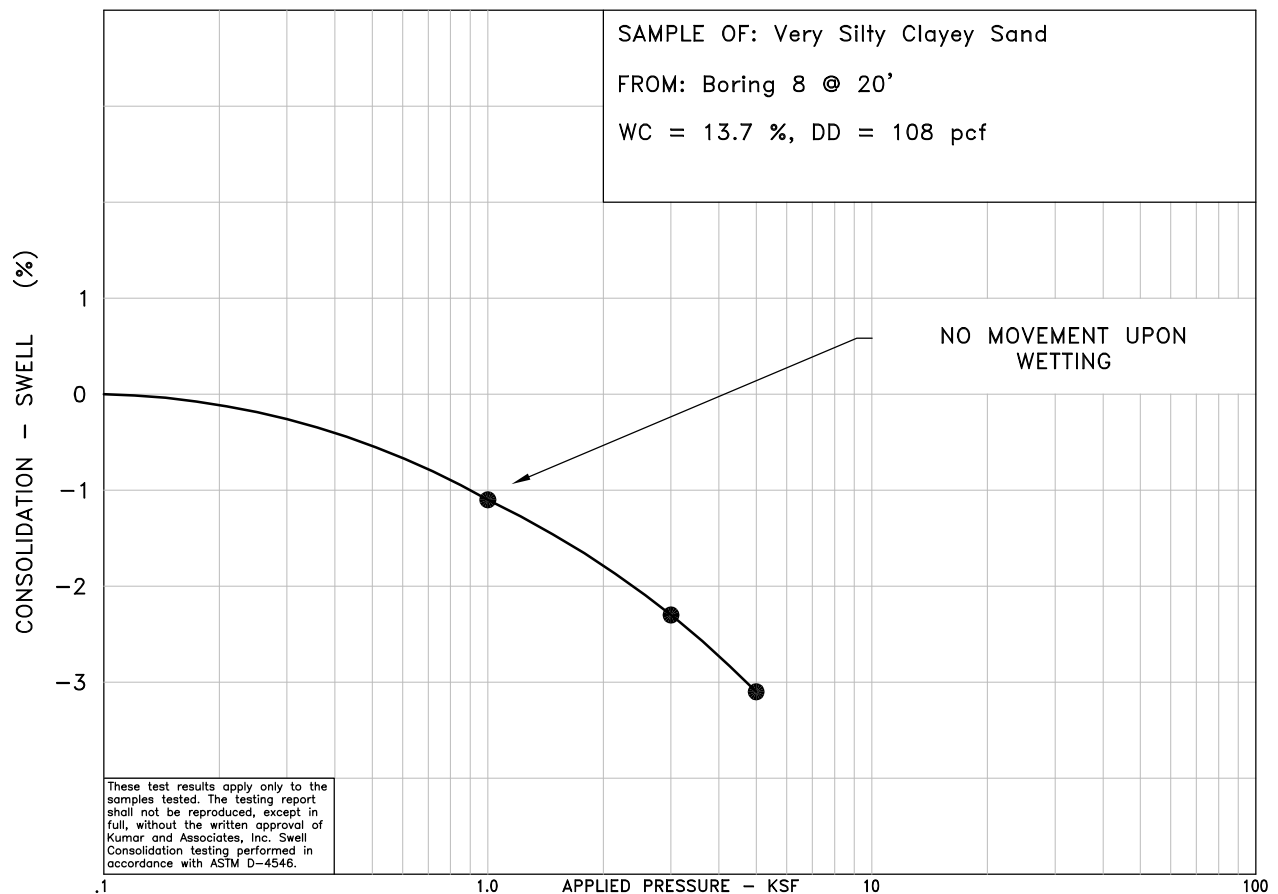
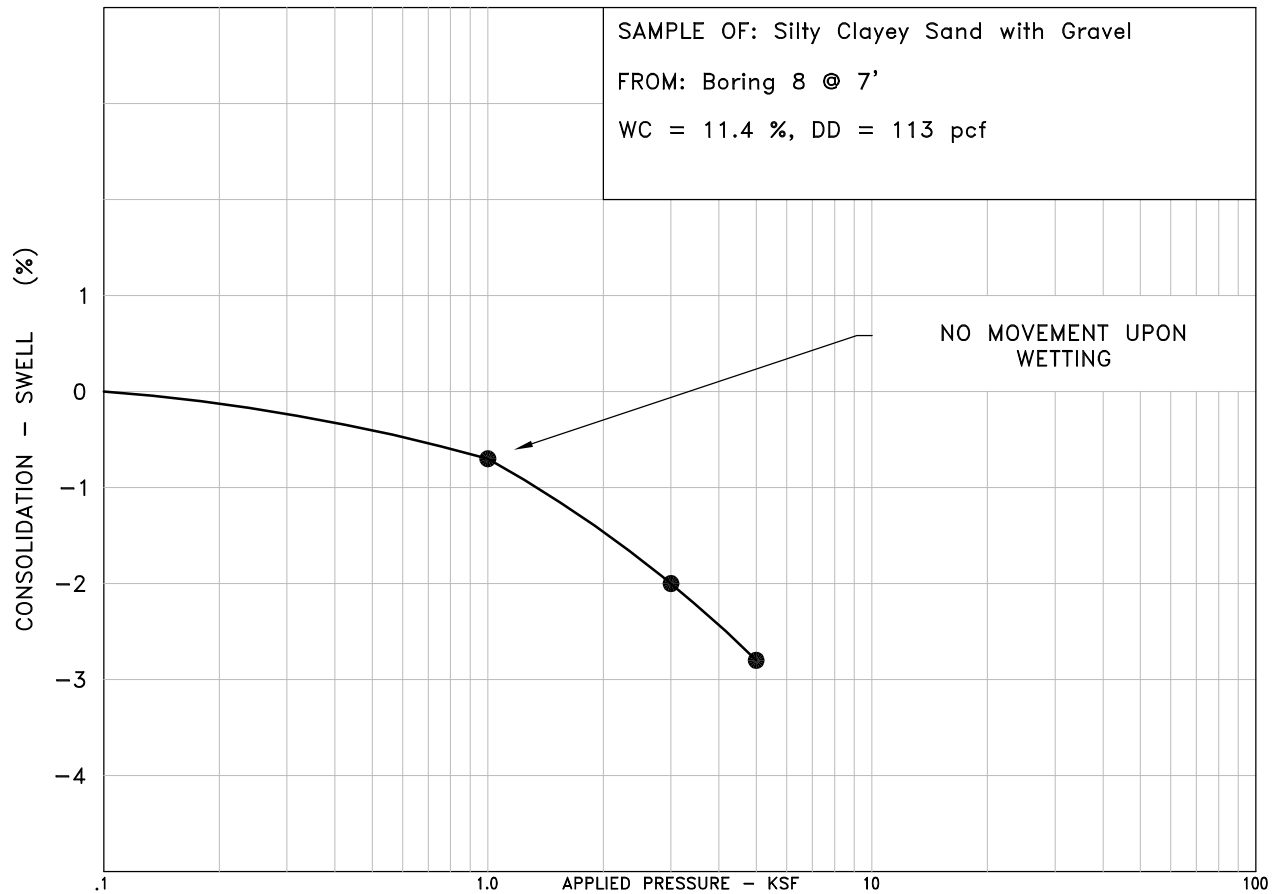
NOTES

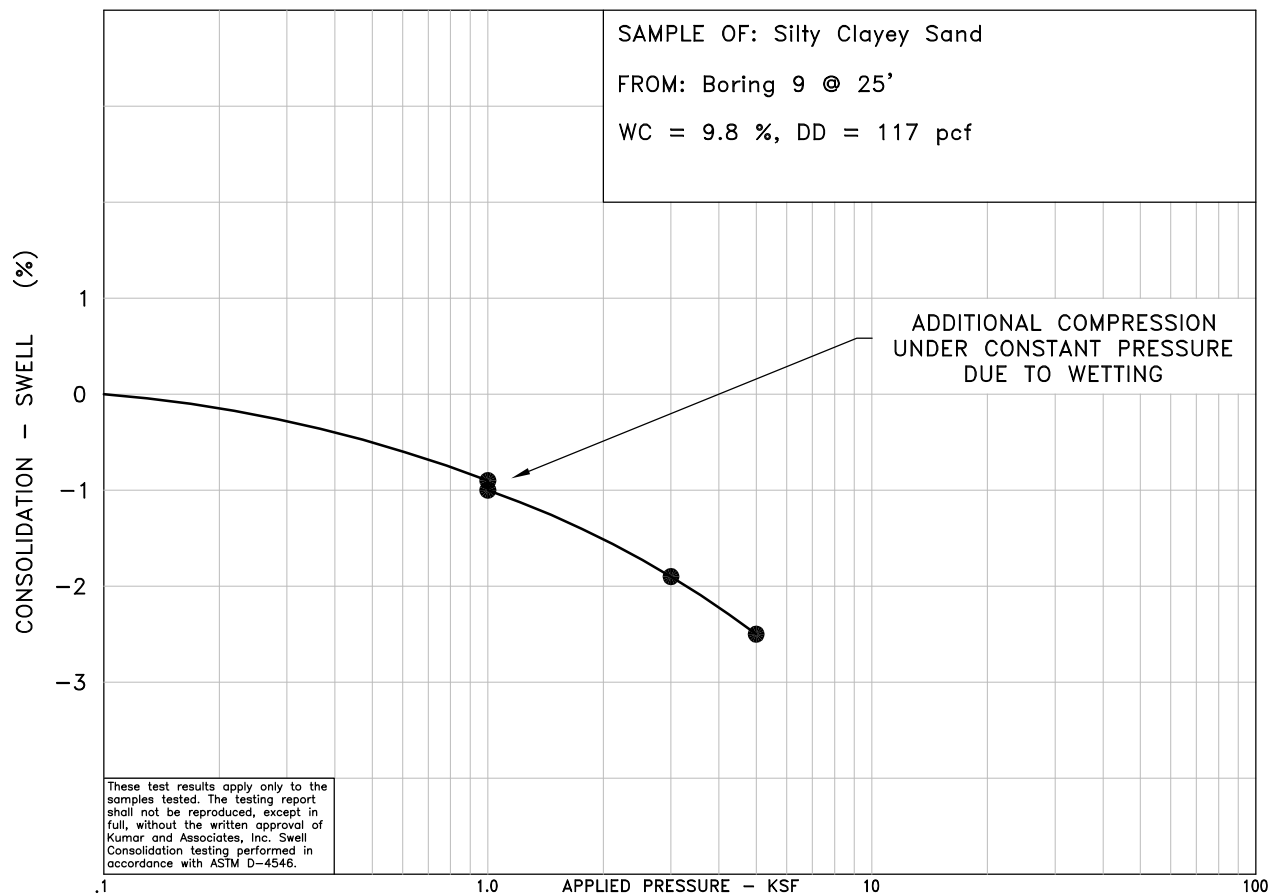
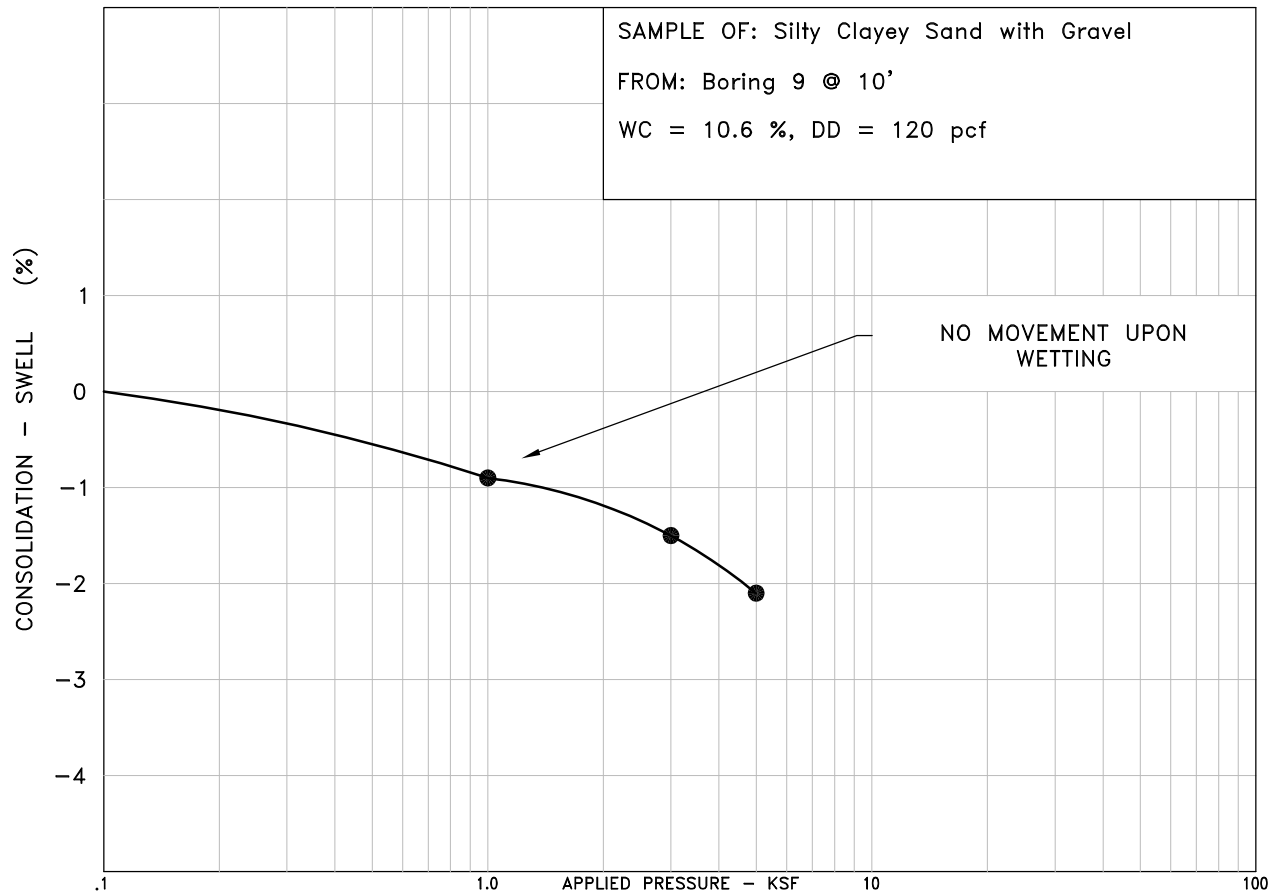
1. THE EXPLORATORY BORINGS WERE DRILLED ON SEPTEMBER 8 AND 14, 2020 WITH A 4-INCH-DIAMETER CONTINUOUS-FLIGHT POWER AUGER.
2. THE LOCATIONS OF THE EXPLORATORY BORINGS WERE MEASURED APPROXIMATELY BY PACING FROM FEATURES SHOWN ON THE SITE PLAN PROVIDED.
3. THE ELEVATIONS OF THE EXPLORATORY BORINGS WERE MEASURED BY HAND LEVEL AND REFER TO THE BENCHMARK ON FIG. 1.
4. THE EXPLORATORY BORING LOCATIONS AND ELEVATIONS SHOULD BE CONSIDERED ACCURATE ONLY TO THE DEGREE IMPLIED BY THE METHOD USED.
5. THE LINES BETWEEN MATERIALS SHOWN ON THE EXPLORATORY BORING LOGS REPRESENT THE APPROXIMATE BOUNDARIES BETWEEN MATERIAL TYPES AND THE TRANSITIONS MAY BE GRADUAL.
6. GROUNDWATER WAS NOT ENCOUNTERED IN THE BORINGS AT THE TIME OF DRILLING.
7. LABORATORY TEST RESULTS:

WC = WATER CONTENT (%) (ASTM D2216);  
DD = DRY DENSITY (pcf) (ASTM D2216);  
+4 = PERCENTAGE RETAINED ON NO. 4 SIEVE (ASTM D6913);  
-200= PERCENTAGE PASSING NO. 200 SIEVE (ASTM D1140);  
LL = LIQUID LIMIT (ASTM D4318);  
PI = PLASTICITY INDEX (ASTM D4318).

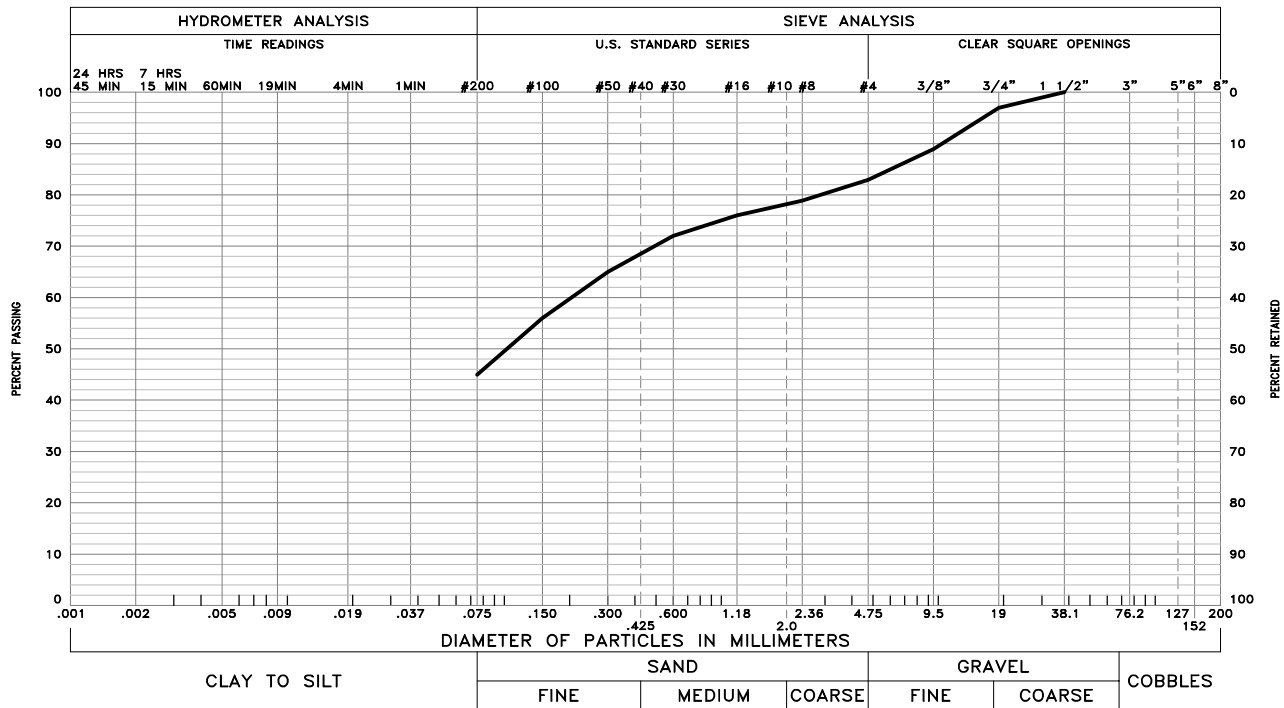








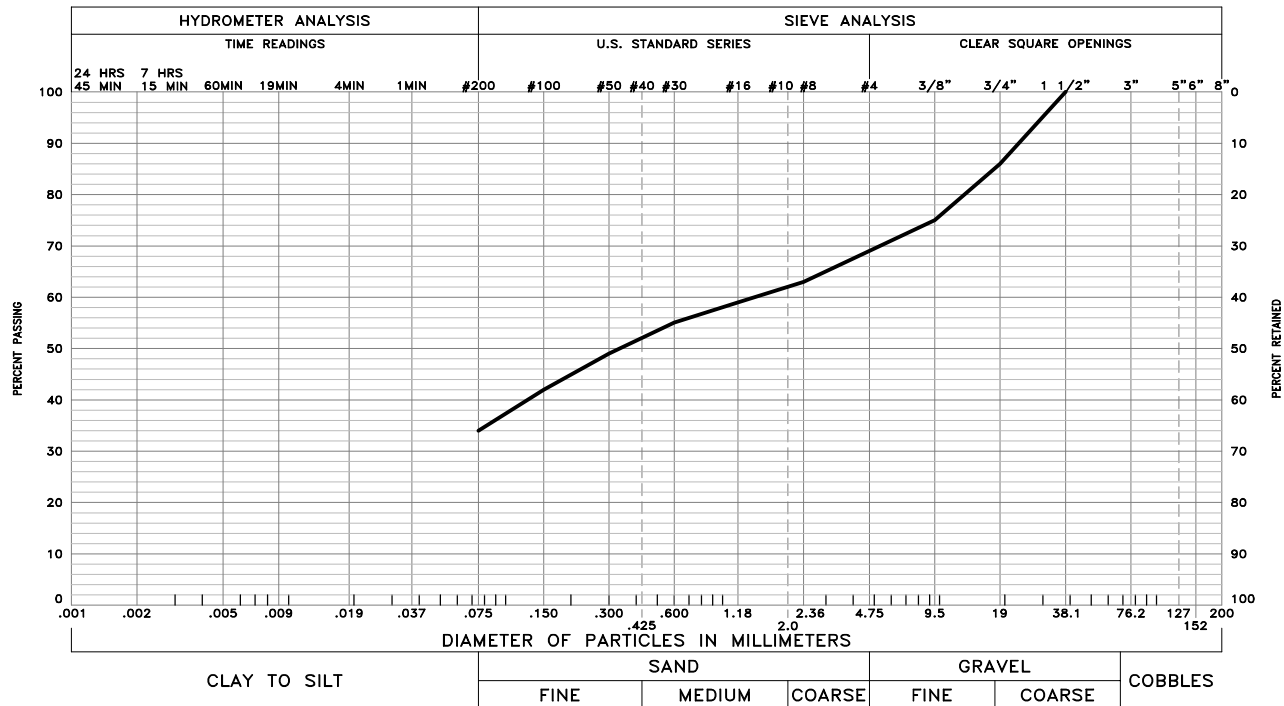




GRAVEL 17 % SAND 38 % SILT AND CLAY 45 %

LIQUID LIMIT PLASTICITY INDEX

SAMPLE OF: Very Silty Sand with Gravel FROM: Boring 6 @ 1'

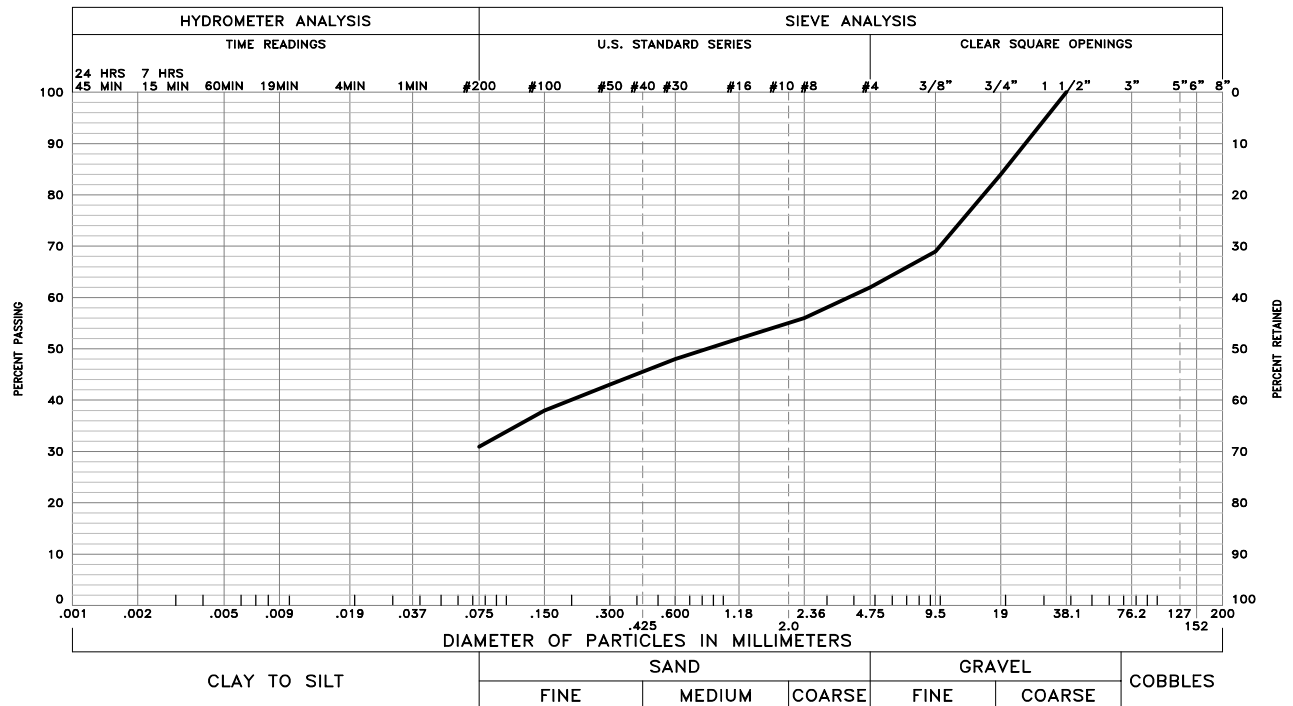


GRAVEL 31 % SAND 35 % SILT AND CLAY 34 %

LIQUID LIMIT PLASTICITY INDEX

SAMPLE OF: Silty Gravelly Sand (Fill) FROM: Boring 7 @ 1'

These test results apply only to the samples which were tested. The testing report shall not be reproduced, except in full, without the written approval of Kumar & Associates, Inc. Sieve analysis testing is performed in accordance with ASTM D6913, ASTM D7928, ASTM C136 and/or ASTM D1140.



LIQUID LIMIT \_\_\_\_\_ PLASTICITY INDEX \_\_\_\_\_

SAMPLE OF: Silty Clayey Sandy Gravel (Fill) FROM: Boring 9 @ 1'

These test results apply only to the samples which were tested. The testing report shall not be reproduced, except in full, without the written approval of Kumar & Associates, Inc. Sieve analysis testing is performed in accordance with ASTM D6913, ASTM D7928, ASTM C136 and/or ASTM D1140.

**TABLE 1**  
**SUMMARY OF LABORATORY TEST RESULTS**

Project No. 19-7-521.01  
Page 1 of 2

| SAMPLE LOCATION |               | NATURAL<br>MOISTURE<br>CONTENT<br>(%) | NATURAL<br>DRY<br>DENSITY<br>(pcf) | GRADATION     |             | PERCENT<br>PASSING NO.<br>200 SIEVE | ATTERBERG LIMITS    |                         | UNCONFINED<br>COMPRESSIVE<br>STRENGTH<br>(psf) |  | SOIL TYPE                    |
|-----------------|---------------|---------------------------------------|------------------------------------|---------------|-------------|-------------------------------------|---------------------|-------------------------|------------------------------------------------|--|------------------------------|
| Boring          | DEPTH<br>(ft) |                                       |                                    | GRAVEL<br>(%) | SAND<br>(%) |                                     | LIQUID LIMIT<br>(%) | PLASTIC<br>INDEX<br>(%) |                                                |  |                              |
| 6               | 1             | 4.1                                   |                                    | 17            | 38          | 45                                  |                     |                         |                                                |  | Very Silty Sand with Gravel  |
|                 | 4             | 3.7                                   | 120                                |               |             | 31                                  |                     |                         |                                                |  | Silty Gravel and Sand        |
|                 | 9             | 6.5                                   | 136                                |               |             | 32                                  |                     |                         |                                                |  | Silty Gravel and Sand        |
|                 | 15            | 3.8                                   | 122                                |               |             | 28                                  |                     |                         |                                                |  | Silty Sand                   |
|                 | 20            | 4.8                                   | 129                                |               |             | 28                                  |                     |                         |                                                |  | Silty Clayey Gravel and Sand |
|                 | 30            | 7.9                                   | 122                                |               |             | 45                                  |                     |                         |                                                |  | Very Silty Clayey Sand       |
|                 | 50            | 9.7                                   | 120                                |               |             | 60                                  | 21                  | 4                       |                                                |  | Very Sandy Silt and Clay     |
|                 |               |                                       |                                    |               |             |                                     |                     |                         |                                                |  |                              |
| 7               | 1             | 6.2                                   |                                    | 31            | 35          | 34                                  |                     |                         |                                                |  | Silty Gravelly Sand (Fill)   |
|                 | 4             | 7.3                                   | 131                                |               |             | 34                                  |                     |                         |                                                |  | Silty Gravel and Sand        |
|                 | 9             | 5.9                                   | 121                                |               |             | 49                                  |                     |                         |                                                |  | Silt and Sand                |
|                 | 15            | 5.0                                   | 111                                |               |             | 54                                  |                     |                         |                                                |  | Very Sandy Silt with Gravel  |
|                 | 20            | 6.6                                   | 109                                |               |             | 54                                  |                     |                         |                                                |  | Very Sandy Silt with Gravel  |
|                 | 30            | 7.5                                   | 112                                |               |             |                                     |                     |                         |                                                |  | Silty Clayey Sand            |

**TABLE 1**  
**SUMMARY OF LABORATORY TEST RESULTS**

Project No. 19-7-521.01  
Page 2 of 2

| SAMPLE LOCATION |               | NATURAL<br>MOISTURE<br>CONTENT | NATURAL<br>DRY<br>DENSITY | GRADATION     |             | PERCENT<br>PASSING NO.<br>200 SIEVE | ATTERBERG LIMITS    |                         | UNCONFINED<br>COMPRESSIVE<br>STRENGTH |  | SOIL TYPE                        |
|-----------------|---------------|--------------------------------|---------------------------|---------------|-------------|-------------------------------------|---------------------|-------------------------|---------------------------------------|--|----------------------------------|
| Boring          | DEPTH<br>(ft) |                                |                           | GRAVEL<br>(%) | SAND<br>(%) |                                     | LIQUID LIMIT<br>(%) | PLASTIC<br>INDEX<br>(%) |                                       |  |                                  |
| 8               | 7             | 11.4                           | 113                       |               |             |                                     |                     |                         |                                       |  | Silty Clayey Sand with Gravel    |
|                 | 10            | 11.9                           | 120                       |               |             | 55                                  |                     |                         |                                       |  | Very Sandy Silt and Clay         |
|                 | 20            | 13.7                           | 108                       |               |             |                                     |                     |                         |                                       |  | Very Silty Clayey Sand           |
|                 | 30            | 11.6                           | 114                       |               |             | 54                                  |                     |                         |                                       |  | Very Sandy Silt and Clay         |
|                 |               |                                |                           |               |             |                                     |                     |                         |                                       |  |                                  |
| 9               | 1             | 9.1                            |                           | 38            | 31          | 31                                  |                     |                         |                                       |  | Silty Clayey Sandy Gravel (Fill) |
|                 | 4             | 9.6                            | 129                       |               |             | 35                                  |                     |                         |                                       |  | Silty Clayey Sand and Gravel     |
|                 | 10            | 10.6                           | 120                       |               |             |                                     |                     |                         |                                       |  | Silty Clayey Sand with Gravel    |
|                 | 20            | 7.8                            | 119                       |               |             | 41                                  |                     |                         |                                       |  | Silty Clayey Sand                |
|                 | 25            | 9.8                            | 117                       |               |             |                                     |                     |                         |                                       |  | Silty Clayey Sand                |
|                 |               |                                |                           |               |             |                                     |                     |                         |                                       |  |                                  |
|                 |               |                                |                           |               |             |                                     |                     |                         |                                       |  |                                  |
|                 |               |                                |                           |               |             |                                     |                     |                         |                                       |  |                                  |
|                 |               |                                |                           |               |             |                                     |                     |                         |                                       |  |                                  |

February 26, 2021

Ms. Terri Partch  
City of Glenwood Springs  
101 West 8th Street  
Glenwood Springs, CO 81601

**Re: Drainage Compliance Letter for the Glenwood Meadows Lot 8 – The Lofts at Red Mountain Phase 4**

Dear Ms. Partch:

This letter has been prepared to address drainage compliance for the proposed Glenwood Meadows Lot 8 - Lofts at Red Mountain Phase 4 project (Site). The Site is located in Lot 8 of Glenwood Meadows No. 2, in Section 8, Township 6 South, Range 89 West of the 6th Principal Meridian, City of Glenwood Springs, Garfield County, Colorado. The Site is located on the south corner of the Glenwood Meadows retail center (north of the intersection at Wulfsohn Road and East Meadows Drive). This compliance letter addresses the development of Lot 8 and the conformance of the drainage design to the Final Drainage Report for Glenwood Meadows Lots 1-10 and Tracts A, B, and C, by V3 Consultants, July 30, 2004 (Final Drainage Report).

The existing site consists of undeveloped land and existing parking lot adjacent to East Meadows Drive that was anticipated to be developed in the Final Drainage Report. An existing 5' Type R storm inlet was added to the north side of the Site's parking area and a 10" storm sewer stub was added to the storm sewer line in East Meadows Dr. during the construction of the Glenwood Meadows retail center; both of which will be utilized as a part of the drainage design for the Site. Phase 4 of the Lofts at Red Mountain consists of one 9,435 square-feet, 36-unit apartment building with garage parking and an overlot-graded future commercial pad to the north of the building. Pedestrian access will be achieved from the Wulfsohn Road right of way at the south side of the building and vehicle access to the parking garage will be through Lots 6 and 8 of Glenwood Meadows No. 2.

Proposed Site Drainage

Runoff from the Site was determined by using the rational method, with the minor storm being the 2-year event and the major storm being the 25-year event, in accordance with the Final Drainage Report for Glenwood Meadows and the City of Glenwood Springs Drainage Criteria. No on-site water quality has been provided since developed runoff from the Site was accounted for in existing Water Quality Ponds B and C along Midland Avenue per the Final Drainage Report for Glenwood Meadows Lots 1-10 and Tracts A, B, C prepared by V3 Consultants dated July 30, 2004 (see appendix).

Four drainage basins have been modified from the Final Drainage Report. These basins are Basins C4, C8, C10, and C20. One additional drainage basin has been added, Basin C20a.

Basin C4 contains 0.31 acres and consists of proposed parking lot, landscaping, and a future commercial pad. The design includes the future 5,550 building within the drainage calculations (see attachments). Runoff from this basin sheet flows to the north towards an existing single Type R inlet. The 25-year developed runoff from Basin C4 is 0.65 cfs. The Final Drainage Report assumed Basin C4 would be 0.37 acres with a 25-year developed runoff of 1.23 cfs. The runoff is less in the proposed condition; therefore, the proposed change will not have a negative impact on the downstream system.

Basin C8 contains 0.69 acres and consists of existing drive aisle, parking lot, and landscaping. Runoff from this basin combines with runoff from Basin C7 from the Final Drainage Report and sheet flows to the north towards an existing single Type 13 sump inlet. The 25-year runoff from Basin C8 is 2.07 cfs. The combined 25-year runoff from Basins C7 and C8 is 6.37 cfs. The Final Drainage Report assumed the combined Basin C7 and C8 would be 2.43 acres with a 25-year developed runoff of 9.28 cfs. The runoff is less in the proposed condition; therefore, the proposed change will not have a negative impact on the downstream system.

Basin C10 contains 0.50 acres and consists of existing drive aisles, parking lot, and landscaping. Runoff from this basin sheet flows to the north towards an existing 5' Type R sump inlet. The 25-year developed runoff from Basin C10 is 0.72 cfs. The Final Drainage Report assumed Basin C10 would be 0.21 acres with a 25-year developed runoff of 1.30 cfs. The runoff is less in the proposed condition; therefore, the proposed change will not have a negative impact on the downstream system.

Basin C20 contains 0.22 acres and consists of the roof of the proposed building. Runoff from this basin is collected by 10" storm sewer stub which extends east of the existing storm sewer within East Meadows Road. The 25-year developed runoff from Basin C20 is 0.61 cfs. The Final Drainage Report assumed Basin C20 would be 0.21 acres with a 25-year developed runoff of 0.69 cfs. The runoff is less in the proposed condition; therefore, the proposed change will not have a negative impact on the downstream system.

Basin C20a contains 0.07 acres and consists of the proposed building's roof. Runoff from this basin is discharged into an existing 12" RCP storm sewer stub located on the Site. The 25-year runoff from Basin C20a is 0.22 cfs. Runoff from this basin will enter Basin C1 and be collected by a 5' Type R Inlet at the intersection of Wulfsohn Road and East Meadows Road. According to the Final Drainage Report, this inlet, STIN 6-7 has a total capacity of 8.0 cfs which is enough to handle the 5.5 cfs flow from Basin C1 as well as the addition flow from C20a.

The proposed Lofts at Red Mountain Phase 4 drainage design is in conformance with the approved Final Drainage Report for Glenwood Meadows and the City of Glenwood Springs drainage criteria. Calculations and excerpts from previously approved reports are included with the attachments of this letter.

Sincerely,

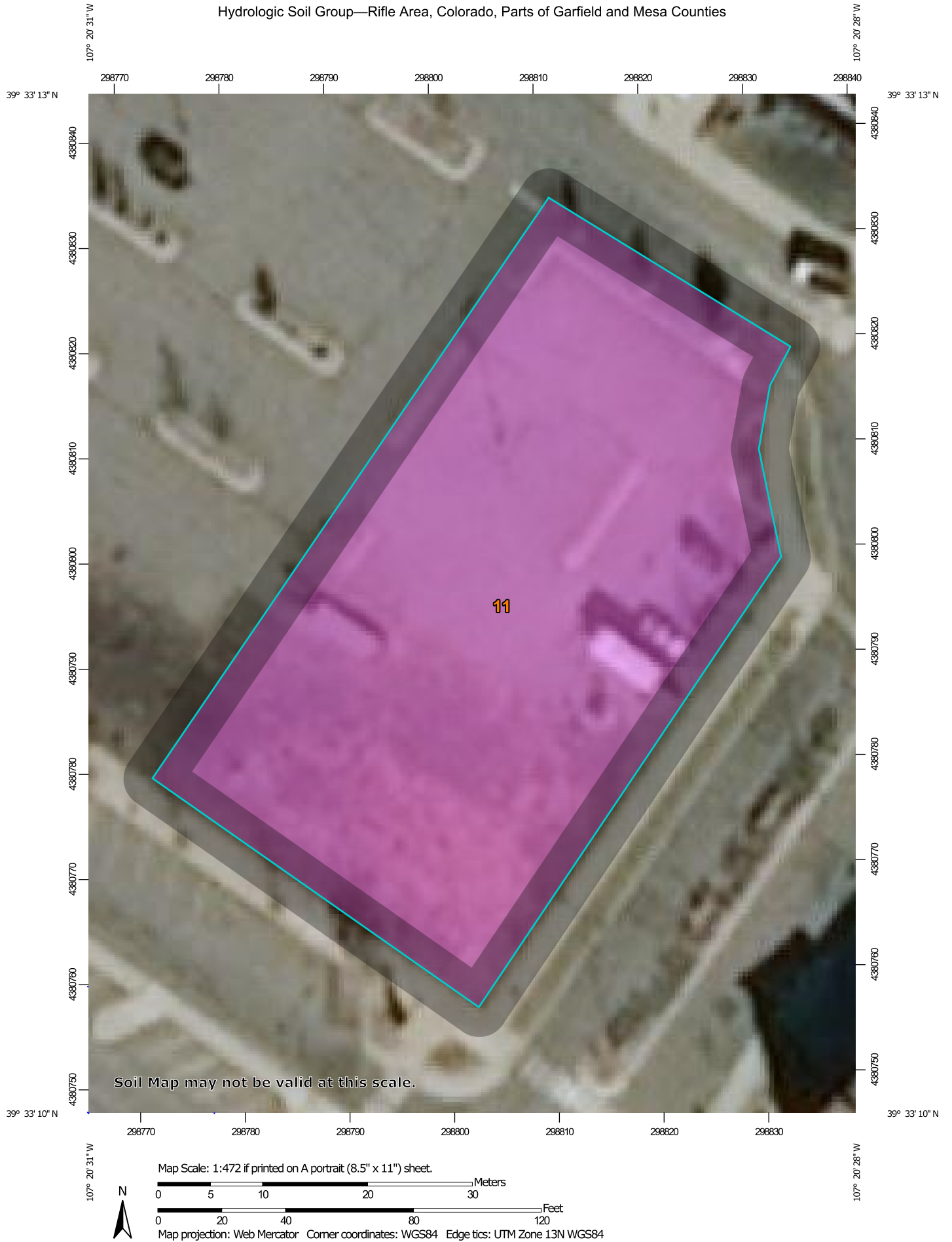


Mark D. Ceva, P.E.  
Sr. Project Manager

## Attachments

- Soils Map
- SF1, SF2, and SF3 Forms
- Existing and Proposed Basin Comparison
- StormCAD Analysis
- Excerpts from related reports
- Final Drainage Report for Glenwood Meadows Lots 1-10 and Tracts A, B, and C
- Drainage Map

# Hydrologic Soil Group—Rifle Area, Colorado, Parts of Garfield and Mesa Counties





## MAP LEGEND

### Area of Interest (AOI)

 Area of Interest (AOI)

### Soils

#### Soil Rating Polygons

 A  
 A/D  
 B  
 B/D  
 C  
 C/D  
 D  
 Not rated or not available

#### Soil Rating Lines

 A  
 A/D  
 B  
 B/D  
 C  
 C/D  
 D  
 Not rated or not available

#### Soil Rating Points

 A  
 A/D  
 B  
 B/D

 C  
 C/D  
 D  
 Not rated or not available

### Water Features

 Streams and Canals

### Transportation

 Rails  
 Interstate Highways  
 US Routes  
 Major Roads  
 Local Roads

### Background

 Aerial Photography

## MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:24,000.

Warning: Soil Map may not be valid at this scale.

Enlargement of maps beyond the scale of mapping can cause misunderstanding of the detail of mapping and accuracy of soil line placement. The maps do not show the small areas of contrasting soils that could have been shown at a more detailed scale.

Please rely on the bar scale on each map sheet for map measurements.

Source of Map: Natural Resources Conservation Service  
 Web Soil Survey URL:  
 Coordinate System: Web Mercator (EPSG:3857)

Maps from the Web Soil Survey are based on the Web Mercator projection, which preserves direction and shape but distorts distance and area. A projection that preserves area, such as the Albers equal-area conic projection, should be used if more accurate calculations of distance or area are required.

This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: Rifle Area, Colorado, Parts of Garfield and Mesa Counties  
 Survey Area Data: Version 13, Jun 5, 2020

Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.

Date(s) aerial images were photographed: Sep 24, 2015—Nov 2, 2015

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

## Hydrologic Soil Group

| Map unit symbol                    | Map unit name                            | Rating | Acres in AOI | Percent of AOI |
|------------------------------------|------------------------------------------|--------|--------------|----------------|
| 11                                 | Begay sandy loam, 6 to 12 percent slopes | A      | 0.6          | 100.0%         |
| <b>Totals for Area of Interest</b> |                                          |        | <b>0.6</b>   | <b>100.0%</b>  |

## Description

Hydrologic soil groups are based on estimates of runoff potential. Soils are assigned to one of four groups according to the rate of water infiltration when the soils are not protected by vegetation, are thoroughly wet, and receive precipitation from long-duration storms.

The soils in the United States are assigned to four groups (A, B, C, and D) and three dual classes (A/D, B/D, and C/D). The groups are defined as follows:

Group A. Soils having a high infiltration rate (low runoff potential) when thoroughly wet. These consist mainly of deep, well drained to excessively drained sands or gravelly sands. These soils have a high rate of water transmission.

Group B. Soils having a moderate infiltration rate when thoroughly wet. These consist chiefly of moderately deep or deep, moderately well drained or well drained soils that have moderately fine texture to moderately coarse texture. These soils have a moderate rate of water transmission.

Group C. Soils having a slow infiltration rate when thoroughly wet. These consist chiefly of soils having a layer that impedes the downward movement of water or soils of moderately fine texture or fine texture. These soils have a slow rate of water transmission.

Group D. Soils having a very slow infiltration rate (high runoff potential) when thoroughly wet. These consist chiefly of clays that have a high shrink-swell potential, soils that have a high water table, soils that have a claypan or clay layer at or near the surface, and soils that are shallow over nearly impervious material. These soils have a very slow rate of water transmission.

If a soil is assigned to a dual hydrologic group (A/D, B/D, or C/D), the first letter is for drained areas and the second is for undrained areas. Only the soils that in their natural condition are in group D are assigned to dual classes.

## Rating Options

*Aggregation Method: Dominant Condition*

*Component Percent Cutoff: None Specified*

*Tie-break Rule:* Higher



**SF-1**  
**RUNOFF COEFFICIENTS - DEVELOPED**

PROJECT NAME: Proposed - Lofts at Red Mountain Phase 4  
PROJECT NUMBER: 12013.12  
CALCULATED BY: WS  
CHECKED BY: MDC

DATE: 2/26/2021

|              |                |      |      |                                           |
|--------------|----------------|------|------|-------------------------------------------|
|              | Drives & Walks | Lawn | Roof |                                           |
| LAND USE:    | Area           | Area | Area |                                           |
| IMPERVIOUS % | 100%           | 5%   | 90%  | Calculations assume Type A soils per NRCS |

**OVERALL SITE STUDY AREA**

| DESIGN BASIN       | DESIGN POINT | (AC)  | (AC)  | (AC)  | TOTAL AREA (AC) | Cd(2) | Cd(5) | Cd(25) | Cd(100) | Impervious % |
|--------------------|--------------|-------|-------|-------|-----------------|-------|-------|--------|---------|--------------|
| C4                 | C4           | 0.11  | 0.07  | 0.13  | 0.31            | 0.58  | 0.59  | 0.63   | 0.69    | 74.8%        |
| C8                 | C8           | 0.66  | 0.03  |       | 0.69            | 0.80  | 0.81  | 0.84   | 0.86    | 95.9%        |
| C10                | C10          | 0.34  | 0.16  |       | 0.50            | 0.52  | 0.54  | 0.58   | 0.65    | 69.5%        |
| C20                | C20          |       |       | 0.22  | 0.22            | 0.73  | 0.75  | 0.78   | 0.81    | 90.0%        |
| C20a               | C20a         | 0.07  |       |       | 0.07            | 0.84  | 0.86  | 0.88   | 0.89    | 100.0%       |
| OVERALL STUDY AREA |              | 1.19  | 0.26  | 0.35  | 1.79            | 0.67  | 0.69  | 0.73   | 0.77    | 84.3%        |
|                    |              | 66.2% | 14.5% | 19.4% | 100.0%          |       |       |        |         |              |

**Table 6-4. Runoff coefficient equations based on NRCS soil group and storm return period**

| NRCS Soil Group | Storm Return Period       |                         |                         |                         |                         |                         |                         |
|-----------------|---------------------------|-------------------------|-------------------------|-------------------------|-------------------------|-------------------------|-------------------------|
|                 | 2-Year                    | 5-Year                  | 10-Year                 | 25-Year                 | 50-Year                 | 100-Year                | 500-Year                |
| A               | $C_A = 0.84i^{-1.302}$    | $C_A = 0.86i^{1.276}$   | $C_A = 0.87i^{1.232}$   | $C_A = 0.88i^{1.124}$   | $C_A = 0.85i+0.025$     | $C_A = 0.78i+0.110$     | $C_A = 0.65i+0.254$     |
| B               | $C_B = 0.84i^{1.169}$     | $C_B = 0.86i^{1.088}$   | $C_B = 0.81i+0.057$     | $C_B = 0.63i+0.249$     | $C_B = 0.56i+0.328$     | $C_B = 0.47i+0.426$     | $C_B = 0.37i+0.536$     |
| C/D             | $C_{C/D} = 0.83i^{1.122}$ | $C_{C/D} = 0.82i+0.035$ | $C_{C/D} = 0.74i+0.132$ | $C_{C/D} = 0.56i+0.319$ | $C_{C/D} = 0.49i+0.393$ | $C_{C/D} = 0.41i+0.484$ | $C_{C/D} = 0.32i+0.588$ |

Source: Mile High Flood District, Denver, Colorado, Urban Storm Drainage Criteria Manual, Volume 1, Chapter 6, Page 6-9, latest online addition.



STANDARD FORM SF-2 - DEVELOPED  
Time of Concentration

PROJECT NAME: Proposed - Lofts at Red Mountain Phase 4  
PROJECT NUMBER: 12013.12  
CALCULATED BY: WS  
CHECKED BY: MDC

DATE: 2/26/2021

| SUB-BASIN DATA   |                         |                    | INITIAL TIME (T <sub>i</sub> ) |             |                         | TRAVEL TIME (T <sub>t</sub> ) |             |                    |                   |              |                          | t <sub>c</sub> CHECK (URBANIZED BASINS) |                   |                                                         | FINAL t <sub>c</sub> |         |           |
|------------------|-------------------------|--------------------|--------------------------------|-------------|-------------------------|-------------------------------|-------------|--------------------|-------------------|--------------|--------------------------|-----------------------------------------|-------------------|---------------------------------------------------------|----------------------|---------|-----------|
| DESIGN BASIN (1) | AREA A <sub>c</sub> (2) | C <sub>5</sub> (3) | LENGTH Ft* (4)                 | SLOPE % (5) | T <sub>i</sub> Min. (6) | LENGTH Ft. (7)                | SLOPE % (8) | C <sub>v</sub> (9) | Land Surface (10) | VEL fps (11) | T <sub>t</sub> Min. (12) | COMP. t <sub>c</sub> (13)               | TOTAL LENGTH (14) | $T_c = (26-17i) + \frac{L_i}{60(14i+9)} S_0^{1/2}$ (15) | Min. (16)            | C5 (17) | C100 (18) |
| C4               | 0.31                    | 0.59               | 105                            | 4.3%        | 5.8                     | 70                            | 1.0%        | 20.0               | Paved Areas       | 2.0          | 0.6                      | 6.4                                     | 175               | 13.4                                                    | 6.4                  | 0.59    | 0.69      |
| C8               | 0.69                    | 0.81               | 15                             | 4.6%        | 1.2                     | 515                           | 4.0%        | 20.0               | Paved Areas       | 4.0          | 2.1                      | 3.4                                     | 530               | 10.0                                                    | 5.0                  | 0.81    | 0.86      |
| C10              | 0.50                    | 0.54               | 167                            | 1.0%        | 13.3                    | 80                            | 1.0%        | 20.0               | Paved Areas       | 2.0          | 0.7                      | 13.9                                    | 247               | 9.1                                                     | 13.9                 | 0.54    | 0.65      |
| C20              | 0.22                    | 0.75               | 40                             | 2.0%        | 3.2                     | 90                            | 2.0%        | 20.0               | Paved Areas       | 2.8          | 0.5                      | 3.7                                     | 40                | 11.7                                                    | 5.0                  | 0.75    | 0.81      |
| C20a             | 0.07                    | 0.86               | 70                             | 2.0%        | 2.9                     | 0                             | 1.0%        | 20.0               | Paved Areas       | 2.0          | 0.0                      | 2.9                                     | 70                | 26.0                                                    | 5.0                  | 0.86    | 0.89      |

\* L = 500' max for non-urban land uses and 300' max for urban land uses

$$T_i = \frac{0.395(1.1-C)L^{1/2}}{S^{1/3}} \quad T_t = \frac{L}{60V} \quad t_c = \frac{L}{180} + 10 \quad V = C_v S_w^{0.5}$$

Table 6-2. NRCS Conveyance factors, K

| Type of Land Surface                 | Conveyance Factor, K |
|--------------------------------------|----------------------|
| Heavy meadow                         | 2.5                  |
| Tillage/field                        | 5                    |
| Short pasture and lawns              | 7                    |
| Nearly bare ground                   | 10                   |
| Grassed waterway                     | 15                   |
| Paved areas and shallow paved swales | 20                   |

Source: Mile High Flood District, Denver, Colorado, Urban Storm Drainage Criteria Manual, Volume 1, Chapter 6, Page 6-9, latest online addition.



**STANDARD FORM SF-3 - DEVELOPED**  
**STORM DRAINAGE DESIGN - RATIONAL METHOD 2 YEAR EVENT**

PROJECT NAME: Proposed - Lofts at Red Mountain Phase 4  
 PROJECT NUMBER: 12013.12  
 CALCULATED BY: WS  
 CHECKED BY: MDC

**P<sub>1</sub> (1-Hour Rainfall) = 0.51**

DATE: 2/26/2021

| STORM<br>LINE | DESIGN<br>POINT | DIRECT RUNOFF   |              |                    |                      |         |              |            | TOTAL RUNOFF         |                |              |            | STREET       |                     | PIPE                |              |                   | TRAVEL TIME    |                   |                         | REMARKS |
|---------------|-----------------|-----------------|--------------|--------------------|----------------------|---------|--------------|------------|----------------------|----------------|--------------|------------|--------------|---------------------|---------------------|--------------|-------------------|----------------|-------------------|-------------------------|---------|
|               |                 | DESIGN<br>BASIN | AREA<br>(AC) | RUNOFF<br>COEFF C2 | t <sub>c</sub> (min) | C*A(ac) | I<br>(in/hr) | Q<br>(cfs) | t <sub>c</sub> (min) | S(C*A)<br>(ac) | I<br>(in/hr) | Q<br>(cfs) | SLOPE<br>(%) | STREET<br>FLOW(cfs) | DESIGN<br>FLOW(cfs) | SLOPE<br>(%) | PIPE<br>SIZE (in) | LENGTH<br>(ft) | VELOCITY<br>(fps) | t <sub>t</sub><br>(min) |         |
| (1)           | (2)             | (3)             | (4)          | (5)                | (6)                  | (7)     | (8)          | (9)        | (10)                 | (11)           | (12)         | (13)       | (14)         | (15)                | (16)                | (17)         | (18)              | (19)           | (20)              | (21)                    | (22)    |
|               | C4              | C4              | 0.31         | 0.58               | 6.43                 | 0.18    | 1.61         | 0.29       |                      |                |              |            |              |                     |                     |              |                   |                |                   |                         |         |
|               | C8              | C8              | 0.69         | 0.80               | 5.00                 | 0.55    | 1.73         | 0.95       |                      |                |              |            |              |                     |                     |              |                   |                |                   |                         |         |
|               | C10             | C10             | 0.50         | 0.52               | 13.93                | 0.26    | 1.20         | 0.31       |                      |                |              |            |              |                     |                     |              |                   |                |                   |                         |         |
|               | C20             | C20             | 0.22         | 0.73               | 5.00                 | 0.16    | 1.73         | 0.28       |                      |                |              |            |              |                     |                     |              |                   |                |                   |                         |         |
|               | C20a            | C20a            | 0.07         | 0.84               | 5.00                 | 0.06    | 1.73         | 0.10       |                      |                |              |            |              |                     |                     |              |                   |                |                   |                         |         |



**STANDARD FORM SF-3 - DEVELOPED  
STORM DRAINAGE DESIGN - RATIONAL METHOD 25 YEAR EVENT**

PROJECT NAME: Proposed - Lofts at Red Mountain Phase 4  
 PROJECT NUMBER: 12013.12  
 CALCULATED BY: WS  
 CHECKED BY: MDC

P<sub>1</sub> (1-Hour Rainfall) = **1.05**

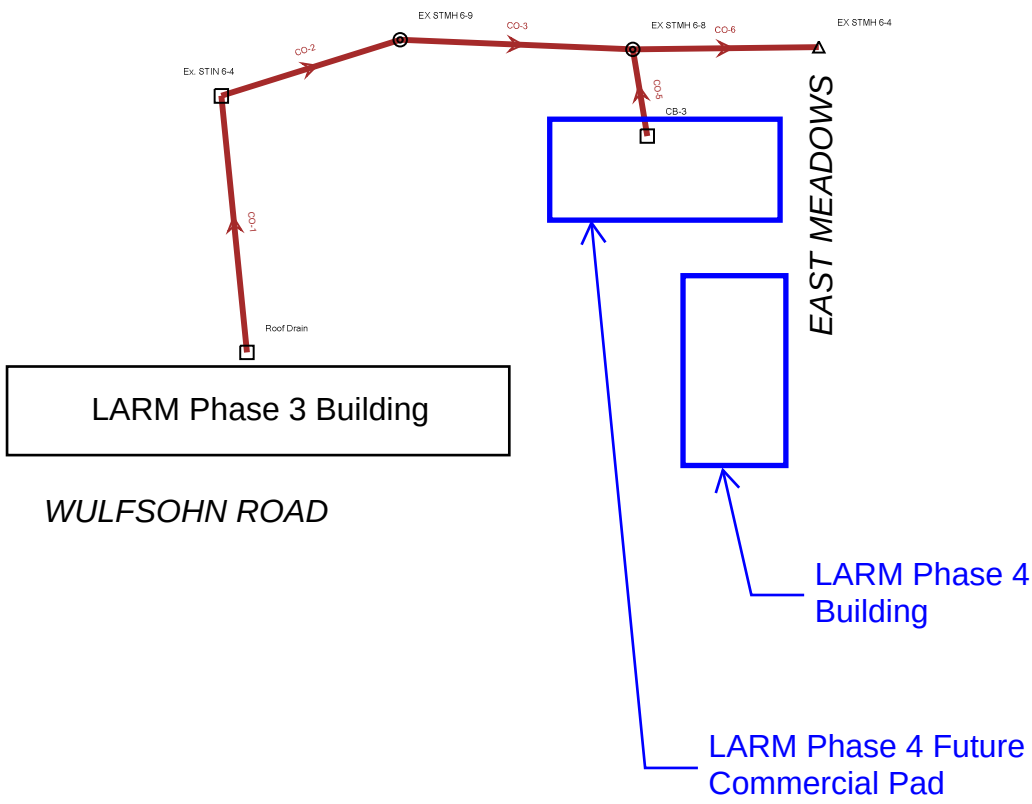
DATE: 2/26/2021

| STORM<br>LINE | DESIGN<br>POINT | DIRECT RUNOFF   |              |                                 |                      |         |              |            | TOTAL RUNOFF         |                |              |            | STREET       |                     | PIPE                |              |                   | TRAVEL TIME    |                   |                         | REMARKS |
|---------------|-----------------|-----------------|--------------|---------------------------------|----------------------|---------|--------------|------------|----------------------|----------------|--------------|------------|--------------|---------------------|---------------------|--------------|-------------------|----------------|-------------------|-------------------------|---------|
|               |                 | DESIGN<br>BASIN | AREA<br>(AC) | RUNOFF<br>COEFF C <sub>25</sub> | t <sub>c</sub> (min) | C*A(ac) | I<br>(in/hr) | Q<br>(cfs) | t <sub>c</sub> (min) | S(C*A)<br>(ac) | I<br>(in/hr) | Q<br>(cfs) | SLOPE<br>(%) | STREET<br>FLOW(cfs) | DESIGN<br>FLOW(cfs) | SLOPE<br>(%) | PIPE<br>SIZE (in) | LENGTH<br>(ft) | VELOCITY<br>(fps) | t <sub>t</sub><br>(min) |         |
| (1)           | (2)             | (3)             | (4)          | (5)                             | (6)                  | (7)     | (8)          | (9)        | (10)                 | (11)           | (12)         | (13)       | (14)         | (15)                | (16)                | (17)         | (18)              | (19)           | (20)              | (21)                    | (22)    |
|               | C4              | C4              | 0.31         | 0.63                            | 6.43                 | 0.20    | 3.32         | 0.65       |                      |                |              |            |              |                     |                     |              |                   |                |                   |                         |         |
|               | C8              | C8              | 0.69         | 0.84                            | 5.00                 | 0.58    | 3.56         | 2.07       |                      |                |              |            |              |                     |                     |              |                   |                |                   |                         |         |
|               | C10             | C10             | 0.50         | 0.58                            | 13.93                | 0.29    | 2.47         | 0.72       |                      |                |              |            |              |                     |                     |              |                   |                |                   |                         |         |
|               | C20             | C20             | 0.22         | 0.78                            | 5.00                 | 0.17    | 3.56         | 0.61       |                      |                |              |            |              |                     |                     |              |                   |                |                   |                         |         |
|               | C20a            | C20a            | 0.07         | 0.88                            | 5.00                 | 0.06    | 3.56         | 0.22       |                      |                |              |            |              |                     |                     |              |                   |                |                   |                         |         |

| Basin Comparison Table |           |                     |      |        |                  |      | Basin Comparison Table- Existing |           |                     |      |       |                  |      |
|------------------------|-----------|---------------------|------|--------|------------------|------|----------------------------------|-----------|---------------------|------|-------|------------------|------|
| Basin                  | Area (AC) | Runoff Coefficients |      | I (%)  | Peak Flows (cfs) |      | Basin                            | Area (AC) | Runoff Coefficients |      | I (%) | Peak Flows (cfs) |      |
|                        |           | C2                  | C25  |        | Q2               | Q25  |                                  |           | C2                  | C25  |       | Q2               | Q25  |
| C4                     | 0.31      | 0.58                | 0.63 | 74.8%  | 0.29             | 0.65 | C4                               | 0.37      | 0.68                | 0.78 | 76.6% | 1.07             | 1.23 |
| C8                     | 0.69      | 0.80                | 0.84 | 95.9%  | 0.95             | 2.07 | C8                               | 0.73      | 0.74                | 0.79 | 95.7% | 1.00             | 2.17 |
| C10                    | 0.50      | 0.52                | 0.58 | 69.5%  | 0.31             | 0.72 | C10                              | 0.51      | 0.60                | 0.72 | 67.9% | 1.30             | 1.56 |
| C20                    | 0.22      | 0.73                | 0.78 | 90.0%  | 0.28             | 0.61 | C20                              | 0.21      | 0.71                | 0.78 | 90.0% | 0.63             | 0.69 |
| C20a                   | 0.07      | 0.84                | 0.88 | 100.0% | 0.10             | 0.22 |                                  |           |                     |      |       |                  |      |



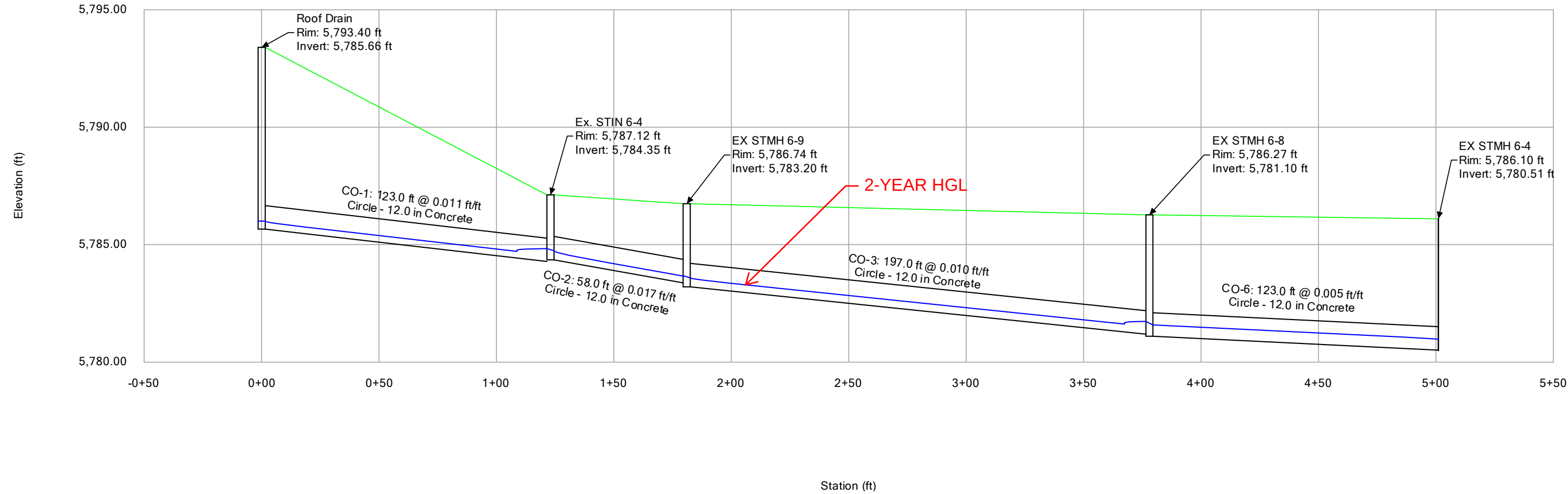
Scenario: Base



Conduit FlexTable: Table - 1  
2-Year Storm Scenario

| Label | Start Node   | Stop Node    | Invert (Start)<br>(ft) | Invert (Stop)<br>(ft) | Length (User<br>Defined)<br>(ft) | Slope<br>(Calculated)<br>(ft/ft) | Diameter<br>(in) | Manning's n | Flow<br>(cfs) | Capacity (Full<br>Flow)<br>(cfs) | Velocity<br>(ft/s) | Elevation Ground<br>(Start)<br>(ft) | Elevation Ground<br>(Stop)<br>(ft) | Hydraulic Grade<br>Line (In)<br>(ft) | Hydraulic Grade<br>Line (Out)<br>(ft) |
|-------|--------------|--------------|------------------------|-----------------------|----------------------------------|----------------------------------|------------------|-------------|---------------|----------------------------------|--------------------|-------------------------------------|------------------------------------|--------------------------------------|---------------------------------------|
| CO-1  | Roof Drain   | Ex. STIN 6-4 | 5,785.66               | 5,784.28              | 123.0                            | 0.011                            | 12.0             | 0.013       | 0.67          | 3.77                             | 3.63               | 5,793.40                            | 5,787.12                           | 5,786.00                             | 5,784.83                              |
| CO-2  | Ex. STIN 6-4 | EX STMH 6-9  | 5,784.35               | 5,783.37              | 58.0                             | 0.017                            | 12.0             | 0.013       | 0.87          | 4.63                             | 4.52               | 5,787.12                            | 5,786.74                           | 5,784.74                             | 5,783.66                              |
| CO-3  | EX STMH 6-9  | EX STMH 6-8  | 5,783.20               | 5,781.19              | 197.0                            | 0.010                            | 12.0             | 0.013       | 0.87          | 3.60                             | 3.77               | 5,786.74                            | 5,786.27                           | 5,783.59                             | 5,781.73                              |
| CO-5  | CB-3         | EX STMH 6-8  | 5,783.61               | 5,781.32              | 26.0                             | 0.088                            | 12.0             | 0.013       | 0.29          | 10.57                            | 5.86               | 5,787.39                            | 5,786.27                           | 5,783.83                             | 5,781.73                              |
| CO-6  | EX STMH 6-8  | EX STMH 6-4  | 5,781.10               | 5,780.51              | 123.0                            | 0.005                            | 12.0             | 0.013       | 1.16          | 2.47                             | 3.09               | 5,786.27                            | 5,786.10                           | 5,781.58                             | 5,780.96                              |

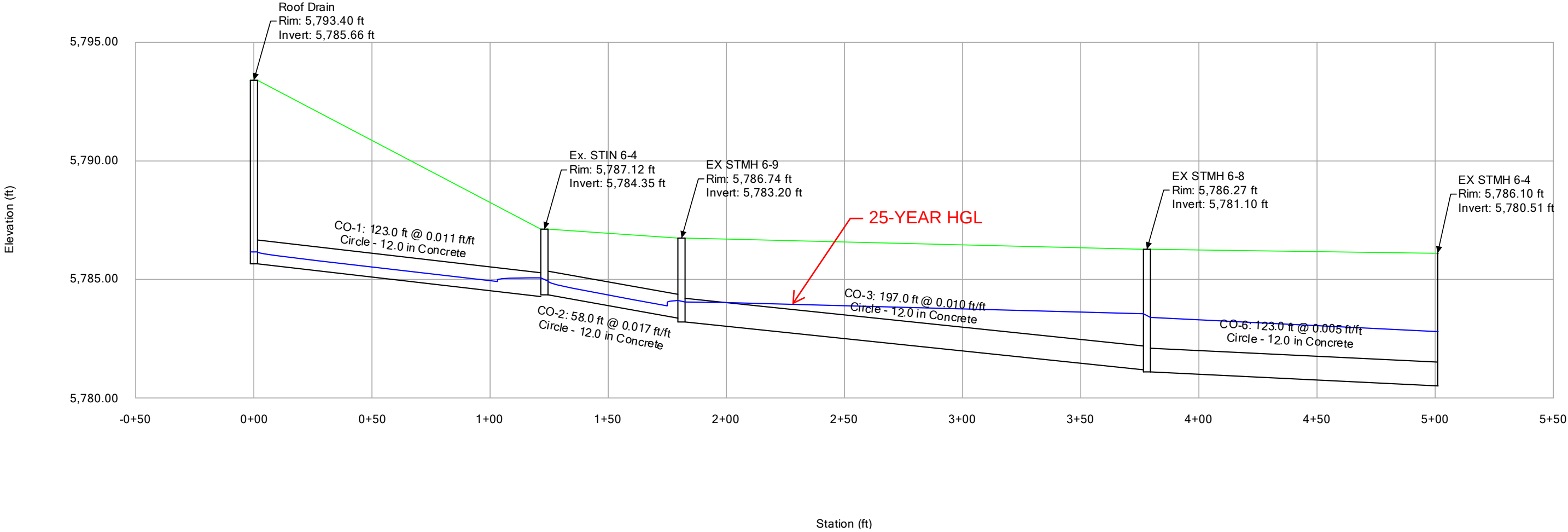
**Profile Report**  
**Engineering Profile - Profile - 1 (12013.12 Phase 4 - 2-year.stsw)**  
**2-Year Storm Scenario**



Conduit FlexTable: Table - 1  
25-Year Storm Scenario

| Label | Start Node   | Stop Node    | Invert (Start)<br>(ft) | Invert (Stop)<br>(ft) | Length (User<br>Defined)<br>(ft) | Slope<br>(Calculated)<br>(ft/ft) | Diameter<br>(in) | Manning's n | Flow<br>(cfs) | Capacity (Full<br>Flow)<br>(cfs) | Velocity<br>(ft/s) | Elevation Ground<br>(Start)<br>(ft) | Elevation Ground<br>(Stop)<br>(ft) | Hydraulic Grade<br>Line (In)<br>(ft) | Hydraulic Grade<br>Line (Out)<br>(ft) |
|-------|--------------|--------------|------------------------|-----------------------|----------------------------------|----------------------------------|------------------|-------------|---------------|----------------------------------|--------------------|-------------------------------------|------------------------------------|--------------------------------------|---------------------------------------|
| CO-1  | Roof Drain   | Ex. STIN 6-4 | 5,785.66               | 5,784.28              | 123.0                            | 0.011                            | 12.0             | 0.013       | 1.41          | 3.77                             | 4.46               | 5,793.40                            | 5,787.12                           | 5,786.16                             | 5,785.07                              |
| CO-2  | Ex. STIN 6-4 | EX STMH 6-9  | 5,784.35               | 5,783.37              | 58.0                             | 0.017                            | 12.0             | 0.013       | 1.83          | 4.63                             | 5.55               | 5,787.12                            | 5,786.74                           | 5,784.93                             | 5,784.11                              |
| CO-3  | EX STMH 6-9  | EX STMH 6-8  | 5,783.20               | 5,781.19              | 197.0                            | 0.010                            | 12.0             | 0.013       | 1.83          | 3.60                             | 4.60               | 5,786.74                            | 5,786.27                           | 5,784.05                             | 5,783.55                              |
| CO-5  | CB-3         | EX STMH 6-8  | 5,783.61               | 5,781.32              | 26.0                             | 0.088                            | 12.0             | 0.013       | 0.65          | 10.57                            | 7.47               | 5,787.39                            | 5,786.27                           | 5,783.95                             | 5,783.55                              |
| CO-6  | EX STMH 6-8  | EX STMH 6-4  | 5,781.10               | 5,780.51              | 123.0                            | 0.005                            | 12.0             | 0.013       | 2.48          | 2.47                             | 3.16               | 5,786.27                            | 5,786.10                           | 5,783.40                             | 5,782.80                              |

**Profile Report**  
**Engineering Profile - Profile - 1 (12013.12 Phase 4 - 25-year.stsw)**  
**25-Year Storm Scenario**



# **APPENDIX M**

## **INLET SIZING**

Glenwood Meadows  
Inlet Sizing, 25-yr Storm Event  
CALCULATED BY: TJH

| INLET NAME | DESIGN POINT | DIRECT RUNOFF   |                 |                                  |                      |            |                     |                                  | INLET CHARACTERISTICS |                  |                           |                   | NOTES                                   |
|------------|--------------|-----------------|-----------------|----------------------------------|----------------------|------------|---------------------|----------------------------------|-----------------------|------------------|---------------------------|-------------------|-----------------------------------------|
|            |              | DRAINAGE BASINS | TOTAL AREA (ac) | RUNOFF COEFF. (C <sub>25</sub> ) | t <sub>c</sub> (min) | C x A (ac) | INTENSITY I (in/hr) | TOTAL FLOW Q <sub>25</sub> (cfs) | MAX. DEPTH (ft)       | STREET SLOPE (%) | MAX. INLET CAPACITY (cfs) | INLET LENGTH TYPE |                                         |
| (1)        | (2)          | (3)             | (4)             | (5)                              | (6)                  | (7)        | (8)                 | (9)                              | (10)                  | (11)             | (12)                      | (13)              | (14)                                    |
| STIN 1-1   |              | A15             | 0.32            | 0.86                             | 5.0                  | 0.28       | 4.25                | 1.2                              | 0.75                  | SUMP             | 8.0                       | 5' TYPE R         |                                         |
| STIN 1-2   |              | A44             | 0.14            | 0.94                             | 5.0                  | 0.13       | 4.25                | 0.5                              | 0.75                  | SUMP             | 8.0                       | 5' TYPE R         |                                         |
| STIN 1-3   |              | A3              | 0.38            | 0.66                             | 5.0                  | 0.25       | 4.25                | 1.1                              | 0.75                  | SUMP             | 8.0                       | 5' TYPE R         |                                         |
| STIN 1-4   |              | A2              | 0.33            | 0.82                             | 5.0                  | 0.27       | 4.25                | 1.1                              | 1.00                  | SUMP             | 49.0                      | Trench Drain      | Neenah 10"x26" R-4990-CX w/Type-A Grate |
| STIN 1-5   |              | A1              | 0.95            | 0.47                             | 7.0                  | 0.45       | 4.25                | 1.9                              | 0.75                  | SUMP             | 8.0                       | 5' TYPE R         |                                         |
| STIN 2-1   |              | A37             | 0.66            | 0.79                             | 5.0                  | 0.52       | 4.25                | 2.2                              | 0.75                  | SUMP             | 8.0                       | 5' TYPE R         |                                         |
| STIN 2-2   |              | A45             | 0.39            | 0.28                             | 5.0                  | 0.11       | 4.25                | 0.5                              | 0.75                  | SUMP             | 8.0                       | Area Drain        | Neenah R-4340-B Beehive Area Drain      |
| STIN 3-1   |              | A36             | 0.87            | 0.91                             | 5.0                  | 0.79       | 4.25                | 3.4                              | 0.75                  | SUMP             | 8.0                       | 5' TYPE R         |                                         |
| STIN 3-2   |              | A24             | 0.75            | 0.86                             | 6.6                  | 0.65       | 3.85                | 2.5                              | 0.75                  | SUMP             | 8.0                       | 5' TYPE R         |                                         |
| STIN 3-3   |              | A22             | 0.67            | 0.84                             | 5.0                  | 0.56       | 4.25                | 2.4                              | 0.75                  | SUMP             | 8.0                       | 5' TYPE R         |                                         |
| STIN 3-4   |              | A35             | 1.81            | 0.87                             | 5.0                  | 1.58       | 4.25                | 6.7                              | 0.75                  | SUMP             | 8.0                       | 5' TYPE R         |                                         |
| STIN 3-5   |              | A33             | 0.95            | 0.78                             | 5.0                  | 0.74       | 4.25                | 3.1                              | 0.75                  | SUMP             | 8.0                       | 5' TYPE R         |                                         |
| STIN 3-6   |              | A31             | 0.44            | 0.81                             | 5.0                  | 0.36       | 4.25                | 1.5                              | 0.50                  | 5.00             | 4.0                       | 5' TYPE R         |                                         |
| STIN 3-7   |              | A26             | 0.50            | 0.81                             | 5.0                  | 0.41       | 4.25                | 1.7                              | 0.50                  | 5.00             | 4.0                       | 5' TYPE R         |                                         |
| STIN 3-8   |              | A21             | 2.71            | 0.86                             | 6.1                  | 2.34       | 4.00                | 9.4                              | 0.75                  | SUMP             | 18.0                      | 10' TYPE R        |                                         |
| STIN 3-9   |              | A32             | 0.35            | 0.79                             | 5.0                  | 0.28       | 4.25                | 1.2                              | 0.75                  | SUMP             | 8.0                       | 5' TYPE R         |                                         |
| STIN 3-10  |              | A20             | 0.49            | 0.77                             | 5.4                  | 0.38       | 4.10                | 1.5                              | 0.75                  | SUMP             | 8.0                       | 5' TYPE R         |                                         |
| STIN 3-11  |              | A42             | 0.31            | 0.81                             | 5.0                  | 0.25       | 4.25                | 1.1                              | 0.50                  | 5.00             | 4.0                       | 5' TYPE R         |                                         |
| STIN 3-12  |              | A41             | 0.25            | 0.81                             | 5.0                  | 0.20       | 4.25                | 0.9                              | 0.50                  | 5.00             | 4.0                       | 5' TYPE R         |                                         |
| STIN 3-13  |              | A16             | 0.40            | 0.47                             | 5.0                  | 0.19       | 4.25                | 0.8                              | 0.75                  | SUMP             | 8.0                       | 5' TYPE R         |                                         |
| STIN 3-14  |              | A17             | 0.44            | 0.66                             | 5.0                  | 0.29       | 4.25                | 1.2                              | 0.75                  | SUMP             | 8.0                       | 5' TYPE R         |                                         |
| STIN 3-15  |              | A30             | 0.24            | 0.93                             | 5.0                  | 0.22       | 4.25                | 0.9                              | 0.75                  | SUMP             | 8.0                       | 5' TYPE R         |                                         |
| STIN 3-16  |              | A29             | 0.16            | 0.85                             | 5.0                  | 0.14       | 4.25                | 0.6                              | 0.50                  | 3.13             | 4.0                       | 5' TYPE R         |                                         |
| STIN 3-17  |              | A18             | 0.46            | 0.87                             | 5.0                  | 0.40       | 4.25                | 1.7                              | 0.50                  | 3.70             | 4.0                       | 5' TYPE R         |                                         |
| STIN 3-18  |              | A43             | 0.65            | 0.87                             | 5.0                  | 0.56       | 4.25                | 2.4                              | 0.50                  | 3.70             | 4.0                       | 5' TYPE R         |                                         |
| STIN 3-19  |              | OS1             | 3.77            | 0.28                             | 14.2                 | 1.06       | 2.80                | 3.0                              | 1.00                  | SUMP             | 5.3                       | Area Drain        | Neenah R-4340-B Beehive Area Drain      |
| STIN 3-20  |              | OS2             | 8.18            | 0.54                             | 9.1                  | 4.42       | 3.35                | 14.8                             | 1.00                  | SUMP             | 34.0                      | CDOT Type-C       |                                         |
| STIN 3-21  |              | A19             | 1.15            | 0.77                             | 5.1                  | 0.88       | 4.25                | 3.7                              | 1.00                  | SUMP             | 13.0                      | 3' TYPE-13        |                                         |
| STIN 4-1   |              | B38             | 0.53            | 0.67                             | 5.0                  | 0.35       | 4.25                | 1.5                              | 0.75                  | SUMP             | 8.0                       | 5' TYPE R         |                                         |

EXCERPT FROM FINAL DRAINAGE REPORT

| INLET NAME | DESIGN POINT | DIRECT RUNOFF   |                 |                                  |                      |            |                     |                                  | INLET CHARACTERISTICS |                  |                           |                   | NOTES                              |
|------------|--------------|-----------------|-----------------|----------------------------------|----------------------|------------|---------------------|----------------------------------|-----------------------|------------------|---------------------------|-------------------|------------------------------------|
|            |              | DRAINAGE BASINS | TOTAL AREA (ac) | RUNOFF COEFF. (C <sub>25</sub> ) | t <sub>c</sub> (min) | C x A (ac) | INTENSITY I (in/hr) | TOTAL FLOW Q <sub>25</sub> (cfs) | MAX. DEPTH (ft)       | STREET SLOPE (%) | MAX. INLET CAPACITY (cfs) | INLET LENGTH TYPE |                                    |
| (1)        | (2)          | (3)             | (4)             | (5)                              | (6)                  | (7)        | (8)                 | (9)                              | (10)                  | (11)             | (12)                      | (13)              | (14)                               |
| STIN 4-2   |              | B39             | 0.06            | 0.67                             | 5.0                  | 0.04       | 4.25                | 0.2                              | 0.50                  | SUMP             | 5.3                       | Area Drain        | Neenah R-4340-B Beehive Area Drain |
| STIN 4-2A  |              | B34             | 0.05            | 0.64                             | 5.0                  | 0.03       | 4.25                | 0.1                              | 0.50                  | SUMP             | 5.3                       | Area Drain        | Neenah R-4340-B Beehive Area Drain |
| STIN 4-3   |              | B19             | 0.77            | 0.86                             | 5.0                  | 0.66       | 4.25                | 2.8                              | 0.75                  | SUMP             | 8.0                       | 5' TYPE R         |                                    |
| STIN 4-4   |              | B18             | 1.16            | 0.90                             | 5.0                  | 1.05       | 4.25                | 4.5                              | 1.00                  | SUMP             | 13.0                      | 3' TYPE-13        |                                    |
| STIN 4-5   |              | B17             | 1.70            | 0.88                             | 5.0                  | 1.50       | 4.25                | 6.4                              | 1.00                  | SUMP             | 13.0                      | 3' TYPE-13        |                                    |
| STIN 4-6   |              | B27             | 2.12            | 0.88                             | 5.0                  | 1.86       | 4.25                | 7.9                              | 1.00                  | SUMP             | 13.0                      | 3' TYPE-13        |                                    |
| STIN 4-7   |              | B26             | 0.08            | 0.91                             | 5.0                  | 0.07       | 4.25                | 0.3                              | 0.75                  | SUMP             | 8.0                       | 5' TYPE R         |                                    |
| STIN 4-8   |              | B23             | 0.63            | 0.90                             | 5.0                  | 0.57       | 4.25                | 2.4                              | 0.75                  | SUMP             | 8.0                       | 5' TYPE R         |                                    |
| STIN 4-9   |              | B22             | 0.70            | 0.90                             | 5.0                  | 0.63       | 4.25                | 2.7                              | 0.75                  | SUMP             | 8.0                       | 5' TYPE R         |                                    |
| STIN 4-10  |              | B16             | 0.71            | 0.92                             | 5.0                  | 0.65       | 4.25                | 2.8                              | 0.50                  | SUMP             | 13.0                      | 3' TYPE-13        |                                    |
| STIN 4-11  |              | B9              | 0.39            | 0.81                             | 5.0                  | 0.32       | 4.25                | 1.3                              | 0.75                  | SUMP             | 8.0                       | 5' TYPE R         |                                    |
| STIN 4-12  |              | B8              | 0.49            | 0.78                             | 5.0                  | 0.38       | 4.25                | 1.6                              | 0.75                  | SUMP             | 8.0                       | 5' TYPE R         |                                    |
| STIN 4-13  |              | B7              | 0.59            | 0.81                             | 5.0                  | 0.48       | 4.25                | 2.0                              | 0.75                  | SUMP             | 8.0                       | 5' TYPE R         |                                    |
| STIN 4-14  |              | B1              | 1.25            | 0.92                             | 5.0                  | 1.15       | 4.25                | 4.9                              | 0.75                  | SUMP             | 8.0                       | 5' TYPE R         |                                    |
| STIN 4-15  |              | B6              | 0.30            | 0.81                             | 5.0                  | 0.24       | 4.25                | 1.0                              | 0.75                  | SUMP             | 8.0                       | 5' TYPE R         |                                    |
| STIN 4-16  |              | OS3             | 3.00            | 0.54                             | 5.2                  | 1.62       | 4.25                | 6.9                              | 1.00                  | SUMP             | 34.0                      | CDOT Type-C       |                                    |
| STIN 4-17  |              | OS4             | 5.23            | 0.54                             | 9.1                  | 2.82       | 3.35                | 9.5                              | 1.00                  | SUMP             | 34.0                      | CDOT Type-C       |                                    |
| STIN 4-18  |              | B35             | 1.07            | 0.68                             | 6.6                  | 0.73       | 4.25                | 3.1                              | 0.75                  | SUMP             | 8.0                       | 5' TYPE R         |                                    |
| STIN 4-19  |              | --              | --              | --                               | --                   | --         | --                  | --                               | --                    | --               | --                        | --                | REMOVED FROM PLANS                 |
| STIN 4-20  |              | B13             | 0.35            | 0.93                             | 5.0                  | 0.32       | 4.25                | 1.4                              | 0.50                  | 2.80             | 3.9                       | 5' TYPE R         |                                    |
| STIN 4-21  |              | B12             | 0.40            | 0.93                             | 5.0                  | 0.37       | 4.25                | 1.6                              | 0.50                  | 2.80             | 3.9                       | 5' TYPE R         |                                    |
| STIN 4-22  |              | B4              | 0.38            | 0.91                             | 5.0                  | 0.35       | 4.25                | 1.5                              | 0.75                  | SUMP             | 8.0                       | 5' TYPE R         |                                    |
| STIN 4-23  |              | B3              | 0.32            | 0.93                             | 5.0                  | 0.30       | 4.25                | 1.3                              | 0.75                  | SUMP             | 8.0                       | 5' TYPE R         |                                    |
| STIN 4-24  |              | B2              | 0.47            | 0.91                             | 5.0                  | 0.43       | 4.25                | 1.8                              | 0.75                  | SUMP             | 8.0                       | 5' TYPE R         |                                    |
| STIN 5-1   |              | C14             | 0.15            | 0.82                             | 5.0                  | 0.12       | 4.25                | 0.5                              | 0.75                  | SUMP             | 8.0                       | 5' TYPE R         |                                    |
| STIN 5-2   |              | C13             | 0.09            | 0.78                             | 5.0                  | 0.07       | 4.25                | 0.3                              | 0.75                  | SUMP             | 8.0                       | 5' TYPE R         |                                    |
| STIN 5-3   |              | C9              | 0.42            | 0.74                             | 5.0                  | 0.31       | 4.25                | 1.3                              | 0.75                  | SUMP             | 8.0                       | 5' TYPE R         |                                    |
| STIN 5-4   |              | C8              | 2.43            | 0.89                             | 5.0                  | 2.16       | 4.25                | 9.2                              | 0.75                  | SUMP             | 13.0                      | 3' TYPE-13        |                                    |
| STIN 6-1   |              | C10             | 0.51            | 0.72                             | 5.0                  | 0.37       | 4.25                | 1.6                              | 0.50                  | 4.25             | 4.1                       | 5' TYPE R         |                                    |
| STIN 6-2   |              | C11             | 0.39            | 0.88                             | 5.0                  | 0.34       | 4.25                | 1.5                              | 0.50                  | 4.25             | 4.1                       | 5' TYPE R         |                                    |
| STIN 6-3   |              | C4              | 0.37            | 0.78                             | 5.0                  | 0.29       | 4.25                | 1.2                              | 0.75                  | SUMP             | 8.0                       | 5' TYPE R         |                                    |
| STIN 6-4   |              | C3              | 0.26            | 0.85                             | 5.0                  | 0.22       | 4.25                | 0.9                              | 0.75                  | SUMP             | 8.0                       | 5' TYPE R         |                                    |
| STIN 6-5   |              | C5              | 0.18            | 0.82                             | 5.0                  | 0.15       | 4.25                | 0.6                              | 0.50                  | 4.25             | 4.1                       | 5' TYPE R         |                                    |
| STIN 6-6   |              | C6              | 0.15            | 0.83                             | 5.0                  | 0.12       | 4.25                | 0.5                              | 0.50                  | 4.25             | 4.1                       | 5' TYPE R         |                                    |
| STIN 6-7   |              | C1              | 1.39            | 0.93                             | 5.0                  | 1.29       | 4.25                | 5.5                              | 0.75                  | SUMP             | 8.0                       | 5' TYPE R         |                                    |
|            |              | OS7             | 2.19            | 0.72                             | 5.2                  | 1.58       | 4.25                | 6.7                              |                       | SUMP             |                           |                   |                                    |
|            |              | OS8             | 8.78            | 0.54                             | 9.3                  | 4.74       | 3.30                | 15.6                             |                       | SUMP             |                           |                   |                                    |
| STIN 6-8   |              | OS7/OS8         | 10.97           | 0.58                             | 9.3                  | 6.32       | 3.3                 | 20.8                             | 1.00                  | SUMP             | 34.0                      | CDOT Type-C       |                                    |
| STIN 7-1   |              | A27             | 0.40            | 0.92                             | 5.0                  | 0.37       | 4.25                | 1.6                              | 0.50                  | 5.00             | 4.1                       | 5' TYPE R         |                                    |

EXCERPT FROM FINAL DRAINAGE REPORT



| INLET NAME | DESIGN POINT | DIRECT RUNOFF   |                 |                                  |                      |            |                     |                                  | INLET CHARACTERISTICS |                  |                           |                   | NOTES                                                     |
|------------|--------------|-----------------|-----------------|----------------------------------|----------------------|------------|---------------------|----------------------------------|-----------------------|------------------|---------------------------|-------------------|-----------------------------------------------------------|
|            |              | DRAINAGE BASINS | TOTAL AREA (ac) | RUNOFF COEFF. (C <sub>25</sub> ) | t <sub>c</sub> (min) | C x A (ac) | INTENSITY I (in/hr) | TOTAL FLOW Q <sub>25</sub> (cfs) | MAX. DEPTH (ft)       | STREET SLOPE (%) | MAX. INLET CAPACITY (cfs) | INLET LENGTH TYPE |                                                           |
| (1)        | (2)          | (3)             | (4)             | (5)                              | (6)                  | (7)        | (8)                 | (9)                              | (10)                  | (11)             | (12)                      | (13)              | (14)                                                      |
| STIN 7-2   |              | A34             | 0.32            | 0.85                             | 5.0                  | 0.27       | 4.25                | 1.2                              | 0.50                  | 5.00             | 4.1                       | 5' TYPE R         |                                                           |
| STIN 8-1   |              | C15             | 0.68            | 0.79                             | 5.0                  | 0.54       | 4.25                | 2.3                              | 0.75                  | SUMP             | 8.0                       | 5' TYPE R         |                                                           |
| STIN 9-1   |              | C18             | 0.28            | 0.88                             | 5.0                  | 0.25       | 4.00                | 1.0                              | 0.50                  | 4.25             | 4.1                       | 5' TYPE R         |                                                           |
| STIN 9-2   |              | C17             | 0.48            | 0.93                             | 5.0                  | 0.45       | 4.00                | 1.8                              | 0.50                  | 4.25             | 4.1                       | 5' TYPE R         |                                                           |
| STIN 10-1  |              | C19             | 1.50            | 0.88                             | 6.9                  | 1.32       | 4.00                | 5.3                              | 0.75                  | SUMP             | 8.0                       | Area Drain        | 1.5 acres of C19<br>Neenah R-4340-B Beehive<br>Area Drain |
| STIN 12-1  |              | A25             | 0.92            | 0.53                             | 5.5                  | 0.49       | 4.25                | 2.1                              | 0.50                  | SUMP             | 5.3                       | Area Drain        | Neenah R-4340-B Beehive<br>Area Drain                     |
| STIN 13-1  |              | C16             | 1.17            | 0.88                             | 5.0                  | 1.04       | 4.25                | 4.4                              | 0.50                  | SUMP             | 5.3                       | Area Drain        | Neenah R-4340-B Beehive<br>Area Drain                     |
| STIN 14-1  |              | B40             | 0.94            | 0.28                             | 5.0                  | 0.26       | 4.25                | 1.1                              | 0.50                  | SUMP             | 5.3                       | Area Drain        | Neenah R-4340-B Beehive<br>Area Drain                     |
| STIN 15-1  |              | A46             | 0.17            | 0.28                             | 5.0                  | 0.05       | 4.25                | 0.2                              | 0.50                  | SUMP             | 5.3                       | Area Drain        | Neenah R-4340-B Beehive<br>Area Drain                     |

- (1) Inlet Designation
- (2) Design Point Location
- (3) Basins Draining to Specified Inlet
- (4) Total Drainage Area
- (5) 25-year Runoff Coefficient, Weighted for Contributing Basins
- (6) Time of Concentration from  $t_c = t_i + t_t$
- (7) Total C x A for All Contributing Basins
- (8) Rainfall Intensity from I-D-F Curve for Glenwood Meadows
- (9) Total Runoff from Contributing Basins
- (10) Depth of Ponding/Gutter Flow
- (11) Street Slope
- (12) Maximum Inlet Capacity
- (13) Required Inlet Type/Size
- (14) Notes

EXCERPT FROM FINAL DRAINAGE REPORT

**FINAL  
DRAINAGE REPORT  
FOR  
GLENWOOD MEADOWS  
LOTS 1-10 and TRACTS A, B, and C  
  
GLENWOOD SPRINGS, COLORADO**

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**May 6, 2004  
Revised: July 30, 2004**

**FINAL  
DRAINAGE REPORT  
GLENWOOD MEADOWS  
LOTS 1-10 and TRACTS A, B and C**

**TABLE OF CONTENTS**

|            |                                                        |          |
|------------|--------------------------------------------------------|----------|
| <b>1.0</b> | <b>INTRODUCTION .....</b>                              | <b>1</b> |
| <b>1.1</b> | <b>Project Location.....</b>                           | <b>1</b> |
| <b>1.2</b> | <b>Existing Conditions .....</b>                       | <b>1</b> |
| <b>2.0</b> | <b>PROPOSED CONDITIONS.....</b>                        | <b>2</b> |
| <b>2.1</b> | <b>General Design Criteria.....</b>                    | <b>2</b> |
| <b>2.2</b> | <b>Offsite Drainage Basins .....</b>                   | <b>2</b> |
| <b>2.3</b> | <b>Onsite Drainage Basins .....</b>                    | <b>2</b> |
| <b>2.4</b> | <b>Water Quality – Best Management Practices .....</b> | <b>3</b> |
| <b>3.0</b> | <b>SUMMARY .....</b>                                   | <b>3</b> |

## **LIST OF DRAWINGS**

- D1.0 Stormwater Drainage Plan – 100-Scale
- D1.1 Stormwater Drainage Plan – 50-Scale
- D1.2 Stormwater Drainage Plan – 50-Scale
- D1.3 Stormwater Drainage Plan – 50-Scale
- D1.4 Stormwater Drainage Plan – 50-Scale
- DR 1 From *Master Drainage Report for Glenwood Meadows* by High Country Engineering, dated March 4, 2004

## **LIST OF APPENDICES**

- APPENDIX A Vicinity Map
- APPENDIX B Final Plat for Glenwood Meadows No. 2
- APPENDIX C FEMA Map
- APPENDIX D Soil Map
- APPENDIX E Percent Impervious Calculations
- APPENDIX F Weighted Runoff Coefficient Calculations
- APPENDIX G Time of Concentration
- APPENDIX H Historic Runoff Coefficients
- APPENDIX I Runoff Flow Historic Runoff Flow Rates
- APPENDIX J Basin A Water Quality Pond
- APPENDIX K Basin B Water Quality Pond
- APPENDIX L Basin C Water Quality Pond
- APPENDIX M Inlet Sizing
- APPENDIX N HydroFlow Storm Sewer Models
- APPENDIX O Rip Rap Calculations
- APPENDIX P Outlet Structure Calculations

## **1.0 INTRODUCTION**

This Final Drainage Report for Glenwood Meadows Lots 1-10 and Tracts A, B and C (Site) will address the storm water management practices for this portion of the Glenwood Meadows property while maintaining the criteria set forth in the "Master Drainage Report for Glenwood Meadows" prepared by High Country Engineering, Inc., last revised on March 4, 2004 (Master Report).

### **1.1 Project Location**

Glenwood Meadows is a 344-acre development located in Section 5 and 6, Township 6 South, Range 89 West of the 6<sup>th</sup> P.M. in the City of Glenwood Springs, County of Garfield, State of Colorado. Glenwood Meadows Lots 1-10 and Tracts A, B and C contains a total of 68.99 acres and is bordered on the north and east by Midland Avenue, on the west by the Colorado Department of Transportation (CDOT) easement, and on the south by Lot 11 and Tract E (see Appendix A). The lot and tract designations are based on the Final Plat for Glenwood Meadows No. 2 (see Appendix B). The proposed commercial development of Glenwood Meadows consists of retail and mixed-use buildings, parking lots and landscaped areas.

The Colorado River is located to the north of the proposed development. However, this project is not affected by the 100 year floodplain of the Colorado River. See the enclosed FEMA Map, Appendix C.

Glenwood Meadows consists of SCS hydrologic Type B Soils. See enclosed Soil Map, Appendix D.

### **1.2 Existing Conditions**

The site is currently undeveloped and consists of native grass and groundcover. There are no permanent structures on the site and existing flow patterns consist of sheet flow and naturally occurring swales directing the runoff to the existing culverts under Midland Avenue.

The existing drainage, as described in the Master Report, consists of 9 subbasins below the elevation of 7,500 feet that drain to the northeast through 10 existing culverts under Midland Avenue. These culverts drain into a ditch on the north side of Midland Avenue that further drains to three existing CMP culverts that convey the flows under the Union Pacific Railroad tracks. The runoff then flows north and northeasterly to the Colorado River.

Runoff from the existing subbasins above the elevation of 7,500 feet will be collected by two Debris Basins that, as described in the Master Report, will capture and detain the majority of the off-site flow. Flow from the outfalls of Debris Flow Basin #1 and #2 will be piped at two separate locations to the proposed storm sewer system serving the Site. The Debris Basins will be designed by others and will be in place and

functioning prior to any vertical construction on the Site (see drawing DR1 from Master Report).

## **2.0 PROPOSED CONDITIONS**

### **2.1 General Design Criteria**

The developed on-site runoff flow rates were calculated using the Rational Method and flow routing, pipe sizing and hydraulic grade lines were determined through the use of the *Hydroflow Storm Sewers 2003* computer model. The Intensity-Duration-Frequency Curves for the City of Glenwood Springs were used to determine storm intensity with respect to the calculated time of concentration. Inlets were sized using the Urban Drainage and Flood Control District criteria for allowable inlet capacity. Storm pipes were designed to fully contain the 2-year storm runoff and runoff from the 25-year event will be full contained in the storm sewer system with no surface ponding at any inlets or manholes. Five Water Quality Ponds, located immediately south of Midland Avenue, have been designed to contain the 2-year developed runoff with a release rate equal to the 2-year historic rate of runoff. Outfalls from the Water Quality Ponds have been designed to convey the 100-year storm runoff to a series of culverts under Midland Avenue. The Pond A-1 outlet structure has been fitted with a restrictor plate to restrict the outfall to a maximum of 95.0 cfs during the 100-year flood event. This restrictor plate is required so as not to exceed the capacity of any downstream culverts.

### **2.2 Offsite Drainage Basins**

There are 9 existing subbasins from the Master Report that together encompass the entire Site. The subbasins' existing drainage patterns, as described in the Master Report, will be maintained.

The runoff from subbasins OS1 and OS2 are tributary to Basin A, along the western portion of the site. Flows from these basins are routed through the proposed storm sewer system to the Water Quality Ponds A1 and A2. Offsite basins OS3, OS4, OS5 and OS6 are tributary to Basin B, which encompasses the center of the site. Runoff from these basins is routed through the proposed storm sewer system to Water Quality Pond B. Offsite basins OS7 and OS8 are tributary to Basin C along the eastern portion of the site. Storm runoff from these basins is routed through the site to Water Quality Ponds C1 and C2. Basin G at the eastern boundary of the site has been included in the sizing of Water Quality Ponds C1 and C2 and runoff from this basin has been calculated assuming a future developed condition. All runoff from the offsite basins is routed through the site by the proposed storm sewer system, through the water quality ponds, under Midland Avenue and the Railroad property and ultimately to the Colorado River. Storm sewer pipes on-site have been sized to include these flows.

## **2.3 Onsite Drainage Basins**

The proposed development is divided into three Major Basins - A, B and C. Runoff from each basin is collected by a series of inlets throughout the site and routed by the storm sewer system to the five Water Quality Ponds. Runoff from Basin A is routed to Water Quality Ponds A1 and A2. Runoff from Basin B is routed to Water Quality Pond B. Similarly, runoff from Major Basin C is routed to Water Quality Ponds C1 and C2. All water quality ponds have been designed to contain the 2-year storm runoff with a historic 2-year release rate. Historic runoff rates have been calculated using the Rational Method assuming an undeveloped condition. Each Water Quality Pond will be equipped with an impermeable polyethylene liner up to the limits of the 2-year water surface elevation. Outlet structure for Ponds A1, B and C2 have been designed with a 2-year water quality orifice that restricts the release rate and a baffle system to promote water quality enhancements. The 25- and 100-year storm events will flow through a grate at the top of each outlet structure and be conveyed to the Midland Avenue culverts.

Basin D is located south of Midland Avenue and east of West Meadows Drive and includes the southern half of Midland Avenue and the adjacent landscaped area. This basin flows to the existing 18" CMP, Midland Culvert No. 8 (see Master Report).

Basin E is also located south of Midland Avenue and east of West Meadows Drive, adjacent to Basin D. This basin collects a portion of the runoff from Midland Avenue along with the adjacent landscaped area. Flow from this basin is conveyed under Midland Avenue by the existing 18" CMP, Midland Culvert No. 9 (see Master Report).

Basin F is located south of Midland Avenue and west of East Meadows Drive. Runoff from this basin is conveyed under Midland Avenue by the existing 18" CMP, Midland Culvert No. 13 (see master Report).

## **2.4 Water Quality – Best Management Practices**

The primary water quality enhancements will be provided by a baffle system in the outlet structures of Ponds A1, B and C1. This baffle system will trap sediment at the bottom of each structure, as well as inhibit the release of oils and other particles on the surface of the stormwater runoff. Periodic maintenance will be required after major storm events to remove any sediment or debris which has been trapped in the outlet structure.

Water quality enhancement will also be provided in the ponds, where sediment and silt suspended in the storm runoff will settle out and be prevented from being transported downstream to the Colorado River.

Sedimentation and erosion protection will also be provided during construction to prevent sediment from flowing off of the site or into the storm sewer system by use of silt fences, check dams, vehicle tracking

control devices and inlet protection. This design is included in Sheet C310 and C311 of the Glenwood Meadows Construction Documents.

Permanent erosion control measures will be incorporated into the water quality ponds by the addition of rip rap at each outfall into the ponds. This will prevent erosion out each outfall from a storm sewer pipe.

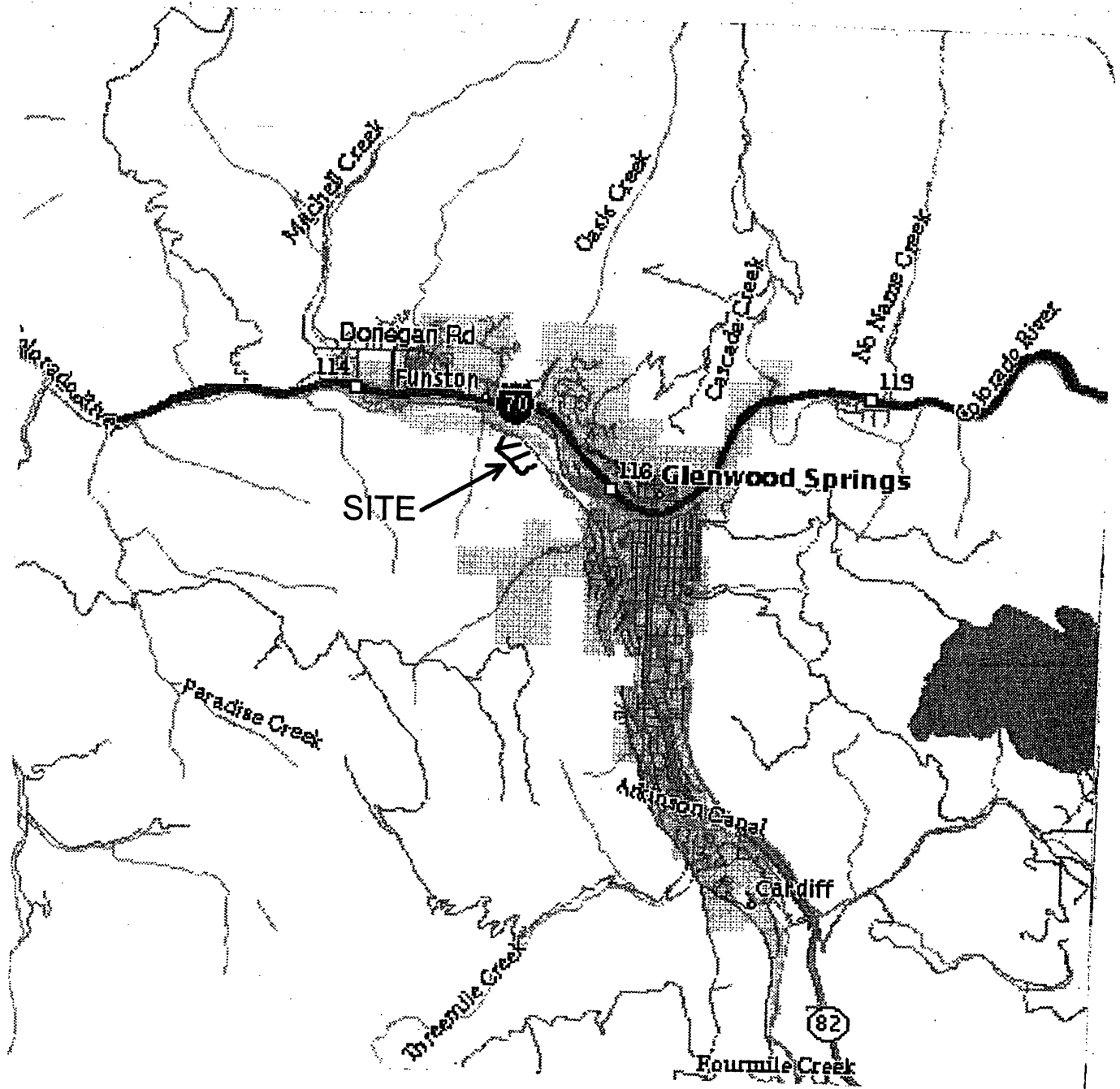
### **3.0 SUMMARY**

This report presents a description and calculations for the Final Drainage Report for Glenwood Meadows Lots 1-10 and Tracts A, B and C. The drainage system was designed to protect all on-site and downstream facilities from potential damage due to excessive storm runoff. The storm sewer system of inlets, storm pipes, water quality ponds, outlet structures, swales and culverts has been designed to promote the efficient and safe conveyance of storm runoff while providing water quality enhancements prior to releasing the runoff downstream of the site. The drainage patterns and the stormwater runoff quantities presented herein are in conformance with the *Master Drainage Report for Glenwood Meadows*, prepared by High Country Engineering, Inc., revised March 4, 2004.



# **APPENDIX A**

## **VICINITY MAP**

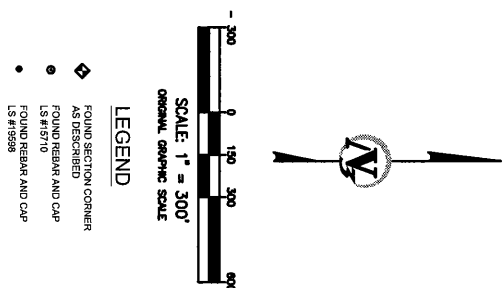


## VICINITY MAP

(NTS)

**APPENDIX B**  
**FINAL PLAT FOR GLENWOOD**  
**MEADOWS NO.2**

A RESUBDIVISION OF PARCEL B, GLENWOOD MEADOWS NO. 1,  
BEING A PARCEL OF LAND LOCATED IN SECTIONS 5, 6, 8 & 9, TOWNSHIP 6 SOUTH, RANGE 89 WEST,  
OF THE SIXTH PRINCIPAL MERIDIAN, CITY OF GLENWOOD SPRINGS, COUNTY OF GARFIELD, STATE OF COLORADO



**Engineers**  
**Scientists**  
**Surveyors**

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303.989.9932 fax  
V3consultants.com

# GLENWOOD MEADOWS NO. 2

GLENWOOD SPRINGS COLORADO

SEAL:

SEAL

DRAWN BY:

CHECKED BY:

PROJ. MANAGER:

PROJ. NO.:

FILE NAME:

DATE:

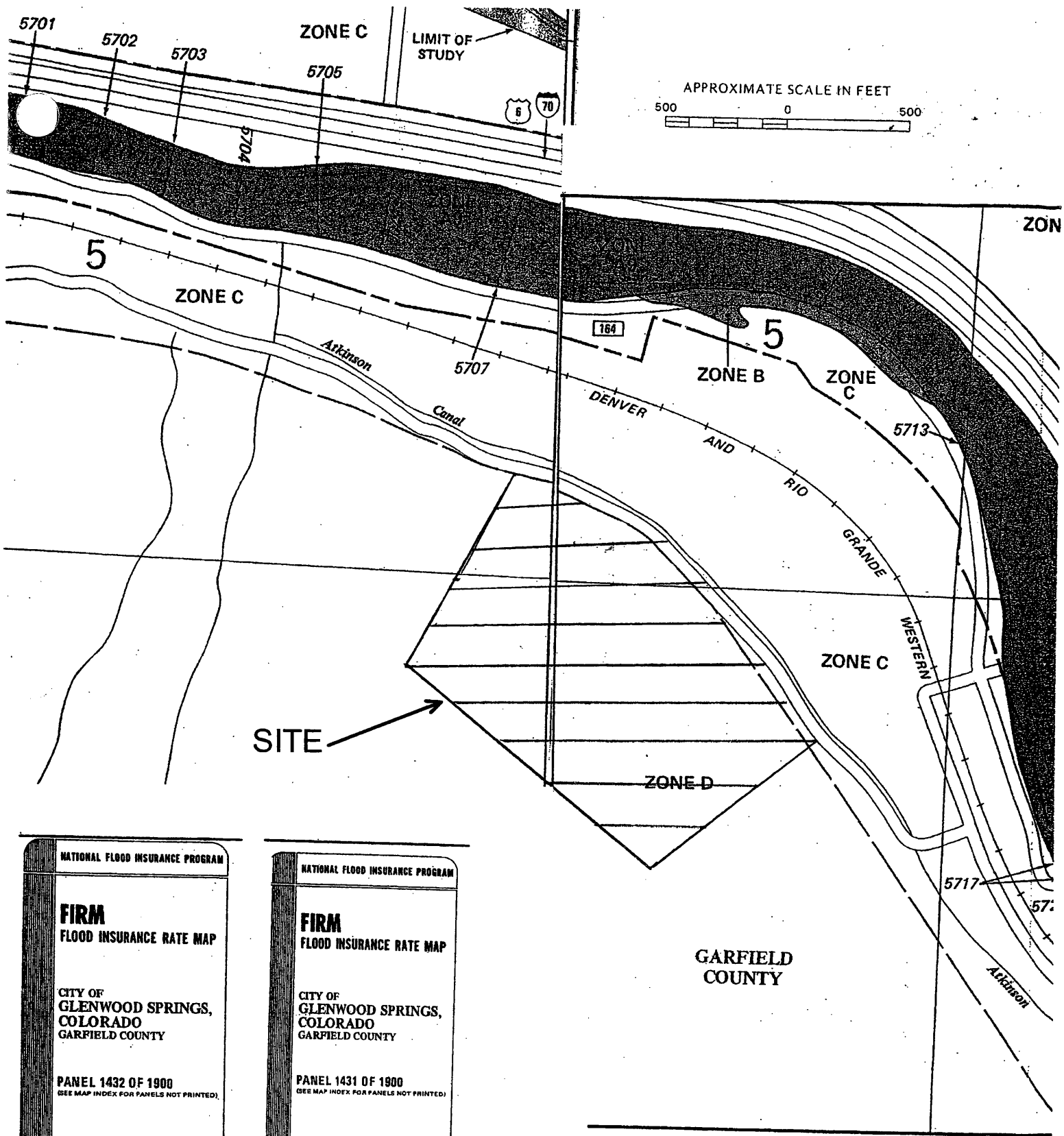
SCALE: 11 0001

DRAWING NO.

20F8

# **APPENDIX C**

## **FEMA MAP**



NATIONAL FLOOD INSURANCE PROGRAM

**FIRM**  
FLOOD INSURANCE RATE MAP

CITY OF  
GLENWOOD SPRINGS,  
COLORADO  
GARFIELD COUNTY

PANEL 1432 OF 1900  
(SEE MAP INDEX FOR PANELS NOT PRINTED)

COMMUNITY-PANEL NUMBER  
080071 1432 C

MAP REVISED:  
OCTOBER 15, 1985

Federal Emergency Management Agency

NATIONAL FLOOD INSURANCE PROGRAM

**FIRM**  
FLOOD INSURANCE RATE MAP

CITY OF  
GLENWOOD SPRINGS,  
COLORADO  
GARFIELD COUNTY

PANEL 1431 OF 1900  
(SEE MAP INDEX FOR PANELS NOT PRINTED)

COMMUNITY-PANEL NUMBER  
080071 1431 C

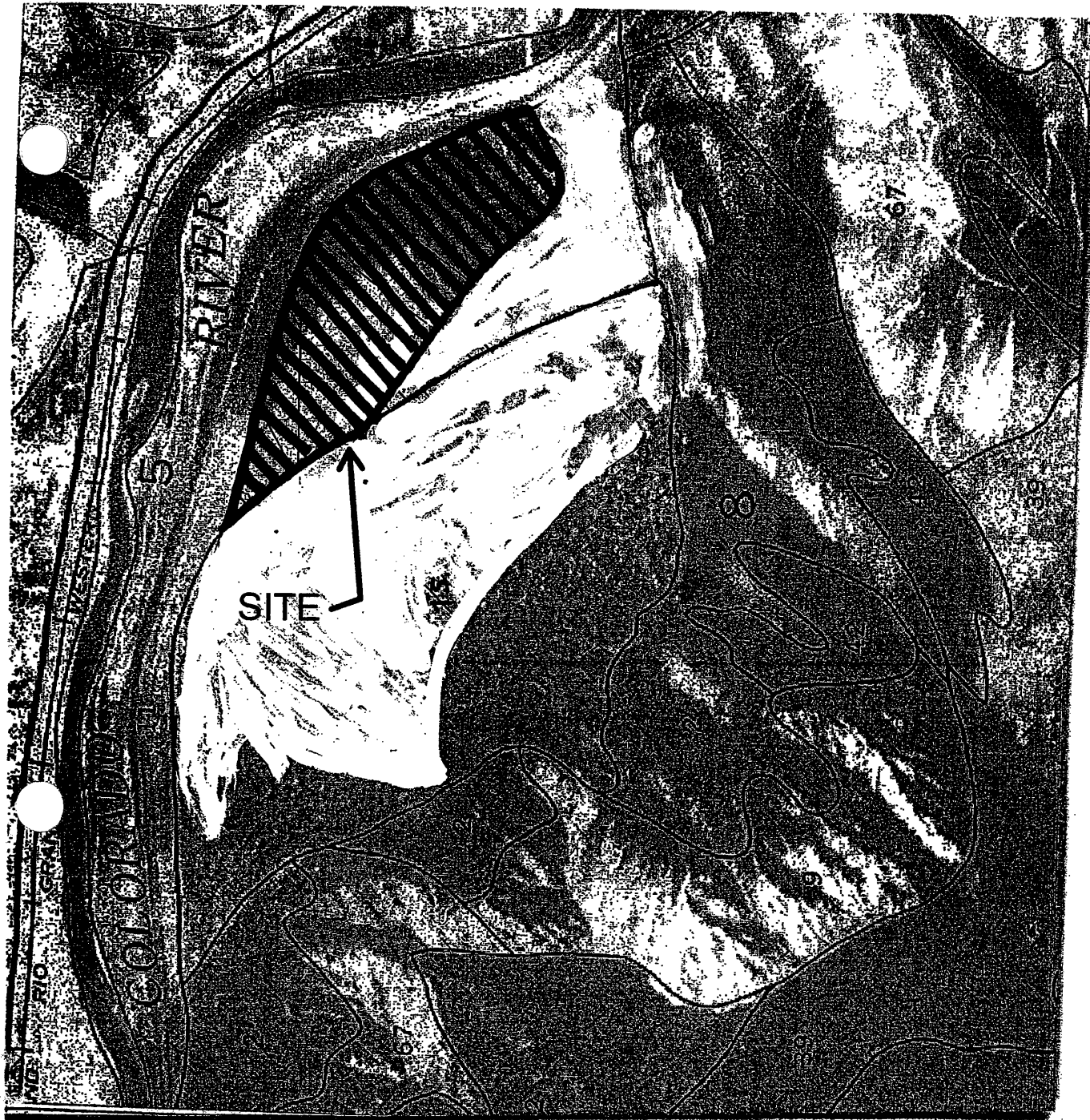
MAP REVISED:  
OCTOBER 15, 1985

Federal Emergency Management Agency

# FEMA MAP

# **APPENDIX D**

## **SOIL MAP**



# SCS SOIL MAP

## APPENDIX D



# **APPENDIX E**

## **PERCENT IMPERVIOUS CALCULATIONS**

GLENWOOD MEADOWS  
PERCENT IMPERVIOUS CALCULATIONS

| TYPE OF AREA | PERCENT IMP. |
|--------------|--------------|
| PAVEMENT     | 100          |
| ROOF         | 90           |
| LANDSCAPE    | 5            |

MAJOR BASIN A

| SUBBASIN NAME | TOTAL AREA<br>acres | PAVEMENT AREA<br>sq-ft | PAVEMENT AREA<br>acres | ROOF AREA<br>sq-ft | ROOF AREA<br>acres | LANDSCAPE AREA<br>sq-ft | LANDSCAPE AREA<br>acres | PERCENT IMP.<br>% |
|---------------|---------------------|------------------------|------------------------|--------------------|--------------------|-------------------------|-------------------------|-------------------|
| A1            | 0.95                | 11958                  | 0.275                  | 0                  | 0.000              | 29424                   | 0.675                   | 32.5              |
| A2            | 0.33                | 11755                  | 0.270                  | 0                  | 0.000              | 2620                    | 0.060                   | 82.7              |
| A3            | 0.38                | 9540                   | 0.219                  | 0                  | 0.000              | 7081                    | 0.163                   | 59.5              |
| A4            | 2.15                | 14013                  | 0.322                  | 0                  | 0.000              | 79641                   | 1.828                   | 19.2              |
| A5            | 0.27                | 0                      | 0.000                  | 11806              | 0.271              | 0                       | 0.000                   | 90.0              |
| A6            | 0.27                | 0                      | 0.000                  | 11806              | 0.271              | 0                       | 0.000                   | 90.0              |
| A7            | 0.27                | 0                      | 0.000                  | 11806              | 0.271              | 0                       | 0.000                   | 90.0              |
| A8            | 0.27                | 0                      | 0.000                  | 11806              | 0.271              | 0                       | 0.000                   | 90.0              |
| A9            | 0.27                | 0                      | 0.000                  | 11806              | 0.271              | 0                       | 0.000                   | 90.0              |
| A10           | 0.27                | 0                      | 0.000                  | 11806              | 0.271              | 0                       | 0.000                   | 90.0              |
| A11           | 0.27                | 0                      | 0.000                  | 11806              | 0.271              | 0                       | 0.000                   | 90.0              |
| A12           | 0.27                | 0                      | 0.000                  | 11806              | 0.271              | 0                       | 0.000                   | 90.0              |
| A13           | 0.27                | 0                      | 0.000                  | 11806              | 0.271              | 0                       | 0.000                   | 90.0              |
| A14           | 0.27                | 0                      | 0.000                  | 11806              | 0.271              | 0                       | 0.000                   | 90.0              |
| A15           | 0.32                | 12384                  | 0.284                  | 0                  | 0.000              | 1673                    | 0.038                   | 88.7              |
| A16           | 0.40                | 5035                   | 0.116                  | 0                  | 0.000              | 12389                   | 0.284                   | 32.5              |
| A17           | 0.44                | 11171                  | 0.256                  | 0                  | 0.000              | 7995                    | 0.184                   | 60.4              |
| A18           | 0.46                | 18038                  | 0.414                  | 0                  | 0.000              | 2000                    | 0.046                   | 90.5              |
| A19           | 1.15                | 36963                  | 0.849                  | 0                  | 0.000              | 13131                   | 0.301                   | 75.1              |
| A20           | 0.49                | 15771                  | 0.362                  | 0                  | 0.000              | 5573                    | 0.128                   | 75.2              |
| A21           | 2.71                | 104252                 | 2.393                  | 0                  | 0.000              | 13796                   | 0.317                   | 88.9              |
| A22           | 0.67                | 24864                  | 0.571                  | 0                  | 0.000              | 4321                    | 0.099                   | 85.9              |
| A23           | 0.27                | 0                      | 0.000                  | 11761              | 0.270              | 0                       | 0.000                   | 90.0              |
| A24           | 0.75                | 28722                  | 0.659                  | 0                  | 0.000              | 3948                    | 0.091                   | 88.5              |
| A25           | 0.92                | 15442                  | 0.355                  | 0                  | 0.000              | 24633                   | 0.565                   | 41.6              |
| A26           | 0.50                | 17642                  | 0.405                  | 0                  | 0.000              | 6362                    | 0.095                   | 82.0              |
| A27           | 0.40                | 16858                  | 0.387                  | 0                  | 0.000              | 566                     | 0.013                   | 96.9              |
| A28           | 0.77                | 2609                   | 0.060                  | 0                  | 0.000              | 30932                   | 0.710                   | 12.4              |
| A29           | 0.16                | 6044                   | 0.139                  | 0                  | 0.000              | 926                     | 0.021                   | 87.4              |
| A30           | 0.24                | 10233                  | 0.235                  | 0                  | 0.000              | 221                     | 0.005                   | 98.0              |
| A31           | 0.44                | 15525                  | 0.356                  | 0                  | 0.000              | 3642                    | 0.084                   | 82.0              |
| A32           | 0.35                | 11743                  | 0.270                  | 0                  | 0.000              | 3503                    | 0.080                   | 78.2              |
| A33           | 0.95                | 31150                  | 0.715                  | 0                  | 0.000              | 10232                   | 0.235                   | 76.5              |
| A34           | 0.32                | 11989                  | 0.275                  | 0                  | 0.000              | 1950                    | 0.045                   | 86.7              |

| SUBBASIN NAME | TOTAL AREA<br>acres | PAVEMENT AREA<br>sq-ft | PAVEMENT AREA<br>acres | ROOF AREA<br>sq-ft | ROOF AREA<br>acres | LANDSCAPE AREA<br>sq-ft | LANDSCAPE AREA<br>acres | PERCENT IMP.<br>% |
|---------------|---------------------|------------------------|------------------------|--------------------|--------------------|-------------------------|-------------------------|-------------------|
| A35           | 1.81                | 70722                  | 1.624                  | 0                  | 0.000              | 8122                    | 0.186                   | 90.2              |
| A36           | 0.87                | 36205                  | 0.831                  | 0                  | 0.000              | 1692                    | 0.039                   | 95.8              |
| A37           | 0.66                | 22095                  | 0.507                  | 0                  | 0.000              | 6655                    | 0.153                   | 78.0              |
| A38           | 0.83                | 5215                   | 0.089                  | 0                  | 0.000              | 32278                   | 0.741                   | 15.2              |
| A39           | 0.16                | 0                      | 0.000                  | 6970               | 0.160              | 0                       | 0.000                   | 90.0              |
| A40           | 0.23                | 0                      | 0.000                  | 10019              | 0.230              | 0                       | 0.000                   | 90.0              |
| A41           | 0.25                | 8821                   | 0.203                  | 0                  | 0.000              | 2069                    | 0.048                   | 82.0              |
| A42           | 0.31                | 10938                  | 0.251                  | 0                  | 0.000              | 2566                    | 0.059                   | 82.0              |
| A43           | 0.65                | 25258                  | 0.580                  | 0                  | 0.000              | 3000                    | 0.069                   | 89.7              |
| A44           | 0.14                | 5954                   | 0.137                  | 0                  | 0.000              | 0                       | 0.000                   | 100.0             |
| A45           | 0.39                | 0                      | 0.000                  | 0                  | 0.000              | 16988                   | 0.390                   | 5.0               |
| A46           | 0.17                | 0                      | 0.000                  | 0                  | 0.000              | 7405                    | 0.170                   | 5.0               |
| <b>A</b>      | <b>25.70</b>        |                        | <b>14.41</b>           |                    | <b>3.37</b>        |                         | <b>7.92</b>             | <b>69.4</b>       |

**MAJOR BASIN B**

| SUBBASIN NAME | TOTAL AREA<br>acres | PAVEMENT AREA<br>sq-ft | PAVEMENT AREA<br>acres | ROOF AREA<br>sq-ft | ROOF AREA<br>acres | LANDSCAPE AREA<br>sq-ft | LANDSCAPE AREA<br>acres | PERCENT IMP.<br>% |
|---------------|---------------------|------------------------|------------------------|--------------------|--------------------|-------------------------|-------------------------|-------------------|
| B1            | 1.25                | 52879                  | 1.214                  | 0                  | 0.000              | 1571                    | 0.036                   | 97.3              |
| B2            | 0.47                | 19473                  | 0.447                  | 0                  | 0.000              | 1000                    | 0.023                   | 95.4              |
| B3            | 0.32                | 13755                  | 0.316                  | 0                  | 0.000              | 184                     | 0.004                   | 98.7              |
| B4            | 0.38                | 15851                  | 0.364                  | 0                  | 0.000              | 702                     | 0.016                   | 96.0              |
| B5            | 2.34                | 10779                  | 0.247                  | 0                  | 0.000              | 91151                   | 2.093                   | 15.0              |
| B6            | 0.30                | 0                      | 0.000                  | 0                  | 0.000              | 13068                   | 0.300                   | 5.0               |
| B7            | 0.59                | 20651                  | 0.474                  | 0                  | 0.000              | 5049                    | 0.116                   | 81.3              |
| B8            | 0.49                | 16217                  | 0.372                  | 0                  | 0.000              | 5127                    | 0.118                   | 77.2              |
| B9            | 0.39                | 13604                  | 0.312                  | 0                  | 0.000              | 3384                    | 0.078                   | 81.1              |
| B10           | 0.10                | 0                      | 0.000                  | 4356               | 0.100              | 0                       | 0.000                   | 90.0              |
| B11           | 0.11                | 0                      | 0.000                  | 4792               | 0.110              | 0                       | 0.000                   | 90.0              |
| B12           | 0.40                | 17085                  | 0.392                  | 0                  | 0.000              | 339                     | 0.008                   | 98.2              |
| B13           | 0.35                | 14909                  | 0.342                  | 0                  | 0.000              | 337                     | 0.008                   | 97.9              |
| B14           | 0.10                | 0                      | 0.000                  | 4356               | 0.100              | 0                       | 0.000                   | 90.0              |
| B15           | 0.12                | 0                      | 0.000                  | 5227               | 0.120              | 0                       | 0.000                   | 90.0              |
| B16           | 0.71                | 29804                  | 0.684                  | 0                  | 0.000              | 1124                    | 0.026                   | 96.5              |
| B17           | 1.70                | 67431                  | 1.548                  | 0                  | 0.000              | 6621                    | 0.152                   | 91.5              |
| B18           | 1.16                | 47710                  | 1.095                  | 0                  | 0.000              | 2820                    | 0.065                   | 94.7              |
| B19           | 0.77                | 29380                  | 0.674                  | 0                  | 0.000              | 4161                    | 0.096                   | 88.2              |
| B20           | 0.12                | 0                      | 0.000                  | 5227               | 0.120              | 0                       | 0.000                   | 90.0              |
| B21           | 0.12                | 0                      | 0.000                  | 5227               | 0.120              | 0                       | 0.000                   | 90.0              |
| B22           | 0.70                | 28819                  | 0.662                  | 0                  | 0.000              | 1673                    | 0.038                   | 94.8              |
| B23           | 0.63                | 25770                  | 0.592                  | 0                  | 0.000              | 1673                    | 0.038                   | 94.2              |
| B24           | 0.12                | 0                      | 0.000                  | 5227               | 0.120              | 0                       | 0.000                   | 90.0              |
| B25           | 0.12                | 0                      | 0.000                  | 5227               | 0.120              | 0                       | 0.000                   | 90.0              |
| B26           | 0.08                | 3329                   | 0.076                  | 0                  | 0.000              | 156                     | 0.004                   | 95.7              |
| B27           | 2.12                | 83894                  | 1.926                  | 0                  | 0.000              | 8453                    | 0.194                   | 91.3              |

| SUBBASIN NAME | TOTAL AREA<br>acres | PAVEMENT AREA<br>sq-ft | PAVEMENT AREA<br>acres | ROOF AREA<br>sq-ft | ROOF AREA<br>acres | LANDSCAPE AREA<br>sq-ft | LANDSCAPE AREA<br>acres | PERCENT IMP.<br>% |
|---------------|---------------------|------------------------|------------------------|--------------------|--------------------|-------------------------|-------------------------|-------------------|
| B28           | 0.03                | 0                      | 0.000                  | 1307               | 0.030              | 0                       | 0.000                   | 90.0              |
| B29           | 0.58                | 0                      | 0.000                  | 25265              | 0.580              | 0                       | 0.000                   | 90.0              |
| B30           | 0.58                | 0                      | 0.000                  | 25265              | 0.580              | 0                       | 0.000                   | 90.0              |
| B31           | 1.15                | 0                      | 0.000                  | 50094              | 1.150              | 0                       | 0.000                   | 90.0              |
| B32           | 0.02                | 0                      | 0.000                  | 871                | 0.020              | 0                       | 0.000                   | 90.0              |
| B33           | 0.58                | 0                      | 0.000                  | 25265              | 0.580              | 0                       | 0.000                   | 90.0              |
| B34           | 0.05                | 1285                   | 0.029                  | 0                  | 0.000              | 1081                    | 0.025                   | 56.6              |
| B35           | 1.07                | 28493                  | 0.654                  | 0                  | 0.000              | 18116                   | 0.416                   | 63.1              |
| B36           | 0.21                | 0                      | 0.000                  | 9148               | 0.210              | 0                       | 0.000                   | 90.0              |
| B37           | 0.72                | 0                      | 0.000                  | 31363              | 0.720              | 0                       | 0.000                   | 90.0              |
| B38           | 0.53                | 13549                  | 0.311                  | 0                  | 0.000              | 9538                    | 0.219                   | 60.8              |
| B39           | 0.06                | 1453                   | 0.033                  | 0                  | 0.000              | 1025                    | 0.024                   | 60.7              |
| B40           | 0.94                | 0                      | 0.000                  | 0                  | 0.000              | 1025                    | 0.940                   | 5.0               |
| B41           | 1.22                | 0                      | 0.000                  | 0                  | 0.000              | 1025                    | 1.220                   | 5.0               |
| <b>B</b>      | <b>23.80</b>        |                        | <b>12.77</b>           |                    | <b>4.78</b>        |                         | <b>6.25</b>             | <b>73.0</b>       |

**MAJOR BASIN C**

| SUBBASIN NAME | TOTAL AREA<br>acres | PAVEMENT AREA<br>sq-ft | PAVEMENT AREA<br>acres | ROOF AREA<br>sq-ft | ROOF AREA<br>acres | LANDSCAPE AREA<br>sq-ft | LANDSCAPE AREA<br>acres | PERCENT IMP.<br>% |
|---------------|---------------------|------------------------|------------------------|--------------------|--------------------|-------------------------|-------------------------|-------------------|
| C1            | 1.39                | 59634                  | 1.369                  | 0                  | 0.000              | 914                     | 0.021                   | 98.6              |
| C2            | 0.47                | 0                      | 0.000                  | 20473              | 0.470              | 0                       | 0.000                   | 90.0              |
| C3            | 0.26                | 9698                   | 0.223                  | 0                  | 0.000              | 1628                    | 0.037                   | 86.3              |
| C4            | 0.37                | 12153                  | 0.279                  | 0                  | 0.000              | 3984                    | 0.091                   | 76.6              |
| C5            | 0.18                | 6365                   | 0.146                  | 0                  | 0.000              | 1476                    | 0.034                   | 82.1              |
| C6            | 0.15                | 5422                   | 0.124                  | 0                  | 0.000              | 1112                    | 0.026                   | 83.8              |
| C7            | 1.66                | 66094                  | 1.517                  | 0                  | 0.000              | 6216                    | 0.143                   | 91.8              |
| C8            | 0.77                | 32023                  | 0.735                  | 0                  | 0.000              | 1518                    | 0.035                   | 95.7              |
| C9            | 0.42                | 12888                  | 0.296                  | 0                  | 0.000              | 5407                    | 0.124                   | 71.9              |
| C10           | 0.51                | 14715                  | 0.338                  | 0                  | 0.000              | 7501                    | 0.172                   | 67.9              |
| C11           | 0.39                | 15516                  | 0.356                  | 0                  | 0.000              | 1472                    | 0.034                   | 91.8              |
| C12           | 0.55                | 0                      | 0.000                  | 23958              | 0.550              | 0                       | 0.000                   | 90.0              |
| C13           | 0.09                | 2960                   | 0.068                  | 0                  | 0.000              | 960                     | 0.022                   | 76.7              |
| C14           | 0.15                | 5374                   | 0.123                  | 0                  | 0.000              | 1160                    | 0.027                   | 83.1              |
| C15           | 0.68                | 22764                  | 0.523                  | 0                  | 0.000              | 6857                    | 0.157                   | 78.0              |
| C16           | 1.17                | 46697                  | 1.072                  | 0                  | 0.000              | 4268                    | 0.098                   | 92.0              |
| C17           | 0.48                | 20652                  | 0.474                  | 0                  | 0.000              | 257                     | 0.006                   | 98.8              |
| C18           | 0.28                | 11060                  | 0.254                  | 0                  | 0.000              | 1137                    | 0.026                   | 91.1              |
| C19           | 6.24                | 246985                 | 5.670                  | 0                  | 0.000              | 24829                   | 0.570                   | 91.3              |
| C20           | 0.21                | 0                      | 0.000                  | 9148               | 0.210              | 0                       | 0.000                   | 90.0              |
| C21           | 0.15                | 0                      | 0.000                  | 6534               | 0.150              | 0                       | 0.000                   | 90.0              |
| <b>C</b>      | <b>16.57</b>        |                        | <b>13.57</b>           |                    | <b>1.38</b>        |                         | <b>1.62</b>             | <b>89.9</b>       |

**MAJOR BASIN D**

| SUBBASIN NAME | TOTAL AREA<br>acres | PAVEMENT AREA<br>sq-ft | PAVEMENT AREA<br>acres | ROOF AREA<br>sq-ft | ROOF AREA<br>acres | LANDSCAPE AREA<br>sq-ft | LANDSCAPE AREA<br>acres | PERCENT IMP.<br>% |
|---------------|---------------------|------------------------|------------------------|--------------------|--------------------|-------------------------|-------------------------|-------------------|
| SUBBASIN NAME | TOTAL AREA<br>acres | PAVEMENT AREA<br>sq-ft | PAVEMENT AREA<br>acres | ROOF AREA<br>sq-ft | ROOF AREA<br>acres | LANDSCAPE AREA<br>sq-ft | LANDSCAPE AREA<br>acres | PERCENT IMP.<br>% |
| D1            | 0.51                | 7318                   | 0.168                  | 0                  | 0.000              | 14898                   | 0.342                   | 36.3              |
| D             | 0.51                |                        | 0.17                   |                    | 0.00               |                         | 0.34                    |                   |

MAJOR BASIN E

| SUBBASIN NAME | TOTAL AREA<br>acres | PAVEMENT AREA<br>sq-ft | PAVEMENT AREA<br>acres | ROOF AREA<br>sq-ft | ROOF AREA<br>acres | LANDSCAPE AREA<br>sq-ft | LANDSCAPE AREA<br>acres | PERCENT IMP.<br>% |
|---------------|---------------------|------------------------|------------------------|--------------------|--------------------|-------------------------|-------------------------|-------------------|
| E1            | 0.65                | 4577                   | 0.105                  | 0                  | 0.000              | 23737                   | 0.545                   | 20.4              |
| E             | 0.65                |                        | 0.11                   |                    | 0.00               |                         | 0.54                    |                   |

MAJOR BASIN F

| SUBBASIN NAME | TOTAL AREA<br>acres | PAVEMENT AREA<br>sq-ft | PAVEMENT AREA<br>acres | ROOF AREA<br>sq-ft | ROOF AREA<br>acres | LANDSCAPE AREA<br>sq-ft | LANDSCAPE AREA<br>acres | PERCENT IMP.<br>% |
|---------------|---------------------|------------------------|------------------------|--------------------|--------------------|-------------------------|-------------------------|-------------------|
| F1            | 1.07                | 27318                  | 0.627                  | 0                  | 0.000              | 19291                   | 0.443                   | 60.7              |
| F             | 1.07                |                        | 0.63                   |                    | 0.00               |                         | 0.44                    |                   |

MAJOR BASIN G

| SUBBASIN NAME | TOTAL AREA<br>acres | PAVEMENT AREA<br>sq-ft | PAVEMENT AREA<br>acres | ROOF AREA<br>sq-ft | ROOF AREA<br>acres | LANDSCAPE AREA<br>sq-ft | LANDSCAPE AREA<br>acres | PERCENT IMP.<br>% |
|---------------|---------------------|------------------------|------------------------|--------------------|--------------------|-------------------------|-------------------------|-------------------|
| G1            | 6.55                | 259182                 | 5.950                  | 0                  | 0.000              | 26136                   | 0.600                   | 91.3              |
| G             | 6.55                |                        | 5.95                   |                    | 0.00               |                         | 0.60                    |                   |

OFF-SITE BASINS\*

| SUBBASIN NAME | TOTAL AREA<br>acres | PAVEMENT AREA<br>sq-ft | PAVEMENT AREA<br>acres | ROOF AREA<br>sq-ft | ROOF AREA<br>acres | LANDSCAPE AREA<br>sq-ft | LANDSCAPE AREA<br>acres | PERCENT IMP.<br>% |
|---------------|---------------------|------------------------|------------------------|--------------------|--------------------|-------------------------|-------------------------|-------------------|
| OS1           | 3.77                |                        |                        |                    |                    |                         |                         | 5.0               |
| OS2           | 8.18                |                        |                        |                    |                    |                         |                         | 65.0              |
| OS3           | 3.00                |                        |                        |                    |                    |                         |                         | 65.0              |
| OS4           | 5.23                |                        |                        |                    |                    |                         |                         | 65.0              |
| OS5           | 1.58                |                        |                        |                    |                    |                         |                         | 85.0              |
| OS6           | 10.02               |                        |                        |                    |                    |                         |                         | 65.0              |
| OS7           | 1.31                |                        |                        |                    |                    |                         |                         | 85.0              |
| OS8           | 8.78                |                        |                        |                    |                    |                         |                         | 65.0              |

\*NOTE: Percent Impervious for Off-Site Basins OS1-OS8 is estimated for future developed open space, commercial and residential areas.

5.0% = Open Space  
65.0% = Residential  
85.0% = Commercial

## **APPENDIX F**

# **WIEGHTED RUNOFF COEFFICIENT CALCULATIONS**

GLENWOOD MEADOWS  
2, 5, 25 AND 100 YEAR WEIGHTED RUNOFF COEFFICIENTS

| TYPE OF AREA | 2-YR "C" FACTOR | 5-YR "C" FACTOR | 25-YR "C" FACTOR | 100-YR "C" FACTOR |
|--------------|-----------------|-----------------|------------------|-------------------|
| PAVEMENT     | 0.89            | 0.90            | 0.94             | 0.96              |
| ROOF         | 0.71            | 0.73            | 0.78             | 0.81              |
| LANDSCAPE    | 0.04            | 0.10            | 0.28             | 0.38              |

MAJOR BASIN A

| SUBBASIN NAME | TOTAL AREA<br>acres | PAVEMENT AREA<br>acres | ROOF AREA<br>acres | LANDSCAPE AREA<br>acres | 2-YR RUNOFF<br>COEFFICIENT | 5-YR RUNOFF<br>COEFFICIENT | 25-YR RUNOFF<br>COEFFICIENT | 100-YR RUNOFF<br>COEFFICIENT |
|---------------|---------------------|------------------------|--------------------|-------------------------|----------------------------|----------------------------|-----------------------------|------------------------------|
| A1            | 0.95                | 0.27                   | 0.00               | 0.68                    | 0.29                       | 0.33                       | 0.47                        | 0.55                         |
| A2            | 0.33                | 0.27                   | 0.00               | 0.06                    | 0.74                       | 0.75                       | 0.82                        | 0.85                         |
| A3            | 0.38                | 0.22                   | 0.00               | 0.16                    | 0.53                       | 0.56                       | 0.66                        | 0.71                         |
| A4            | 2.15                | 0.32                   | 0.00               | 1.83                    | 0.17                       | 0.22                       | 0.38                        | 0.47                         |
| A5            | 0.27                | 0.00                   | 0.27               | 0.00                    | 0.71                       | 0.73                       | 0.78                        | 0.81                         |
| A6            | 0.27                | 0.00                   | 0.27               | 0.00                    | 0.71                       | 0.73                       | 0.78                        | 0.81                         |
| A7            | 0.27                | 0.00                   | 0.27               | 0.00                    | 0.71                       | 0.73                       | 0.78                        | 0.81                         |
| A8            | 0.27                | 0.00                   | 0.27               | 0.00                    | 0.71                       | 0.73                       | 0.78                        | 0.81                         |
| A9            | 0.27                | 0.00                   | 0.27               | 0.00                    | 0.71                       | 0.73                       | 0.78                        | 0.81                         |
| A10           | 0.27                | 0.00                   | 0.27               | 0.00                    | 0.71                       | 0.73                       | 0.78                        | 0.81                         |
| A11           | 0.27                | 0.00                   | 0.27               | 0.00                    | 0.71                       | 0.73                       | 0.78                        | 0.81                         |
| A12           | 0.27                | 0.00                   | 0.27               | 0.00                    | 0.71                       | 0.73                       | 0.78                        | 0.81                         |
| A13           | 0.27                | 0.00                   | 0.27               | 0.00                    | 0.71                       | 0.73                       | 0.78                        | 0.81                         |
| A14           | 0.27                | 0.00                   | 0.27               | 0.00                    | 0.71                       | 0.73                       | 0.78                        | 0.81                         |
| A15           | 0.32                | 0.28                   | 0.00               | 0.04                    | 0.79                       | 0.80                       | 0.86                        | 0.89                         |
| A16           | 0.40                | 0.12                   | 0.00               | 0.28                    | 0.29                       | 0.33                       | 0.47                        | 0.55                         |
| A17           | 0.44                | 0.26                   | 0.00               | 0.18                    | 0.54                       | 0.57                       | 0.66                        | 0.72                         |
| A18           | 0.46                | 0.41                   | 0.00               | 0.05                    | 0.81                       | 0.82                       | 0.87                        | 0.90                         |
| A19           | 1.15                | 0.85                   | 0.00               | 0.30                    | 0.67                       | 0.69                       | 0.77                        | 0.81                         |
| A20           | 0.49                | 0.36                   | 0.00               | 0.13                    | 0.67                       | 0.69                       | 0.77                        | 0.81                         |
| A21           | 2.71                | 2.39                   | 0.00               | 0.32                    | 0.79                       | 0.81                       | 0.86                        | 0.89                         |
| A22           | 0.67                | 0.57                   | 0.00               | 0.10                    | 0.76                       | 0.78                       | 0.84                        | 0.87                         |
| A23           | 0.27                | 0.00                   | 0.27               | 0.00                    | 0.71                       | 0.73                       | 0.78                        | 0.81                         |
| A24           | 0.75                | 0.66                   | 0.00               | 0.09                    | 0.79                       | 0.80                       | 0.86                        | 0.89                         |
| A25           | 0.92                | 0.35                   | 0.00               | 0.57                    | 0.37                       | 0.41                       | 0.53                        | 0.60                         |
| A26           | 0.50                | 0.41                   | 0.00               | 0.10                    | 0.73                       | 0.75                       | 0.81                        | 0.85                         |
| A27           | 0.40                | 0.39                   | 0.00               | 0.01                    | 0.86                       | 0.87                       | 0.92                        | 0.94                         |
| A28           | 0.77                | 0.06                   | 0.00               | 0.71                    | 0.11                       | 0.16                       | 0.33                        | 0.43                         |
| A29           | 0.16                | 0.14                   | 0.00               | 0.02                    | 0.78                       | 0.79                       | 0.85                        | 0.88                         |
| A30           | 0.24                | 0.23                   | 0.00               | 0.01                    | 0.87                       | 0.88                       | 0.93                        | 0.95                         |
| A31           | 0.44                | 0.36                   | 0.00               | 0.08                    | 0.73                       | 0.75                       | 0.81                        | 0.85                         |
| A32           | 0.35                | 0.27                   | 0.00               | 0.08                    | 0.69                       | 0.72                       | 0.79                        | 0.83                         |
| A33           | 0.95                | 0.72                   | 0.00               | 0.23                    | 0.68                       | 0.70                       | 0.78                        | 0.82                         |
| A34           | 0.32                | 0.28                   | 0.00               | 0.04                    | 0.77                       | 0.79                       | 0.85                        | 0.88                         |
| A35           | 1.81                | 1.62                   | 0.00               | 0.19                    | 0.80                       | 0.82                       | 0.87                        | 0.90                         |
| A36           | 0.87                | 0.83                   | 0.00               | 0.04                    | 0.85                       | 0.86                       | 0.91                        | 0.93                         |
| A37           | 0.66                | 0.51                   | 0.00               | 0.15                    | 0.69                       | 0.71                       | 0.79                        | 0.83                         |
| A38           | 0.83                | 0.09                   | 0.00               | 0.74                    | 0.13                       | 0.19                       | 0.35                        | 0.44                         |
| A39           | 0.16                | 0.00                   | 0.16               | 0.00                    | 0.71                       | 0.73                       | 0.78                        | 0.81                         |
| A40           | 0.23                | 0.00                   | 0.23               | 0.00                    | 0.71                       | 0.73                       | 0.78                        | 0.81                         |
| A41           | 0.25                | 0.20                   | 0.00               | 0.05                    | 0.73                       | 0.75                       | 0.81                        | 0.85                         |
| A42           | 0.31                | 0.25                   | 0.00               | 0.06                    | 0.73                       | 0.75                       | 0.81                        | 0.85                         |
| A43           | 0.65                | 0.58                   | 0.00               | 0.07                    | 0.80                       | 0.81                       | 0.87                        | 0.90                         |
| A44           | 0.14                | 0.14                   | 0.00               | 0.00                    | 0.89                       | 0.90                       | 0.94                        | 0.96                         |
| A45           | 0.39                | 0.00                   | 0.00               | 0.39                    | 0.04                       | 0.10                       | 0.28                        | 0.38                         |

|     |       |       |      |      |      |      |      |      |
|-----|-------|-------|------|------|------|------|------|------|
| A46 | 0.17  | 0.00  | 0.00 | 0.17 | 0.04 | 0.10 | 0.28 | 0.38 |
| A   | 25.70 | 14.41 | 3.37 | 7.92 | 0.60 | 0.63 | 0.72 | 0.76 |

MAJOR BASIN B

| SUBBASIN NAME | TOTAL AREA<br>acres | PAVEMENT AREA<br>acres | ROOF AREA<br>acres | LANDSCAPE AREA<br>acres | 2-YR RUNOFF<br>COEFFICIENT | 5-YR RUNOFF<br>COEFFICIENT | 25-YR RUNOFF<br>COEFFICIENT | 100-YR RUNOFF<br>COEFFICIENT |
|---------------|---------------------|------------------------|--------------------|-------------------------|----------------------------|----------------------------|-----------------------------|------------------------------|
| B1            | 1.25                | 1.21                   | 0.00               | 0.04                    | 0.87                       | 0.88                       | 0.92                        | 0.94                         |
| B2            | 0.47                | 0.45                   | 0.00               | 0.02                    | 0.85                       | 0.86                       | 0.91                        | 0.93                         |
| B3            | 0.32                | 0.32                   | 0.00               | 0.00                    | 0.88                       | 0.89                       | 0.93                        | 0.95                         |
| B4            | 0.38                | 0.36                   | 0.00               | 0.02                    | 0.85                       | 0.87                       | 0.91                        | 0.94                         |
| B5            | 2.34                | 0.25                   | 0.00               | 2.09                    | 0.13                       | 0.18                       | 0.35                        | 0.44                         |
| B6            | 0.30                | 0.00                   | 0.00               | 0.30                    | 0.74                       | 0.78                       | 0.81                        | 0.88                         |
| B7            | 0.59                | 0.47                   | 0.00               | 0.12                    | 0.72                       | 0.74                       | 0.81                        | 0.85                         |
| B8            | 0.49                | 0.37                   | 0.00               | 0.12                    | 0.69                       | 0.71                       | 0.78                        | 0.82                         |
| B9            | 0.39                | 0.31                   | 0.00               | 0.08                    | 0.72                       | 0.74                       | 0.81                        | 0.84                         |
| B10           | 0.10                | 0.00                   | 0.10               | 0.00                    | 0.71                       | 0.73                       | 0.78                        | 0.81                         |
| B11           | 0.11                | 0.00                   | 0.11               | 0.00                    | 0.71                       | 0.73                       | 0.78                        | 0.81                         |
| B12           | 0.40                | 0.39                   | 0.00               | 0.01                    | 0.87                       | 0.88                       | 0.93                        | 0.95                         |
| B13           | 0.35                | 0.34                   | 0.00               | 0.01                    | 0.87                       | 0.88                       | 0.93                        | 0.95                         |
| B14           | 0.10                | 0.00                   | 0.10               | 0.00                    | 0.71                       | 0.73                       | 0.78                        | 0.81                         |
| B15           | 0.12                | 0.00                   | 0.12               | 0.00                    | 0.71                       | 0.73                       | 0.78                        | 0.81                         |
| B16           | 0.71                | 0.68                   | 0.00               | 0.03                    | 0.86                       | 0.87                       | 0.92                        | 0.94                         |
| B17           | 1.70                | 1.55                   | 0.00               | 0.15                    | 0.81                       | 0.83                       | 0.88                        | 0.91                         |
| B18           | 1.16                | 1.10                   | 0.00               | 0.06                    | 0.84                       | 0.86                       | 0.90                        | 0.93                         |
| B19           | 0.77                | 0.67                   | 0.00               | 0.10                    | 0.78                       | 0.80                       | 0.86                        | 0.89                         |
| B20           | 0.12                | 0.00                   | 0.12               | 0.00                    | 0.71                       | 0.73                       | 0.78                        | 0.81                         |
| B21           | 0.12                | 0.00                   | 0.12               | 0.00                    | 0.71                       | 0.73                       | 0.78                        | 0.81                         |
| B22           | 0.70                | 0.66                   | 0.00               | 0.04                    | 0.84                       | 0.86                       | 0.90                        | 0.93                         |
| B23           | 0.63                | 0.59                   | 0.00               | 0.04                    | 0.84                       | 0.85                       | 0.90                        | 0.92                         |
| B24           | 0.12                | 0.00                   | 0.12               | 0.00                    | 0.71                       | 0.73                       | 0.78                        | 0.81                         |
| B25           | 0.12                | 0.00                   | 0.12               | 0.00                    | 0.71                       | 0.73                       | 0.78                        | 0.81                         |
| B26           | 0.08                | 0.08                   | 0.00               | 0.00                    | 0.85                       | 0.86                       | 0.91                        | 0.93                         |
| B27           | 2.12                | 1.93                   | 0.00               | 0.19                    | 0.81                       | 0.83                       | 0.88                        | 0.91                         |
| B28           | 0.03                | 0.00                   | 0.03               | 0.00                    | 0.71                       | 0.73                       | 0.78                        | 0.81                         |
| B29           | 0.58                | 0.00                   | 0.58               | 0.00                    | 0.71                       | 0.73                       | 0.78                        | 0.81                         |
| B30           | 0.58                | 0.00                   | 0.58               | 0.00                    | 0.71                       | 0.73                       | 0.78                        | 0.81                         |
| B31           | 1.15                | 0.00                   | 1.15               | 0.00                    | 0.71                       | 0.73                       | 0.78                        | 0.81                         |
| B32           | 0.02                | 0.00                   | 0.02               | 0.00                    | 0.71                       | 0.73                       | 0.78                        | 0.81                         |
| B33           | 0.58                | 0.00                   | 0.58               | 0.00                    | 0.71                       | 0.73                       | 0.78                        | 0.81                         |
| B34           | 0.05                | 0.03                   | 0.00               | 0.02                    | 0.50                       | 0.53                       | 0.64                        | 0.70                         |
| B35           | 1.07                | 0.65                   | 0.00               | 0.42                    | 0.56                       | 0.59                       | 0.68                        | 0.73                         |
| B36           | 0.21                | 0.00                   | 0.21               | 0.00                    | 0.71                       | 0.73                       | 0.78                        | 0.81                         |
| B37           | 0.72                | 0.00                   | 0.72               | 0.00                    | 0.71                       | 0.73                       | 0.78                        | 0.81                         |
| B38           | 0.53                | 0.31                   | 0.00               | 0.22                    | 0.54                       | 0.57                       | 0.67                        | 0.72                         |
| B39           | 0.06                | 0.03                   | 0.00               | 0.02                    | 0.54                       | 0.57                       | 0.67                        | 0.72                         |
| B40           | 0.94                | 0.00                   | 0.00               | 0.94                    | 0.04                       | 0.10                       | 0.28                        | 0.38                         |
| B41           | 1.22                | 0.00                   | 0.00               | 1.22                    | 0.04                       | 0.10                       | 0.28                        | 0.38                         |
| B             | 23.80               | 12.77                  | 4.78               | 6.25                    | 0.63                       | 0.66                       | 0.73                        | 0.78                         |



MAJOR BASIN C

| SUBBASIN NAME | TOTAL AREA<br>acres | PAVEMENT AREA<br>acres | ROOF AREA<br>acres | LANDSCAPE AREA<br>acres | 2-YR RUNOFF<br>COEFFICIENT | 5-YR RUNOFF<br>COEFFICIENT | 25-YR RUNOFF<br>COEFFICIENT | 100-YR RUNOFF<br>COEFFICIENT |
|---------------|---------------------|------------------------|--------------------|-------------------------|----------------------------|----------------------------|-----------------------------|------------------------------|
| C1            | 1.39                | 1.37                   | 0.00               | 0.02                    | 0.88                       | 0.89                       | 0.93                        | 0.95                         |
| C2            | 0.47                | 0.00                   | 0.47               | 0.00                    | 0.71                       | 0.73                       | 0.78                        | 0.81                         |
| C3            | 0.26                | 0.22                   | 0.00               | 0.04                    | 0.77                       | 0.79                       | 0.85                        | 0.88                         |
| C4            | 0.37                | 0.28                   | 0.00               | 0.09                    | 0.68                       | 0.70                       | 0.78                        | 0.82                         |
| C5            | 0.18                | 0.15                   | 0.00               | 0.03                    | 0.73                       | 0.75                       | 0.82                        | 0.85                         |
| C6            | 0.15                | 0.12                   | 0.00               | 0.03                    | 0.75                       | 0.76                       | 0.83                        | 0.86                         |
| C7            | 1.66                | 1.52                   | 0.00               | 0.14                    | 0.82                       | 0.83                       | 0.88                        | 0.91                         |
| C8            | 0.77                | 0.74                   | 0.00               | 0.03                    | 0.85                       | 0.86                       | 0.91                        | 0.93                         |
| C9            | 0.42                | 0.30                   | 0.00               | 0.12                    | 0.64                       | 0.66                       | 0.74                        | 0.79                         |
| C10           | 0.51                | 0.34                   | 0.00               | 0.17                    | 0.60                       | 0.63                       | 0.72                        | 0.76                         |
| C11           | 0.39                | 0.36                   | 0.00               | 0.03                    | 0.82                       | 0.83                       | 0.88                        | 0.91                         |
| C12           | 0.55                | 0.00                   | 0.55               | 0.00                    | 0.71                       | 0.73                       | 0.78                        | 0.81                         |
| C13           | 0.09                | 0.07                   | 0.00               | 0.02                    | 0.68                       | 0.70                       | 0.78                        | 0.82                         |
| C14           | 0.15                | 0.12                   | 0.00               | 0.03                    | 0.74                       | 0.76                       | 0.82                        | 0.86                         |
| C15           | 0.68                | 0.52                   | 0.00               | 0.16                    | 0.69                       | 0.71                       | 0.79                        | 0.83                         |
| C16           | 1.17                | 1.07                   | 0.00               | 0.10                    | 0.82                       | 0.83                       | 0.88                        | 0.91                         |
| C17           | 0.48                | 0.47                   | 0.00               | 0.01                    | 0.88                       | 0.89                       | 0.93                        | 0.95                         |
| C18           | 0.28                | 0.25                   | 0.00               | 0.03                    | 0.81                       | 0.83                       | 0.88                        | 0.91                         |
| C19           | 6.24                | 5.67                   | 0.00               | 0.57                    | 0.81                       | 0.83                       | 0.88                        | 0.91                         |
| C20           | 0.21                | 0.00                   | 0.21               | 0.00                    | 0.71                       | 0.73                       | 0.78                        | 0.81                         |
| C21           | 0.15                | 0.00                   | 0.15               | 0.00                    | 0.71                       | 0.73                       | 0.78                        | 0.81                         |
| C             | 16.57               | 13.57                  | 1.38               | 1.62                    | 0.79                       | 0.81                       | 0.86                        | 0.89                         |

MAJOR BASIN D

| SUBBASIN NAME | TOTAL AREA<br>acres | PAVEMENT AREA<br>acres | ROOF AREA<br>acres | LANDSCAPE AREA<br>acres | 2-YR RUNOFF<br>COEFFICIENT | 5-YR RUNOFF<br>COEFFICIENT | 25-YR RUNOFF<br>COEFFICIENT | 100-YR RUNOFF<br>COEFFICIENT |
|---------------|---------------------|------------------------|--------------------|-------------------------|----------------------------|----------------------------|-----------------------------|------------------------------|
| D1            | 0.51                | 0.17                   | 0.00               | 0.34                    | 0.32                       | 0.36                       | 0.50                        | 0.57                         |
| D             | 0.51                | 0.17                   | 0.00               | 0.34                    | 0.32                       | 0.36                       | 0.50                        | 0.57                         |

MAJOR BASIN E

| SUBBASIN NAME | TOTAL AREA<br>acres | PAVEMENT AREA<br>acres | ROOF AREA<br>acres | LANDSCAPE AREA<br>acres | 2-YR RUNOFF<br>COEFFICIENT | 5-YR RUNOFF<br>COEFFICIENT | 25-YR RUNOFF<br>COEFFICIENT | 100-YR RUNOFF<br>COEFFICIENT |
|---------------|---------------------|------------------------|--------------------|-------------------------|----------------------------|----------------------------|-----------------------------|------------------------------|
| E1            | 0.65                | 0.11                   | 0.00               | 0.54                    | 0.18                       | 0.23                       | 0.39                        | 0.47                         |
| E             | 0.65                | 0.11                   | 0.00               | 0.54                    | 0.18                       | 0.23                       | 0.39                        | 0.47                         |

MAJOR BASIN F

| SUBBASIN NAME | TOTAL AREA<br>acres | PAVEMENT AREA<br>acres | ROOF AREA<br>acres | LANDSCAPE AREA<br>acres | 2-YR RUNOFF<br>COEFFICIENT | 5-YR RUNOFF<br>COEFFICIENT | 25-YR RUNOFF<br>COEFFICIENT | 100-YR RUNOFF<br>COEFFICIENT |
|---------------|---------------------|------------------------|--------------------|-------------------------|----------------------------|----------------------------|-----------------------------|------------------------------|
| F1            | 1.07                | 0.63                   | 0.00               | 0.44                    | 0.54                       | 0.57                       | 0.67                        | 0.72                         |
| F             | 1.07                | 0.63                   | 0.00               | 0.44                    | 0.54                       | 0.57                       | 0.67                        | 0.72                         |

MAJOR BASIN G

| SUBBASIN NAME | TOTAL AREA<br>acres | PAVEMENT AREA<br>acres | ROOF AREA<br>acres | LANDSCAPE AREA<br>acres | 2-YR RUNOFF<br>COEFFICIENT | 5-YR RUNOFF<br>COEFFICIENT | 25-YR RUNOFF<br>COEFFICIENT | 100-YR RUNOFF<br>COEFFICIENT |
|---------------|---------------------|------------------------|--------------------|-------------------------|----------------------------|----------------------------|-----------------------------|------------------------------|
| G1            | 6.55                | 5.95                   | 0.00               | 0.60                    | 0.81                       | 0.83                       | 0.88                        | 0.91                         |
| G             | 6.55                | 5.95                   | 0.00               | 0.60                    | 0.81                       | 0.83                       | 0.88                        | 0.91                         |

OFF-SITE BASINS

| SUBBASIN NAME | TOTAL AREA<br>acres | PAVEMENT AREA<br>acres | ROOF AREA<br>acres | LANDSCAPE AREA<br>acres | 2-YR RUNOFF<br>COEFFICIENT | 5-YR RUNOFF<br>COEFFICIENT | 25-YR RUNOFF<br>COEFFICIENT | 100-YR RUNOFF<br>COEFFICIENT |
|---------------|---------------------|------------------------|--------------------|-------------------------|----------------------------|----------------------------|-----------------------------|------------------------------|
| OS1           | 3.77                |                        |                    |                         | 0.04                       | 0.10                       | 0.28                        | 0.38                         |
| OS2           | 8.18                |                        |                    |                         | 0.41                       | 0.45                       | 0.54                        | 0.59                         |
| OS3           | 3.00                |                        |                    |                         | 0.41                       | 0.45                       | 0.54                        | 0.59                         |
| OS4           | 5.23                |                        |                    |                         | 0.41                       | 0.45                       | 0.54                        | 0.59                         |
| OS5           | 1.58                |                        |                    |                         | 0.63                       | 0.66                       | 0.72                        | 0.75                         |
| OS6           | 6.93                |                        |                    |                         | 0.41                       | 0.45                       | 0.54                        | 0.59                         |
| OS7           | 2.19                |                        |                    |                         | 0.63                       | 0.66                       | 0.72                        | 0.75                         |
| OS8           | 8.78                |                        |                    |                         | 0.41                       | 0.45                       | 0.54                        | 0.59                         |

\*NOTE: Runoff Coefficients for Off-Site Basins OS1-OS8 is estimated for future developed open space, commercial and residential areas.

Open Space = 0.04(2-yr), 0.10(5-yr), 0.28(25-yr), 0.38(100-yr)

Residential = 0.41(2-yr), 0.45(5-yr), 0.54(25-yr), 0.59(100-yr)

Commercial = 0.63(2-yr), 0.66(5-yr), 0.72(25-yr), 0.75(100-yr)

# **APPENDIX G**

## **TIME OF CONCENTRATION**

**GLENWOOD MEADOWS  
STANDARD FORM SF-1, TIME OF CONCENTRATION**

$t_c = t_i + t_o$ ,  $t_i$ =Initial Overland Flow Time,  $t_o$ =Overland Travel Time

| SUBBASIN DATA |                     |              |                       | INITIAL/OVERLAND TIME ( $t_i$ ) |                       |                       | TRAVEL TIME ( $t_o$ ) |                                 |                           |                        | $t_c$ CHECK           |                              |                                     | FINAL $t_c$ |
|---------------|---------------------|--------------|-----------------------|---------------------------------|-----------------------|-----------------------|-----------------------|---------------------------------|---------------------------|------------------------|-----------------------|------------------------------|-------------------------------------|-------------|
| DESIGN<br>(1) | AREA<br>(AC)<br>(2) | $C_s$<br>(3) | LENGTH<br>(FT)<br>(4) | SLOPE<br>%<br>(5)               | $t_i$<br>(MIN)<br>(6) | LENGTH<br>(FT)<br>(7) | SLOPE<br>%<br>(8)     | CONV.<br>COEFF.<br>$C_v$<br>(9) | VELOCITY<br>(FPS)<br>(10) | $t_o$<br>(MIN)<br>(11) | COMP<br>$t_c$<br>(12) | TOTAL LENGTH<br>(FT)<br>(13) | $t_c = (L/180)+10$<br>(MIN)<br>(14) | (15)        |
| A1            | 0.95                | 0.33         | 200                   | 25.0                            | 6.8                   | 30                    | 2.0                   | 20.0                            | 2.8                       | 0.2                    | 7.0                   | 230                          | 11.3                                | 7.0         |
| A2            | 0.33                | 0.75         | 45                    | 33.0                            | 1.3                   | 165                   | 4.0                   | 20.0                            | 4.0                       | 0.7                    | 2.0                   | 210                          | 11.2                                | 5.0         |
| A3            | 0.38                | 0.56         | 60                    | 33.0                            | 2.4                   | 105                   | 2.0                   | 20.0                            | 2.8                       | 0.6                    | 3.0                   | 165                          | 10.9                                | 5.0         |
| A4            | 2.15                | 0.22         | 300                   | 15.0                            | 11.3                  | 500                   | 15.0                  | 15.0                            | 5.8                       | 1.4                    | 12.7                  | 800                          | 14.4                                | 12.7        |
| A5            | 0.27                | 0.73         | 0                     | 0.0                             | 0.0                   | 250                   | 1.0                   | 20.0                            | 2.0                       | 2.1                    | 2.1                   | 250                          | 11.4                                | 5.0         |
| A6            | 0.27                | 0.73         | 0                     | 0.0                             | 0.0                   | 250                   | 1.0                   | 20.0                            | 2.0                       | 2.1                    | 2.1                   | 250                          | 11.4                                | 5.0         |
| A7            | 0.27                | 0.73         | 0                     | 0.0                             | 0.0                   | 250                   | 1.0                   | 20.0                            | 2.0                       | 2.1                    | 2.1                   | 250                          | 11.4                                | 5.0         |
| A8            | 0.27                | 0.73         | 0                     | 0.0                             | 0.0                   | 285                   | 1.0                   | 20.0                            | 2.0                       | 2.4                    | 2.4                   | 285                          | 11.6                                | 5.0         |
| A9            | 0.27                | 0.73         | 0                     | 0.0                             | 0.0                   | 285                   | 1.0                   | 20.0                            | 2.0                       | 2.4                    | 2.4                   | 285                          | 11.6                                | 5.0         |
| A10           | 0.27                | 0.73         | 0                     | 0.0                             | 0.0                   | 335                   | 1.0                   | 20.0                            | 2.0                       | 2.8                    | 2.8                   | 335                          | 11.9                                | 5.0         |
| A11           | 0.27                | 0.73         | 0                     | 0.0                             | 0.0                   | 335                   | 1.0                   | 20.0                            | 2.0                       | 2.8                    | 2.8                   | 335                          | 11.9                                | 5.0         |
| A12           | 0.27                | 0.73         | 0                     | 0.0                             | 0.0                   | 335                   | 1.0                   | 20.0                            | 2.0                       | 2.8                    | 2.8                   | 335                          | 11.9                                | 5.0         |
| A13           | 0.27                | 0.73         | 0                     | 0.0                             | 0.0                   | 335                   | 1.0                   | 20.0                            | 2.0                       | 2.8                    | 2.8                   | 335                          | 11.9                                | 5.0         |
| A14           | 0.27                | 0.73         | 0                     | 0.0                             | 0.0                   | 335                   | 1.0                   | 20.0                            | 2.0                       | 2.8                    | 2.8                   | 335                          | 11.9                                | 5.0         |
| A15           | 0.32                | 0.80         | 50                    | 33.0                            | 1.2                   | 75                    | 2.0                   | 20.0                            | 2.8                       | 0.4                    | 1.6                   | 125                          | 10.7                                | 5.0         |
| A16           | 0.40                | 0.33         | 100                   | 33.0                            | 4.4                   | 50                    | 2.0                   | 20.0                            | 2.8                       | 0.3                    | 4.7                   | 150                          | 10.8                                | 5.0         |
| A17           | 0.44                | 0.57         | 75                    | 33.0                            | 2.6                   | 60                    | 2.0                   | 20.0                            | 2.8                       | 0.4                    | 3.0                   | 135                          | 10.8                                | 5.0         |
| A18           | 0.46                | 0.82         | 20                    | 2.0                             | 1.8                   | 825                   | 5.5                   | 20.0                            | 4.7                       | 2.9                    | 4.7                   | 845                          | 14.7                                | 5.0         |
| A19           | 1.15                | 0.69         | 100                   | 3.0                             | 5.1                   | 0                     | 0.0                   | 0.0                             | 0.0                       | 0.0                    | 5.1                   | 100                          | 10.6                                | 5.1         |
| A20           | 0.49                | 0.69         | 65                    | 3.0                             | 4.1                   | 215                   | 2.0                   | 20.0                            | 2.8                       | 1.3                    | 5.4                   | 280                          | 11.6                                | 5.4         |
| A21           | 2.71                | 0.81         | 75                    | 3.0                             | 3.2                   | 595                   | 3.0                   | 20.0                            | 3.5                       | 2.9                    | 6.1                   | 670                          | 13.7                                | 6.1         |
| A22           | 0.67                | 0.78         | 65                    | 3.0                             | 3.2                   | 350                   | 3.0                   | 20.0                            | 3.5                       | 1.7                    | 4.9                   | 415                          | 12.3                                | 5.0         |
| A23           | 0.27                | 0.73         | 0                     | 0.0                             | 0.0                   | 150                   | 1.0                   | 20.0                            | 2.0                       | 1.3                    | 1.3                   | 150                          | 10.8                                | 5.0         |
| A24           | 0.75                | 0.80         | 100                   | 2.0                             | 4.3                   | 400                   | 2.0                   | 20.0                            | 2.8                       | 2.4                    | 6.6                   | 500                          | 12.8                                | 6.6         |
| A25           | 0.92                | 0.41         | 150                   | 33.0                            | 4.8                   | 225                   | 15.0                  | 15.0                            | 5.8                       | 0.6                    | 5.5                   | 375                          | 12.1                                | 5.5         |
| A26           | 0.50                | 0.75         | 50                    | 2.0                             | 3.6                   | 320                   | 5.0                   | 20.0                            | 4.5                       | 1.2                    | 4.8                   | 370                          | 12.1                                | 5.0         |
| A27           | 0.40                | 0.87         | 45                    | 3.0                             | 1.9                   | 340                   | 5.0                   | 20.0                            | 4.5                       | 1.3                    | 3.2                   | 385                          | 12.1                                | 5.0         |
| A28           | 0.77                | 0.16         | 200                   | 25.0                            | 8.3                   | 0                     | 0.0                   | 0.0                             | 0.0                       | 0.0                    | 8.3                   | 200                          | 11.1                                | 8.3         |
| A29           | 0.16                | 0.79         | 50                    | 3.0                             | 2.7                   | 155                   | 3.0                   | 20.0                            | 3.5                       | 0.7                    | 3.5                   | 205                          | 11.0                                | 5.0         |
| A30           | 0.24                | 0.88         | 25                    | 3.0                             | 1.4                   | 150                   | 3.0                   | 20.0                            | 3.5                       | 0.7                    | 2.1                   | 175                          | 11.0                                | 5.0         |
| A31           | 0.44                | 0.75         | 40                    | 3.0                             | 2.8                   | 260                   | 5.0                   | 20.0                            | 4.5                       | 1.0                    | 3.8                   | 300                          | 11.7                                | 5.0         |

| SUBBASIN DATA |               |                    |                 | INITIAL/OVERLAND TIME (t <sub>i</sub> ) |                          |                 | TRAVEL TIME (t <sub>t</sub> ) |                                 |                     |                           | t <sub>c</sub> CHECK     |                        |                           |
|---------------|---------------|--------------------|-----------------|-----------------------------------------|--------------------------|-----------------|-------------------------------|---------------------------------|---------------------|---------------------------|--------------------------|------------------------|---------------------------|
| DESIGN (1)    | AREA (AC) (2) | C <sub>s</sub> (3) | LENGTH (FT) (4) | SLOPE % (5)                             | t <sub>i</sub> (MIN) (6) | LENGTH (FT) (7) | SLOPE % (8)                   | CONV. COEFF. C <sub>v</sub> (9) | VELOCITY (FPS) (10) | t <sub>t</sub> (MIN) (11) | COMP t <sub>c</sub> (12) | TOTAL LENGTH (FT) (13) | FINAL t <sub>c</sub> (14) |
| A32           | 0.35          | 0.72               | 25              | 3.0                                     | 2.4                      | 130             | 4.0                           | 20.0                            | 4.0                 | 0.5                       | 3.0                      | 155                    | 5.0                       |
| A33           | 0.95          | 0.70               | 25              | 3.0                                     | 2.5                      | 510             | 4.0                           | 20.0                            | 4.0                 | 2.1                       | 4.6                      | 535                    | 5.0                       |
| A34           | 0.32          | 0.79               | 60              | 5.0                                     | 2.6                      | 320             | 6.5                           | 20.0                            | 5.1                 | 1.0                       | 3.6                      | 380                    | 5.0                       |
| A35           | 1.81          | 0.82               | 25              | 3.0                                     | 1.8                      | 575             | 4.0                           | 20.0                            | 4.0                 | 2.4                       | 4.2                      | 600                    | 5.0                       |
| A36           | 0.87          | 0.86               | 30              | 3.0                                     | 1.6                      | 300             | 4.0                           | 20.0                            | 4.0                 | 1.3                       | 2.9                      | 330                    | 5.0                       |
| A37           | 0.66          | 0.71               | 20              | 2.0                                     | 2.5                      | 150             | 4.0                           | 20.0                            | 4.0                 | 0.6                       | 3.1                      | 170                    | 5.0                       |
| A38           | 0.83          | 0.19               | 65              | 33.0                                    | 4.2                      | 110             | 25.0                          | 15.0                            | 7.5                 | 0.2                       | 4.4                      | 175                    | 5.0                       |
| A39           | 0.16          | 0.73               | 0               | 0.0                                     | 0.0                      | 90              | 1.0                           | 20.0                            | 2.0                 | 0.8                       | 0.8                      | 90                     | 5.0                       |
| A40           | 0.23          | 0.73               | 0               | 0.0                                     | 0.0                      | 135             | 1.0                           | 20.0                            | 2.0                 | 1.1                       | 1.1                      | 135                    | 5.0                       |
| A41           | 0.25          | 0.75               | 15              | 2.0                                     | 2.0                      | 245             | 5.0                           | 20.0                            | 4.5                 | 0.9                       | 2.9                      | 260                    | 5.0                       |
| A42           | 0.31          | 0.75               | 15              | 2.0                                     | 2.0                      | 245             | 5.0                           | 20.0                            | 4.5                 | 0.9                       | 2.9                      | 260                    | 5.0                       |
| A43           | 0.65          | 0.81               | 20              | 2.0                                     | 1.8                      | 860             | 5.0                           | 20.0                            | 4.5                 | 3.2                       | 5.0                      | 880                    | 5.0                       |
| A44           | 0.14          | 0.90               | 40              | 2.0                                     | 1.8                      | 20              | 2.0                           | 20.0                            | 2.8                 | 0.1                       | 1.9                      | 60                     | 5.0                       |
| A45           | 0.39          | 0.10               | 50              | 33.0                                    | 4.0                      | 150             | 4.0                           | 15.0                            | 3.0                 | 0.8                       | 4.9                      | 200                    | 5.0                       |
| A46           | 0.17          | 0.10               | 75              | 33.0                                    | 4.9                      | 50              | 33.0                          | 15.0                            | 8.6                 | 0.1                       | 5.0                      | 125                    | 5.0                       |

|     |      |      |    |     |     |     |     |      |     |     |     |     |     |
|-----|------|------|----|-----|-----|-----|-----|------|-----|-----|-----|-----|-----|
| B1  | 1.25 | 0.88 | 10 | 3.0 | 0.9 | 225 | 4.0 | 20.0 | 4.0 | 0.9 | 1.8 | 235 | 5.0 |
| B2  | 0.47 | 0.86 | 10 | 3.0 | 0.9 | 185 | 3.5 | 20.0 | 3.7 | 0.8 | 1.8 | 195 | 5.0 |
| B3  | 0.32 | 0.89 | 20 | 3.0 | 1.2 | 250 | 3.0 | 20.0 | 3.5 | 1.2 | 2.4 | 270 | 5.0 |
| B4  | 0.38 | 0.87 | 25 | 3.0 | 1.5 | 250 | 3.0 | 20.0 | 3.5 | 1.2 | 2.7 | 275 | 5.0 |
| B5  | 2.34 | 0.18 | 10 | 3.0 | 3.6 | 185 | 3.5 | 20.0 | 3.7 | 0.8 | 4.5 | 195 | 5.0 |
| B6  | 0.30 | 0.78 | 20 | 3.0 | 1.8 | 200 | 3.2 | 20.0 | 3.6 | 0.9 | 2.7 | 220 | 5.0 |
| B7  | 0.59 | 0.74 | 25 | 3.0 | 2.2 | 245 | 4.0 | 20.0 | 4.0 | 1.0 | 3.3 | 270 | 5.0 |
| B8  | 0.49 | 0.71 | 25 | 3.0 | 2.5 | 240 | 4.0 | 20.0 | 4.0 | 1.0 | 3.5 | 265 | 5.0 |
| B9  | 0.39 | 0.74 | 25 | 3.0 | 2.3 | 195 | 4.0 | 20.0 | 4.0 | 0.8 | 3.1 | 220 | 5.0 |
| B10 | 0.10 | 0.73 | 0  | 0.0 | 0.0 | 85  | 1.0 | 20.0 | 2.0 | 0.7 | 0.7 | 85  | 5.0 |
| B11 | 0.11 | 0.73 | 0  | 0.0 | 0.0 | 100 | 1.0 | 20.0 | 2.0 | 0.8 | 0.8 | 100 | 5.0 |
| B12 | 0.40 | 0.88 | 20 | 3.0 | 1.2 | 300 | 4.0 | 20.0 | 4.0 | 1.3 | 2.5 | 320 | 5.0 |
| B13 | 0.35 | 0.88 | 20 | 3.0 | 1.2 | 300 | 4.0 | 20.0 | 4.0 | 1.3 | 2.5 | 320 | 5.0 |
| B14 | 0.10 | 0.73 | 0  | 0.0 | 0.0 | 85  | 1.0 | 20.0 | 2.0 | 0.7 | 0.7 | 85  | 5.0 |
| B15 | 0.12 | 0.73 | 0  | 0.0 | 0.0 | 100 | 1.0 | 20.0 | 2.0 | 0.8 | 0.8 | 100 | 5.0 |
| B16 | 0.71 | 0.87 | 55 | 3.0 | 2.1 | 190 | 4.0 | 20.0 | 4.0 | 0.8 | 2.9 | 245 | 5.0 |
| B17 | 1.70 | 0.83 | 20 | 3.0 | 1.5 | 490 | 4.0 | 20.0 | 4.0 | 2.0 | 3.6 | 510 | 5.0 |
| B18 | 1.16 | 0.86 | 20 | 3.0 | 1.4 | 490 | 4.0 | 20.0 | 4.0 | 2.0 | 3.4 | 510 | 5.0 |
| B19 | 0.77 | 0.80 | 10 | 3.0 | 1.2 | 305 | 4.0 | 20.0 | 4.0 | 1.3 | 2.5 | 315 | 5.0 |
| B20 | 0.12 | 0.73 | 0  | 0.0 | 0.0 | 100 | 1.0 | 20.0 | 2.0 | 0.8 | 0.8 | 100 | 5.0 |
| B21 | 0.12 | 0.73 | 0  | 0.0 | 0.0 | 110 | 1.0 | 20.0 | 2.0 | 0.9 | 0.9 | 110 | 5.0 |
| B22 | 0.70 | 0.86 | 20 | 3.0 | 1.4 | 300 | 4.0 | 20.0 | 4.0 | 1.3 | 2.6 | 320 | 5.0 |
| B23 | 0.63 | 0.85 | 20 | 3.0 | 1.4 | 310 | 4.0 | 20.0 | 4.0 | 1.3 | 2.7 | 330 | 5.0 |
| B24 | 0.12 | 0.73 | 0  | 0.0 | 0.0 | 100 | 1.0 | 20.0 | 2.0 | 0.8 | 0.8 | 100 | 5.0 |

| SUBBASIN DATA |               |                    |                 | INITIAL/OVERLAND TIME (t <sub>i</sub> ) |                          |                 |             | TRAVEL TIME (t <sub>t</sub> )   |                     |                           |                          | t <sub>c</sub> CHECK   |                                        |     | FINAL t <sub>c</sub> |
|---------------|---------------|--------------------|-----------------|-----------------------------------------|--------------------------|-----------------|-------------|---------------------------------|---------------------|---------------------------|--------------------------|------------------------|----------------------------------------|-----|----------------------|
| DESIGN (1)    | AREA (AC) (2) | C <sub>s</sub> (3) | LENGTH (FT) (4) | SLOPE % (5)                             | t <sub>i</sub> (MIN) (6) | LENGTH (FT) (7) | SLOPE % (8) | CONV. COEFF. C <sub>v</sub> (9) | VELOCITY (FPS) (10) | t <sub>t</sub> (MIN) (11) | COMP t <sub>c</sub> (12) | TOTAL LENGTH (FT) (13) | t <sub>c</sub> = (L/180)+10 (MIN) (14) |     |                      |
| B25           | 0.12          | 0.73               | 0               | 0.0                                     | 0.0                      | 110             | 1.0         | 20.0                            | 2.0                 | 0.9                       | 0.9                      | 110                    | 10.6                                   | 5.0 |                      |
| B26           | 0.08          | 0.86               | 15              | 3.0                                     | 1.1                      | 75              | 4.0         | 20.0                            | 4.0                 | 0.3                       | 1.5                      | 90                     | 10.5                                   | 5.0 |                      |
| B27           | 2.12          | 0.83               | 40              | 2.0                                     | 2.5                      | 470             | 4.0         | 20.0                            | 4.0                 | 2.0                       | 4.4                      | 510                    | 12.8                                   | 5.0 |                      |
| B28           | 0.03          | 0.73               | 0               | 0.0                                     | 0.0                      | 125             | 1.0         | 20.0                            | 2.0                 | 1.0                       | 1.0                      | 125                    | 10.7                                   | 5.0 |                      |
| B29           | 0.58          | 0.73               | 0               | 0.0                                     | 0.0                      | 275             | 1.0         | 20.0                            | 2.0                 | 2.3                       | 2.3                      | 275                    | 11.5                                   | 5.0 |                      |
| B30           | 0.58          | 0.73               | 0               | 0.0                                     | 0.0                      | 275             | 1.0         | 20.0                            | 2.0                 | 2.3                       | 2.3                      | 275                    | 11.5                                   | 5.0 |                      |
| B31           | 1.15          | 0.73               | 0               | 0.0                                     | 0.0                      | 275             | 1.0         | 20.0                            | 2.0                 | 2.3                       | 2.3                      | 275                    | 11.5                                   | 5.0 |                      |
| B32           | 0.02          | 0.73               | 0               | 0.0                                     | 0.0                      | 100             | 1.0         | 20.0                            | 2.0                 | 0.8                       | 0.8                      | 100                    | 10.6                                   | 5.0 |                      |
| B33           | 0.58          | 0.73               | 0               | 0.0                                     | 0.0                      | 275             | 1.0         | 20.0                            | 2.0                 | 2.3                       | 2.3                      | 275                    | 11.5                                   | 5.0 |                      |
| B34           | 0.05          | 0.53               | 20              | 2.0                                     | 3.6                      | 0               | 0.0         | 0.0                             | 0.0                 | 0.0                       | 3.6                      | 20                     | 10.1                                   | 5.0 |                      |
| B35           | 1.07          | 0.59               | 85              | 3.0                                     | 5.9                      | 135             | 3.0         | 20.0                            | 3.5                 | 0.6                       | 6.6                      | 220                    | 11.2                                   | 6.6 |                      |
| B36           | 0.21          | 0.73               | 0               | 0.0                                     | 0.0                      | 110             | 1.0         | 20.0                            | 2.0                 | 0.9                       | 0.9                      | 110                    | 10.6                                   | 5.0 |                      |
| B37           | 0.72          | 0.73               | 0               | 0.0                                     | 0.0                      | 210             | 1.0         | 20.0                            | 2.0                 | 1.8                       | 1.8                      | 210                    | 11.2                                   | 5.0 |                      |
| B38           | 0.53          | 0.57               | 35              | 33.0                                    | 1.8                      | 210             | 2.0         | 20.0                            | 2.8                 | 1.2                       | 3.0                      | 245                    | 11.4                                   | 5.0 |                      |
| B39           | 0.06          | 0.57               | 20              | 2.0                                     | 3.4                      | 0               | 0.0         | 0.0                             | 0.0                 | 0.0                       | 3.4                      | 20                     | 10.1                                   | 5.0 |                      |
| B40           | 0.94          | 0.10               | 50              | 33.0                                    | 4.0                      | 100             | 0.0         | 0.0                             | 0.0                 | 0.0                       | 4.0                      | 150                    | 10.8                                   | 5.0 |                      |
| B41           | 1.22          | 0.10               | 50              | 33.0                                    | 4.0                      | 150             | 0.0         | 0.0                             | 0.0                 | 0.0                       | 4.0                      | 200                    | 11.1                                   | 5.0 |                      |

|     |      |      |     |      |     |     |      |      |     |     |     |     |      |     |  |
|-----|------|------|-----|------|-----|-----|------|------|-----|-----|-----|-----|------|-----|--|
| C1  | 1.39 | 0.89 | 25  | 3.0  | 1.3 | 300 | 3.0  | 20.0 | 3.5 | 1.4 | 2.8 | 325 | 11.8 | 5.0 |  |
| C2  | 0.47 | 0.73 | 25  | 2.0  | 2.7 | 300 | 3.0  | 20.0 | 3.5 | 1.4 | 4.1 | 325 | 11.8 | 5.0 |  |
| C3  | 0.26 | 0.79 | 55  | 3.0  | 2.9 | 145 | 4.0  | 20.0 | 4.0 | 0.6 | 3.5 | 200 | 11.1 | 5.0 |  |
| C4  | 0.37 | 0.70 | 20  | 3.0  | 2.2 | 110 | 4.0  | 20.0 | 4.0 | 0.5 | 2.7 | 130 | 10.7 | 5.0 |  |
| C5  | 0.18 | 0.75 | 15  | 3.0  | 1.7 | 165 | 4.0  | 20.0 | 4.0 | 0.7 | 2.4 | 180 | 11.0 | 5.0 |  |
| C6  | 0.15 | 0.76 | 10  | 3.0  | 1.3 | 170 | 4.0  | 20.0 | 4.0 | 0.7 | 2.0 | 180 | 11.0 | 5.0 |  |
| C7  | 1.66 | 0.83 | 55  | 3.0  | 2.5 | 460 | 4.0  | 20.0 | 4.0 | 1.9 | 4.4 | 515 | 12.9 | 5.0 |  |
| C8  | 0.77 | 0.86 | 15  | 3.0  | 1.1 | 515 | 4.0  | 20.0 | 4.0 | 2.1 | 3.3 | 530 | 12.9 | 5.0 |  |
| C9  | 0.42 | 0.66 | 25  | 3.0  | 2.7 | 155 | 4.0  | 20.0 | 4.0 | 0.6 | 3.4 | 180 | 11.0 | 5.0 |  |
| C10 | 0.51 | 0.63 | 15  | 3.0  | 2.3 | 375 | 3.5  | 20.0 | 3.7 | 1.7 | 4.0 | 390 | 12.2 | 5.0 |  |
| C11 | 0.39 | 0.83 | 15  | 3.0  | 1.3 | 380 | 3.5  | 20.0 | 3.7 | 1.7 | 3.0 | 395 | 12.2 | 5.0 |  |
| C12 | 0.55 | 0.73 | 0   | 0.0  | 0.0 | 200 | 1.0  | 20.0 | 2.0 | 1.7 | 1.7 | 200 | 11.1 | 5.0 |  |
| C13 | 0.09 | 0.70 | 10  | 2.0  | 1.8 | 65  | 3.0  | 20.0 | 3.5 | 0.3 | 2.1 | 75  | 10.4 | 5.0 |  |
| C14 | 0.15 | 0.76 | 25  | 3.0  | 2.1 | 185 | 4.5  | 20.0 | 4.2 | 0.7 | 2.9 | 210 | 11.2 | 5.0 |  |
| C15 | 0.68 | 0.71 | 45  | 3.0  | 3.2 | 145 | 3.0  | 20.0 | 3.5 | 0.7 | 3.9 | 190 | 11.1 | 5.0 |  |
| C16 | 1.17 | 0.83 | 100 | 33.0 | 1.5 | 55  | 10.0 | 15.0 | 4.7 | 0.2 | 1.7 | 155 | 10.9 | 5.0 |  |
| C17 | 0.48 | 0.89 | 10  | 3.0  | 0.8 | 355 | 6.5  | 20.0 | 5.1 | 1.2 | 2.0 | 365 | 12.0 | 5.0 |  |
| C18 | 0.28 | 0.83 | 15  | 3.0  | 1.3 | 335 | 6.5  | 20.0 | 5.1 | 1.1 | 2.4 | 350 | 11.9 | 5.0 |  |
| C19 | 6.24 | 0.83 | 200 | 4.0  | 4.4 | 600 | 4.0  | 20.0 | 4.0 | 2.5 | 6.9 | 800 | 14.4 | 6.9 |  |
| C20 | 0.21 | 0.73 | 0   | 0.0  | 0.0 | 85  | 1.0  | 20.0 | 2.0 | 0.7 | 0.7 | 85  | 10.5 | 5.0 |  |
| C21 | 0.15 | 0.73 | 0   | 0.0  | 0.0 | 65  | 1.0  | 20.0 | 2.0 | 0.5 | 0.5 | 65  | 10.4 | 5.0 |  |

| SUBBASIN DATA |               |                    |                 | INITIAL/OVERLAND TIME (t <sub>i</sub> ) |                          |                 |             | TRAVEL TIME (t <sub>t</sub> )   |                     |                           |                          | t <sub>c</sub> CHECK   |                                        |     | FINAL t <sub>c</sub> |
|---------------|---------------|--------------------|-----------------|-----------------------------------------|--------------------------|-----------------|-------------|---------------------------------|---------------------|---------------------------|--------------------------|------------------------|----------------------------------------|-----|----------------------|
| DESIGN (1)    | AREA (AC) (2) | C <sub>s</sub> (3) | LENGTH (FT) (4) | SLOPE % (5)                             | t <sub>i</sub> (MIN) (6) | LENGTH (FT) (7) | SLOPE % (8) | CONV. COEFF. C <sub>v</sub> (9) | VELOCITY (FPS) (10) | t <sub>t</sub> (MIN) (11) | COMP t <sub>c</sub> (12) | TOTAL LENGTH (FT) (13) | t <sub>c</sub> = (L/180)+10 (MIN) (14) |     |                      |
| D1            | 0.51          | 0.36               | 35              | 3                                       | 5.5                      | 140             | 4           | 15.0                            | 3.0                 | 0.8                       | 6.3                      | 175                    | 11.0                                   | 6.3 |                      |
| E1            | 0.65          | 0.23               | 85              | 33                                      | 4.6                      | 175             | 5           | 15.0                            | 3.4                 | 0.9                       | 5.4                      | 260                    | 11.4                                   | 5.4 |                      |
| F1            | 1.07          | 0.57               | 75              | 3                                       | 5.8                      | 280             | 6           | 15.0                            | 3.7                 | 1.3                       | 7.0                      | 355                    | 12.0                                   | 7.0 |                      |
| G1            | 6.55          | 0.83               | 200             | 4                                       | 4.4                      | 600             | 4           | 20.0                            | 4.0                 | 2.5                       | 6.9                      | 800                    | 14.4                                   | 6.9 |                      |

# **APPENDIX H**

## **HISTORIC RUNOFF COEFFICIENTS**



GLENWOOD MEADOWS  
2, 5, 25 AND 100 YEAR HISTORIC WEIGHTED RUNOFF COEFFICIENTS

| TYPE OF AREA  | 2-YR "C" FACTOR | 5-YR "C" FACTOR | 25-YR "C" FACTOR | 100-YR "C" FACTOR |
|---------------|-----------------|-----------------|------------------|-------------------|
| PAVEMENT      | 0.89            | 0.90            | 0.94             | 0.96              |
| ROOF          | 0.71            | 0.73            | 0.78             | 0.81              |
| NATURAL COVER | 0.03            | 0.09            | 0.26             | 0.36              |

WQ POND A

| HISTORIC DRAINAGE AREA | TOTAL AREA<br>acres | PAVEMENT AREA<br>acres | ROOF AREA<br>acres | NATURAL COVER<br>acres | 2-YR RUNOFF<br>COEFFICIENT | 5-YR RUNOFF<br>COEFFICIENT | 25-YR RUNOFF<br>COEFFICIENT | 100-YR RUNOFF<br>COEFFICIENT |
|------------------------|---------------------|------------------------|--------------------|------------------------|----------------------------|----------------------------|-----------------------------|------------------------------|
| Basin A                | 25.70               | 0                      | 0                  | 25.70                  | 0.03                       | 0.09                       | 0.26                        | 0.36                         |
| Basin OS1              | 3.77                | 0                      | 0                  | 3.77                   | 0.03                       | 0.09                       | 0.26                        | 0.36                         |
| Basin OS2              | 8.18                | 0                      | 0                  | 8.18                   | 0.03                       | 0.09                       | 0.26                        | 0.36                         |
| A                      | 37.65               | 0.00                   | 0.00               | 37.65                  | 0.03                       | 0.09                       | 0.26                        | 0.36                         |

WQ POND B

| HISTORIC DRAINAGE AREA | TOTAL AREA<br>acres | PAVEMENT AREA<br>acres | ROOF AREA<br>acres | LANDSCAPE AREA<br>acres | 2-YR RUNOFF<br>COEFFICIENT | 5-YR RUNOFF<br>COEFFICIENT | 25-YR RUNOFF<br>COEFFICIENT | 100-YR RUNOFF<br>COEFFICIENT |
|------------------------|---------------------|------------------------|--------------------|-------------------------|----------------------------|----------------------------|-----------------------------|------------------------------|
| Basin B                | 23.80               | 0                      | 0                  | 23.80                   | 0.03                       | 0.09                       | 0.26                        | 0.36                         |
| Basin OS3              | 3.00                | 0                      | 0                  | 3.00                    | 0.03                       | 0.09                       | 0.26                        | 0.36                         |
| Basin OS4              | 5.23                | 0                      | 0                  | 5.23                    | 0.03                       | 0.09                       | 0.26                        | 0.36                         |
| Basin OS5              | 1.58                | 0                      | 0                  | 1.58                    | 0.03                       | 0.09                       | 0.26                        | 0.36                         |
| Basin OS6              | 10.02               | 0                      | 0                  | 10.02                   | 0.03                       | 0.09                       | 0.26                        | 0.36                         |
| B                      | 43.63               | 0.00                   | 0.00               | 43.63                   | 0.03                       | 0.09                       | 0.26                        | 0.36                         |

WQ POND C

| HISTORIC DRAINAGE BASIN | TOTAL AREA<br>acres | PAVEMENT AREA<br>acres | ROOF AREA<br>acres | LANDSCAPE AREA<br>acres | 2-YR RUNOFF<br>COEFFICIENT | 5-YR RUNOFF<br>COEFFICIENT | 25-YR RUNOFF<br>COEFFICIENT | 100-YR RUNOFF<br>COEFFICIENT |
|-------------------------|---------------------|------------------------|--------------------|-------------------------|----------------------------|----------------------------|-----------------------------|------------------------------|
| Basin C                 | 16.57               | 0                      | 0                  | 16.57                   | 0.03                       | 0.09                       | 0.26                        | 0.36                         |
| Basin G                 | 6.55                | 0                      | 0                  | 6.55                    | 0.03                       | 0.09                       | 0.26                        | 0.36                         |
| Basin OS7               | 1.31                | 0                      | 0                  | 1.31                    | 0.03                       | 0.09                       | 0.26                        | 0.36                         |
| Basin OS8               | 8.78                | 0                      | 0                  | 8.78                    | 0.03                       | 0.09                       | 0.26                        | 0.36                         |
| C                       | 33.21               | 0.00                   | 0.00               | 33.21                   | 0.03                       | 0.09                       | 0.26                        | 0.36                         |

# **APPENDIX I**

## **HISTORIC RUNOFF FLOW RATES**

GLENWOOD MEADOWS  
2 YEAR HISTORIC RUNOFF FLOW RATES

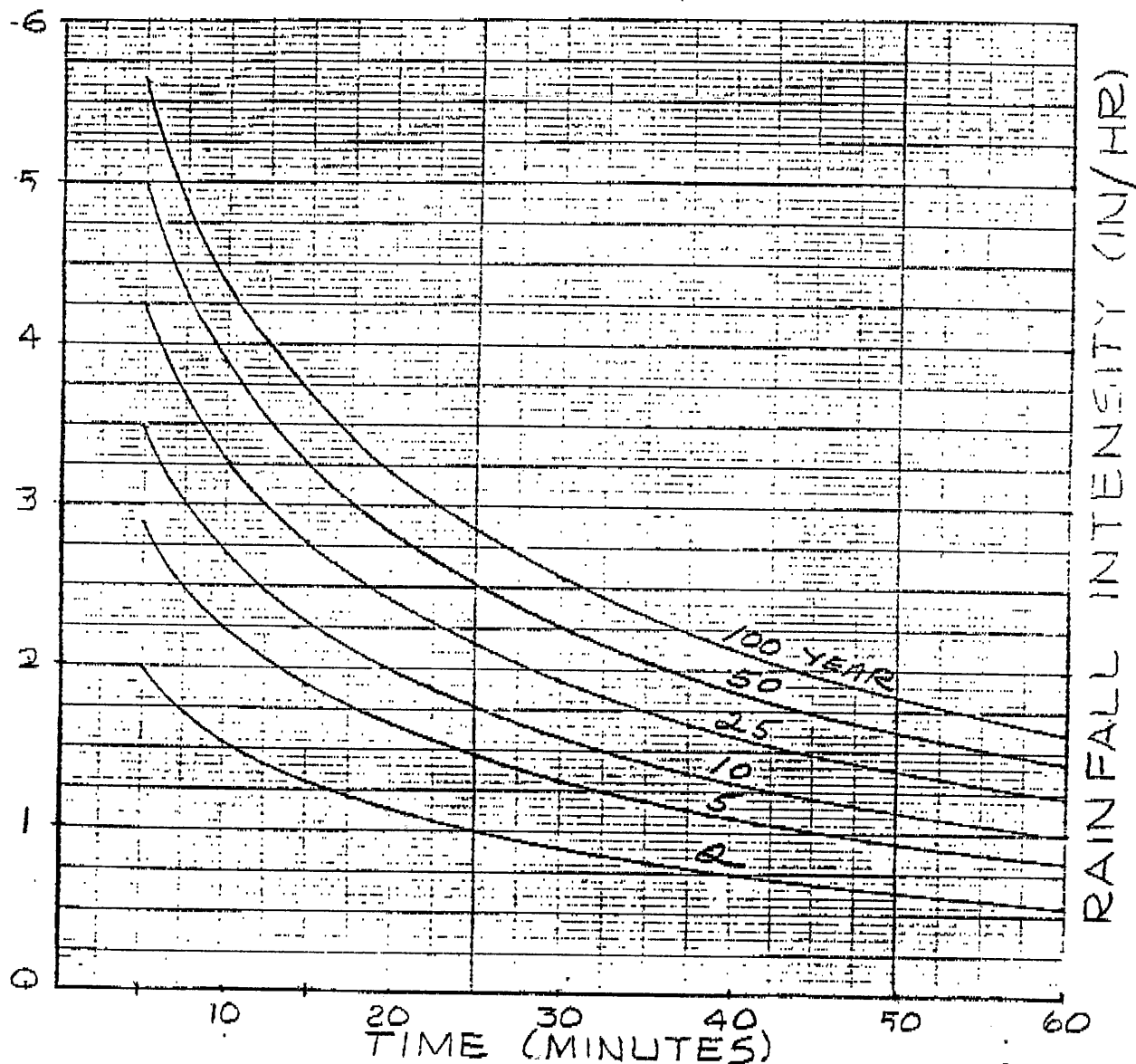
| W.Q.<br>POND A | TOTAL AREA<br>acres | TIME OF CONC.<br>$t_c$ , min | 2-YR RUNOFF<br>COEFFICIENT | INTENSITY<br>I, in/hr | 2-YR RUNOFF<br>Q, cfs |
|----------------|---------------------|------------------------------|----------------------------|-----------------------|-----------------------|
| A              | 37.65               | 21.70                        | 0.03                       | 1.25                  | 1.4                   |

| W.Q.<br>POND B | TOTAL AREA<br>acres | TIME OF CONC.<br>$t_c$ , min | 2-YR RUNOFF<br>COEFFICIENT | INTENSITY<br>I, in/hr | 2-YR RUNOFF<br>Q, cfs |
|----------------|---------------------|------------------------------|----------------------------|-----------------------|-----------------------|
| B              | 43.63               | 24.30                        | 0.03                       | 1.15                  | 1.5                   |

| W.Q.<br>POND C | TOTAL AREA<br>acres | TIME OF CONC.<br>$t_c$ , min | 2-YR RUNOFF<br>COEFFICIENT | INTENSITY<br>I, in/hr | 2-YR RUNOFF<br>Q, cfs |
|----------------|---------------------|------------------------------|----------------------------|-----------------------|-----------------------|
| C              | 33.21               | 17.70                        | 0.03                       | 1.30                  | 1.30                  |

| 100-YR DET.<br>POND A | TOTAL AREA<br>acres | TIME OF CONC.<br>$t_c$ , min | 100-YR RUNOFF<br>COEFFICIENT | INTENSITY<br>I, in/hr | 2-YR RUNOFF<br>Q, cfs |
|-----------------------|---------------------|------------------------------|------------------------------|-----------------------|-----------------------|
| A                     | 37.65               | 21.70                        | 0.36                         | 3.20                  | 43.4                  |

# INTENSITY-DURATION-FREQUENCY CURVES



GLENWOOD SPRINGS, COLORADO

5/8/79

# **APPENDIX J**

## **BASIN A WATER QUALITY POND**

**Glenwood Meadows: Basin-A, Water Quality Volume Required**

Area (ac)= 37.7  
 $C_2$  = 0.50  
 Area x  $C_2$  = 18.83      Rel. Rate (cfs)= 1.41

| TIME<br>(min) | TIME<br>(sec) | INTENSITY<br>(in/hr) | INFLOW<br>(cu-ft) | OUTFLOW<br>(cu-ft) | STORAGE<br>(cu-ft) | STORAGE<br>(ac-ft) |
|---------------|---------------|----------------------|-------------------|--------------------|--------------------|--------------------|
| 5             | 300           | 2.00                 | 11295             | 424                | 10872              | 0.25               |
| 10            | 600           | 1.55                 | 17508             | 847                | 16661              | 0.38               |
| 15            | 900           | 1.30                 | 22026             | 1271               | 20755              | 0.48               |
| 20            | 1200          | 1.15                 | 25979             | 1694               | 24285              | 0.56               |
| 25            | 1500          | 1.00                 | 28238             | 2118               | 26120              | 0.60               |
| 30            | 1800          | 0.90                 | 30497             | 2541               | 27956              | 0.64               |
| 35            | 2100          | 0.80                 | 31627             | 2965               | 28662              | 0.66               |
| 40            | 2400          | 0.75                 | 33886             | 3389               | 30497              | 0.70               |
| 45            | 2700          | 0.70                 | 35580             | 3812               | 31768              | 0.73               |
| 50            | 3000          | 0.65                 | 36710             | 4236               | 32474              | 0.75               |
| 55            | 3300          | 0.60                 | 37274             | 4659               | 32615              | 0.75               |
| 60            | 3600          | 0.55                 | 37274             | 5083               | 32192              | 0.74               |

<--WQ Vol. Req'd.\*

\* Pond A1 and Pond A2 are combined to provide this volume.

**Glenwood Meadows: Basin-A, Water Quality Volume Provided**

**POND A1**

| ELEVATION<br>(ft) | AREA<br>(sq-ft) | Avg. Area<br>(sq-ft) | Incremental<br>Depth (ft) | Incremental<br>Volume (cf) | Cum.<br>Volume (cf) | Cum. Volume<br>(ac-ft) |
|-------------------|-----------------|----------------------|---------------------------|----------------------------|---------------------|------------------------|
| 5742.87           | 0               |                      |                           |                            |                     |                        |
|                   |                 | 629                  | 0.13                      | 54                         | 54                  | 0.00                   |
| 5743.00           | 1,257           |                      |                           |                            |                     |                        |
|                   |                 | 2,836                | 1.00                      | 2,676                      | 2,730               | 0.06                   |
| 5744.00           | 4,414           |                      |                           |                            |                     |                        |
|                   |                 | 5,514                | 1.00                      | 5,477                      | 8,207               | 0.19                   |
| 5745.00           | 6,613           |                      |                           |                            |                     |                        |
|                   |                 | 7,313                | 1.00                      | 7,302                      | 15,508              | 0.36                   |
| 5746.00           | 8,013           |                      |                           |                            |                     |                        |
|                   |                 | 9,060                | 1.00                      | 9,040                      | 24,548              | 0.56                   |
| 5747.00           | 10,107          |                      |                           |                            |                     |                        |

**POND A2**

| ELEVATION<br>(ft) | AREA<br>(sq-ft) | Avg. Area<br>(sq-ft) | Incremental<br>Depth (ft) | Incremental<br>Volume (cf) | Cum.<br>Volume (cf) | Cum. Volume<br>(ac-ft) |
|-------------------|-----------------|----------------------|---------------------------|----------------------------|---------------------|------------------------|
| 5744.50           | 0               |                      |                           |                            |                     |                        |
|                   |                 | 824                  | 0.50                      | 275                        | 275                 | 0.01                   |
| 5745.00           | 1,648           |                      |                           |                            |                     |                        |
|                   |                 | 3,704                | 1.00                      | 3,496                      | 3,496               | 0.08                   |
| 5746.00           | 5,759           |                      |                           |                            |                     |                        |
|                   |                 | 6,399                | 1.00                      | 6,388                      | 9,884               | 0.23                   |
| 5747.00           | 7,039           |                      |                           |                            |                     |                        |

|                         |        |
|-------------------------|--------|
| Total Volume Required = | 0.75   |
| Total Volume Provided = | 0.79   |
| 2-yr WQWSEL =           | 5747.0 |

**Glenwood Meadows: Basin-A, 100-yr Detention Volume Required**

Area (ac)= **37.7**

C<sub>100</sub> = **0.69**

Area x C<sub>2</sub> = **25.98**

Rel. Rate (cfs)= **95.00**

| TIME<br>(min) | TIME<br>(sec) | INTENSITY<br>(in/hr) | INFLOW<br>(cu-ft) | OUTFLOW<br>(cu-ft) | STORAGE<br>(cu-ft) | STORAGE<br>(ac-ft) |
|---------------|---------------|----------------------|-------------------|--------------------|--------------------|--------------------|
| 5             | 300           | 5.65                 | 44035             | 28500              | 15535              | 0.36               |
| 10            | 600           | 4.40                 | 68585             | 57000              | 11585              | 0.27               |
| 15            | 900           | 3.70                 | 86511             | 85500              | 1011               | 0.02               |
| 20            | 1200          | 3.20                 | 99760             | 99760              | 0                  | 0.00               |
| 25            | 1500          | 2.85                 | 111061            | 111061             | 0                  | 0.00               |
| 30            | 1800          | 2.60                 | 121582            | 121582             | 0                  | 0.00               |
| 35            | 2100          | 2.35                 | 128207            | 128207             | 0                  | 0.00               |
| 40            | 2400          | 2.15                 | 134052            | 134052             | 0                  | 0.00               |
| 45            | 2700          | 1.95                 | 136780            | 136780             | 0                  | 0.00               |
| 50            | 3000          | 1.85                 | 144184            | 144184             | 0                  | 0.00               |
| 55            | 3300          | 1.70                 | 145743            | 145743             | 0                  | 0.00               |
| 60            | 3600          | 1.65                 | 154316            | 154316             | 0                  | 0.00               |

<--WQ Vol. Req'd.\*

\* Pond A1 and Pond A2 are combined to provide this volume.

**Glenwood Meadows: Basin-A, Water Quality Volume Provided**

**POND A1**

| ELEVATION<br>(ft) | AREA<br>(sq-ft) | Avg. Area<br>(sq-ft) | Incremental<br>Depth (ft) | Incremental<br>Volume (cf) | Cum.<br>Volume (cf) | Cum. Volume<br>(ac-ft) |
|-------------------|-----------------|----------------------|---------------------------|----------------------------|---------------------|------------------------|
| 5742.87           | 0               |                      |                           |                            |                     |                        |
|                   |                 | 629                  | 0.13                      | 54                         | 54                  | 0.00                   |
| 5743.00           | 1,257           |                      |                           |                            |                     |                        |
|                   |                 | 2,836                | 1.00                      | 2,676                      | 2,730               | 0.06                   |
| 5744.00           | 4,414           |                      |                           |                            |                     |                        |
|                   |                 | 5,514                | 1.00                      | 5,477                      | 8,207               | 0.19                   |
| 5745.00           | 6,613           |                      |                           |                            |                     |                        |
|                   |                 | 7,313                | 1.00                      | 7,302                      | 15,508              | 0.36                   |
| 5746.00           | 8,013           |                      |                           |                            |                     |                        |
|                   |                 | 9,060                | 1.00                      | 9,040                      | 24,548              | 0.56                   |
| 5747.00           | 10,107          |                      |                           |                            |                     |                        |

**POND A2**

| ELEVATION<br>(ft) | AREA<br>(sq-ft) | Avg. Area<br>(sq-ft) | Incremental<br>Depth (ft) | Incremental<br>Volume (cf) | Cum.<br>Volume (cf) | Cum. Volume<br>(ac-ft) |
|-------------------|-----------------|----------------------|---------------------------|----------------------------|---------------------|------------------------|
| 5744.50           | 0               |                      |                           |                            |                     |                        |
|                   |                 | 824                  | 0.50                      | 275                        | 275                 | 0.01                   |
| 5745.00           | 1,648           |                      |                           |                            |                     |                        |
|                   |                 | 3,704                | 1.00                      | 3,496                      | 3,496               | 0.08                   |
| 5746.00           | 5,759           |                      |                           |                            |                     |                        |
|                   |                 | 6,399                | 1.00                      | 6,388                      | 9,884               | 0.23                   |
| 5747.00           | 7,039           |                      |                           |                            |                     |                        |

|                                |             |
|--------------------------------|-------------|
| <b>Total Volume Required =</b> | <b>0.36</b> |
| <b>Total Volume Provided =</b> | <b>0.79</b> |

# **APPENDIX K**

## **BASIN B WATER QUALITY POND**



**Glenwood Meadows: Basin-B, Water Quality Volume Required**

Area (ac)= **43.6**  
 $C_2 =$  **0.55**  
 Area x  $C_2 =$  **24.00** Rel. Rate (cfs)= **1.51**

| TIME<br>(min) | TIME<br>(sec) | INTENSITY<br>(in/hr) | INFLOW<br>(cu-ft) | OUTFLOW<br>(cu-ft) | STORAGE<br>(cu-ft) | STORAGE<br>(ac-ft) |
|---------------|---------------|----------------------|-------------------|--------------------|--------------------|--------------------|
| 5             | 300           | 2.00                 | 14398             | 452                | 13947              | 0.32               |
| 10            | 600           | 1.55                 | 22317             | 903                | 21414              | 0.49               |
| 15            | 900           | 1.30                 | 28077             | 1355               | 26722              | 0.61               |
| 20            | 1200          | 1.15                 | 33116             | 1806               | 31310              | 0.72               |
| 25            | 1500          | 1.00                 | 35996             | 2258               | 33738              | 0.77               |
| 30            | 1800          | 0.90                 | 38875             | 2709               | 36166              | 0.83               |
| 35            | 2100          | 0.80                 | 40315             | 3161               | 37154              | 0.85               |
| 40            | 2400          | 0.75                 | 43195             | 3613               | 39582              | 0.91               |
| 45            | 2700          | 0.70                 | 45355             | 4064               | 41290              | 0.95               |
| 50            | 3000          | 0.65                 | 46794             | 4516               | 42279              | 0.97               |
| 55            | 3300          | 0.60                 | 47514             | 4967               | 42547              | 0.98               |
| 60            | 3600          | 0.55                 | 47514             | 5419               | 42095              | 0.97               |

<--WQ Vol. Req'd.

**Glenwood Meadows: Basin-B, Water Quality Volume Provided**

**POND B1**

| ELEVATION<br>(ft) | AREA<br>(sq-ft) | Avg. Area<br>(sq-ft) | Incremental<br>Depth (ft) | Incremental<br>Volume (cf) | Cum.<br>Volume (cf) | Cum. Volume<br>(ac-ft) |
|-------------------|-----------------|----------------------|---------------------------|----------------------------|---------------------|------------------------|
| 5740.50           | 0               |                      |                           |                            |                     |                        |
|                   |                 | 2,028                | 0.50                      | 676                        | 676                 | 0.02                   |
| 5741.00           | 4,056           |                      |                           |                            |                     |                        |
|                   |                 | 6,824                | 1.00                      | 6,628                      | 7,304               | 0.17                   |
| 5742.00           | 9,592           |                      |                           |                            |                     |                        |
|                   |                 | 11,581               | 1.00                      | 11,523                     | 18,828              | 0.43                   |
| 5743.00           | 13,569          |                      |                           |                            |                     |                        |
|                   |                 | 14,631               | 1.00                      | 14,618                     | 33,445              | 0.77                   |
| 5744.00           | 15,692          |                      |                           |                            |                     |                        |
|                   |                 | 16,705               | 1.00                      | 16,694                     | 50,140              | 1.15                   |
| 5745.00           | 17,717          |                      |                           |                            |                     |                        |

|                                |               |
|--------------------------------|---------------|
| <b>Total Volume Required =</b> | <b>0.977</b>  |
| <b>Total Volume Provided =</b> | <b>1.151</b>  |
| <b>2-yr WQWSEL =</b>           | <b>5744.8</b> |

# **APPENDIX L**

## **BASIN C WATER QUALITY POND**

**Glenwood Meadows: Basin-C, Water Quality Volume Required**

Area (ac)= **33.2**

C<sub>2</sub> = **0.58**

Area x C<sub>2</sub> = **19.10**

Rel. Rate (cfs)= **1.30**

| TIME<br>(min) | TIME<br>(sec) | INTENSITY<br>(in/hr) | INFLOW<br>(cu-ft) | OUTFLOW<br>(cu-ft) | STORAGE<br>(cu-ft) | STORAGE<br>(ac-ft) |
|---------------|---------------|----------------------|-------------------|--------------------|--------------------|--------------------|
| 5             | 300           | 2.00                 | 11457             | 389                | 11069              | 0.25               |
| 10            | 600           | 1.55                 | 17759             | 777                | 16982              | 0.39               |
| 15            | 900           | 1.30                 | 22342             | 1166               | 21176              | 0.49               |
| 20            | 1200          | 1.15                 | 26352             | 1554               | 24798              | 0.57               |
| 25            | 1500          | 1.00                 | 28644             | 1943               | 26701              | 0.61               |
| 30            | 1800          | 0.90                 | 30935             | 2331               | 28604              | 0.66               |
| 35            | 2100          | 0.80                 | 32081             | 2720               | 29361              | 0.67               |
| 40            | 2400          | 0.75                 | 34372             | 3108               | 31264              | 0.72               |
| 45            | 2700          | 0.70                 | 36091             | 3497               | 32594              | 0.75               |
| 50            | 3000          | 0.65                 | 37237             | 3886               | 33351              | 0.77               |
| 55            | 3300          | 0.60                 | 37810             | 4274               | 33535              | 0.77               |
| 60            | 3600          | 0.55                 | 37810             | 4663               | 33147              | 0.76               |

<--WQ Vol. Req'd.\*

\* Pond C1 and Pond C2 are combined to provide this volume.

**Glenwood Meadows: Basin-C, Water Quality Volume Provided**

**POND C1**

| ELEVATION<br>(ft) | AREA<br>(sq-ft) | Avg. Area<br>(sq-ft) | Incremental<br>Depth (ft) | Incremental<br>Volume (cf) | Cum.<br>Volume (cf) | Cum. Volume<br>(ac-ft) |
|-------------------|-----------------|----------------------|---------------------------|----------------------------|---------------------|------------------------|
| 5744.50           | 0               |                      |                           |                            |                     |                        |
|                   |                 | 1,069                | 0.50                      | 356                        | 356                 | 0.01                   |
| 5745.00           | 2,137           |                      |                           |                            |                     |                        |
|                   |                 | 3,592                | 1.00                      | 3,489                      | 3,846               | 0.09                   |
| 5746.00           | 5,047           |                      |                           |                            |                     |                        |
|                   |                 | 6,228                | 1.00                      | 6,190                      | 9,680               | 0.22                   |
| 5747.00           | 7,409           |                      |                           |                            |                     |                        |

**POND C2**

| ELEVATION<br>(ft) | AREA<br>(sq-ft) | Avg. Area<br>(sq-ft) | Incremental<br>Depth (ft) | Incremental<br>Volume (cf) | Cum.<br>Volume (cf) | Cum. Volume<br>(ac-ft) |
|-------------------|-----------------|----------------------|---------------------------|----------------------------|---------------------|------------------------|
| 5742.50           | 0               |                      |                           |                            |                     |                        |
|                   |                 | 653                  | 0.50                      | 218                        | 218                 | 0.00                   |
| 5743.00           | 1,306           |                      |                           |                            |                     |                        |
|                   |                 | 3,119                | 1.00                      | 2,925                      | 3,143               | 0.07                   |
| 5744.00           | 4,931           |                      |                           |                            |                     |                        |
|                   |                 | 5,576                | 1.00                      | 5,564                      | 8,706               | 0.20                   |
| 5745.00           | 6,221           |                      |                           |                            |                     |                        |
|                   |                 | 6,858                | 1.00                      | 6,848                      | 15,554              | 0.36                   |
| 5746.00           | 7,495           |                      |                           |                            |                     |                        |
|                   |                 | 8,135                | 1.00                      | 8,127                      | 23,681              | 0.54                   |
| 5747.00           | 8,775           |                      |                           |                            |                     |                        |

|                                |               |
|--------------------------------|---------------|
| <b>Total Volume Required =</b> | <b>0.77</b>   |
| <b>Total Volume Provided =</b> | <b>0.77</b>   |
| <b>2-yr WQWSEL =</b>           | <b>5747.0</b> |

# **APPENDIX M**

## **INLET SIZING**

Glenwood Meadows  
Inlet Sizing, 25-yr Storm Event  
CALCULATED BY: TJH

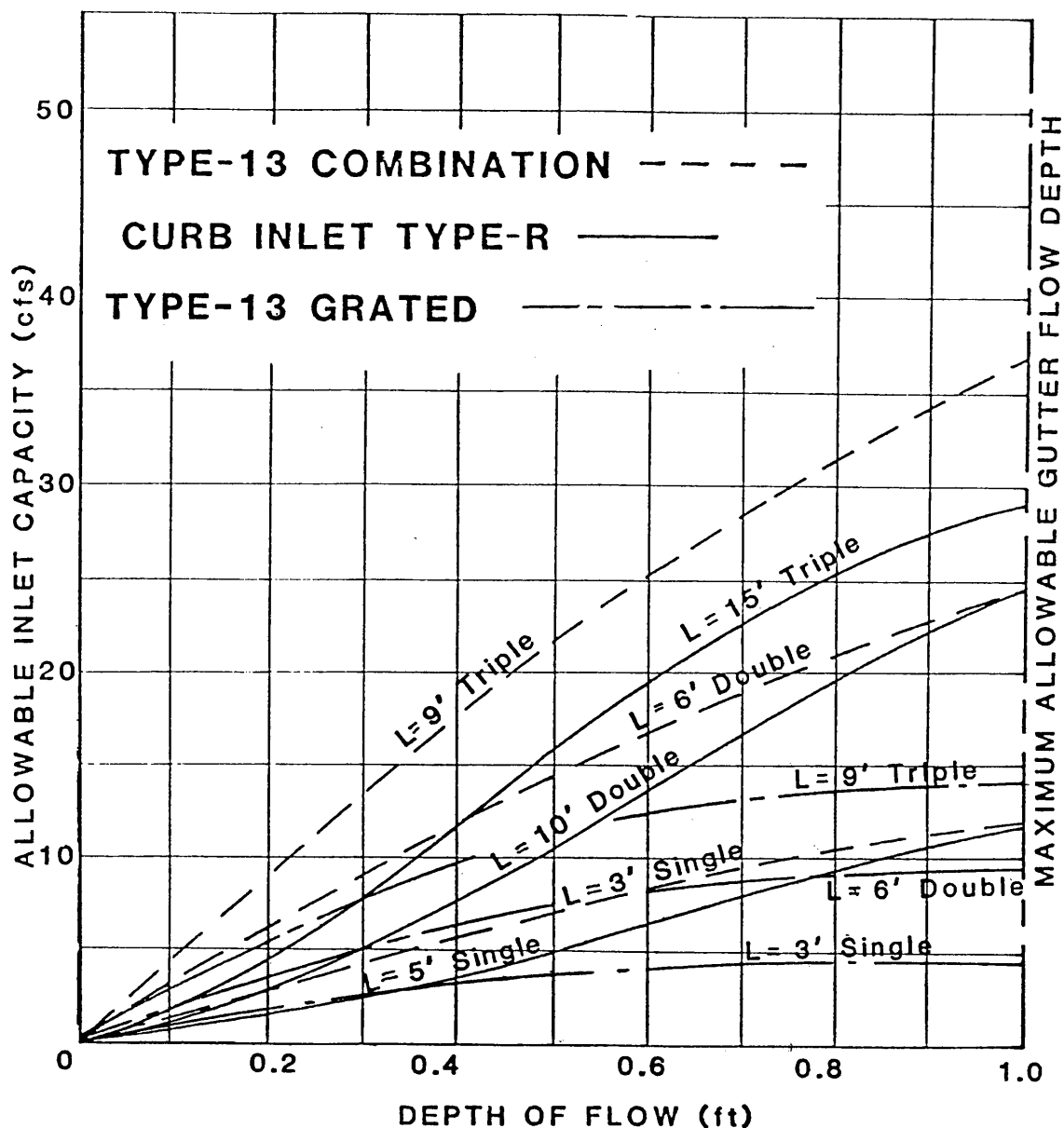
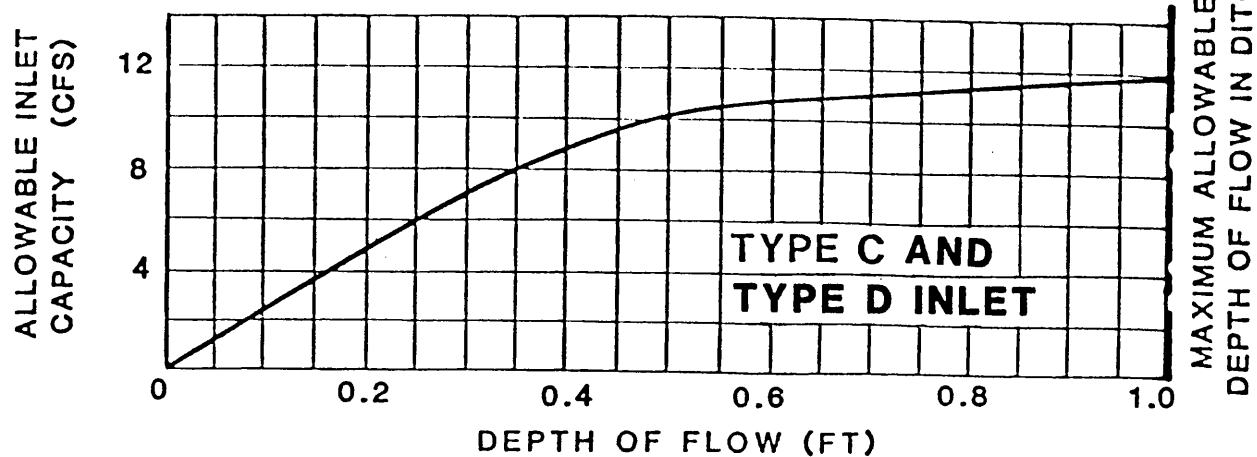
| INLET NAME | DESIGN POINT | DIRECT RUNOFF   |                 |                                  |                      |            |                     | INLET CHARACTERISTICS            |                 |                  |                           |                   | NOTES                                   |
|------------|--------------|-----------------|-----------------|----------------------------------|----------------------|------------|---------------------|----------------------------------|-----------------|------------------|---------------------------|-------------------|-----------------------------------------|
|            |              | DRAINAGE BASINS | TOTAL AREA (ac) | RUNOFF COEFF. (C <sub>25</sub> ) | t <sub>c</sub> (min) | C x A (ac) | INTENSITY I (in/hr) | TOTAL FLOW Q <sub>25</sub> (cfs) | MAX. DEPTH (ft) | STREET SLOPE (%) | MAX. INLET CAPACITY (cfs) | INLET LENGTH TYPE |                                         |
| (1)        | (2)          | (3)             | (4)             | (5)                              | (6)                  | (7)        | (8)                 | (9)                              | (10)            | (11)             | (12)                      | (13)              | (14)                                    |
| STIN 1-1   |              | A15             | 0.32            | 0.86                             | 5.0                  | 0.28       | 4.25                | 1.2                              | 0.75            | SUMP             | 8.0                       | 5' TYP ER         |                                         |
| STIN 1-2   |              | A44             | 0.14            | 0.94                             | 5.0                  | 0.13       | 4.25                | 0.5                              | 0.75            | SUMP             | 8.0                       | 5' TYP ER         |                                         |
| STIN 1-3   |              | A3              | 0.38            | 0.66                             | 5.0                  | 0.25       | 4.25                | 1.1                              | 0.75            | SUMP             | 8.0                       | 5' TYP ER         |                                         |
| STIN 1-4   |              | A2              | 0.33            | 0.82                             | 5.0                  | 0.27       | 4.25                | 1.1                              | 1.00            | SUMP             | 49.0                      | Trench Drain      | Neenah 10"x26" R-4990-CX w/Type-A Grate |
| STIN 1-5   |              | A1              | 0.95            | 0.47                             | 7.0                  | 0.45       | 4.25                | 1.9                              | 0.75            | SUMP             | 8.0                       | 5' TYP ER         |                                         |
| STIN 2-1   |              | A37             | 0.66            | 0.79                             | 5.0                  | 0.52       | 4.25                | 2.2                              | 0.75            | SUMP             | 8.0                       | 5' TYP ER         |                                         |
| STIN 2-2   |              | A45             | 0.39            | 0.28                             | 5.0                  | 0.11       | 4.25                | 0.5                              | 0.75            | SUMP             | 8.0                       | Area Drain        | Neenah R-4340-B Beehive Area Drain      |
| STIN 3-1   |              | A36             | 0.87            | 0.91                             | 5.0                  | 0.79       | 4.25                | 3.4                              | 0.75            | SUMP             | 8.0                       | 5' TYP ER         |                                         |
| STIN 3-2   |              | A24             | 0.75            | 0.86                             | 6.6                  | 0.65       | 3.85                | 2.5                              | 0.75            | SUMP             | 8.0                       | 5' TYP ER         |                                         |
| STIN 3-3   |              | A22             | 0.67            | 0.84                             | 5.0                  | 0.56       | 4.25                | 2.4                              | 0.75            | SUMP             | 8.0                       | 5' TYP ER         |                                         |
| STIN 3-4   |              | A35             | 1.81            | 0.87                             | 5.0                  | 1.58       | 4.25                | 6.7                              | 0.75            | SUMP             | 8.0                       | 5' TYP ER         |                                         |
| STIN 3-5   |              | A33             | 0.95            | 0.78                             | 5.0                  | 0.74       | 4.25                | 3.1                              | 0.75            | SUMP             | 8.0                       | 5' TYP ER         |                                         |
| STIN 3-6   |              | A31             | 0.44            | 0.81                             | 5.0                  | 0.36       | 4.25                | 1.5                              | 0.50            | 5.00             | 4.0                       | 5' TYP ER         |                                         |
| STIN 3-7   |              | A26             | 0.50            | 0.81                             | 5.0                  | 0.41       | 4.25                | 1.7                              | 0.50            | 5.00             | 4.0                       | 5' TYP ER         |                                         |
| STIN 3-8   |              | A21             | 2.71            | 0.86                             | 6.1                  | 2.34       | 4.00                | 9.4                              | 0.75            | SUMP             | 18.0                      | 10' TYP ER        |                                         |
| STIN 3-9   |              | A32             | 0.35            | 0.79                             | 5.0                  | 0.28       | 4.25                | 1.2                              | 0.75            | SUMP             | 8.0                       | 5' TYP ER         |                                         |
| STIN 3-10  |              | A20             | 0.49            | 0.77                             | 5.4                  | 0.38       | 4.10                | 1.5                              | 0.75            | SUMP             | 8.0                       | 5' TYP ER         |                                         |
| STIN 3-11  |              | A42             | 0.31            | 0.81                             | 5.0                  | 0.25       | 4.25                | 1.1                              | 0.50            | 5.00             | 4.0                       | 5' TYP ER         |                                         |
| STIN 3-12  |              | A41             | 0.25            | 0.81                             | 5.0                  | 0.20       | 4.25                | 0.9                              | 0.50            | 5.00             | 4.0                       | 5' TYP ER         |                                         |
| STIN 3-13  |              | A16             | 0.40            | 0.47                             | 5.0                  | 0.19       | 4.25                | 0.8                              | 0.75            | SUMP             | 8.0                       | 5' TYP ER         |                                         |
| STIN 3-14  |              | A17             | 0.44            | 0.66                             | 5.0                  | 0.29       | 4.25                | 1.2                              | 0.75            | SUMP             | 8.0                       | 5' TYP ER         |                                         |
| STIN 3-15  |              | A30             | 0.24            | 0.93                             | 5.0                  | 0.22       | 4.25                | 0.9                              | 0.75            | SUMP             | 8.0                       | 5' TYP ER         |                                         |
| STIN 3-16  |              | A29             | 0.16            | 0.85                             | 5.0                  | 0.14       | 4.25                | 0.6                              | 0.50            | 3.13             | 4.0                       | 5' TYP ER         |                                         |
| STIN 3-17  |              | A18             | 0.46            | 0.87                             | 5.0                  | 0.40       | 4.25                | 1.7                              | 0.50            | 3.70             | 4.0                       | 5' TYP ER         |                                         |
| STIN 3-18  |              | A43             | 0.65            | 0.87                             | 5.0                  | 0.56       | 4.25                | 2.4                              | 0.50            | 3.70             | 4.0                       | 5' TYP ER         |                                         |
| STIN 3-19  |              | OS1             | 3.77            | 0.28                             | 14.2                 | 1.06       | 2.80                | 3.0                              | 1.00            | SUMP             | 5.3                       | Area Drain        | Neenah R-4340-B Beehive Area Drain      |
| STIN 3-20  |              | OS2             | 8.18            | 0.54                             | 9.1                  | 4.42       | 3.35                | 14.8                             | 1.00            | SUMP             | 34.0                      | CDOT Type-C       |                                         |
| STIN 3-21  |              | A19             | 1.15            | 0.77                             | 5.1                  | 0.88       | 4.25                | 3.7                              | 1.00            | SUMP             | 13.0                      | 3' TYPE-13        |                                         |
| STIN 4-1   |              | B38             | 0.53            | 0.67                             | 5.0                  | 0.35       | 4.25                | 1.5                              | 0.75            | SUMP             | 8.0                       | 5' TYP ER         |                                         |

| INLET NAME | DESIGN POINT | DIRECT RUNOFF   |                 |                                  |                      |            | INLET CHARACTERISTICS |                                  |                 |                  |                           | NOTES       |                                    |
|------------|--------------|-----------------|-----------------|----------------------------------|----------------------|------------|-----------------------|----------------------------------|-----------------|------------------|---------------------------|-------------|------------------------------------|
|            |              | DRAINAGE BASINS | TOTAL AREA (ac) | RUNOFF COEFF. (C <sub>25</sub> ) | t <sub>c</sub> (min) | C x A (ac) | INTENSITY I (in/hr)   | TOTAL FLOW Q <sub>25</sub> (cfs) | MAX. DEPTH (ft) | STREET SLOPE (%) | MAX. INLET CAPACITY (cfs) |             | INLET LENGTH TYPE                  |
| (1)        | (2)          | (3)             | (4)             | (5)                              | (6)                  | (7)        | (8)                   | (9)                              | (10)            | (11)             | (12)                      | (13)        | (14)                               |
| STIN 4-2   |              | B39             | 0.06            | 0.67                             | 5.0                  | 0.04       | 4.25                  | 0.2                              | 0.50            | SUMP             | 5.3                       | Area Drain  | Neenah R-4340-B Beehive Area Drain |
| STIN 4-2A  |              | B34             | 0.05            | 0.64                             | 5.0                  | 0.03       | 4.25                  | 0.1                              | 0.50            | SUMP             | 5.3                       | Area Drain  | Neenah R-4340-B Beehive Area Drain |
| STIN 4-3   |              | B19             | 0.77            | 0.86                             | 5.0                  | 0.66       | 4.25                  | 2.8                              | 0.75            | SUMP             | 8.0                       | 5' TYPE R   |                                    |
| STIN 4-4   |              | B18             | 1.16            | 0.90                             | 5.0                  | 1.05       | 4.25                  | 4.5                              | 1.00            | SUMP             | 13.0                      | 3' TYPE-13  |                                    |
| STIN 4-5   |              | B17             | 1.70            | 0.88                             | 5.0                  | 1.50       | 4.25                  | 6.4                              | 1.00            | SUMP             | 13.0                      | 3' TYPE-13  |                                    |
| STIN 4-6   |              | B27             | 2.12            | 0.88                             | 5.0                  | 1.86       | 4.25                  | 7.9                              | 1.00            | SUMP             | 13.0                      | 3' TYPE-13  |                                    |
| STIN 4-7   |              | B26             | 0.08            | 0.91                             | 5.0                  | 0.07       | 4.25                  | 0.3                              | 0.75            | SUMP             | 8.0                       | 5' TYPE R   |                                    |
| STIN 4-8   |              | B23             | 0.63            | 0.90                             | 5.0                  | 0.57       | 4.25                  | 2.4                              | 0.75            | SUMP             | 8.0                       | 5' TYPE R   |                                    |
| STIN 4-9   |              | B22             | 0.70            | 0.90                             | 5.0                  | 0.63       | 4.25                  | 2.7                              | 0.75            | SUMP             | 8.0                       | 5' TYPE R   |                                    |
| STIN 4-10  |              | B16             | 0.71            | 0.92                             | 5.0                  | 0.65       | 4.25                  | 2.8                              | 0.50            | SUMP             | 13.0                      | 3' TYPE-13  |                                    |
| STIN 4-11  |              | B9              | 0.39            | 0.81                             | 5.0                  | 0.32       | 4.25                  | 1.3                              | 0.75            | SUMP             | 8.0                       | 5' TYPE R   |                                    |
| STIN 4-12  |              | B8              | 0.49            | 0.78                             | 5.0                  | 0.38       | 4.25                  | 1.6                              | 0.75            | SUMP             | 8.0                       | 5' TYPE R   |                                    |
| STIN 4-13  |              | B7              | 0.59            | 0.81                             | 5.0                  | 0.48       | 4.25                  | 2.0                              | 0.75            | SUMP             | 8.0                       | 5' TYPE R   |                                    |
| STIN 4-14  |              | B1              | 1.25            | 0.92                             | 5.0                  | 1.15       | 4.25                  | 4.9                              | 0.75            | SUMP             | 8.0                       | 5' TYPE R   |                                    |
| STIN 4-15  |              | B6              | 0.30            | 0.81                             | 5.0                  | 0.24       | 4.25                  | 1.0                              | 0.75            | SUMP             | 8.0                       | 5' TYPE R   |                                    |
| STIN 4-16  |              | OS3             | 3.00            | 0.54                             | 5.2                  | 1.62       | 4.25                  | 6.9                              | 1.00            | SUMP             | 34.0                      | CDOT Type-C |                                    |
| STIN 4-17  |              | OS4             | 5.23            | 0.54                             | 9.1                  | 2.82       | 3.35                  | 9.5                              | 1.00            | SUMP             | 34.0                      | CDOT Type-C |                                    |
| STIN 4-18  |              | B35             | 1.07            | 0.68                             | 6.6                  | 0.73       | 4.25                  | 3.1                              | 0.75            | SUMP             | 8.0                       | 5' TYPE R   |                                    |
| STIN 4-19  |              | --              | --              | --                               | --                   | --         | --                    | --                               | --              | --               | --                        | --          | REMOVED FROM PLANS                 |
| STIN 4-20  |              | B13             | 0.35            | 0.93                             | 5.0                  | 0.32       | 4.25                  | 1.4                              | 0.50            | 2.80             | 3.9                       | 5' TYPE R   |                                    |
| STIN 4-21  |              | B12             | 0.40            | 0.93                             | 5.0                  | 0.37       | 4.25                  | 1.6                              | 0.50            | 2.80             | 3.9                       | 5' TYPE R   |                                    |
| STIN 4-22  |              | B4              | 0.38            | 0.91                             | 5.0                  | 0.35       | 4.25                  | 1.5                              | 0.75            | SUMP             | 8.0                       | 5' TYPE R   |                                    |
| STIN 4-23  |              | B3              | 0.32            | 0.93                             | 5.0                  | 0.30       | 4.25                  | 1.3                              | 0.75            | SUMP             | 8.0                       | 5' TYPE R   |                                    |
| STIN 4-24  |              | B2              | 0.47            | 0.91                             | 5.0                  | 0.43       | 4.25                  | 1.8                              | 0.75            | SUMP             | 8.0                       | 5' TYPE R   |                                    |
| STIN 5-1   |              | C14             | 0.15            | 0.82                             | 5.0                  | 0.12       | 4.25                  | 0.5                              | 0.75            | SUMP             | 8.0                       | 5' TYPE R   |                                    |
| STIN 5-2   |              | C13             | 0.09            | 0.78                             | 5.0                  | 0.07       | 4.25                  | 0.3                              | 0.75            | SUMP             | 8.0                       | 5' TYPE R   |                                    |
| STIN 5-3   |              | C9              | 0.42            | 0.74                             | 5.0                  | 0.31       | 4.25                  | 1.3                              | 0.75            | SUMP             | 8.0                       | 5' TYPE R   |                                    |
| STIN 5-4   |              | C8              | 2.43            | 0.89                             | 5.0                  | 2.16       | 4.25                  | 9.2                              | 0.75            | SUMP             | 13.0                      | 3' TYPE-13  |                                    |
| STIN 6-1   |              | C10             | 0.51            | 0.72                             | 5.0                  | 0.37       | 4.25                  | 1.6                              | 0.50            | 4.25             | 4.1                       | 5' TYPE R   |                                    |
| STIN 6-2   |              | C11             | 0.39            | 0.88                             | 5.0                  | 0.34       | 4.25                  | 1.5                              | 0.50            | 4.25             | 4.1                       | 5' TYPE R   |                                    |
| STIN 6-3   |              | C4              | 0.37            | 0.78                             | 5.0                  | 0.29       | 4.25                  | 1.2                              | 0.75            | SUMP             | 8.0                       | 5' TYPE R   |                                    |
| STIN 6-4   |              | C3              | 0.26            | 0.85                             | 5.0                  | 0.22       | 4.25                  | 0.9                              | 0.75            | SUMP             | 8.0                       | 5' TYPE R   |                                    |
| STIN 6-5   |              | C5              | 0.18            | 0.82                             | 5.0                  | 0.15       | 4.25                  | 0.6                              | 0.50            | 4.25             | 4.1                       | 5' TYPE R   |                                    |
| STIN 6-6   |              | C6              | 0.15            | 0.83                             | 5.0                  | 0.12       | 4.25                  | 0.5                              | 0.50            | 4.25             | 4.1                       | 5' TYPE R   |                                    |
| STIN 6-7   |              | C1              | 1.39            | 0.93                             | 5.0                  | 1.29       | 4.25                  | 5.5                              | 0.75            | SUMP             | 8.0                       | 5' TYPE R   |                                    |
|            |              | OS7             | 2.19            | 0.72                             | 5.2                  | 1.58       | 4.25                  | 6.7                              |                 | SUMP             |                           |             |                                    |
|            |              | OS8             | 8.78            | 0.54                             | 9.3                  | 4.74       | 3.30                  | 15.6                             |                 | SUMP             |                           |             |                                    |
| STIN 6-8   |              | OS7/OS8         | 10.97           | 0.58                             | 9.3                  | 6.32       | 3.3                   | 20.8                             | 1.00            | SUMP             | 34.0                      | CDOT Type-C |                                    |
| STIN 7-1   |              | A27             | 0.40            | 0.92                             | 5.0                  | 0.37       | 4.25                  | 1.6                              | 0.50            | 5.00             | 4.1                       | 5' TYPE R   |                                    |

| INLET NAME | DESIGN POINT | DIRECT RUNOFF   |                 |                                  |                      |            |                     | INLET CHARACTERISTICS            |                 |                  |                           |                   | NOTES                              |
|------------|--------------|-----------------|-----------------|----------------------------------|----------------------|------------|---------------------|----------------------------------|-----------------|------------------|---------------------------|-------------------|------------------------------------|
|            |              | DRAINAGE BASINS | TOTAL AREA (ac) | RUNOFF COEFF. (C <sub>25</sub> ) | t <sub>c</sub> (min) | C x A (ac) | INTENSITY I (in/hr) | TOTAL FLOW Q <sub>25</sub> (cfs) | MAX. DEPTH (ft) | STREET SLOPE (%) | MAX. INLET CAPACITY (cfs) | INLET LENGTH TYPE |                                    |
| (1)        | (2)          | (3)             | (4)             | (5)                              | (6)                  | (7)        | (8)                 | (9)                              | (10)            | (11)             | (12)                      | (13)              | (14)                               |
| STIN 7-2   |              | A34             | 0.32            | 0.85                             | 5.0                  | 0.27       | 4.25                | 1.2                              | 0.50            | 5.00             | 4.1                       | 5' TYPE R         |                                    |
| STIN 8-1   |              | C15             | 0.68            | 0.79                             | 5.0                  | 0.54       | 4.25                | 2.3                              | 0.75            | SUMP             | 8.0                       | 5' TYPE R         |                                    |
| STIN 9-1   |              | C18             | 0.28            | 0.88                             | 5.0                  | 0.25       | 4.00                | 1.0                              | 0.50            | 4.25             | 4.1                       | 5' TYPE R         |                                    |
| STIN 9-2   |              | C17             | 0.48            | 0.93                             | 5.0                  | 0.45       | 4.00                | 1.8                              | 0.50            | 4.25             | 4.1                       | 5' TYPE R         |                                    |
|            |              |                 |                 |                                  |                      |            |                     |                                  |                 |                  |                           |                   | 1.5 acres of C19                   |
| STIN 10-1  |              | C19             | 1.50            | 0.88                             | 6.9                  | 1.32       | 4.00                | 5.3                              | 0.75            | SUMP             | 8.0                       | Area Drain        | Neenah R-4340-B Beehive Area Drain |
| STIN 12-1  |              | A25             | 0.92            | 0.53                             | 5.5                  | 0.49       | 4.25                | 2.1                              | 0.50            | SUMP             | 5.3                       | Area Drain        | Neenah R-4340-B Beehive Area Drain |
| STIN 13-1  |              | C16             | 1.17            | 0.88                             | 5.0                  | 1.04       | 4.25                | 4.4                              | 0.50            | SUMP             | 5.3                       | Area Drain        | Neenah R-4340-B Beehive Area Drain |
| STIN 14-1  |              | B40             | 0.94            | 0.28                             | 5.0                  | 0.26       | 4.25                | 1.1                              | 0.50            | SUMP             | 5.3                       | Area Drain        | Neenah R-4340-B Beehive Area Drain |
| STIN 15-1  |              | A46             | 0.17            | 0.28                             | 5.0                  | 0.05       | 4.25                | 0.2                              | 0.50            | SUMP             | 5.3                       | Area Drain        | Neenah R-4340-B Beehive Area Drain |

- (1) Inlet Designation  
 (2) Design Point Location  
 (3) Basins Draining to Specified Inlet  
 (4) Total Drainage Area  
 (5) 25-year Runoff Coefficient, Weighted for Contributing Basins  
 (6) Time of Concentration from tc = ti + tt  
 (7) Total C x A for All Contributing Basins  
 (8) Rainfall Intensity from I-D-F Curve for Glenwood Meadows  
 (9) Total Runoff from Contributing Basins  
 (10) Depth of Ponding/Gutter Flow  
 (11) Street Slope  
 (12) Maximum Inlet Capacity  
 (13) Required Inlet Type/Size  
 (14) Notes

# ALLOWABLE INLET CAPACITY SUMP CONDITIONS - ALL INLETS

Date: **OCT. 1986**

Rev:

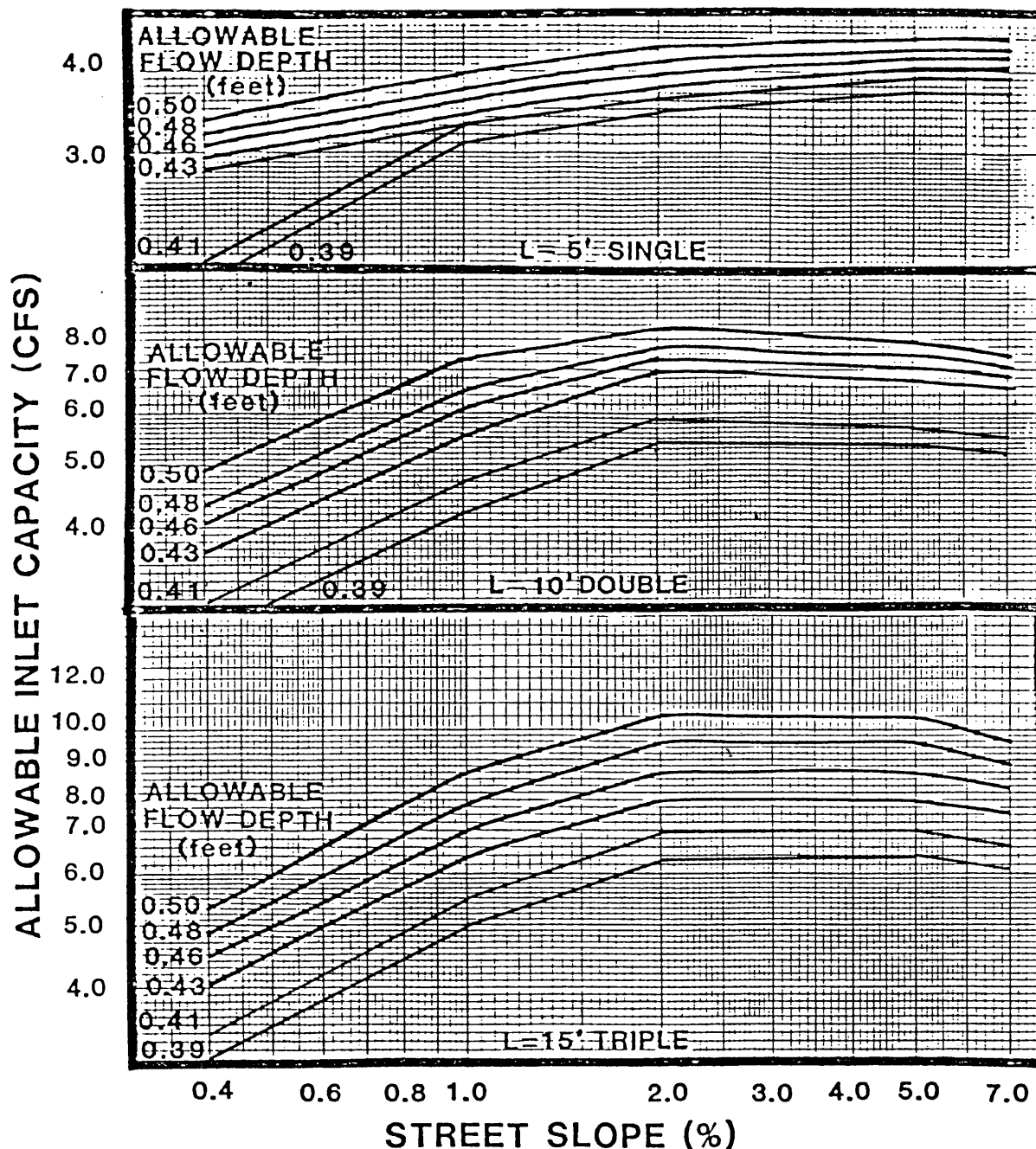
REFERENCE:

WRC ENGINEERING INC., TM-1, October 1986



## ALLOWABLE INLET CAPACITY

### TYPE - R CURB OPENING ON A CONTINUOUS GRADE



NOTES: 1. Maximum inlet capacity at maximum allowable flow depth. Proportionally reduce for other depths.

2. Allowable Capacity =  
     88% (L = 5')  
     92% (L = 10')  
     95% (L = 15')  
     } of Theoretical Capacity

3. Interpolate for other inlet lengths.

Date: **OCT. 1986**

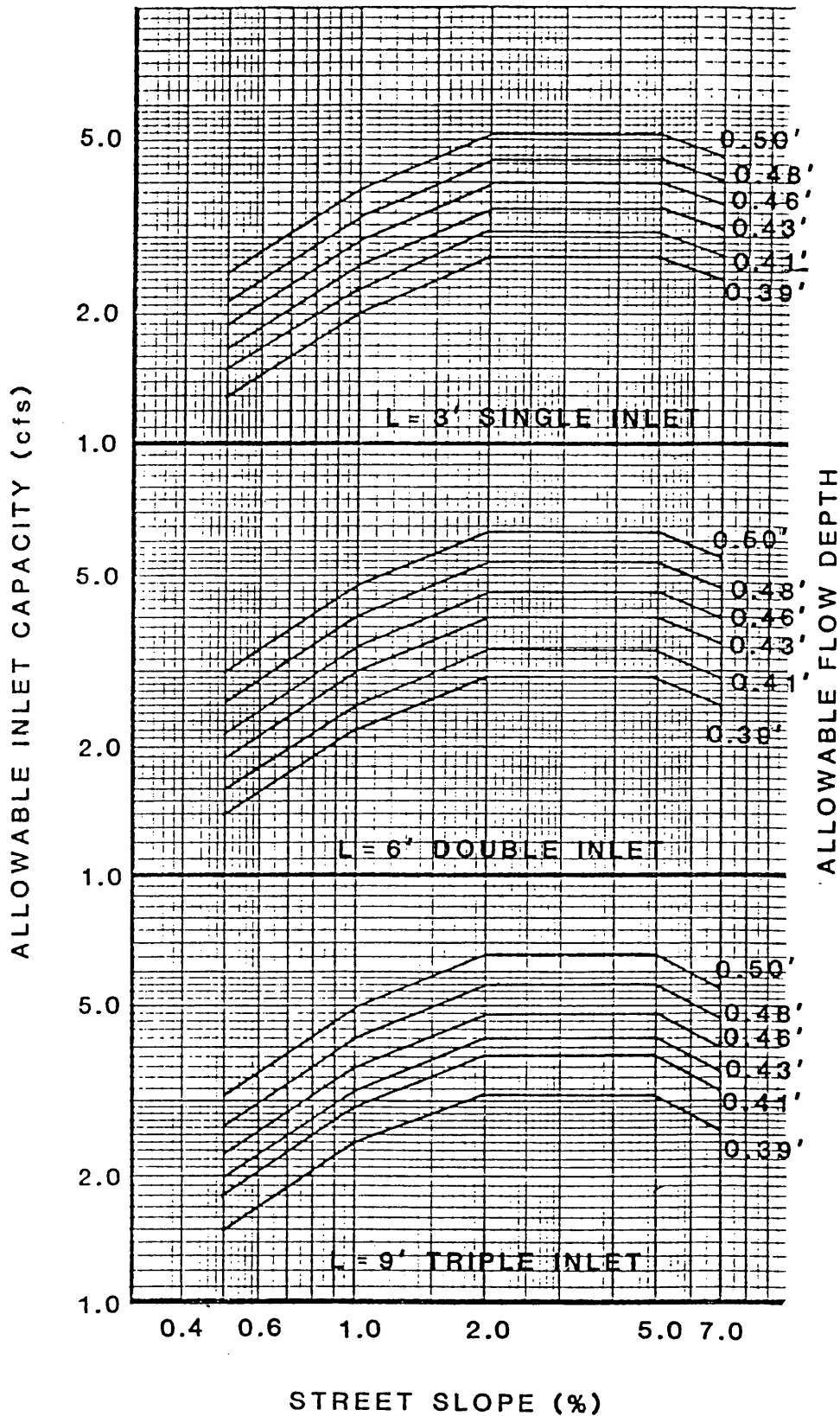
Rev:

REFERENCE:

WRC ENGINEERING, INC., TM-1, October 1986

# ALLOWABLE INLET CAPACITY

## TYPE 13 GRATED ON A CONTINUOUS GRADE



## NOTES:

1. Allowable capacity = 60% theoretical capacity
2. Maximum inlet capacity at maximum allowable flow depth. Proportionally reduce for other depths.

DATE: OCT. 1986

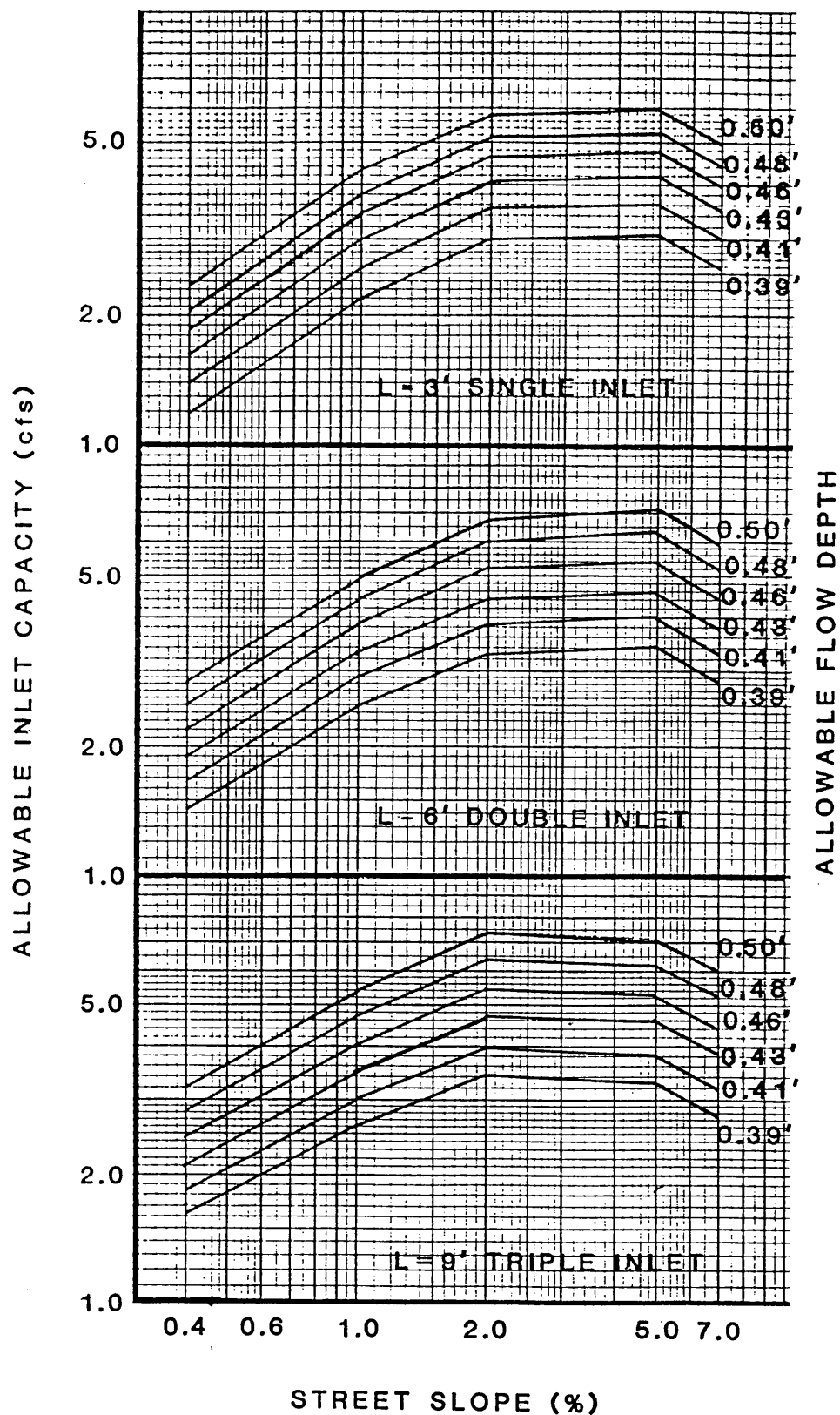
REV:

REFERENCE:

 Packet Page 612  
 WRC ENGINEERING, INC., TM-1, October 1986

# ALLOWABLE INLET CAPACITY

## TYPE 13 COMBINATION ON A CONTINUOUS GRADE



## NOTES:

1. Allowable capacity = 66% theoretical capacity
2. Maximum inlet capacity at maximum allowable flow depth. Proportionally reduce for other depths.

DATE: OCT. 1986

REV:

REFERENCE:

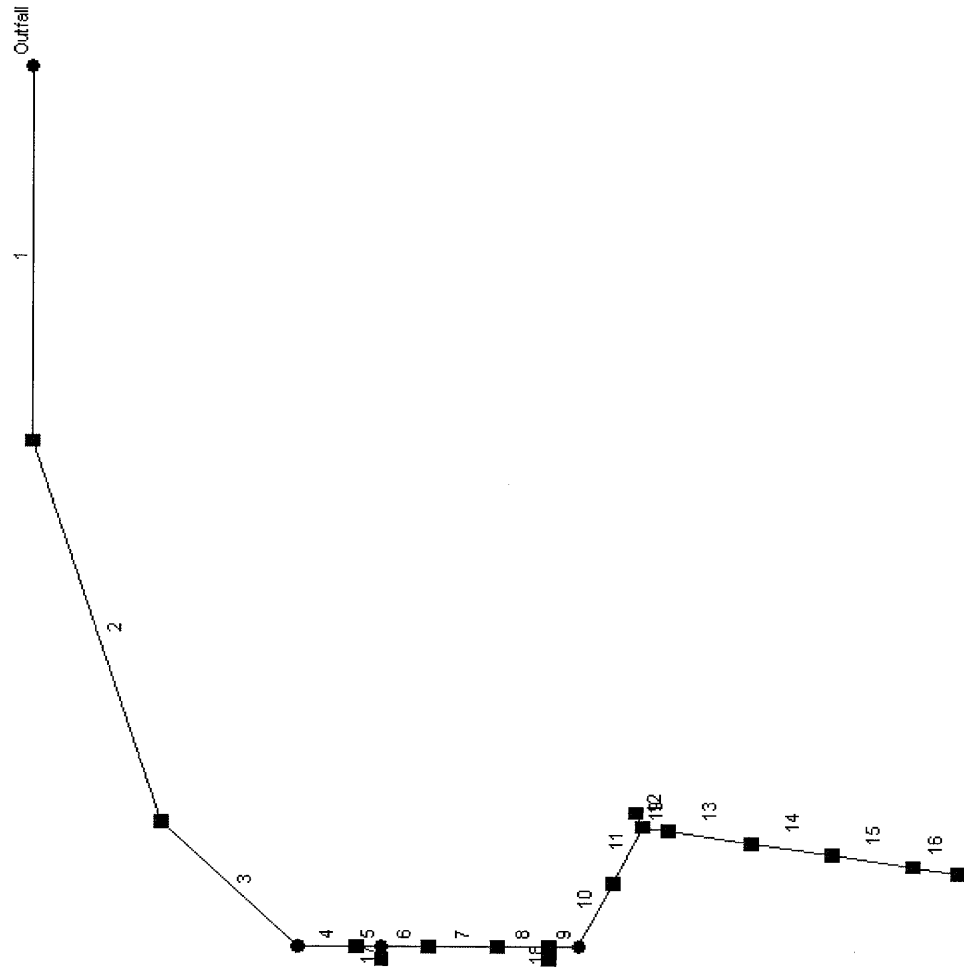
WRC ENGINEERING, INC., TM-1, October 1986

Packet Page 613

# **APPENDIX N**

## **HYDROFLOW STORM SEWER MODELS**

Hydraflow Plan View



Project file: D02049 Line-1 25-yr.stm

No. Lines: 19

07-29-2004

| Line No. | Line ID | Capac Full (cfs) | Cover Dn (ft) | Cover Up (ft) | DnStm Ln No | Known Q (cfs) | Drng Area (ac) | Flow Rate (cfs) | Gnd/Rim El Dn (ft) | Gnd/Rim El Up (ft) | HGL Dn (ft) | HGL Up (ft) | Invert Dn (ft) | Invert Up (ft) | Line Length (ft) | Line Size (in) | Line Slope (%) | Runoff Coeff (C) | Tc (min) | Vel Ave (ft/s) |
|----------|---------|------------------|---------------|---------------|-------------|---------------|----------------|-----------------|--------------------|--------------------|-------------|-------------|----------------|----------------|------------------|----------------|----------------|------------------|----------|----------------|
| 1        | A23     | 99.03            | 14.68         | 7.22          | Outfall     | 0.00          | 0.27           | 3.46            | 5775.30            | 5782.30            | 5758.74     | 5773.20     | 5758.12        | 5772.58        | 248.00           | 30             | 5.83           | 0.71             | 19.8     | 3.63           |
| 2        | A15     | 29.00            | 7.02          | 7.00          | 1           | 0.00          | 0.32           | 3.78            | 5782.30            | 5783.60            | 5773.39     | 5774.75     | 5772.78        | 5774.10        | 264.00           | 30             | 0.50           | 0.79             | 15.0     | 3.90           |
| 3        | MH 1-2  | 15.99            | 7.30          | 9.52          | 2           | 0.00          | 0.00           | 3.65            | 5783.60            | 5786.40            | 5774.95     | 5775.56     | 5774.30        | 5774.88        | 116.00           | 24             | 0.50           | 0.00             | 13.5     | 4.00           |
| 4        | A14     | 7.53             | 9.52          | 8.64          | 3           | 0.00          | 0.27           | 3.68            | 5786.40            | 5785.70            | 5776.12     | 5776.30     | 5775.38        | 5775.56        | 35.00            | 18             | 0.51           | 0.71             | 13.3     | 4.23           |
| 5        | MH 1-4  | 7.67             | 8.44          | 8.16          | 4           | 0.00          | 0.00           | 3.44            | 5785.70            | 5785.50            | 5776.46     | 5776.55     | 5775.76        | 5775.84        | 15.00            | 18             | 0.53           | 0.00             | 13.2     | 4.19           |
| 6        | A13     | 7.43             | 7.96          | 8.42          | 5           | 0.00          | 0.27           | 3.30            | 5785.50            | 5786.10            | 5776.82     | 5776.88     | 5776.04        | 5776.18        | 28.00            | 18             | 0.50           | 0.71             | 13.0     | 3.83           |
| 7        | A12     | 7.51             | 8.22          | 7.81          | 6           | 0.00          | 0.27           | 3.08            | 5786.10            | 5785.90            | 5777.05     | 5777.26     | 5776.38        | 5776.59        | 41.00            | 18             | 0.51           | 0.71             | 12.6     | 4.02           |
| 8        | A11     | 7.55             | 7.61          | 7.05          | 7           | 0.00          | 0.27           | 2.85            | 5785.90            | 5785.50            | 5777.43     | 5777.60     | 5776.79        | 5776.95        | 31.00            | 18             | 0.52           | 0.71             | 12.3     | 3.93           |
| 9        | MH 1-8  | 7.44             | 6.85          | 7.16          | 8           | 0.00          | 0.00           | 2.32            | 5785.50            | 5785.90            | 5777.95     | 5777.96     | 5777.15        | 5777.24        | 18.00            | 18             | 0.50           | 0.00             | 12.1     | 2.60           |
| 10       | A10     | 7.51             | 6.96          | 7.82          | 9           | 0.00          | 0.27           | 2.37            | 5785.90            | 5787.00            | 5778.06     | 5778.27     | 5777.44        | 5777.68        | 47.00            | 18             | 0.51           | 0.71             | 11.6     | 3.56           |
| 11       | A9      | 7.51             | 7.62          | 3.81          | 10          | 0.00          | 0.27           | 2.14            | 5787.00            | 5783.40            | 5778.43     | 5778.65     | 5777.88        | 5778.09        | 41.00            | 18             | 0.51           | 0.71             | 11.1     | 3.60           |
| 12       | A8      | 6.46             | 3.81          | 4.35          | 11          | 0.00          | 0.27           | 1.52            | 5783.40            | 5784.10            | 5778.90     | 5778.99     | 5778.34        | 5778.50        | 16.00            | 15             | 1.00           | 0.71             | 11.0     | 3.13           |
| 13       | A7      | 6.46             | 4.15          | 5.35          | 12          | 0.00          | 0.27           | 1.28            | 5784.10            | 5785.80            | 5779.08     | 5779.65     | 5778.70        | 5779.20        | 50.00            | 15             | 1.00           | 0.71             | 10.2     | 3.61           |
| 14       | A6      | 6.46             | 5.15          | 5.66          | 13          | 0.00          | 0.27           | 1.03            | 5785.80            | 5786.80            | 5779.74     | 5780.30     | 5779.40        | 5779.89        | 49.00            | 15             | 1.00           | 0.71             | 9.4      | 3.41           |
| 15       | A5      | 6.46             | 5.46          | 4.37          | 14          | 0.00          | 0.27           | 0.78            | 5786.80            | 5786.20            | 5780.39     | 5780.93     | 5780.09        | 5780.58        | 49.00            | 15             | 1.00           | 0.71             | 8.1      | 3.12           |
| 16       | A1      | 6.46             | 4.17          | 2.70          | 15          | 0.00          | 0.95           | 0.49            | 5786.20            | 5785.00            | 5781.01     | 5781.33     | 5780.78        | 5781.05        | 27.00            | 15             | 1.00           | 0.29             | 7.0      | 2.73           |
| 17       | A44     | 9.14             | 8.21          | 8.05          | 5           | 0.00          | 0.14           | 0.25            | 5785.50            | 5785.50            | 5776.82     | 5776.82     | 5776.04        | 5776.20        | 8.00             | 15             | 2.00           | 0.89             | 5.0      | 0.36           |
| 18       | A3      | 9.14             | 7.10          | 6.84          | 8           | 0.00          | 0.38           | 0.40            | 5785.50            | 5785.40            | 5777.95     | 5777.95     | 5777.15        | 5777.31        | 8.00             | 15             | 2.00           | 0.53             | 5.0      | 0.56           |
| 19       | A2      | 9.14             | 3.86          | 3.46          | 11          | 0.00          | 0.33           | 0.49            | 5783.40            | 5783.20            | 5778.90     | 5778.88     | 5778.29        | 5778.49        | 10.00            | 15             | 2.00           | 0.74             | 5.0      | 1.16           |

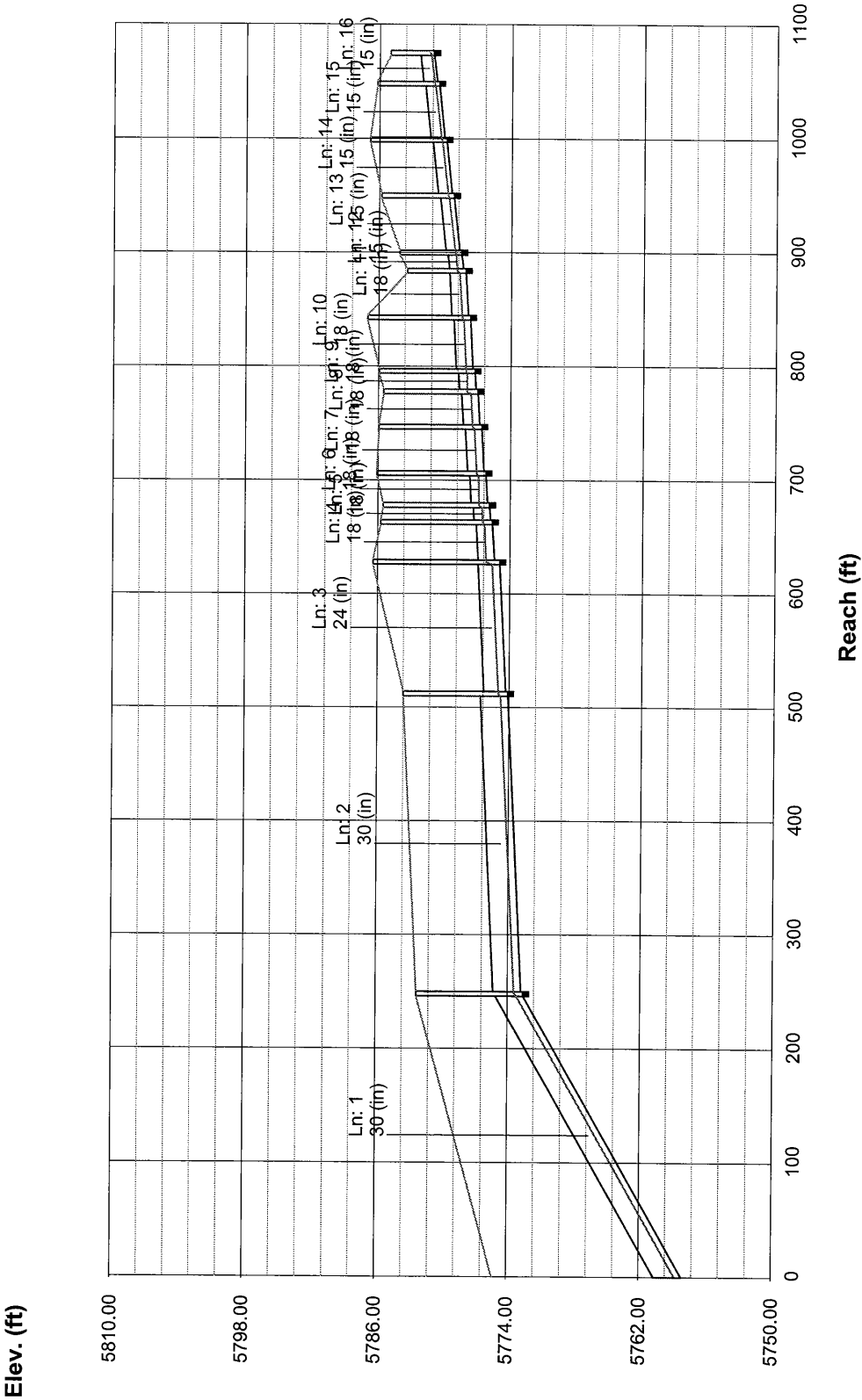
Project File: D02049 Line-1 2-yr.stm

Date: 07-29-2004

Number of lines: 19

NOTES: \*\* At critical depth

# Storm Sewer Profile



| Line No. | Line ID | Capac Full (cfs) | Cover Dn (ft) | Cover Up (ft) | DnStm Ln No | Known Q (cfs) | Drng Area (ac) | Flow Rate (cfs) | Gnd/Rim El Dn (ft) | Gnd/Rim El Up (ft) | HGL Dn (ft) | HGL Up (ft) | Invert Dn (ft) | Invert Up (ft) | Line Length (ft) | Line Size (in) | Line Slope (%) | Runoff Coeff (C) | Tc (min) | Vel Ave (ft/s) |
|----------|---------|------------------|---------------|---------------|-------------|---------------|----------------|-----------------|--------------------|--------------------|-------------|-------------|----------------|----------------|------------------|----------------|----------------|------------------|----------|----------------|
| 1        | A23     | 99.03            | 14.68         | 7.22          | Outfall     | 0.00          | 0.27           | 11.56           | 5775.30            | 5782.30            | 5759.26     | 5773.72     | 5758.12        | 5772.58        | 248.00           | 30             | 5.83           | 0.78             | 11.8     | 5.32           |
| 2        | A15     | 29.00            | 7.02          | 7.00          | 1           | 0.00          | 0.32           | 11.75           | 5782.30            | 5783.60            | 5774.03     | 5775.25     | 5772.78        | 5774.10        | 264.00           | 30             | 0.50           | 0.86             | 9.8      | 5.08           |
| 3        | MH 1-2  | 15.99            | 7.30          | 9.52          | 2           | 0.00          | 0.00           | 11.08           | 5783.60            | 5786.40            | 5775.56     | 5776.08     | 5774.30        | 5774.88        | 116.00           | 24             | 0.50           | 0.00             | 9.3      | 5.47           |
| 4        | A14     | 7.53             | 9.52          | 8.64          | 3           | 0.00          | 0.27           | 11.12           | 5786.40            | 5785.70            | 5776.88     | 5777.27     | 5775.38        | 5775.56        | 35.00            | 18             | 0.51           | 0.78             | 9.2      | 6.29           |
| 5        | MH 1-4  | 7.67             | 8.44          | 8.16          | 4           | 0.00          | 0.00           | 10.41           | 5785.70            | 5785.50            | 5777.58     | 5777.73     | 5775.76        | 5775.84        | 15.00            | 18             | 0.53           | 0.00             | 9.1      | 5.89           |
| 6        | A13     | 7.43             | 7.96          | 8.42          | 5           | 0.00          | 0.27           | 9.99            | 5785.50            | 5786.10            | 5778.27     | 5778.52     | 5776.04        | 5776.18        | 28.00            | 18             | 0.50           | 0.78             | 9.1      | 5.65           |
| 7        | A12     | 7.51             | 8.22          | 7.81          | 6           | 0.00          | 0.27           | 9.31            | 5786.10            | 5785.90            | 5778.77     | 5779.09     | 5776.38        | 5776.59        | 41.00            | 18             | 0.51           | 0.78             | 8.9      | 5.27           |
| 8        | A11     | 7.55             | 7.61          | 7.05          | 7           | 0.00          | 0.27           | 8.61            | 5785.90            | 5785.50            | 5779.31     | 5779.52     | 5776.79        | 5776.95        | 31.00            | 18             | 0.52           | 0.78             | 8.8      | 4.87           |
| 9        | MH 1-8  | 7.44             | 6.85          | 7.16          | 8           | 0.00          | 0.00           | 7.00            | 5785.50            | 5785.90            | 5780.07     | 5780.15     | 5777.15        | 5777.24        | 18.00            | 18             | 0.50           | 0.00             | 8.7      | 3.96           |
| 10       | A10     | 7.51             | 6.96          | 7.82          | 9           | 0.00          | 0.27           | 7.06            | 5785.90            | 5787.00            | 5780.36     | 5780.57     | 5777.44        | 5777.68        | 47.00            | 18             | 0.51           | 0.78             | 8.5      | 4.00           |
| 11       | A9      | 7.51             | 7.62          | 3.81          | 10          | 0.00          | 0.27           | 6.37            | 5787.00            | 5783.40            | 5780.69     | 5780.85     | 5777.88        | 5778.09        | 41.00            | 18             | 0.51           | 0.78             | 8.4      | 3.60           |
| 12       | A8      | 6.46             | 3.81          | 4.35          | 11          | 0.00          | 0.27           | 4.65            | 5783.40            | 5784.10            | 5781.10     | 5781.18     | 5778.34        | 5778.50        | 16.00            | 15             | 1.00           | 0.78             | 8.3      | 3.79           |
| 13       | A7      | 6.46             | 4.15          | 5.35          | 12          | 0.00          | 0.27           | 3.94            | 5784.10            | 5785.80            | 5781.29     | 5781.48     | 5778.70        | 5779.20        | 50.00            | 15             | 1.00           | 0.78             | 8.0      | 3.21           |
| 14       | A6      | 6.46             | 5.15          | 5.66          | 13          | 0.00          | 0.27           | 3.21            | 5785.80            | 5786.80            | 5781.56     | 5781.68     | 5779.40        | 5779.89        | 49.00            | 15             | 1.00           | 0.78             | 7.7      | 2.62           |
| 15       | A5      | 6.46             | 5.46          | 4.37          | 14          | 0.00          | 0.27           | 2.48            | 5786.80            | 5786.20            | 5781.73     | 5781.80     | 5780.09        | 5780.58        | 49.00            | 15             | 1.00           | 0.78             | 7.3      | 2.03           |
| 16       | A1      | 6.46             | 4.17          | 2.70          | 15          | 0.00          | 0.95           | 1.71            | 5786.20            | 5785.00            | 5781.83     | 5781.83     | 5780.78        | 5781.05        | 27.00            | 15             | 1.00           | 0.47             | 7.0      | 1.84           |
| 17       | A44     | 9.14             | 8.21          | 8.05          | 5           | 0.00          | 0.14           | 0.56            | 5785.50            | 5785.50            | 5778.27     | 5778.27     | 5776.04        | 5776.20        | 8.00             | 15             | 2.00           | 0.94             | 5.0      | 0.46           |
| 18       | A3      | 9.14             | 7.10          | 6.84          | 8           | 0.00          | 0.38           | 1.06            | 5785.50            | 5785.40            | 5780.07     | 5780.07     | 5777.15        | 5777.31        | 8.00             | 15             | 2.00           | 0.66             | 5.0      | 0.87           |
| 19       | A2      | 9.14             | 3.86          | 3.46          | 11          | 0.00          | 0.33           | 1.15            | 5783.40            | 5783.20            | 5781.10     | 5781.10     | 5778.29        | 5778.49        | 10.00            | 15             | 2.00           | 0.82             | 5.0      | 0.94           |

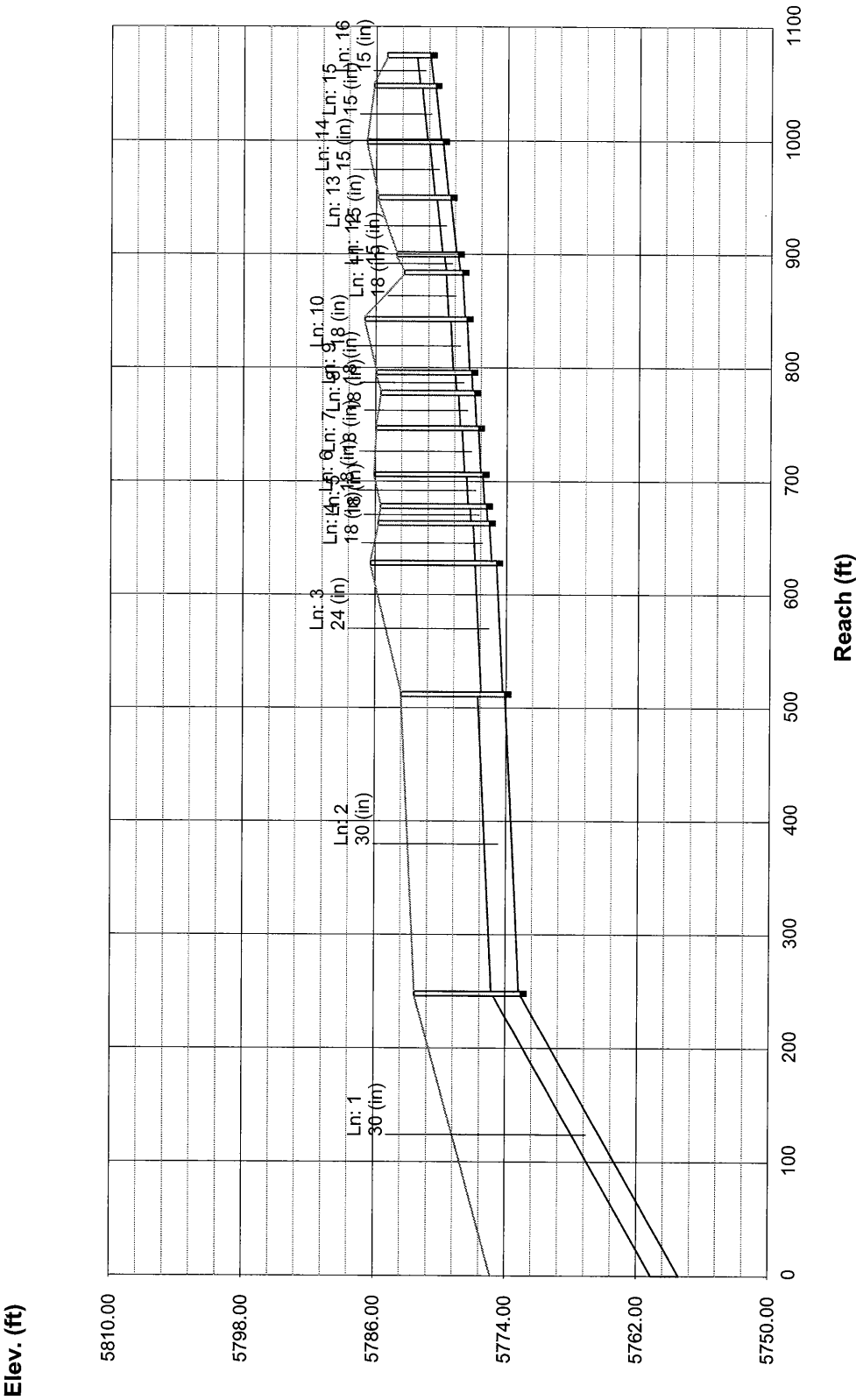
Project File: D02049 Line-1 25-yr.stm

Number of lines: 19

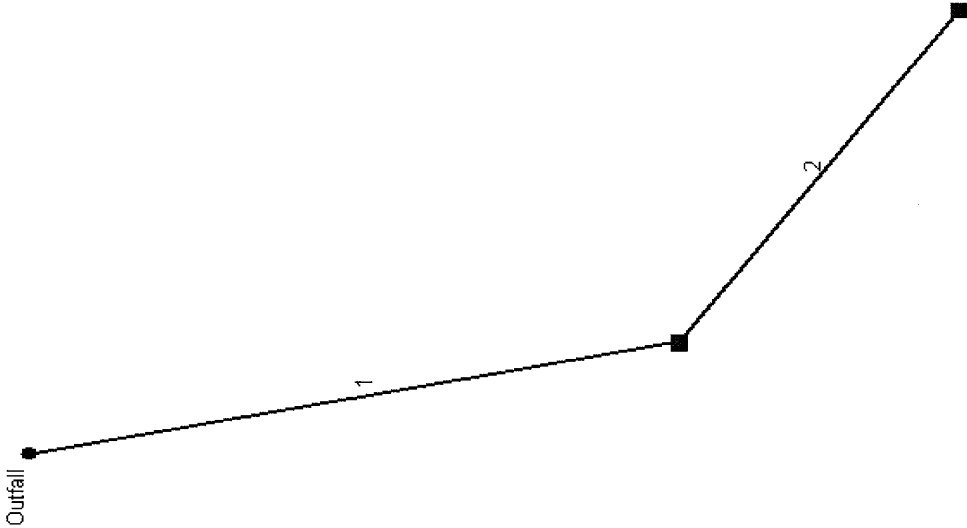
Date: 07-29-2004

NOTES: \*\* At critical depth





Hydraflow Plan View



Project file: D02049 Line-2 2-yr.stm

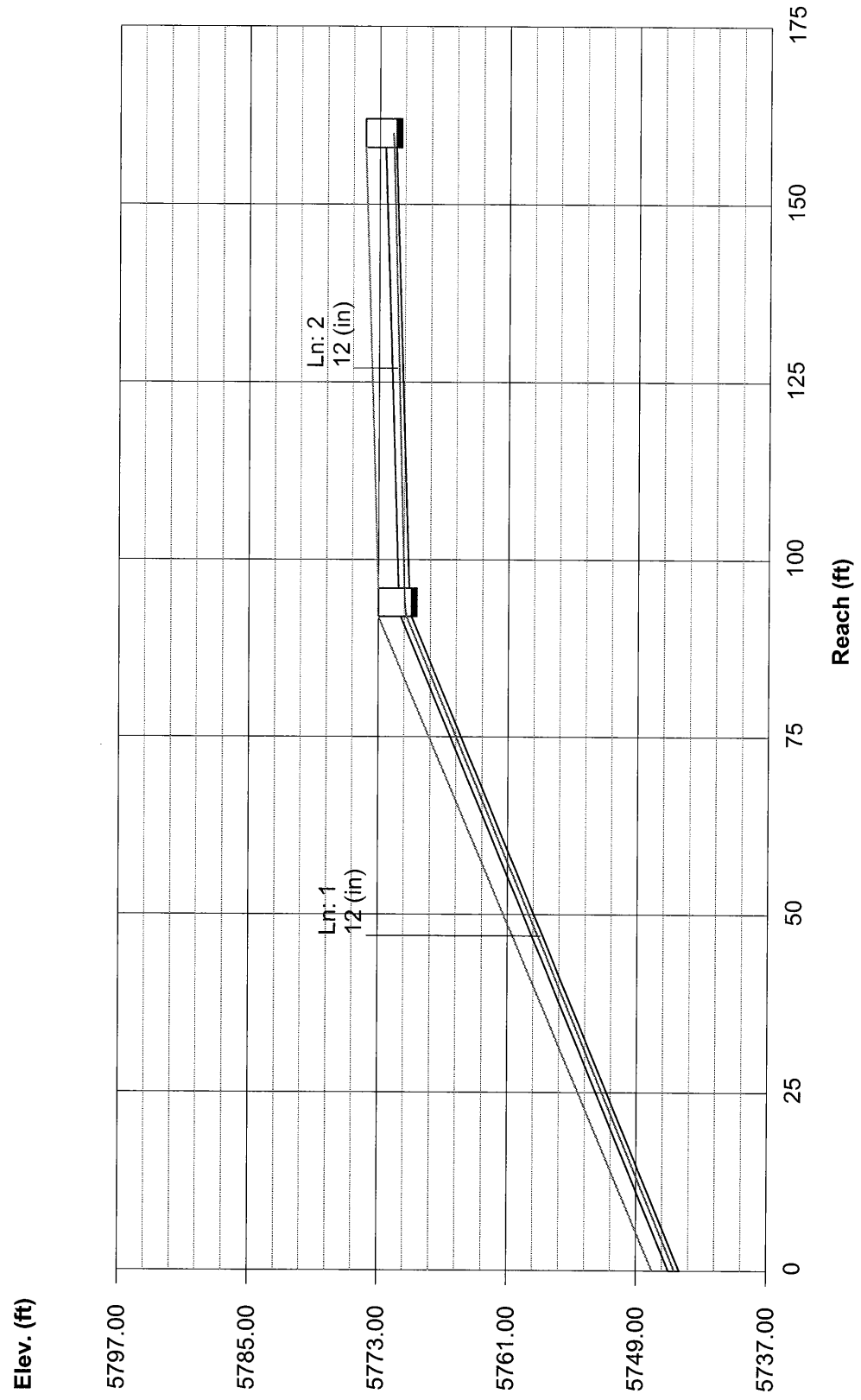
No. Lines: 2

07-29-2004

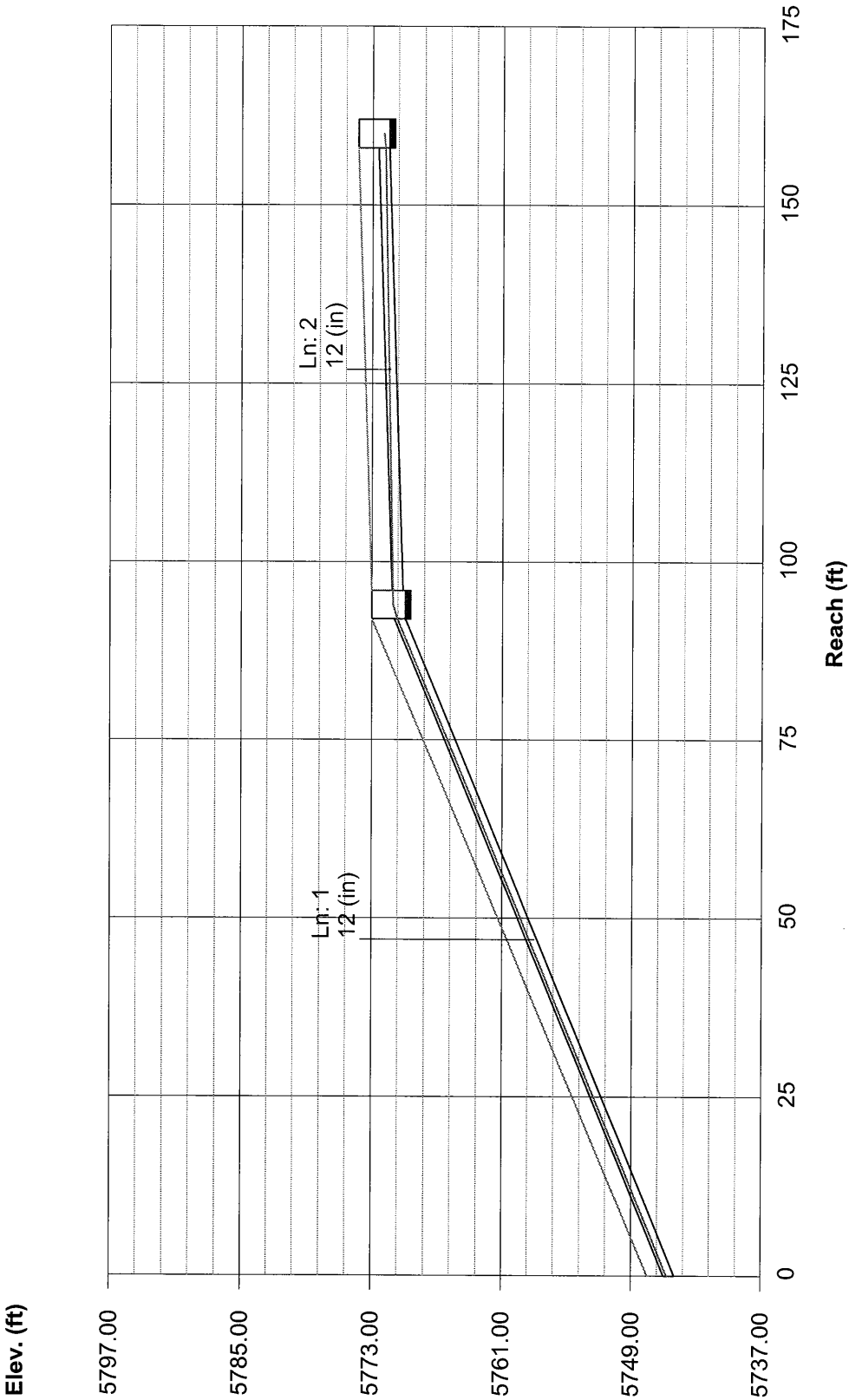
| Line No.                             | Line ID | Capac Full (cfs) | Cover Dn (ft) | Cover Up (ft) | DnStm Ln No | Known Q (cfs) | Drng Area (ac) | Flow Rate (cfs) | Gnd/Rim El Dn (ft) | Gnd/Rim El Up (ft) | HGL Dn (ft) | HGL Up (ft) | Invert Dn (ft)     | Invert Up (ft) | Line Length (ft) | Line Size (in) | Line Slope (%) | Runoff Coeff (C) | Tc (min) | Vel Ave (ft/s) |
|--------------------------------------|---------|------------------|---------------|---------------|-------------|---------------|----------------|-----------------|--------------------|--------------------|-------------|-------------|--------------------|----------------|------------------|----------------|----------------|------------------|----------|----------------|
| 1                                    | A40     | 18.34            | N/A           | 2.06          | Outfall     | 0.00          | 0.66           | 1.07            | 0.00               | 5773.00            | 5745.44     | 5770.38     | 5745.00            | 5769.94        | 94.00            | 12             | 26.53          | 0.71             | 7.7      | 3.22           |
| 2                                    | A37     | 5.04             | 1.86          | 1.84          | 1           | 0.00          | 0.23           | 0.32            | 5773.00            | 5774.30            | 5770.56     | 5771.70     | 5770.14            | 5771.46        | 66.00            | 12             | 2.00           | 0.69             | 5.0      | 1.61           |
| Project File: D02049 Line-2 2-yr.stm |         |                  |               |               |             |               |                |                 |                    |                    |             |             | Number of lines: 2 |                | Date: 07-29-2004 |                |                |                  |          |                |
| NOTES: ** At critical depth          |         |                  |               |               |             |               |                |                 |                    |                    |             |             |                    |                |                  |                |                |                  |          |                |

# Storm Sewer Profile

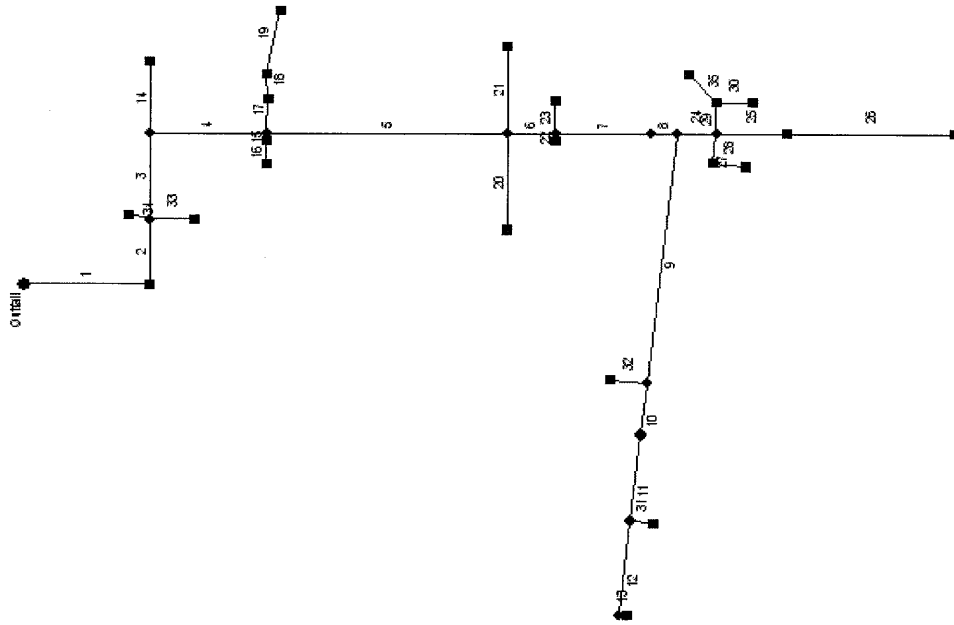
Proj. file: D02049 Line-2 2-yr.stm



| Line No.                              | Line ID | Capac Full (cfs) | Cover Dn (ft) | Cover Up (ft) | DnStm Ln No | Known Q (cfs) | Drng Area (ac) | Flow Rate (cfs) | Gnd/Rim El Dn (ft) | Gnd/Rim El Up (ft) | HGL Dn (ft) | HGL Up (ft) | Invert Dn (ft) | Invert Up (ft) | Line Length (ft) | Line Size (in)     | Line Slope (%) | Runoff Coeff (C) | Tc (min) | Vel Ave (ft/s) |
|---------------------------------------|---------|------------------|---------------|---------------|-------------|---------------|----------------|-----------------|--------------------|--------------------|-------------|-------------|----------------|----------------|------------------|--------------------|----------------|------------------|----------|----------------|
| 1                                     | A40     | 18.34            | N/A           | 2.06          | Outfall     | 0.00          | 0.66           | 2.80            | 0.00               | 5773.00            | 5745.71     | 5770.65     | 5745.00        | 5769.94        | 94.00            | 12                 | 26.53          | 0.79             | 6.1      | 4.70           |
| 2                                     | A37     | 5.04             | 1.86          | 1.84          | 1           | 0.00          | 0.23           | 0.76            | 5773.00            | 5774.30            | 5771.03     | 5771.83     | 5770.14        | 5771.46        | 66.00            | 12                 | 2.00           | 0.78             | 5.0      | 1.96           |
| Project File: D02049 Line-2 25-yr.stm |         |                  |               |               |             |               |                |                 |                    |                    |             |             |                |                |                  | Number of lines: 2 |                | Date: 07-29-2004 |          |                |
| NOTES: ** At critical depth           |         |                  |               |               |             |               |                |                 |                    |                    |             |             |                |                |                  |                    |                |                  |          |                |



## Hydraflow Plan View



Project file: D02049 Line-3 2-yr.stm

No. Lines: 35

07-29-2004

Hydraflow Storm Sewers 2003

| Line No. | Line ID     | Capac Full (cfs) | Cover Dn (ft) | Cover Up (ft) | DnStm Ln No | Known Q (cfs) | Drng Area (ac) | Flow Rate (cfs) | Gnd/Rim El Dn (ft) | Gnd/Rim El Up (ft) | HGL Dn (ft) | HGL Up (ft) | Invert Dn (ft) | Invert Up (ft) | Line Length (ft) | Line Size (in) | Line Slope (%) | Runoff Coeff (C) | Tc (min) | Vel Ave (ft/s) |
|----------|-------------|------------------|---------------|---------------|-------------|---------------|----------------|-----------------|--------------------|--------------------|-------------|-------------|----------------|----------------|------------------|----------------|----------------|------------------|----------|----------------|
| 1        | From Line-1 | 216.18           | 0.00          | 14.38         | Outfall     | 3.46          | 0.00           | 16.11           | 5746.00            | 5775.30            | 5744.28     | 5759.20     | 5743.00        | 5757.92        | 142.00           | 36             | 10.51          | 0.00             | 36.6     | 5.61           |
| 2        | MH 3-12     | 66.69            | 14.18         | 11.26         | 1           | 0.00          | 0.00           | 12.74           | 5775.30            | 5773.20            | 5759.93     | 5760.08     | 5758.12        | 5758.94        | 82.00            | 36             | 1.00           | 0.00             | 36.1     | 4.02           |
| 3        | MH 3-1      | 66.70            | 11.06         | 2.98          | 2           | 0.00          | 0.00           | 12.02           | 5773.20            | 5766.20            | 5760.50     | 5761.33     | 5759.14        | 5760.22        | 108.00           | 36             | 1.00           | 0.00             | 35.4     | 4.48           |
| 4        | MH 3-2      | 115.52           | 2.78          | 6.45          | 3           | 0.00          | 0.00           | 11.58           | 5766.20            | 5773.80            | 5761.73     | 5765.44     | 5760.42        | 5764.35        | 131.00           | 36             | 3.00           | 0.00             | 34.5     | 4.47           |
| 5        | MH 3-3      | 120.87           | 6.25          | 9.75          | 4           | 0.00          | 0.00           | 8.00            | 5773.80            | 5786.20            | 5765.83     | 5774.35     | 5764.55        | 5773.45        | 271.00           | 36             | 3.28           | 0.00             | 31.9     | 3.63           |
| 6        | MH 3-4      | 66.70            | 9.55          | 11.31         | 5           | 0.00          | 0.00           | 7.59            | 5786.20            | 5788.50            | 5774.66     | 5775.07     | 5773.65        | 5774.19        | 54.00            | 36             | 1.00           | 0.00             | 31.4     | 4.01           |
| 7        | MH 3-5      | 66.69            | 11.11         | 14.94         | 6           | 0.00          | 0.00           | 7.36            | 5788.50            | 5793.40            | 5775.37     | 5776.33     | 5774.39        | 5775.46        | 107.00           | 36             | 1.00           | 0.00             | 30.3     | 4.02           |
| 8        | MH 3-6      | 66.67            | 14.74         | 15.84         | 7           | 0.00          | 0.00           | 7.39            | 5793.40            | 5794.80            | 5776.37     | 5776.83     | 5775.66        | 5775.96        | 30.00            | 36             | 1.00           | 0.00             | 29.9     | 5.08           |
| 9        | MH 3-7      | 16.02            | 15.84         | 5.26          | 8           | 0.00          | 0.00           | 1.15            | 5794.80            | 5785.80            | 5777.33     | 5778.92     | 5776.96        | 5778.54        | 315.00           | 24             | 0.50           | 0.00             | 21.7     | 2.85           |
| 10       | MH 3-8      | 4.60             | 5.01          | 5.38          | 9           | 0.00          | 0.00           | 0.38            | 5785.80            | 5786.50            | 5779.79     | 5780.12     | 5779.54        | 5779.87        | 65.00            | 15             | 0.51           | 0.00             | 19.6     | 2.22           |
| 11       | MH 3-9      | 4.59             | 5.18          | 4.23          | 10          | 0.00          | 0.00           | 0.42            | 5786.50            | 5786.10            | 5780.33     | 5780.88     | 5780.07        | 5780.62        | 109.00           | 15             | 0.50           | 0.00             | 16.3     | 2.29           |
| 12       | MH 3-10     | 4.57             | 4.03          | 3.14          | 11          | 0.00          | 0.00           | 0.22            | 5786.10            | 5785.80            | 5781.01     | 5781.60     | 5780.82        | 5781.41        | 118.00           | 15             | 0.50           | 0.00             | 5.8      | 1.89           |
| 13       | A16         | 6.47             | 2.94          | 2.45          | 12          | 0.00          | 0.40           | 0.23            | 5785.80            | 5785.40            | 5781.77     | 5781.90     | 5781.61        | 5781.70        | 9.00             | 15             | 1.00           | 0.29             | 5.0      | 2.17           |
| 14       | A36         | 10.14            | 2.78          | 2.89          | 3           | 0.00          | 0.87           | 1.48            | 5766.20            | 5773.60            | 5762.68     | 5770.23     | 5762.42        | 5769.71        | 90.00            | 12             | 8.10           | 0.85             | 5.0      | 6.37           |
| 15       | A26         | 50.57            | 6.25          | 5.55          | 4           | 0.00          | 0.50           | 4.60            | 5773.80            | 5773.60            | 5765.96     | 5767.69     | 5765.55        | 5766.05        | 10.00            | 24             | 5.00           | 0.73             | 6.4      | 5.79           |
| 16       | A21         | 69.02            | 5.35          | 2.75          | 15          | 0.00          | 2.71           | 4.02            | 5773.60            | 5773.70            | 5767.71     | 5769.66     | 5766.25        | 5768.95        | 29.00            | 24             | 9.31           | 0.79             | 6.0      | 2.83           |
| 17       | A31         | 30.88            | 6.25          | 4.83          | 4           | 0.00          | 0.44           | 4.31            | 5773.80            | 5773.20            | 5766.06     | 5767.11     | 5765.55        | 5766.37        | 44.00            | 24             | 1.86           | 0.73             | 6.9      | 5.49           |
| 18       | A33         | 31.99            | 4.63          | 4.03          | 17          | 0.00          | 0.95           | 3.82            | 5773.20            | 5773.20            | 5767.24     | 5767.86     | 5766.57        | 5767.17        | 30.00            | 24             | 2.00           | 0.68             | 6.5      | 4.06           |
| 19       | A35         | 31.98            | 3.83          | 5.79          | 18          | 0.00          | 1.81           | 2.89            | 5773.20            | 5776.80            | 5768.03     | 5769.61     | 5767.37        | 5769.01        | 82.00            | 24             | 2.00           | 0.80             | 5.0      | 3.41           |
| 20       | A20         | 10.79            | 9.30          | 3.92          | 5           | 0.00          | 0.49           | 0.66            | 5786.20            | 5784.20            | 5775.86     | 5779.35     | 5775.65        | 5779.03        | 121.00           | 15             | 2.79           | 0.67             | 5.0      | 3.71           |
| 21       | A32         | 8.72             | 9.55          | 2.45          | 5           | 0.00          | 0.35           | 0.48            | 5786.20            | 5785.70            | 5775.81     | 5782.54     | 5775.65        | 5782.25        | 110.00           | 12             | 6.00           | 0.69             | 5.0      | 4.20           |

Project File: D02049 Line-3 2-yr.stm

Number of lines: 35

Date: 07-29-2004

NOTES: \*\* At critical depth



| Line No. | Line ID | Capac Full (cfs) | Cover Dn (ft) | Cover Up (ft) | DnStm Ln No | Known Q (cfs) | Drng Area (ac) | Flow Rate (cfs) | Gnd/Rim El Dn (ft) | Gnd/Rim El Up (ft) | HGL Dn (ft) | HGL Up (ft) | Invert Dn (ft) | Invert Up (ft) | Line Length (ft) | Line Size (in) | Line Slope (%) | Runoff Coeff (C) | Tc (min) | Vel Ave (ft/s) |
|----------|---------|------------------|---------------|---------------|-------------|---------------|----------------|-----------------|--------------------|--------------------|-------------|-------------|----------------|----------------|------------------|----------------|----------------|------------------|----------|----------------|
| 22       | A41     | 11.26            | 11.11         | 9.81          | 6           | 0.00          | 0.25           | 0.36            | 5788.50            | 5788.20            | 5776.51     | 5777.65     | 5776.39        | 5777.39        | 10.00            | 12             | 10.00          | 0.73             | 5.0      | 4.39           |
| 23       | A42     | 11.26            | 11.11         | 6.51          | 6           | 0.00          | 0.31           | 0.45            | 5788.50            | 5788.10            | 5776.53     | 5780.88     | 5776.39        | 5780.59        | 42.00            | 12             | 10.00          | 0.73             | 5.0      | 4.69           |
| 24       | MH3-11  | 210.90           | 15.64         | 13.24         | 8           | 0.00          | 0.00           | 9.70            | 5794.80            | 5796.80            | 5777.12     | 5781.55     | 5776.16        | 5780.56        | 44.00            | 36             | 10.00          | 0.00             | 9.8      | 4.85           |
| 25       | OS1     | 71.52            | 13.24         | 5.94          | 24          | 0.00          | 3.77           | 7.94            | 5796.80            | 5797.50            | 5782.01     | 5790.56     | 5781.56        | 5789.56        | 80.00            | 24             | 10.00          | 0.04             | 9.2      | 10.01          |
| 26       | OS2     | 133.81           | 5.74          | 10.44         | 25          | 2.41          | 8.18           | 8.04            | 5797.50            | 5868.00            | 5790.76     | 5856.56     | 5789.76        | 5855.56        | 188.00           | 24             | 35.00          | 0.41             | 8.0      | 5.11           |
| 27       | A18     | 11.26            | 13.24         | 10.74         | 24          | 0.00          | 0.46           | 1.73            | 5796.80            | 5798.00            | 5782.83     | 5786.82     | 5782.56        | 5786.26        | 37.00            | 12             | 10.00          | 0.81             | 5.5      | 7.06           |
| 28       | A43     | 11.26            | 10.54         | 7.54          | 27          | 0.00          | 0.65           | 1.04            | 5798.00            | 5798.80            | 5787.16     | 5790.69     | 5786.46        | 5790.26        | 38.00            | 12             | 10.00          | 0.80             | 5.0      | 2.48           |
| 29       | MH 3-14 | 11.58            | 13.24         | 10.42         | 24          | 0.00          | 0.00           | 0.55            | 5796.80            | 5798.10            | 5782.71     | 5787.00     | 5782.56        | 5786.68        | 39.00            | 12             | 10.56          | 0.00             | 8.4      | 5.02           |
| 30       | A29     | 20.40            | 9.97          | 6.78          | 29          | 0.00          | 0.16           | 0.25            | 5798.10            | 5799.00            | 5787.15     | 5791.17     | 5786.88        | 5790.97        | 41.00            | 15             | 9.98           | 0.78             | 5.0      | 1.62           |
| 31       | A17     | 9.13             | 3.93          | 2.71          | 11          | 0.00          | 0.44           | 0.47            | 5786.10            | 5785.40            | 5781.11     | 5781.72     | 5780.92        | 5781.44        | 26.00            | 15             | 2.00           | 0.54             | 5.0      | 3.14           |
| 32       | A19     | 7.96             | 5.26          | 1.96          | 9           | 0.00          | 1.15           | 1.54            | 5785.80            | 5784.60            | 5779.84     | 5782.17     | 5779.54        | 5781.64        | 42.00            | 12             | 5.00           | 0.67             | 5.0      | 5.76           |
| 33       | A22     | 42.50            | 11.06         | 6.37          | 2           | 0.00          | 0.67           | 1.02            | 5773.20            | 5776.70            | 5760.80     | 5769.22     | 5760.64        | 5768.83        | 50.00            | 18             | 16.38          | 0.76             | 5.0      | 6.35           |
| 34       | A24     | 50.68            | 11.06         | 4.77          | 2           | 0.00          | 0.75           | 1.18            | 5773.20            | 5772.50            | 5760.80     | 5766.65     | 5760.64        | 5766.23        | 24.00            | 18             | 23.29          | 0.79             | 5.0      | 7.35           |
| 35       | A30     | 10.51            | 10.22         | 6.43          | 29          | 0.00          | 0.24           | 0.42            | 5798.10            | 5798.40            | 5787.15     | 5791.24     | 5786.88        | 5790.97        | 47.00            | 12             | 8.70           | 0.87             | 5.0      | 2.40           |

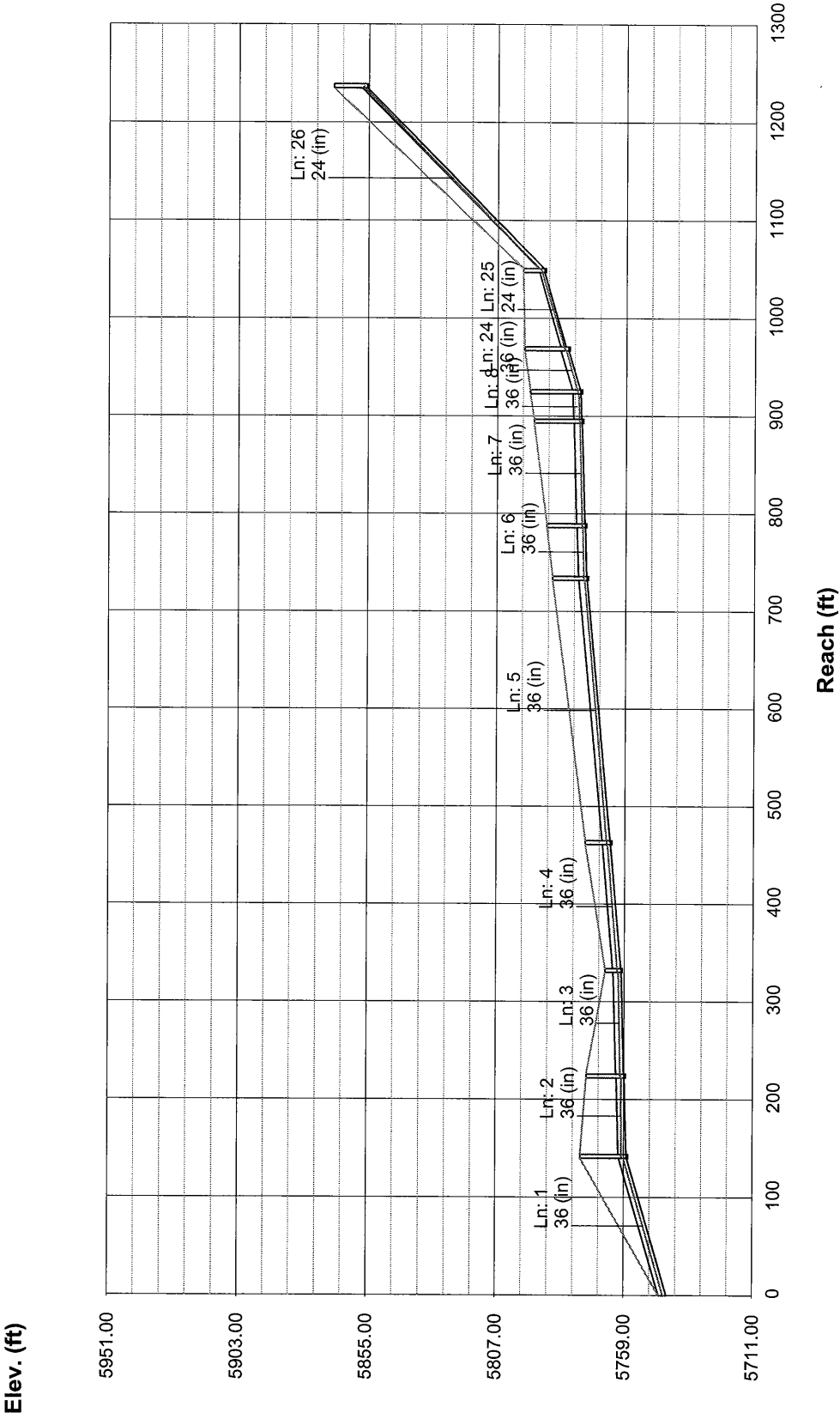
Project File: D02049 Line-3 2-yr.stm

Date: 07-29-2004

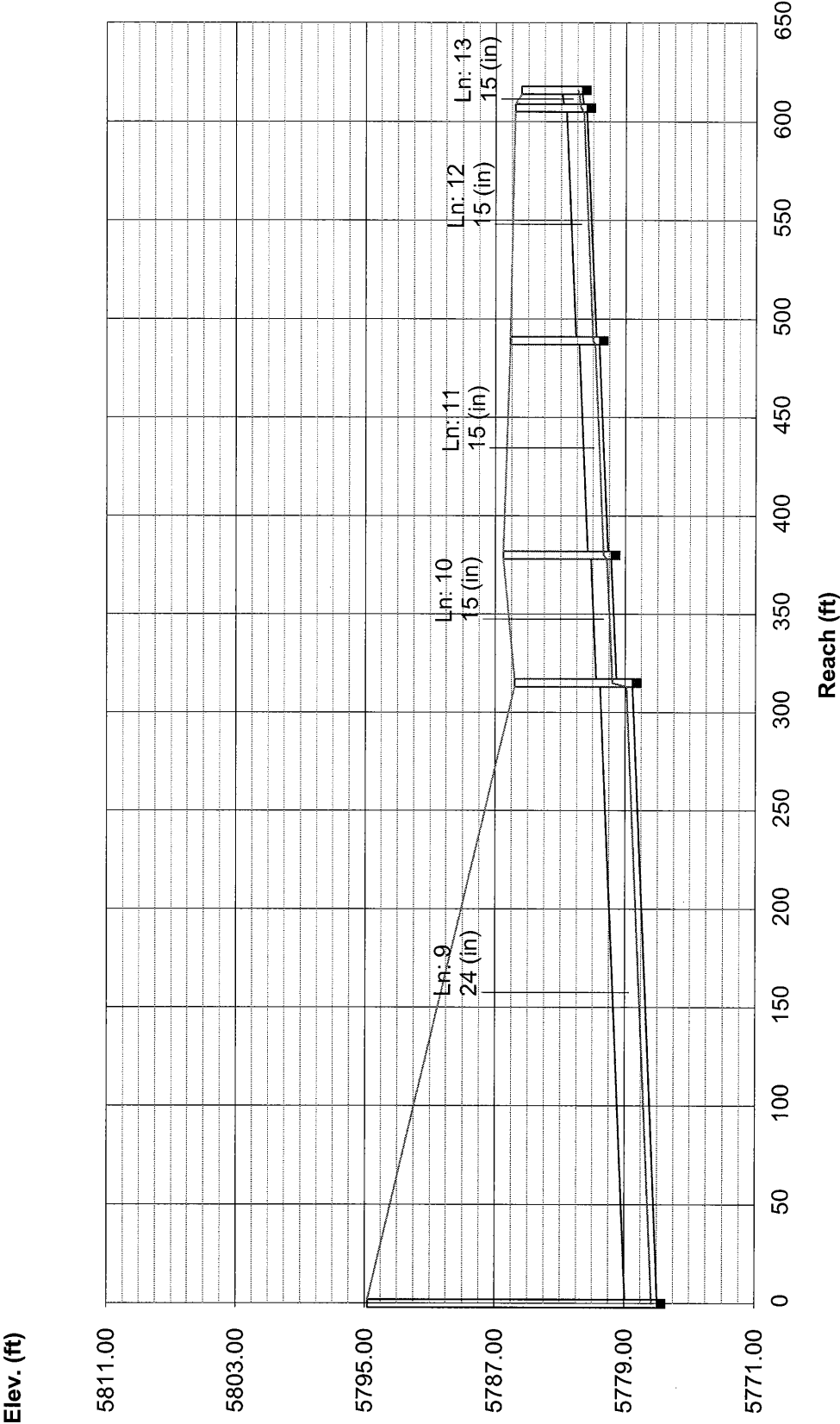
Number of lines: 35

NOTES: \*\* At critical depth

Storm Sewer Profile



# Storm Sewer Profile



| Line No. | Line ID     | Capac Full (cfs) | Cover Dn (ft) | Cover Up (ft) | DnStm Ln No | Known Q (cfs) | Drng Area (ac) | Flow Rate (cfs) | Gnd/Rim El Dn (ft) | Gnd/Rim El Up (ft) | HGL Dn (ft) | HGL Up (ft) | Invert Dn (ft) | Invert Up (ft) | Line Length (ft) | Line Size (in) | Line Slope (%) | Runoff Coeff (C) | Tc (min) |
|----------|-------------|------------------|---------------|---------------|-------------|---------------|----------------|-----------------|--------------------|--------------------|-------------|-------------|----------------|----------------|------------------|----------------|----------------|------------------|----------|
| 1        | From Line-1 | 216.18           | 0.00          | 14.38         | Outfall     | 11.77         | 0.00           | 59.77           | 5746.00            | 5775.30            | 5745.46     | 5760.38     | 5743.00        | 5757.92        | 142.00           | 36             | 10.51          | 0.00             | 15.8     |
| 2        | MH 3-12     | 66.69            | 14.18         | 11.26         | 1           | 0.00          | 0.00           | 48.28           | 5775.30            | 5773.20            | 5762.54     | 5762.97     | 5758.12        | 5758.94        | 82.00            | 36             | 1.00           | 0.00             | 15.6     |
| 3        | MH 3-1      | 66.70            | 11.06         | 2.98          | 2           | 0.00          | 0.00           | 45.34           | 5773.20            | 5766.20            | 5763.70     | 5764.20     | 5759.14        | 5760.22        | 108.00           | 36             | 1.00           | 0.00             | 15.4     |
| 4        | MH 3-2      | 115.52           | 2.78          | 6.45          | 3           | 0.00          | 0.00           | 43.60           | 5766.20            | 5773.80            | 5764.84     | 5766.46     | 5760.42        | 5764.35        | 131.00           | 36             | 3.00           | 0.00             | 15.0     |
| 5        | MH 3-3      | 120.87           | 6.25          | 9.75          | 4           | 0.00          | 0.00           | 29.39           | 5773.80            | 5786.20            | 5767.51     | 5775.18     | 5764.55        | 5773.45        | 271.00           | 36             | 3.28           | 0.00             | 14.0     |
| 6        | MH 3-4      | 66.70            | 9.55          | 11.31         | 5           | 0.00          | 0.00           | 27.68           | 5786.20            | 5788.50            | 5775.93     | 5775.87     | 5773.65        | 5774.19        | 54.00            | 36             | 1.00           | 0.00             | 13.8     |
| 7        | MH 3-5      | 66.69            | 11.11         | 14.94         | 6           | 0.00          | 0.00           | 26.72           | 5788.50            | 5793.40            | 5776.59     | 5777.11     | 5774.39        | 5775.46        | 107.00           | 36             | 1.00           | 0.00             | 13.4     |
| 8        | MH 3-6      | 66.67            | 14.74         | 15.84         | 7           | 0.00          | 0.00           | 26.82           | 5793.40            | 5794.80            | 5777.21     | 5777.61     | 5775.66        | 5775.96        | 30.00            | 36             | 1.00           | 0.00             | 13.3     |
| 9        | MH 3-7      | 16.02            | 15.84         | 5.26          | 8           | 0.00          | 0.00           | 4.55            | 5794.80            | 5785.80            | 5778.32     | 5779.30     | 5776.96        | 5778.54        | 315.00           | 24             | 0.50           | 0.00             | 10.1     |
| 10       | MH 3-8      | 4.60             | 5.01          | 5.38          | 9           | 0.00          | 0.00           | 1.64            | 5785.80            | 5786.50            | 5780.06     | 5780.39     | 5779.54        | 5779.87        | 65.00            | 15             | 0.51           | 0.00             | 9.4      |
| 11       | MH 3-9      | 4.59             | 5.18          | 4.23          | 10          | 0.00          | 0.00           | 1.73            | 5786.50            | 5786.10            | 5780.60     | 5781.15     | 5780.07        | 5780.62        | 109.00           | 15             | 0.50           | 0.00             | 8.3      |
| 12       | MH 3-10     | 4.57             | 4.03          | 3.14          | 11          | 0.00          | 0.00           | 0.79            | 5786.10            | 5785.80            | 5781.34     | 5781.77     | 5780.82        | 5781.41        | 118.00           | 15             | 0.50           | 0.00             | 5.2      |
| 13       | A16         | 6.47             | 2.94          | 2.45          | 12          | 0.00          | 0.40           | 0.80            | 5785.80            | 5785.40            | 5781.91     | 5782.06     | 5781.61        | 5781.70        | 9.00             | 15             | 1.00           | 0.47             | 5.0      |
| 14       | A36         | 10.14            | 2.78          | 2.89          | 3           | 0.00          | 0.87           | 3.36            | 5766.20            | 5773.60            | 5764.84     | 5770.49     | 5762.42        | 5769.71        | 90.00            | 12             | 8.10           | 0.91             | 5.0      |
| 15       | A26         | 50.57            | 6.25          | 5.55          | 4           | 0.00          | 0.50           | 10.92           | 5773.80            | 5773.60            | 5767.51     | 5767.28     | 5765.55        | 5766.05        | 10.00            | 24             | 5.00           | 0.81             | 6.2      |
| 16       | A21         | 69.02            | 5.35          | 2.75          | 15          | 0.00          | 2.71           | 9.38            | 5773.60            | 5773.70            | 5767.51     | 5770.04     | 5766.25        | 5768.95        | 29.00            | 24             | 9.31           | 0.86             | 6.0      |
| 17       | A31         | 30.88            | 6.25          | 4.83          | 4           | 0.00          | 0.44           | 10.86           | 5773.80            | 5773.20            | 5767.51     | 5767.54     | 5765.55        | 5766.37        | 44.00            | 24             | 1.86           | 0.81             | 5.8      |
| 18       | A33         | 31.99            | 4.63          | 4.03          | 17          | 0.00          | 0.95           | 9.50            | 5773.20            | 5773.20            | 5767.79     | 5768.26     | 5766.57        | 5767.17        | 30.00            | 24             | 2.00           | 0.78             | 5.6      |
| 19       | A35         | 31.98            | 3.83          | 5.79          | 18          | 0.00          | 1.81           | 6.68            | 5773.20            | 5776.80            | 5768.58     | 5769.93     | 5767.37        | 5769.01        | 82.00            | 24             | 2.00           | 0.87             | 5.0      |
| 20       | A20         | 10.79            | 9.30          | 3.92          | 5           | 0.00          | 0.49           | 1.60            | 5786.20            | 5784.20            | 5775.98     | 5779.54     | 5775.65        | 5779.03        | 121.00           | 15             | 2.79           | 0.77             | 5.0      |
| 21       | A32         | 8.72             | 9.55          | 2.45          | 5           | 0.00          | 0.35           | 1.17            | 5786.20            | 5785.70            | 5775.93     | 5782.71     | 5775.65        | 5782.25        | 110.00           | 12             | 6.00           | 0.79             | 5.0      |

Project File: D02049 Line-3 25-yr.stm

Number of lines: 35

Date: 07-29-2004

NOTES: \*\* At critical depth

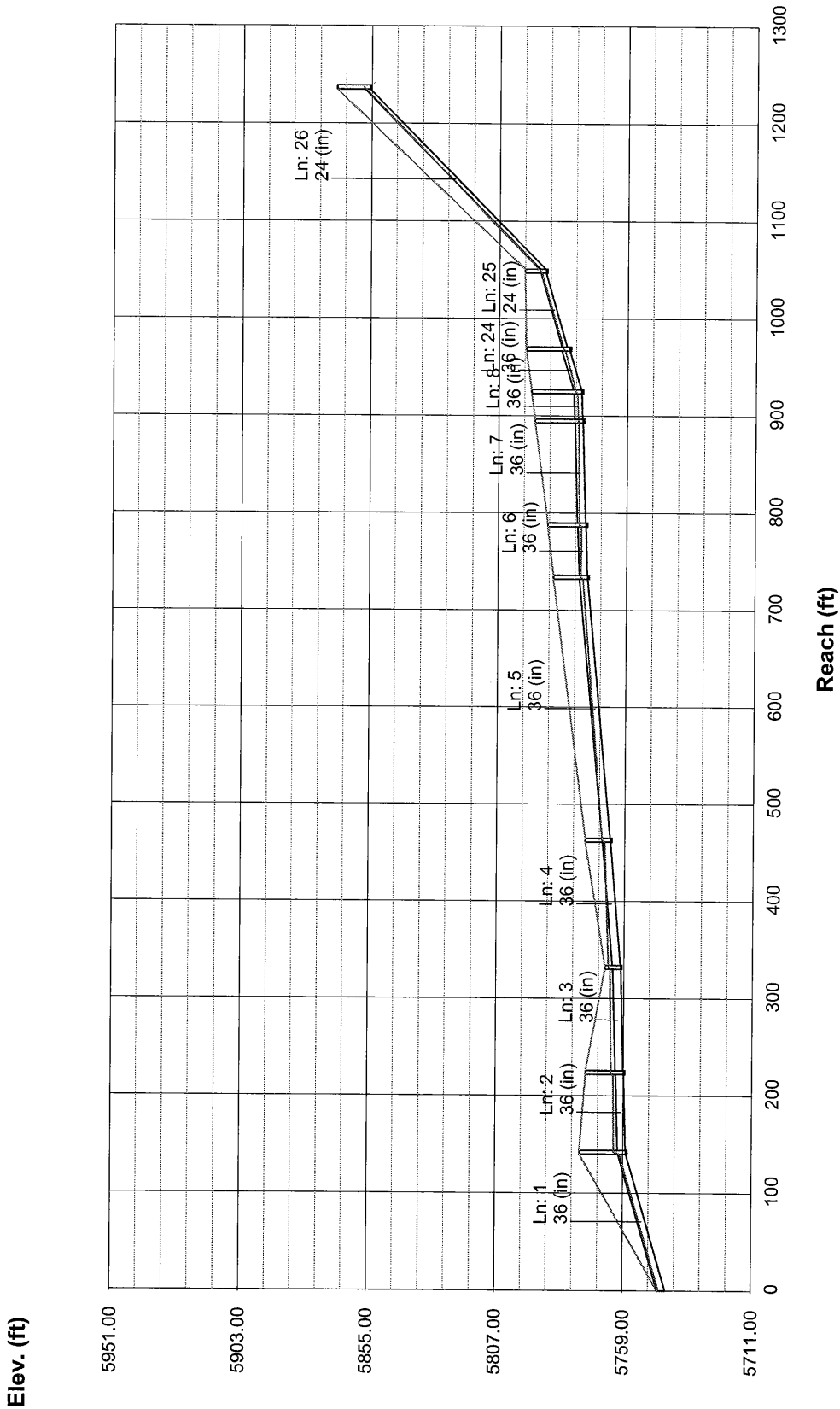
| Line No. | Line ID | Capac Full (cfs) | Cover Dn (ft) | Cover Up (ft) | DnStm Ln No | Known Q (cfs) | Drng Area (ac) | Flow Rate (cfs) | Gnd/Rim El Dn (ft) | Gnd/Rim El Up (ft) | HGL Dn (ft) | HGL Up (ft) | Invert Dn (ft) | Invert Up (ft) | Line Length (ft) | Line Size (in) | Line Slope (%) | Runoff Coeff (C) | Tc (min) |
|----------|---------|------------------|---------------|---------------|-------------|---------------|----------------|-----------------|--------------------|--------------------|-------------|-------------|----------------|----------------|------------------|----------------|----------------|------------------|----------|
| 22       | A41     | 11.26            | 11.11         | 9.81          | 6           | 0.00          | 0.25           | 0.86            | 5788.50            | 5788.20            | 5776.59     | 5777.85     | 5776.39        | 5777.39        | 10.00            | 12             | 10.00          | 0.81             | 5.0      |
| 23       | A42     | 11.26            | 11.11         | 6.51          | 6           | 0.00          | 0.31           | 1.07            | 5788.50            | 5788.10            | 5776.60     | 5781.03     | 5776.39        | 5780.59        | 42.00            | 12             | 10.00          | 0.81             | 5.0      |
| 24       | MH3-11  | 210.90           | 15.64         | 13.24         | 8           | 0.00          | 0.00           | 26.77           | 5794.80            | 5796.80            | 5778.32     | 5782.21     | 5776.16        | 5780.56        | 44.00            | 36             | 10.00          | 0.00             | 8.7      |
| 25       | OS1     | 71.52            | 13.24         | 5.94          | 24          | 0.00          | 3.77           | 22.25           | 5796.80            | 5797.50            | 5782.91     | 5791.23     | 5781.56        | 5789.56        | 80.00            | 24             | 10.00          | 0.28             | 8.5      |
| 26       | OS2     | 133.81           | 5.74          | 10.44         | 25          | 2.41          | 8.18           | 18.86           | 5797.50            | 5868.00            | 5791.72     | 5857.10     | 5789.76        | 5855.56        | 188.00           | 24             | 35.00          | 0.55             | 8.0      |
| 27       | A18     | 11.26            | 13.24         | 10.74         | 24          | 0.00          | 0.46           | 4.05            | 5796.80            | 5798.00            | 5782.98     | 5787.33     | 5782.56        | 5786.26        | 37.00            | 12             | 10.00          | 0.87             | 5.2      |
| 28       | A43     | 11.26            | 10.54         | 7.54          | 27          | 0.00          | 0.65           | 2.40            | 5798.00            | 5798.80            | 5787.96     | 5790.92     | 5786.46        | 5790.26        | 38.00            | 12             | 10.00          | 0.87             | 5.0      |
| 29       | MH 3-14 | 11.58            | 13.24         | 10.42         | 24          | 0.00          | 0.00           | 1.41            | 5796.80            | 5798.10            | 5782.91     | 5787.19     | 5782.56        | 5786.68        | 39.00            | 12             | 10.56          | 0.00             | 6.5      |
| 30       | A29     | 20.40            | 9.97          | 6.78          | 29          | 0.00          | 0.16           | 0.58            | 5798.10            | 5799.00            | 5787.48     | 5791.27     | 5786.88        | 5790.97        | 41.00            | 15             | 9.98           | 0.85             | 5.0      |
| 31       | A17     | 9.13             | 3.93          | 2.71          | 11          | 0.00          | 0.44           | 1.23            | 5786.10            | 5785.40            | 5781.34     | 5781.88     | 5780.92        | 5781.44        | 26.00            | 15             | 2.00           | 0.66             | 5.0      |
| 32       | A19     | 7.96             | 5.26          | 1.96          | 9           | 0.00          | 1.15           | 3.76            | 5785.80            | 5784.60            | 5780.02     | 5782.46     | 5779.54        | 5781.64        | 42.00            | 12             | 5.00           | 0.77             | 5.0      |
| 33       | A22     | 42.50            | 11.06         | 6.37          | 2           | 0.00          | 0.67           | 2.39            | 5773.20            | 5776.70            | 5763.70     | 5769.42     | 5760.64        | 5768.83        | 50.00            | 18             | 16.38          | 0.84             | 5.0      |
| 34       | A24     | 50.68            | 11.06         | 4.77          | 2           | 0.00          | 0.75           | 2.74            | 5773.20            | 5772.50            | 5763.70     | 5766.86     | 5760.64        | 5766.23        | 24.00            | 18             | 23.29          | 0.86             | 5.0      |
| 35       | A30     | 10.51            | 10.22         | 6.43          | 29          | 0.00          | 0.24           | 0.95            | 5798.10            | 5798.40            | 5787.48     | 5791.38     | 5786.88        | 5790.97        | 47.00            | 12             | 8.70           | 0.93             | 5.0      |

Project File: D02049 Line-3 25-yr.stm

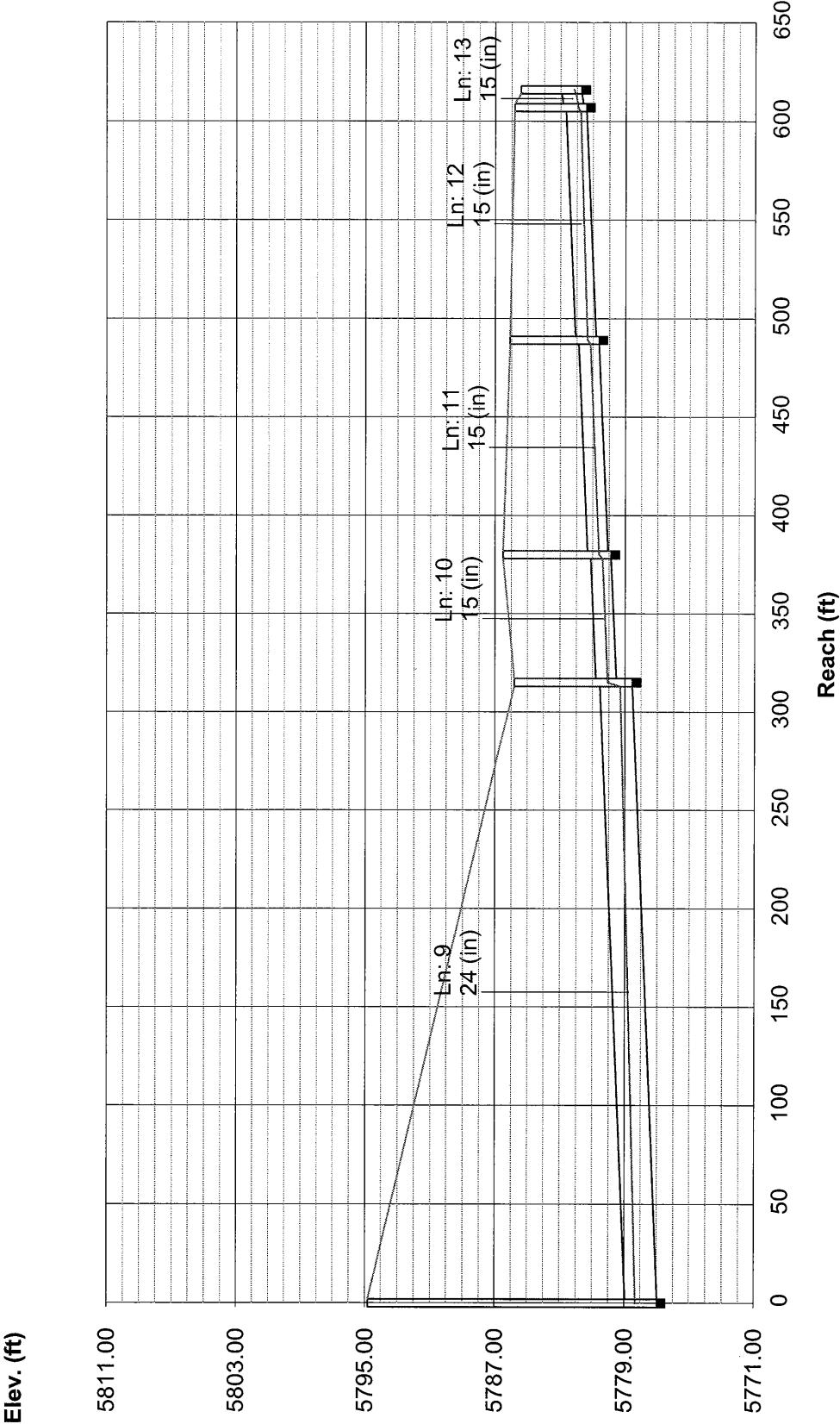
Number of lines: 35

Date: 07-29-2004

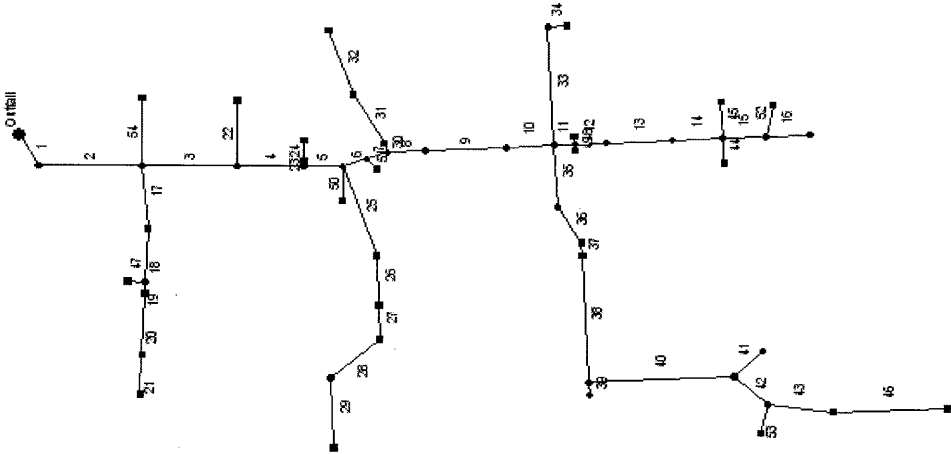
NOTES: \*\* At critical depth



# Storm Sewer Profile



Hydraflow Plan View



Project file: D02049 Line-4 2-yr.stm

No. Lines: 54

07-29-2004



| Line No. | Line ID  | Capac Full (cfs) | Cover Dn (ft) | Cover Up (ft) | DnStm Ln No | Known Q (cfs) | Drng Area (ac) | Flow Rate (cfs) | Gnd/Rim El Dn (ft) | Gnd/Rim El Up (ft) | HGL Dn (ft) | HGL Up (ft) | Invert Dn (ft) | Invert Up (ft) | Line Length (ft) | Line Size (in) | Line Slope (%) | Runoff Coeff (C) | Tc (min) |
|----------|----------|------------------|---------------|---------------|-------------|---------------|----------------|-----------------|--------------------|--------------------|-------------|-------------|----------------|----------------|------------------|----------------|----------------|------------------|----------|
| 1        | MH 4-0   | 47.18            | 0.00          | 2.28          | Outfall     | 0.00          | 0.00           | 10.63           | 5745.90            | 5748.50            | 5743.94     | 5744.26     | 5742.90        | 5743.22        | 64.00            | 36             | 0.50           | 0.00             | 82.0     |
| 2        | MH 4-1   | 210.90           | 2.08          | 13.18         | 1           | 0.00          | 0.00           | 10.68           | 5748.50            | 5776.10            | 5744.58     | 5760.96     | 5743.42        | 5759.92        | 165.00           | 36             | 10.00          | 0.00             | 81.1     |
| 3        | MH 4-2   | 141.38           | 8.97          | 6.04          | 2           | 0.00          | 0.00           | 9.41            | 5776.10            | 5780.00            | 5764.66     | 5771.94     | 5764.13        | 5770.96        | 152.00           | 36             | 4.49           | 0.00             | 80.2     |
| 4        | MH 4-3   | 47.38            | 5.84          | 5.30          | 3           | 0.00          | 0.00           | 9.15            | 5780.00            | 5780.00            | 5772.28     | 5772.66     | 5771.16        | 5771.70        | 107.00           | 36             | 0.50           | 0.00             | 79.6     |
| 5        | MH 4-4   | 47.16            | 5.10          | 4.79          | 4           | 0.00          | 0.00           | 9.14            | 5780.00            | 5780.00            | 5773.00     | 5773.17     | 5771.90        | 5772.21        | 62.00            | 36             | 0.50           | 0.00             | 79.2     |
| 6        | MH 4-5   | 47.73            | 4.59          | 4.38          | 5           | 0.00          | 0.00           | 14.20           | 5780.00            | 5780.00            | 5773.54     | 5773.83     | 5772.41        | 5772.62        | 41.00            | 36             | 0.51           | 0.00             | 22.5     |
| 7        | MH 4-6   | 47.85            | 4.18          | 4.00          | 6           | 0.00          | 0.00           | 13.69           | 5780.00            | 5780.00            | 5774.20     | 5774.19     | 5772.82        | 5773.00        | 35.00            | 36             | 0.51           | 0.00             | 22.2     |
| 8        | MH 4-7   | 120.54           | 3.80          | 3.04          | 7           | 0.00          | 0.00           | 11.47           | 5780.00            | 5781.20            | 5774.62     | 5776.24     | 5773.20        | 5775.16        | 60.00            | 36             | 3.27           | 0.00             | 21.6     |
| 9        | MH 4-8   | 92.68            | 2.84          | 5.33          | 8           | 0.00          | 0.00           | 11.75           | 5781.20            | 5786.20            | 5776.30     | 5778.96     | 5775.36        | 5777.87        | 130.00           | 36             | 1.93           | 0.00             | 20.5     |
| 10       | MH4-9    | 81.86            | 5.13          | 7.07          | 9           | 0.00          | 0.00           | 11.92           | 5786.20            | 5789.30            | 5779.02     | 5780.33     | 5778.07        | 5779.23        | 77.00            | 36             | 1.51           | 0.00             | 19.8     |
| 11       | MH 4-10  | 47.41            | 7.07          | 6.92          | 10          | 0.00          | 0.00           | 3.76            | 5789.30            | 5790.60            | 5780.73     | 5782.37     | 5780.23        | 5781.68        | 33.00            | 24             | 4.39           | 0.00             | 11.7     |
| 12       | MH 4-11  | 50.57            | 6.72          | 6.12          | 11          | 0.00          | 0.00           | 2.92            | 5790.60            | 5792.50            | 5782.61     | 5784.99     | 5781.88        | 5784.38        | 50.00            | 24             | 5.00           | 0.00             | 10.9     |
| 13       | MH 4-12  | 50.57            | 5.92          | 4.37          | 12          | 0.00          | 0.00           | 3.13            | 5792.50            | 5796.20            | 5785.02     | 5790.46     | 5784.58        | 5789.83        | 105.00           | 24             | 5.00           | 0.00             | 9.4      |
| 14       | MH 4-13  | 50.57            | 4.17          | 5.17          | 13          | 0.00          | 0.00           | 3.30            | 5796.20            | 5801.20            | 5790.49     | 5794.67     | 5790.03        | 5794.03        | 80.00            | 24             | 5.00           | 0.00             | 8.3      |
| 15       | MH 4-14A | 22.62            | 4.97          | 3.78          | 14          | 0.00          | 0.00           | 2.28            | 5801.20            | 5800.70            | 5794.90     | 5795.46     | 5794.23        | 5794.92        | 69.00            | 24             | 1.00           | 0.00             | 6.9      |
| 16       | OS5      | 22.62            | 3.58          | 4.67          | 15          | 0.00          | 1.58           | 1.99            | 5800.70            | 5802.50            | 5795.63     | 5796.33     | 5795.12        | 5795.83        | 71.00            | 24             | 1.00           | 0.63             | 5.0      |
| 17       | B33      | 31.98            | 9.77          | 6.93          | 2           | 0.00          | 0.58           | 3.82            | 5776.10            | 5775.50            | 5764.80     | 5767.26     | 5764.33        | 5766.57        | 112.00           | 24             | 2.00           | 0.71             | 8.5      |
| 18       | MH 4-15  | 31.99            | 6.73          | 4.21          | 17          | 0.00          | 0.00           | 3.39            | 5775.50            | 5774.90            | 5767.38     | 5769.34     | 5766.77        | 5768.69        | 96.00            | 24             | 2.00           | 0.00             | 7.1      |
| 19       | B31      | 5.04             | 4.21          | 3.39          | 18          | 0.00          | 1.15           | 2.90            | 5774.90            | 5774.50            | 5770.23     | 5770.92     | 5769.69        | 5770.11        | 21.00            | 12             | 2.00           | 0.71             | 7.0      |
| 20       | B30      | 3.56             | 3.19          | 4.61          | 19          | 0.00          | 0.58           | 1.53            | 5774.50            | 5777.00            | 5771.06     | 5771.92     | 5770.31        | 5771.39        | 108.00           | 12             | 1.00           | 0.71             | 6.1      |
| 21       | B29      | 3.56             | 4.41          | 2.60          | 20          | 0.00          | 0.58           | 0.82            | 5777.00            | 5775.90            | 5772.02     | 5772.69     | 5771.59        | 5772.30        | 71.00            | 12             | 1.00           | 0.71             | 5.0      |

Project File: D02049 Line-4 2-yr.stm

Number of lines: 54

Date: 07-29-2004

NOTES: \*\* At critical depth

| Line No. | Line ID  | Capac Full (cfs) | Cover Dn (ft) | Cover Up (ft) | DnStm Ln No | Known Q (cfs) | Drng Area (ac) | Flow Rate (cfs) | Gnd/Rim El Dn (ft) | Gnd/Rim El Up (ft) | HGL Dn (ft) | HGL Up (ft) | Invert Dn (ft) | Invert Up (ft) | Line Length (ft) | Line Size (in) | Line Slope (%) | Runoff Coeff (C) | Tc (min) |
|----------|----------|------------------|---------------|---------------|-------------|---------------|----------------|-----------------|--------------------|--------------------|-------------|-------------|----------------|----------------|------------------|----------------|----------------|------------------|----------|
| 22       | B36, B37 | 5.04             | 6.04          | 3.70          | 3           | 0.00          | 0.93           | 1.32            | 5780.00            | 5780.00            | 5773.31     | 5775.79     | 5772.96        | 5775.30        | 117.00           | 12             | 2.00           | 0.71             | 5.0      |
| 23       | B34      | 3.56             | 5.30          | 6.21          | 4           | 0.00          | 0.05           | 0.08            | 5780.00            | 5781.00            | 5773.80     | 5773.91     | 5773.70        | 5773.79        | 9.00             | 12             | 1.00           | 0.50             | 12.5     |
| 24       | B39      | 3.56             | 6.01          | 5.64          | 23          | 0.00          | 0.06           | 0.06            | 5781.00            | 5781.00            | 5774.09     | 5774.47     | 5773.99        | 5774.36        | 37.00            | 12             | 1.00           | 0.54             | 5.0      |
| 25       | B19      | 16.04            | 4.59          | 3.24          | 5           | 0.00          | 0.77           | 1.38            | 5780.00            | 5779.50            | 5773.81     | 5774.68     | 5773.41        | 5774.26        | 169.00           | 24             | 0.50           | 0.78             | 77.5     |
| 26       | B18      | 2.52             | 3.24          | 2.50          | 25          | 0.00          | 1.16           | 1.11            | 5779.50            | 5779.20            | 5775.73     | 5776.16     | 5775.26        | 5775.70        | 88.00            | 12             | 0.50           | 0.84             | 77.2     |
| 27       | B17      | 2.52             | 2.30          | 2.00          | 26          | 0.00          | 1.70           | 0.65            | 5779.20            | 5779.20            | 5776.25     | 5776.55     | 5775.90        | 5776.20        | 60.00            | 12             | 0.50           | 0.81             | 76.9     |
| 28       | MH 4-21  | 2.52             | 1.80          | 3.38          | 27          | 0.00          | 0.00           | 0.01            | 5779.20            | 5781.30            | 5776.67     | 5776.97     | 5776.40        | 5776.92        | 104.00           | 12             | 0.50           | 0.00             | 43.2     |
| 29       | B28      | 3.56             | 3.18          | 2.44          | 28          | 0.00          | 0.03           | 0.04            | 5781.30            | 5781.80            | 5777.20     | 5778.45     | 5777.12        | 5778.36        | 124.00           | 12             | 1.00           | 0.71             | 5.0      |
| 30       | B23      | 16.44            | 4.00          | 2.51          | 7           | 0.00          | 0.63           | 3.81            | 5780.00            | 5778.60            | 5774.66     | 5774.79     | 5774.00        | 5774.09        | 17.00            | 24             | 0.53           | 0.84             | 8.4      |
| 31       | B26      | 15.99            | 2.31          | 3.21          | 30          | 0.00          | 0.08           | 3.19            | 5778.60            | 5780.00            | 5774.95     | 5775.42     | 5774.29        | 5774.79        | 100.00           | 24             | 0.50           | 0.85             | 6.8      |
| 32       | B27      | 16.06            | 3.01          | 2.40          | 31          | 0.00          | 2.12           | 3.43            | 5780.00            | 5780.00            | 5775.62     | 5776.26     | 5774.99        | 5775.60        | 121.00           | 24             | 0.50           | 0.81             | 5.0      |
| 33       | MH 4-23  | 4.37             | 7.07          | 2.00          | 10          | 0.00          | 0.00           | 1.19            | 5789.30            | 5787.40            | 5781.59     | 5784.86     | 5781.23        | 5784.40        | 211.00           | 12             | 1.50           | 0.00             | 5.3      |
| 34       | B16      | 4.36             | 1.80          | 2.15          | 33          | 0.00          | 0.71           | 1.22            | 5787.40            | 5788.20            | 5785.04     | 5785.52     | 5784.60        | 5785.05        | 30.00            | 12             | 1.50           | 0.86             | 5.0      |
| 35       | MH 4-24  | 47.15            | 7.07          | 6.02          | 10          | 0.00          | 0.00           | 8.64            | 5789.30            | 5788.80            | 5780.73     | 5780.75     | 5779.23        | 5779.78        | 110.00           | 36             | 0.50           | 0.00             | 18.5     |
| 36       | B9       | 47.17            | 5.82          | 4.95          | 35          | 0.00          | 0.39           | 8.81            | 5788.80            | 5788.30            | 5780.88     | 5781.30     | 5779.98        | 5780.35        | 74.00            | 36             | 0.50           | 0.72             | 17.6     |
| 37       | B8       | 48.20            | 4.75          | 4.13          | 36          | 0.00          | 0.49           | 8.54            | 5788.30            | 5787.80            | 5781.53     | 5781.61     | 5780.55        | 5780.67        | 23.00            | 36             | 0.52           | 0.69             | 17.3     |
| 38       | MH 4-25  | 47.16            | 3.93          | 2.80          | 37          | 0.00          | 0.00           | 8.71            | 5787.80            | 5787.80            | 5781.77     | 5782.94     | 5780.87        | 5782.00        | 226.00           | 36             | 0.50           | 0.00             | 14.4     |
| 39       | B7       | 3.56             | 2.80          | 2.27          | 38          | 0.00          | 0.59           | 0.85            | 5787.80            | 5787.50            | 5784.33     | 5784.62     | 5784.00        | 5784.23        | 23.00            | 12             | 1.00           | 0.72             | 5.0      |
| 40       | MH 4-14  | 49.80            | 2.80          | 4.20          | 38          | 0.00          | 0.00           | 8.45            | 5787.80            | 5800.40            | 5783.56     | 5795.23     | 5783.00        | 5794.20        | 231.00           | 24             | 4.85           | 0.00             | 13.1     |
| 41       | B1       | 3.56             | 4.20          | 3.15          | 40          | 0.00          | 1.25           | 2.17            | 5800.40            | 5800.00            | 5795.77     | 5796.48     | 5795.20        | 5795.85        | 65.00            | 12             | 1.00           | 0.87             | 5.0      |
| 42       | MH 4-16  | 16.00            | 4.00          | 3.23          | 40          | 0.00          | 0.00           | 7.08            | 5800.40            | 5800.00            | 5795.54     | 5795.72     | 5794.40        | 5794.77        | 74.00            | 24             | 0.50           | 0.00             | 12.6     |

Project File: D02049 Line-4 2-yr.stm

Number of lines: 54

Date: 07-29-2004

NOTES: \*\* At critical depth

| Line No. | Line ID | Capac Full (cfs) | Cover Dn (ft) | Cover Up (ft) | DnStm Ln No | Known Q (cfs) | Drng Area (ac) | Flow Rate (cfs) | Gnd/Rim El Dn (ft) | Gnd/Rim El Up (ft) | HGL Dn (ft) | HGL Up (ft) | Invert Dn (ft) | Invert Up (ft) | Line Length (ft) | Line Size (in) | Line Slope (%) | Runoff Coeff (C) | Tc (min) |
|----------|---------|------------------|---------------|---------------|-------------|---------------|----------------|-----------------|--------------------|--------------------|-------------|-------------|----------------|----------------|------------------|----------------|----------------|------------------|----------|
| 43       | OS3     | 50.57            | 3.03          | 5.78          | 42          | 0.00          | 3.00           | 7.65            | 5800.00            | 5808.00            | 5796.03     | 5801.20     | 5794.97        | 5800.22        | 105.00           | 24             | 5.00           | 0.41             | 9.6      |
| 44       | B2      | 7.12             | 4.87          | 2.71          | 14          | 0.00          | 0.47           | 0.80            | 5801.20            | 5800.80            | 5795.56     | 5797.47     | 5795.33        | 5797.09        | 44.00            | 12             | 4.00           | 0.85             | 5.0      |
| 45       | B4      | 7.12             | 4.87          | 2.97          | 14          | 0.00          | 0.38           | 0.65            | 5801.20            | 5801.90            | 5795.54     | 5798.27     | 5795.33        | 5797.93        | 65.00            | 12             | 4.00           | 0.85             | 5.0      |
| 46       | OS4     | 129.41           | 5.58          | 3.00          | 43          | 2.41          | 5.23           | 6.01            | 5808.00            | 5865.00            | 5801.39     | 5860.87     | 5800.42        | 5860.00        | 182.00           | 24             | 32.74          | 0.41             | 8.0      |
| 47       | B38     | 3.92             | 4.21          | 1.97          | 18          | 0.00          | 0.53           | 0.57            | 5774.90            | 5773.00            | 5769.95     | 5770.35     | 5769.69        | 5770.03        | 28.00            | 12             | 1.21           | 0.54             | 5.0      |
| 48       | B13     | 11.26            | 6.62          | 5.32          | 11          | 0.00          | 0.35           | 0.61            | 5790.60            | 5790.70            | 5783.14     | 5784.71     | 5782.98        | 5784.38        | 14.00            | 12             | 10.00          | 0.87             | 5.0      |
| 49       | B12     | 11.26            | 6.62          | 5.72          | 11          | 0.00          | 0.40           | 0.70            | 5790.60            | 5790.80            | 5783.15     | 5784.60     | 5782.98        | 5784.08        | 11.00            | 12             | 10.00          | 0.87             | 5.0      |
| 50       | B32     | 5.04             | 4.79          | 5.17          | 5           | 0.00          | 0.02           | 0.03            | 5780.00            | 5781.60            | 5774.26     | 5775.50     | 5774.21        | 5775.43        | 61.00            | 12             | 2.00           | 0.71             | 5.0      |
| 51       | B22     | 5.63             | 4.18          | 3.58          | 6           | 0.00          | 0.70           | 1.17            | 5780.00            | 5780.00            | 5775.13     | 5775.88     | 5774.82        | 5775.42        | 24.00            | 12             | 2.50           | 0.84             | 5.0      |
| 52       | B3      | 5.04             | 2.78          | 2.84          | 15          | 0.00          | 0.32           | 0.56            | 5800.70            | 5801.90            | 5797.15     | 5798.38     | 5796.92        | 5798.06        | 57.00            | 12             | 2.00           | 0.88             | 5.0      |
| 53       | B6      | 5.04             | 3.03          | 2.29          | 42          | 0.00          | 1.12           | 0.09            | 5800.00            | 5800.30            | 5796.06     | 5797.14     | 5795.97        | 5797.01        | 52.00            | 12             | 2.00           | 0.04             | 5.0      |
| 54       | B35     | 5.04             | 8.97          | 5.45          | 2           | 0.00          | 1.07           | 1.06            | 5776.10            | 5775.00            | 5766.44     | 5768.99     | 5766.13        | 5768.55        | 121.00           | 12             | 2.00           | 0.56             | 7.0      |

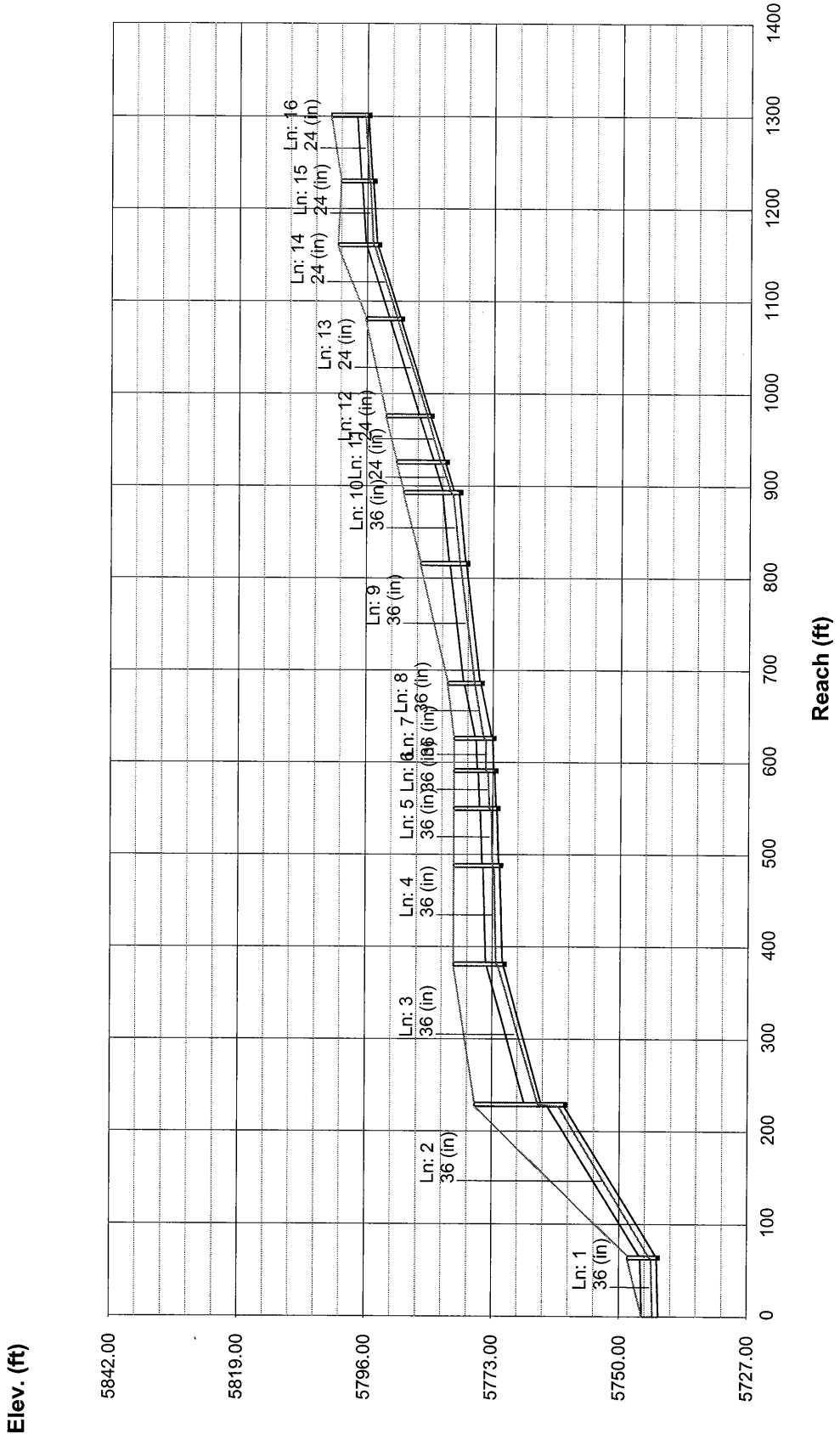
Project File: D02049 Line-4 2-yr.stm

Number of lines: 54

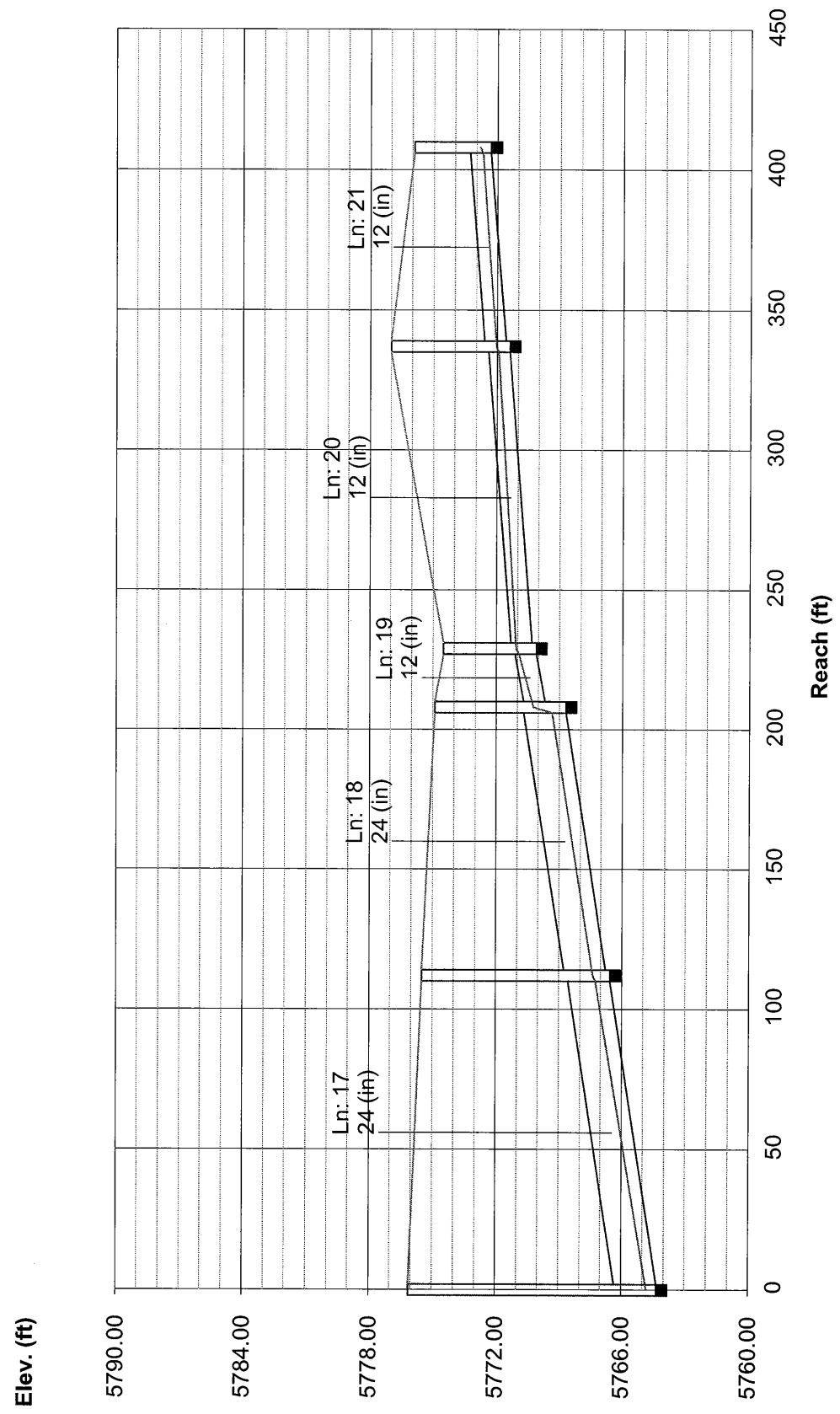
Date: 07-29-2004

NOTES: \*\* At critical depth

# Storm Sewer Profile

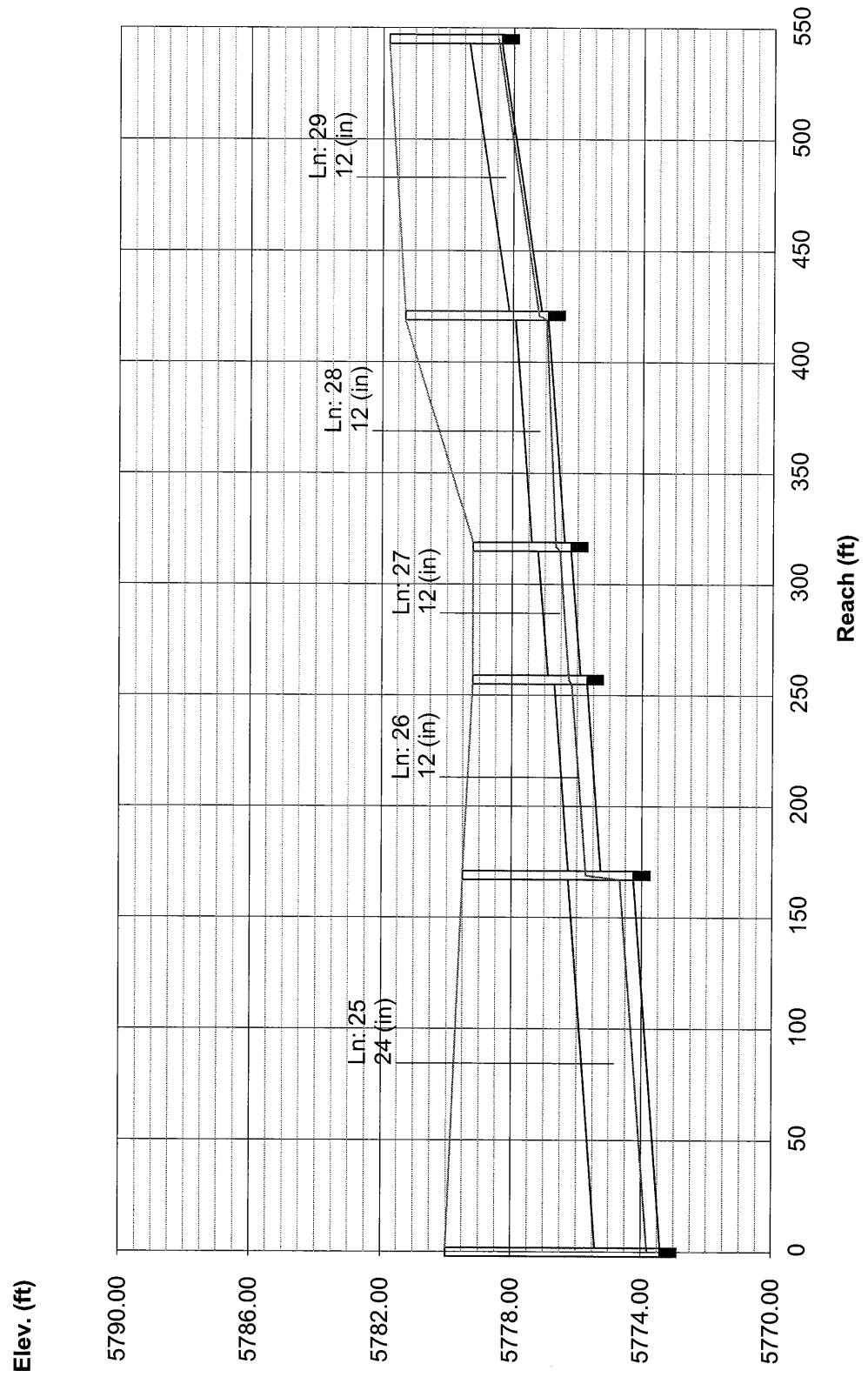


# Storm Sewer Profile

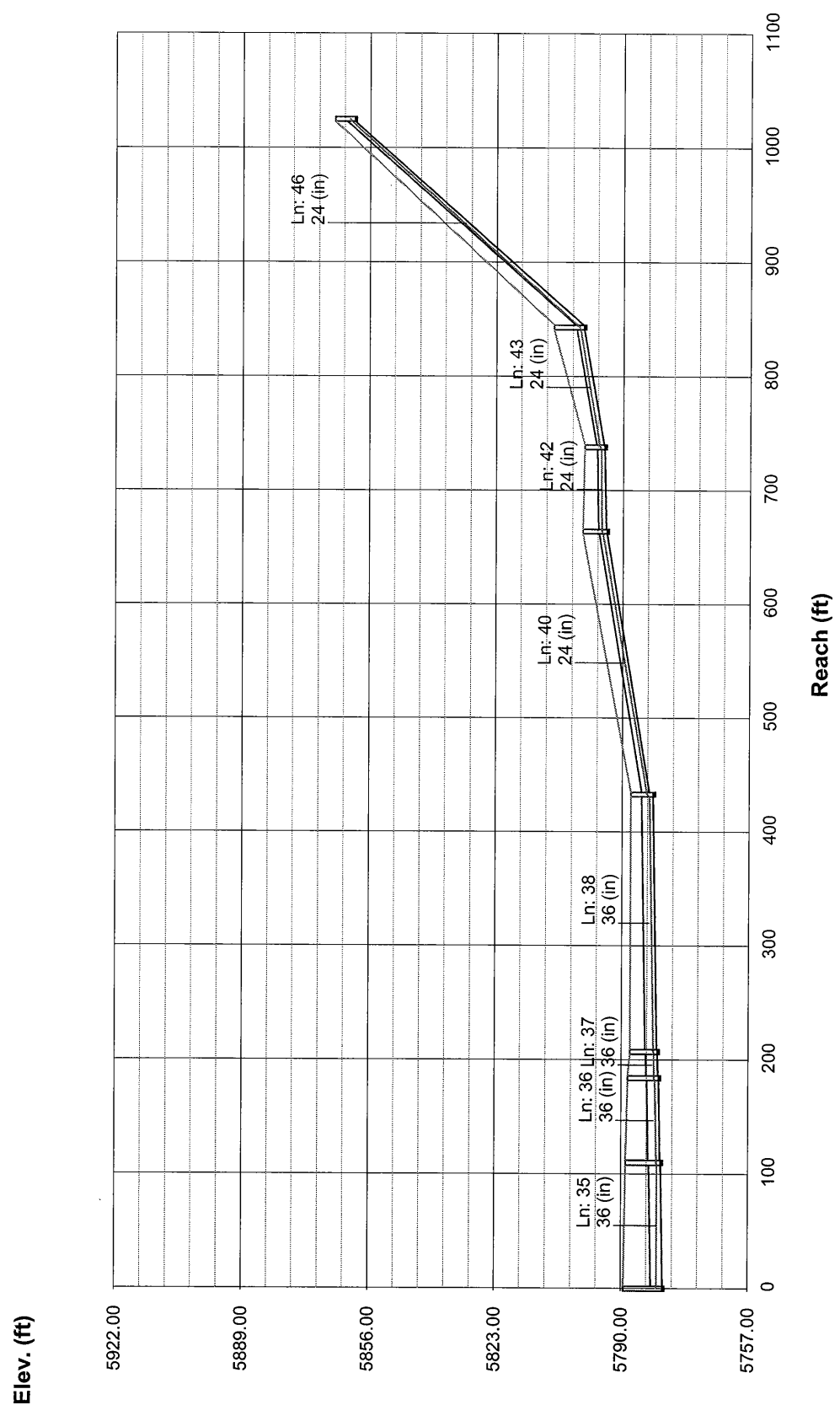


# Storm Sewer Profile

Proj. file: D02049 Line-4 2-yr.stm



Storm Sewer Profile



| Line No. | Line ID  | Capac Full (cfs) | Cover Dn (ft) | Cover Up (ft) | DnStm Ln No | Known Q (cfs) | Drng Area (ac) | Flow Rate (cfs) | Gnd/Rim El Dn (ft) | Gnd/Rim El Up (ft) | HGL Dn (ft) | HGL Up (ft) | Invert Dn (ft) | Invert Up (ft) | Line Length (ft) | Line Size (in) | Line Slope (%) | Runoff Coeff (C) | Tc (min) |
|----------|----------|------------------|---------------|---------------|-------------|---------------|----------------|-----------------|--------------------|--------------------|-------------|-------------|----------------|----------------|------------------|----------------|----------------|------------------|----------|
| 1        | MH 4-0   | 47.18            | 0.00          | 2.28          | Outfall     | 0.00          | 0.00           | 39.03           | 5745.90            | 5748.50            | 5744.98     | 5745.30     | 5742.90        | 5743.22        | 64.00            | 36             | 0.50           | 0.00             | 37.7     |
| 2        | MH 4-1   | 210.90           | 2.08          | 13.18         | 1           | 0.00          | 0.00           | 39.25           | 5748.50            | 5776.10            | 5746.04     | 5761.92     | 5743.42        | 5759.92        | 165.00           | 36             | 10.00          | 0.00             | 37.4     |
| 3        | MH 4-2   | 141.38           | 8.97          | 6.04          | 2           | 0.00          | 0.00           | 33.93           | 5776.10            | 5780.00            | 5765.14     | 5772.82     | 5764.13        | 5770.96        | 152.00           | 36             | 4.49           | 0.00             | 37.1     |
| 4        | MH 4-3   | 47.38            | 5.84          | 5.30          | 3           | 0.00          | 0.00           | 32.86           | 5780.00            | 5780.00            | 5773.67     | 5773.80     | 5771.16        | 5771.70        | 107.00           | 36             | 0.50           | 0.00             | 36.8     |
| 5        | MH 4-4   | 47.16            | 5.10          | 4.79          | 4           | 0.00          | 0.00           | 32.82           | 5780.00            | 5780.00            | 5774.40     | 5774.47     | 5771.90        | 5772.21        | 62.00            | 36             | 0.50           | 0.00             | 36.7     |
| 6        | MH 4-5   | 47.73            | 4.59          | 4.38          | 5           | 0.00          | 0.00           | 47.55           | 5780.00            | 5780.00            | 5774.99     | 5775.16     | 5772.41        | 5772.62        | 41.00            | 36             | 0.51           | 0.00             | 12.7     |
| 7        | MH 4-6   | 47.85            | 4.18          | 4.00          | 6           | 0.00          | 0.00           | 45.80           | 5780.00            | 5780.00            | 5775.90     | 5776.06     | 5772.82        | 5773.00        | 35.00            | 36             | 0.51           | 0.00             | 12.6     |
| 8        | MH 4-7   | 120.54           | 3.80          | 3.04          | 7           | 0.00          | 0.00           | 38.46           | 5780.00            | 5781.20            | 5776.71     | 5777.14     | 5773.20        | 5775.16        | 60.00            | 36             | 3.27           | 0.00             | 12.4     |
| 9        | MH 4-8   | 92.68            | 2.84          | 5.33          | 8           | 0.00          | 0.00           | 39.05           | 5781.20            | 5786.20            | 5777.28     | 5779.86     | 5775.36        | 5777.87        | 130.00           | 36             | 1.93           | 0.00             | 11.9     |
| 10       | MH 4-9   | 81.86            | 5.13          | 7.07          | 9           | 0.00          | 0.00           | 39.41           | 5786.20            | 5789.30            | 5780.01     | 5781.23     | 5778.07        | 5779.23        | 77.00            | 36             | 1.51           | 0.00             | 11.7     |
| 11       | MH 4-10  | 47.41            | 7.07          | 6.92          | 10          | 0.00          | 0.00           | 11.65           | 5789.30            | 5790.60            | 5782.19     | 5782.89     | 5780.23        | 5781.68        | 33.00            | 24             | 4.39           | 0.00             | 7.5      |
| 12       | MH 4-11  | 50.57            | 6.72          | 6.12          | 11          | 0.00          | 0.00           | 9.16            | 5790.60            | 5792.50            | 5783.42     | 5785.45     | 5781.88        | 5784.38        | 50.00            | 24             | 5.00           | 0.00             | 7.2      |
| 13       | MH 4-12  | 50.57            | 5.92          | 4.37          | 12          | 0.00          | 0.00           | 9.42            | 5792.50            | 5796.20            | 5785.52     | 5790.92     | 5784.58        | 5789.83        | 105.00           | 24             | 5.00           | 0.00             | 6.6      |
| 14       | MH 4-13  | 50.57            | 4.17          | 5.17          | 13          | 0.00          | 0.00           | 9.63            | 5796.20            | 5801.20            | 5790.99     | 5795.13     | 5790.03        | 5794.03        | 80.00            | 24             | 5.00           | 0.00             | 6.2      |
| 15       | MH 4-14A | 22.62            | 4.97          | 3.78          | 14          | 0.00          | 0.00           | 6.72            | 5801.20            | 5800.70            | 5795.59     | 5795.84     | 5794.23        | 5794.92        | 69.00            | 24             | 1.00           | 0.00             | 5.7      |
| 16       | OS5      | 22.62            | 3.58          | 4.67          | 15          | 0.00          | 1.58           | 5.70            | 5800.70            | 5802.50            | 5796.19     | 5796.68     | 5795.12        | 5795.83        | 71.00            | 24             | 1.00           | 0.85             | 5.0      |
| 17       | B33      | 31.98            | 9.77          | 6.93          | 2           | 0.00          | 0.58           | 10.25           | 5776.10            | 5775.50            | 5765.11     | 5767.70     | 5764.33        | 5766.57        | 112.00           | 24             | 2.00           | 0.78             | 6.5      |
| 18       | MH 4-15  | 31.99            | 6.73          | 4.21          | 17          | 0.00          | 0.00           | 8.73            | 5775.50            | 5774.90            | 5767.95     | 5769.74     | 5766.77        | 5768.69        | 96.00            | 24             | 2.00           | 0.00             | 5.9      |
| 19       | B31      | 5.04             | 4.21          | 3.39          | 18          | 0.00          | 1.15           | 7.30            | 5774.90            | 5774.50            | 5770.69     | 5771.57     | 5769.69        | 5770.11        | 21.00            | 12             | 2.00           | 0.78             | 5.9      |
| 20       | B30      | 3.56             | 3.19          | 4.61          | 19          | 0.00          | 0.58           | 3.74            | 5774.50            | 5777.00            | 5772.25     | 5773.44     | 5770.31        | 5771.39        | 108.00           | 12             | 1.00           | 0.78             | 5.5      |
| 21       | B29      | 3.56             | 4.41          | 2.60          | 20          | 0.00          | 0.58           | 1.92            | 5777.00            | 5775.90            | 5773.62     | 5773.82     | 5771.59        | 5772.30        | 71.00            | 12             | 1.00           | 0.78             | 5.0      |

Project File: D02049 Line-4 25-yr.stm

Number of lines: 54

Date: 07-29-2004

NOTES: \*\* At critical depth



| Line No. | Line ID  | Capac Full (cfs) | Cover Dn (ft) | Cover Up (ft) | DnStm Ln No | Known Q (cfs) | Drng Area (ac) | Flow Rate (cfs) | Gnd/Rim El Dn (ft) | Gnd/Rim El Up (ft) | HGL Dn (ft) | HGL Up (ft) | Invert Dn (ft) | Invert Up (ft) | Line Length (ft) | Line Size (in) | Line Slope (%) | Runoff Coeff (C) | Tc (min) |
|----------|----------|------------------|---------------|---------------|-------------|---------------|----------------|-----------------|--------------------|--------------------|-------------|-------------|----------------|----------------|------------------|----------------|----------------|------------------|----------|
| 22       | B36, B37 | 5.04             | 6.04          | 3.70          | 3           | 0.00          | 0.93           | 3.08            | 5780.00            | 5780.00            | 5773.67     | 5776.04     | 5772.96        | 5775.30        | 117.00           | 12             | 2.00           | 0.78             | 5.0      |
| 23       | B34      | 3.56             | 5.30          | 6.21          | 4           | 0.00          | 0.05           | 0.27            | 5780.00            | 5780.00            | 5774.40     | 5774.40     | 5773.70        | 5773.79        | 9.00             | 12             | 1.00           | 0.64             | 7.8      |
| 24       | B39      | 3.56             | 6.01          | 5.64          | 23          | 0.00          | 0.06           | 0.17            | 5781.00            | 5781.00            | 5774.40     | 5774.54     | 5773.99        | 5774.36        | 37.00            | 12             | 1.00           | 0.67             | 5.0      |
| 25       | B19      | 16.04            | 4.59          | 3.24          | 5           | 0.00          | 0.77           | 5.47            | 5780.00            | 5779.50            | 5774.99     | 5775.15     | 5773.41        | 5774.26        | 169.00           | 24             | 0.50           | 0.86             | 35.9     |
| 26       | B18      | 2.52             | 3.24          | 2.50          | 25          | 0.00          | 1.16           | 4.36            | 5779.50            | 5779.20            | 5776.26     | 5777.58     | 5775.26        | 5775.70        | 88.00            | 12             | 0.50           | 0.90             | 35.8     |
| 27       | B17      | 2.52             | 2.30          | 2.00          | 26          | 0.00          | 1.70           | 2.59            | 5779.20            | 5779.20            | 5777.82     | 5778.14     | 5775.90        | 5776.20        | 60.00            | 12             | 0.50           | 0.88             | 35.7     |
| 28       | MH 4-21  | 2.52             | 1.80          | 3.38          | 27          | 0.00          | 0.00           | 0.05            | 5779.20            | 5781.30            | 5778.32     | 5778.32     | 5776.40        | 5776.92        | 104.00           | 12             | 0.50           | 0.00             | 21.3     |
| 29       | B28      | 3.56             | 3.18          | 2.44          | 28          | 0.00          | 0.03           | 0.10            | 5781.30            | 5781.80            | 5778.32     | 5778.51     | 5777.12        | 5778.36        | 124.00           | 12             | 1.00           | 0.78             | 5.0      |
| 30       | B23      | 16.44            | 4.00          | 2.51          | 7           | 0.00          | 0.63           | 9.85            | 5780.00            | 5778.60            | 5776.71     | 5776.75     | 5774.00        | 5774.09        | 17.00            | 24             | 0.53           | 0.90             | 6.5      |
| 31       | B26      | 15.99            | 2.31          | 3.21          | 30          | 0.00          | 0.08           | 7.88            | 5778.60            | 5780.00            | 5776.85     | 5776.97     | 5774.29        | 5774.79        | 100.00           | 24             | 0.50           | 0.91             | 5.8      |
| 32       | B27      | 16.06            | 3.01          | 2.40          | 31          | 0.00          | 2.12           | 7.92            | 5780.00            | 5780.00            | 5777.04     | 5777.16     | 5774.99        | 5775.60        | 121.00           | 24             | 0.50           | 0.88             | 5.0      |
| 33       | MH 4-23  | 4.37             | 7.07          | 2.00          | 10          | 0.00          | 0.00           | 2.75            | 5789.30            | 5787.40            | 5782.19     | 5785.10     | 5781.23        | 5784.40        | 211.00           | 12             | 1.50           | 0.00             | 5.1      |
| 34       | B16      | 4.36             | 1.80          | 2.15          | 33          | 0.00          | 0.71           | 2.77            | 5787.40            | 5788.20            | 5785.44     | 5785.76     | 5784.60        | 5785.05        | 30.00            | 12             | 1.50           | 0.92             | 5.0      |
| 35       | MH 4-24  | 47.15            | 7.07          | 6.02          | 10          | 0.00          | 0.00           | 28.08           | 5789.30            | 5788.80            | 5782.19     | 5782.32     | 5779.23        | 5779.78        | 110.00           | 36             | 0.50           | 0.00             | 11.2     |
| 36       | B9       | 47.17            | 5.82          | 4.95          | 35          | 0.00          | 0.39           | 28.42           | 5788.80            | 5788.30            | 5782.46     | 5782.51     | 5779.98        | 5780.35        | 74.00            | 36             | 0.50           | 0.81             | 10.8     |
| 37       | B8       | 48.20            | 4.75          | 4.13          | 36          | 0.00          | 0.49           | 27.50           | 5788.30            | 5787.80            | 5782.81     | 5782.82     | 5780.55        | 5780.67        | 23.00            | 36             | 0.52           | 0.78             | 10.7     |
| 38       | MH 4-25  | 47.16            | 3.93          | 2.80          | 37          | 0.00          | 0.00           | 27.30           | 5787.80            | 5787.80            | 5783.02     | 5783.67     | 5780.87        | 5782.00        | 226.00           | 36             | 0.50           | 0.00             | 9.7      |
| 39       | B7       | 3.56             | 2.80          | 2.27          | 38          | 0.00          | 0.59           | 2.03            | 5787.80            | 5787.50            | 5784.54     | 5784.84     | 5784.00        | 5784.23        | 23.00            | 12             | 1.00           | 0.81             | 5.0      |
| 40       | MH 4-14  | 49.80            | 2.80          | 4.20          | 38          | 0.00          | 0.00           | 26.16           | 5787.80            | 5800.40            | 5784.38     | 5795.99     | 5783.00        | 5794.20        | 231.00           | 24             | 4.85           | 0.00             | 9.2      |
| 41       | B1       | 3.56             | 4.20          | 3.15          | 40          | 0.00          | 1.25           | 4.88            | 5800.40            | 5800.00            | 5796.90     | 5798.12     | 5795.20        | 5795.85        | 65.00            | 12             | 1.00           | 0.92             | 5.0      |
| 42       | MH 4-16  | 16.00            | 4.00          | 3.23          | 40          | 0.00          | 0.00           | 22.32           | 5800.40            | 5800.00            | 5796.90     | 5797.62     | 5794.40        | 5794.77        | 74.00            | 24             | 0.50           | 0.00             | 9.0      |

Project File: D02049 Line-4 25-yr.stm

Number of lines: 54

Date: 07-29-2004

NOTES: \*\* At critical depth

| Line No. | Line ID | Capac Full (cfs) | Cover Dn (ft) | Cover Up (ft) | DnStm Ln No | Known Q (cfs) | Drng Area (ac) | Flow Rate (cfs) | Gnd/Rim El Dn (ft) | Gnd/Rim El Up (ft) | HGL Dn (ft) | HGL Up (ft) | Invert Dn (ft) | Invert Up (ft) | Line Length (ft) | Line Size (in) | Line Slope (%) | Runoff Coeff (C) | Tc (min) |
|----------|---------|------------------|---------------|---------------|-------------|---------------|----------------|-----------------|--------------------|--------------------|-------------|-------------|----------------|----------------|------------------|----------------|----------------|------------------|----------|
| 43       | OS3     | 50.57            | 3.03          | 5.78          | 42          | 0.00          | 3.00           | 21.61           | 5800.00            | 5808.00            | 5798.29     | 5801.87     | 5794.97        | 5800.22        | 105.00           | 24             | 5.00           | 0.85             | 8.7      |
| 44       | B2      | 7.12             | 4.87          | 2.71          | 14          | 0.00          | 0.47           | 1.81            | 5801.20            | 5800.80            | 5795.68     | 5797.66     | 5795.33        | 5797.09        | 44.00            | 12             | 4.00           | 0.91             | 5.0      |
| 45       | B4      | 7.12             | 4.87          | 2.97          | 14          | 0.00          | 0.38           | 1.47            | 5801.20            | 5801.90            | 5795.64     | 5798.44     | 5795.33        | 5797.93        | 65.00            | 12             | 4.00           | 0.91             | 5.0      |
| 46       | OS4     | 129.41           | 5.58          | 3.00          | 43          | 2.41          | 5.23           | 12.93           | 5808.00            | 5865.00            | 5802.34     | 5861.27     | 5800.42        | 5860.00        | 182.00           | 24             | 32.74          | 0.55             | 8.0      |
| 47       | B38     | 3.92             | 4.21          | 1.97          | 18          | 0.00          | 0.53           | 1.51            | 5774.90            | 5773.00            | 5770.16     | 5770.55     | 5769.69        | 5770.03        | 28.00            | 12             | 1.21           | 0.67             | 5.0      |
| 48       | B13     | 11.26            | 6.62          | 5.32          | 11          | 0.00          | 0.35           | 1.38            | 5790.60            | 5790.70            | 5783.42     | 5784.88     | 5782.98        | 5784.38        | 14.00            | 12             | 10.00          | 0.93             | 5.0      |
| 49       | B12     | 11.26            | 6.62          | 5.72          | 11          | 0.00          | 0.40           | 1.58            | 5790.60            | 5790.80            | 5783.42     | 5784.61     | 5782.98        | 5784.08        | 11.00            | 12             | 10.00          | 0.93             | 5.0      |
| 50       | B32     | 5.04             | 4.79          | 5.17          | 5           | 0.00          | 0.02           | 0.07            | 5780.00            | 5781.60            | 5774.99     | 5775.54     | 5774.21        | 5775.43        | 61.00            | 12             | 2.00           | 0.78             | 5.0      |
| 51       | B22     | 5.63             | 4.18          | 3.58          | 6           | 0.00          | 0.70           | 2.67            | 5780.00            | 5780.00            | 5775.90     | 5776.11     | 5774.82        | 5775.42        | 24.00            | 12             | 2.50           | 0.90             | 5.0      |
| 52       | B3      | 5.04             | 2.78          | 2.84          | 15          | 0.00          | 0.32           | 1.26            | 5800.70            | 5801.90            | 5797.26     | 5798.54     | 5796.92        | 5798.06        | 57.00            | 12             | 2.00           | 0.93             | 5.0      |
| 53       | B6      | 5.04             | 3.03          | 2.29          | 42          | 0.00          | 0.30           | 1.12            | 5800.00            | 5800.30            | 5798.29     | 5798.34     | 5795.97        | 5797.01        | 52.00            | 12             | 2.00           | 0.88             | 5.0      |
| 54       | B35     | 5.04             | 8.97          | 5.45          | 2           | 0.00          | 1.07           | 2.79            | 5776.10            | 5775.00            | 5766.66     | 5769.26     | 5766.13        | 5768.55        | 121.00           | 12             | 2.00           | 0.68             | 7.0      |

Project File: D02049 Line-4 25-yr.stm

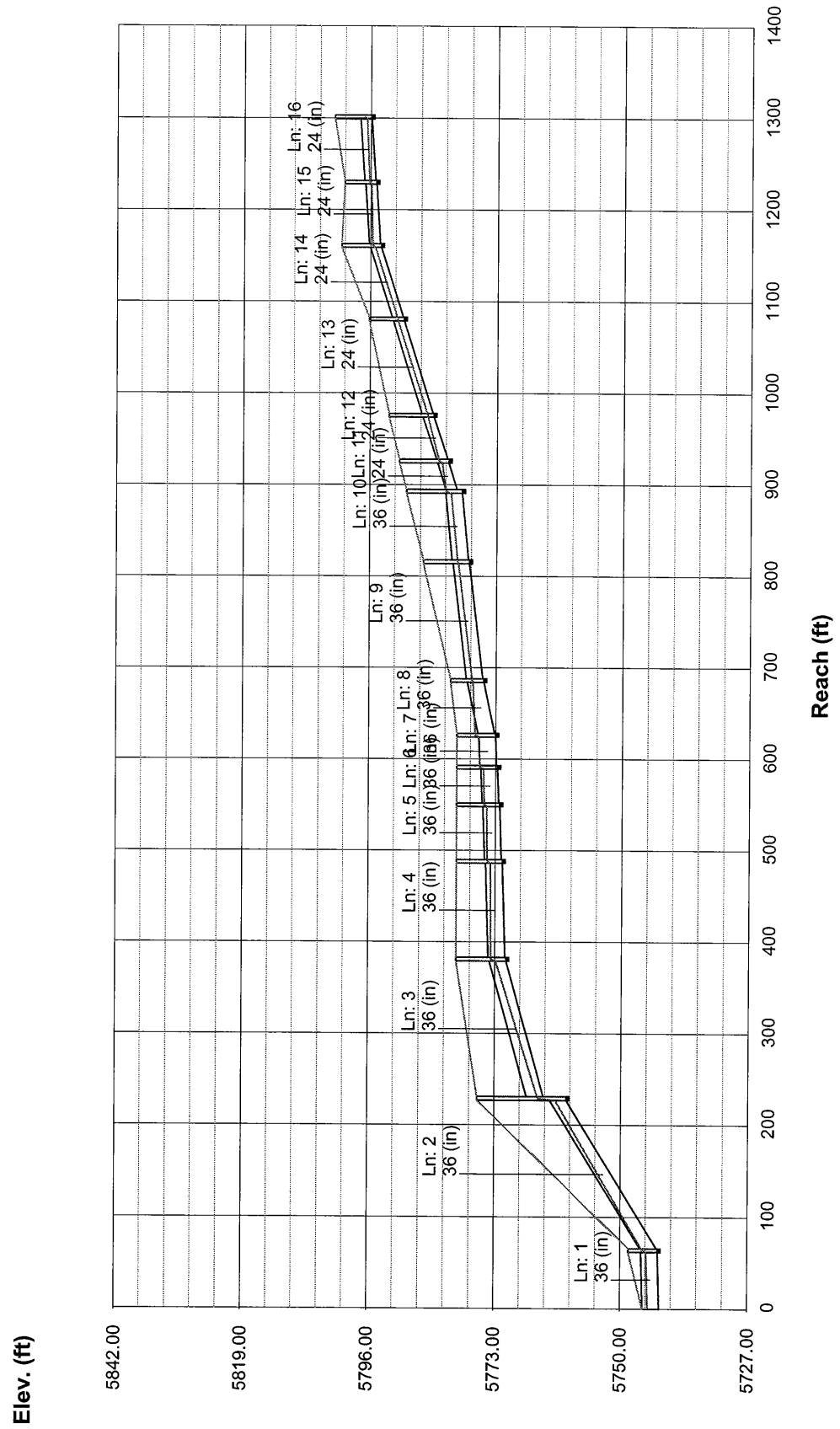
Number of lines: 54

Date: 07-29-2004

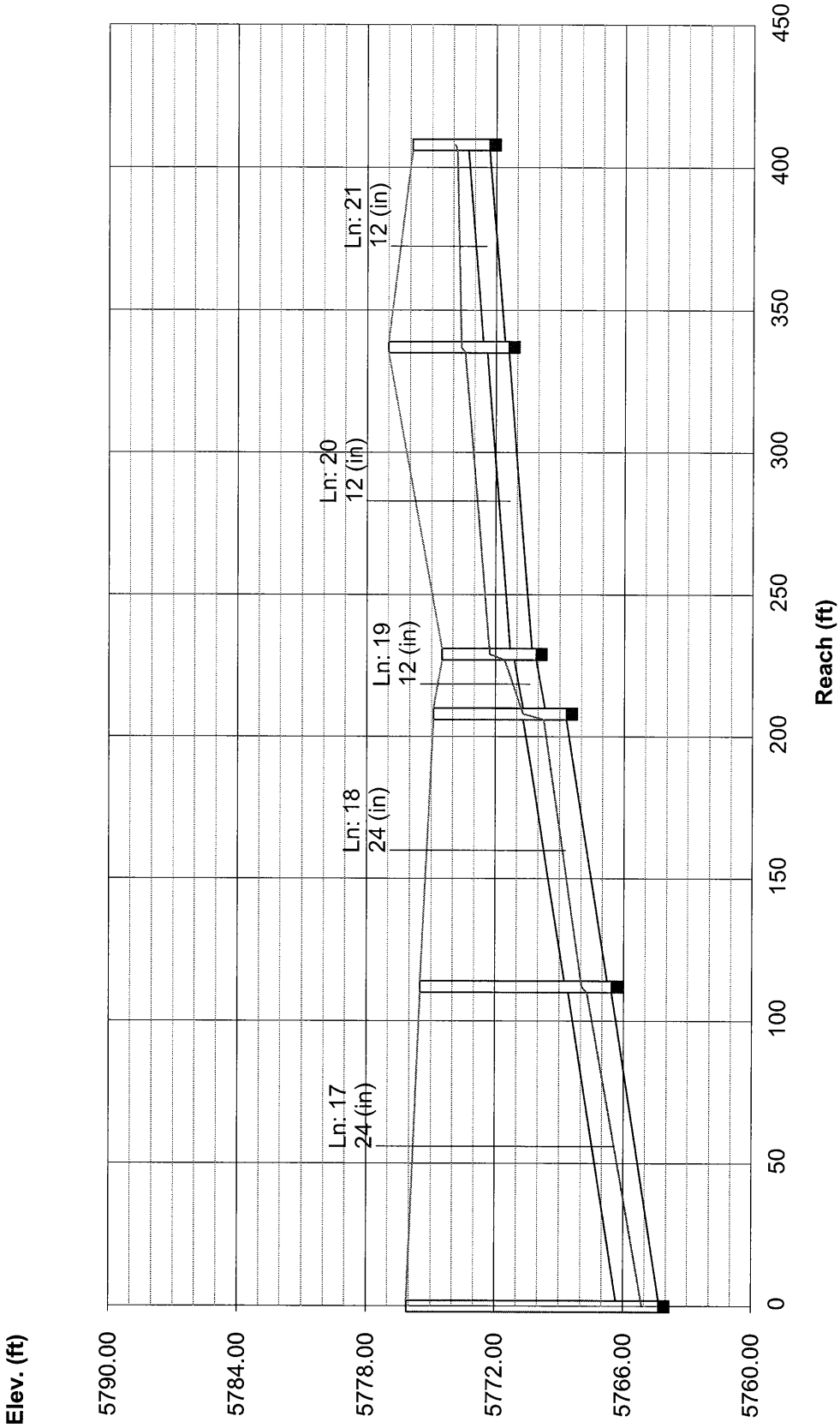
NOTES: \*\* At critical depth

# Storm Sewer Profile

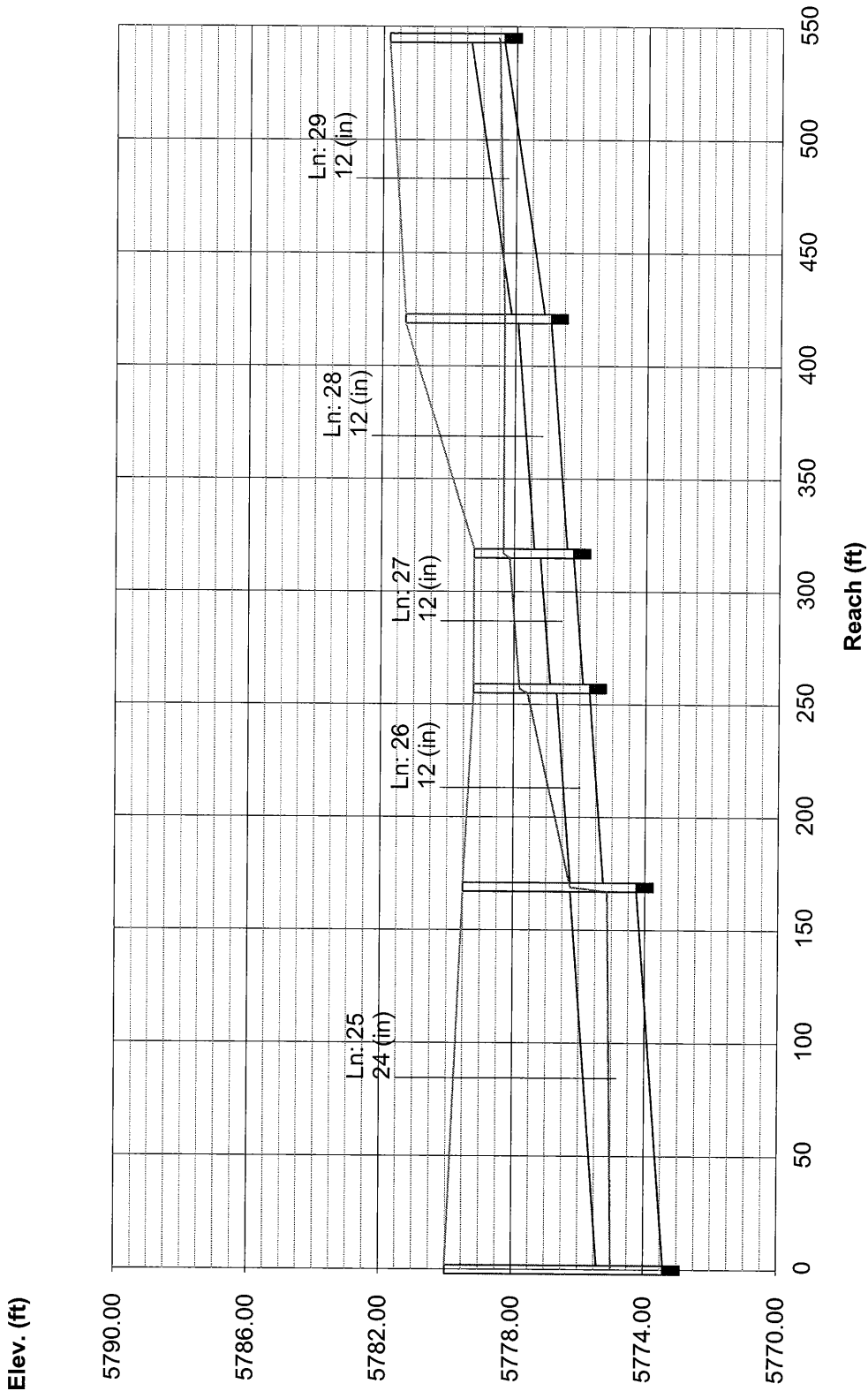
Proj. file: D02049 Line-4 25-yr.stm



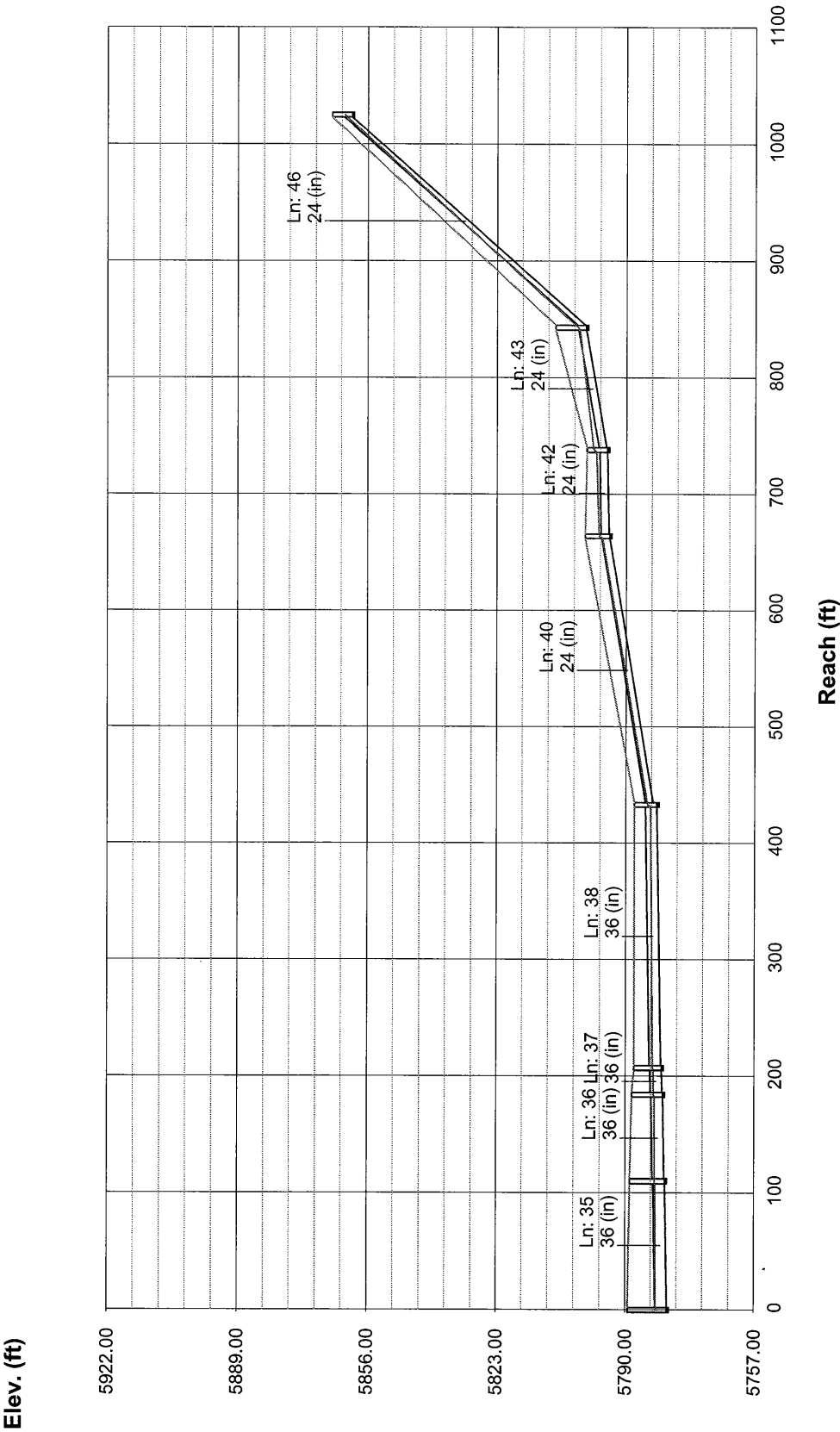
# Storm Sewer Profile



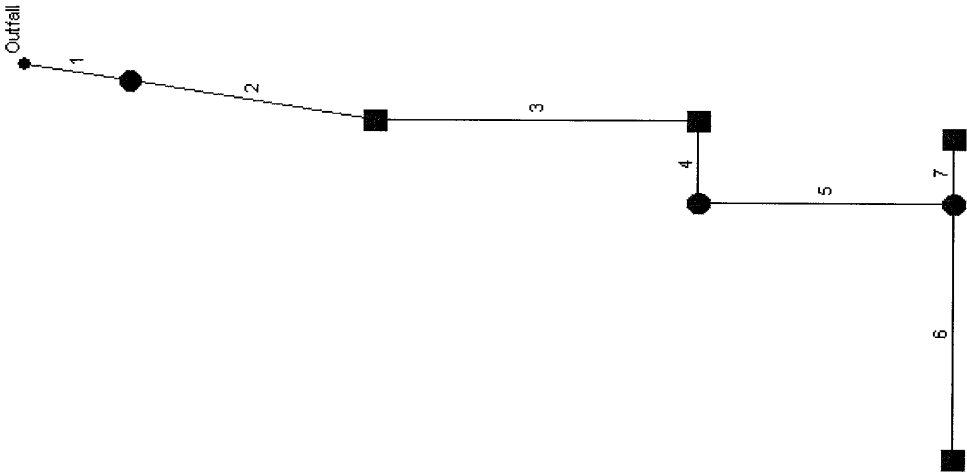
# Storm Sewer Profile



Storm Sewer Profile



Hydraflow Plan View



Project file: D02049 Line-5 2-yr.stm

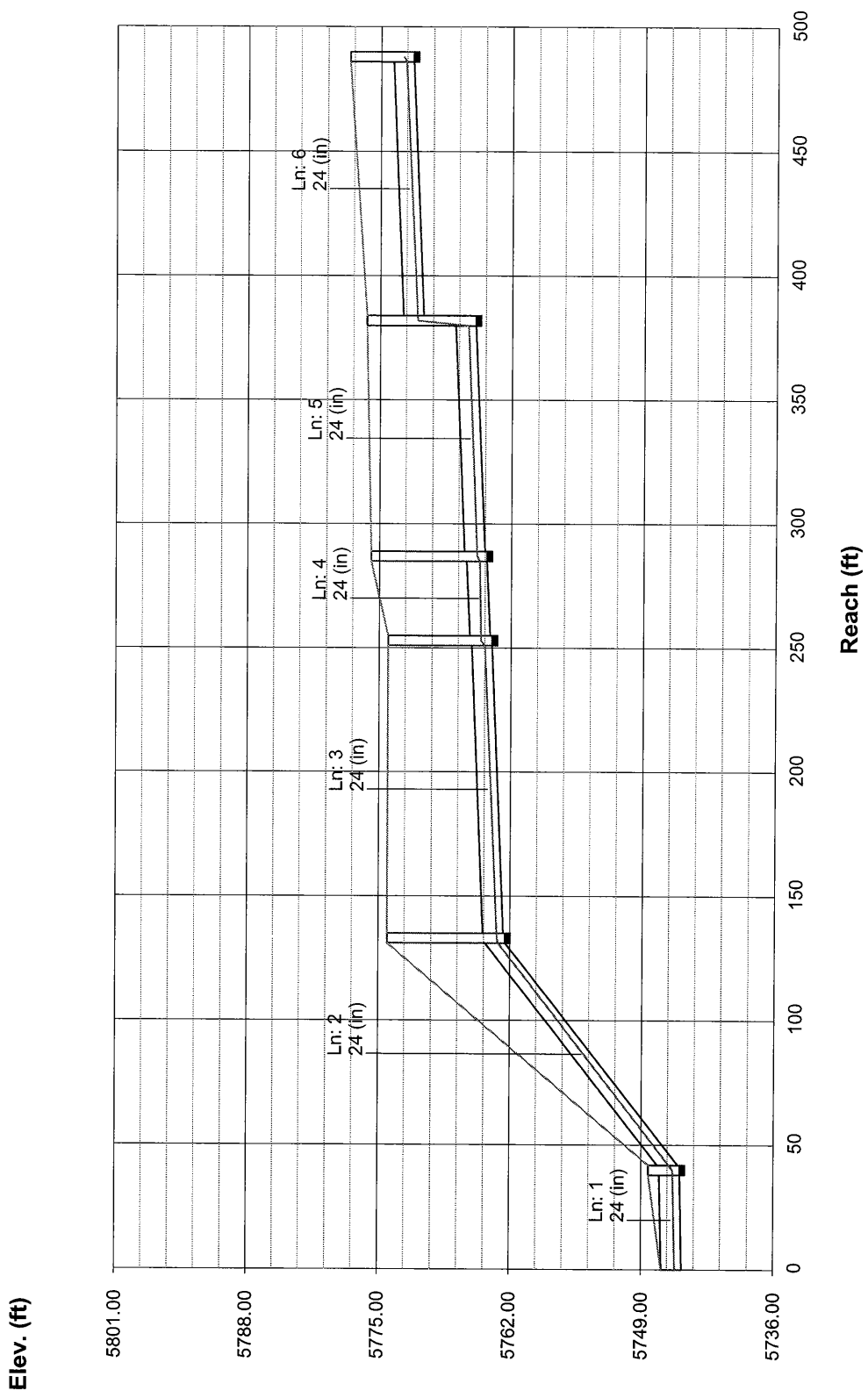
No. Lines: 7

07-29-2004

| Line No.                             | Line ID | Capac Full (cfs) | Cover Dn (ft) | Cover Up (ft) | DnStm Ln No | Known Q (cfs) | Drng Area (ac) | Flow Rate (cfs) | Gnd/Rim El Dn (ft) | Gnd/Rim El Up (ft) | HGL Dn (ft) | HGL Up (ft) | Invert Dn (ft) | Invert Up (ft) | Line Length (ft) | Line Size (in)     | Line Slope (%) | Runoff Coeff (C) | Tc (min) |  |
|--------------------------------------|---------|------------------|---------------|---------------|-------------|---------------|----------------|-----------------|--------------------|--------------------|-------------|-------------|----------------|----------------|------------------|--------------------|----------------|------------------|----------|--|
| 1                                    | MH 5-0  | 16.00            | 0.00          | 1.10          | Outfall     | 0.00          | 0.00           | 3.65            | 5747.00            | 5748.30            | 5745.68     | 5745.88     | 5745.00        | 5745.20        | 40.00            | 24                 | 0.50           | 0.00             | 10.6     |  |
| 2                                    | C14     | 96.87            | 0.90          | 9.64          | 1           | 0.00          | 0.15           | 3.85            | 5748.30            | 5774.10            | 5745.92     | 5763.16     | 5745.40        | 5762.46        | 93.00            | 24                 | 18.34          | 0.74             | 9.4      |  |
| 3                                    | C13     | 22.62            | 9.44          | 8.24          | 2           | 0.00          | 0.09           | 3.95            | 5774.10            | 5774.10            | 5763.28     | 5764.56     | 5762.66        | 5763.86        | 120.00           | 24                 | 1.00           | 0.68             | 7.9      |  |
| 4                                    | MH 5-1  | 22.61            | 8.04          | 9.40          | 3           | 0.00          | 0.00           | 3.93            | 5774.10            | 5775.80            | 5764.94     | 5765.10     | 5764.06        | 5764.40        | 34.00            | 24                 | 1.00           | 0.00             | 7.5      |  |
| 5                                    | MH 5-2  | 22.61            | 9.20          | 8.75          | 4           | 0.00          | 0.00           | 4.19            | 5775.80            | 5776.30            | 5765.35     | 5766.28     | 5764.60        | 5765.55        | 95.00            | 24                 | 1.00           | 0.00             | 6.4      |  |
| 6                                    | C7/C8   | 22.61            | 3.60          | 4.24          | 5           | 0.00          | 2.43           | 4.03            | 5776.30            | 5778.00            | 5771.27     | 5772.47     | 5770.70        | 5771.76        | 106.00           | 24                 | 1.00           | 0.83             | 5.0      |  |
| 7                                    | C9      | 5.04             | 3.60          | 2.36          | 5           | 0.00          | 0.42           | 0.54            | 5776.30            | 5775.60            | 5771.92     | 5772.55     | 5771.70        | 5772.24        | 27.00            | 12                 | 2.00           | 0.64             | 5.0      |  |
| Project File: D02049 Line-5 2-yr.stm |         |                  |               |               |             |               |                |                 |                    |                    |             |             |                |                |                  | Number of lines: 7 |                | Date: 07-29-2004 |          |  |
| NOTES: ** At critical depth          |         |                  |               |               |             |               |                |                 |                    |                    |             |             |                |                |                  |                    |                |                  |          |  |



# Storm Sewer Profile



| Line No. | Line ID | Capac Full (cfs) | Cover Dn (ft) | Cover Up (ft) | DnStm Ln No | Known Q (cfs) | Drng Area (ac) | Flow Rate (cfs) | Gnd/Rim El Dn (ft) | Gnd/Rim El Up (ft) | HGL Dn (ft) | HGL Up (ft) | Invert Dn (ft) | Invert Up (ft) | Line Length (ft) | Line Size (in) | Line Slope (%) | Runoff Coeff (C) | Tc (min) |
|----------|---------|------------------|---------------|---------------|-------------|---------------|----------------|-----------------|--------------------|--------------------|-------------|-------------|----------------|----------------|------------------|----------------|----------------|------------------|----------|
| 1        | MH 5-0  | 16.00            | 0.00          | 1.10          | Outfall     | 0.00          | 0.00           | 10.13           | 5747.00            | 5748.30            | 5746.16     | 5746.35     | 5745.00        | 5745.20        | 40.00            | 24             | 0.50           | 0.00             | 7.4      |
| 2        | C14     | 96.87            | 0.90          | 9.64          | 1           | 0.00          | 0.15           | 10.36           | 5748.30            | 5774.10            | 5746.42     | 5763.60     | 5745.40        | 5762.46        | 93.00            | 24             | 18.34          | 0.82             | 6.9      |
| 3        | C13     | 22.62            | 9.44          | 8.24          | 2           | 0.00          | 0.09           | 10.20           | 5774.10            | 5774.10            | 5763.84     | 5764.99     | 5762.66        | 5763.86        | 120.00           | 24             | 1.00           | 0.78             | 6.3      |
| 4        | MH 5-1  | 22.61            | 8.04          | 9.40          | 3           | 0.00          | 0.00           | 10.01           | 5774.10            | 5775.80            | 5765.71     | 5765.65     | 5764.06        | 5764.40        | 34.00            | 24             | 1.00           | 0.00             | 6.1      |
| 5        | MH 5-2  | 22.61            | 9.20          | 8.75          | 4           | 0.00          | 0.00           | 10.27           | 5775.80            | 5776.30            | 5766.02     | 5766.69     | 5764.60        | 5765.55        | 95.00            | 24             | 1.00           | 0.00             | 5.6      |
| 6        | C7/C8   | 22.61            | 3.60          | 4.24          | 5           | 0.00          | 2.43           | 9.28            | 5776.30            | 5778.00            | 5771.60     | 5772.84     | 5770.70        | 5771.76        | 106.00           | 24             | 1.00           | 0.90             | 5.0      |
| 7        | C9      | 5.04             | 3.60          | 2.36          | 5           | 0.00          | 0.42           | 1.32            | 5776.30            | 5775.60            | 5772.05     | 5772.73     | 5771.70        | 5772.24        | 27.00            | 12             | 2.00           | 0.74             | 5.0      |

Project File: D02049 Line-5 25-yr.stm

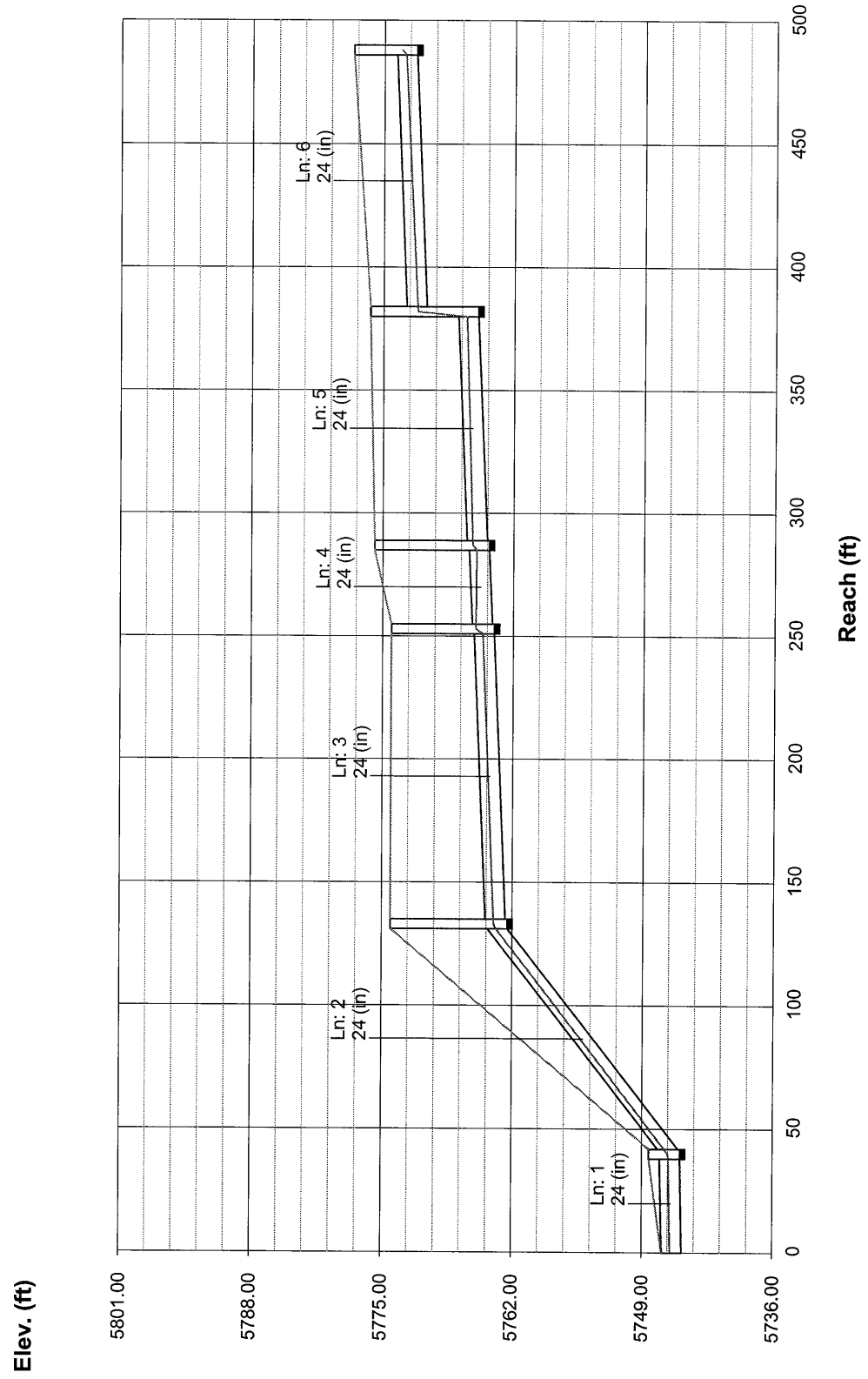
Date: 07-29-2004

Number of lines: 7

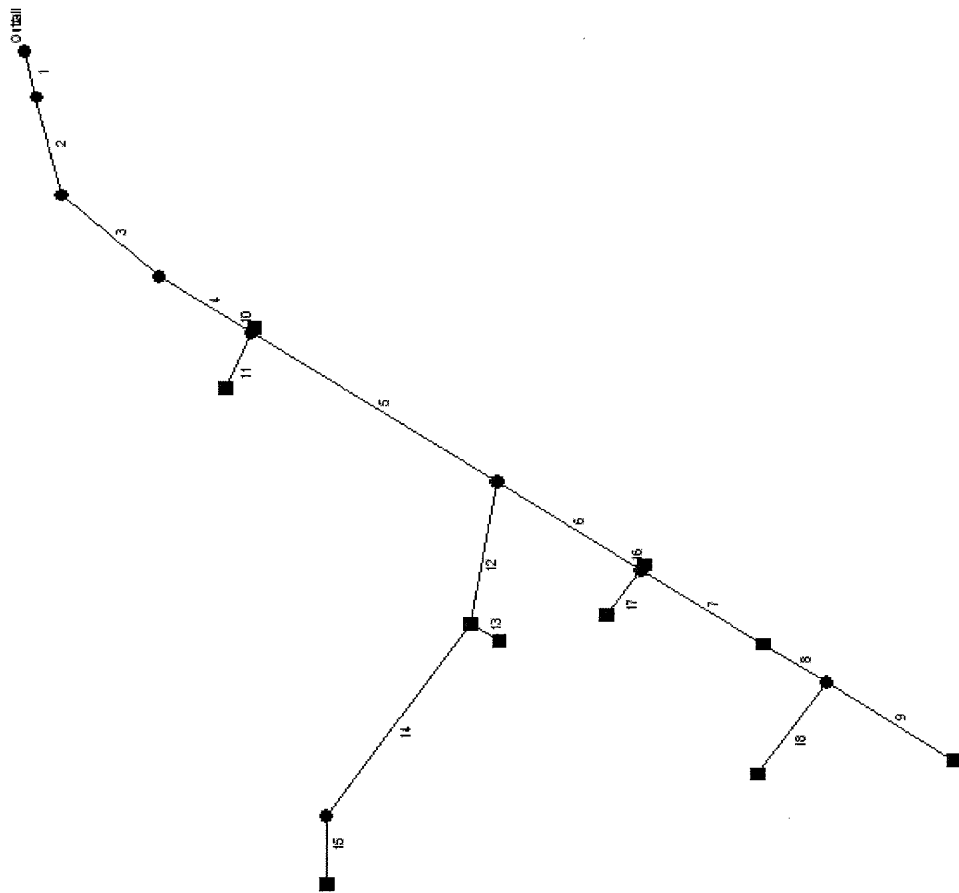
NOTES: \*\* At critical depth

# Storm Sewer Profile

Proj. file: D02049 Line-5 25-yr.stm



Hydraflow Plan View



| Line No. | Line ID | Capac Full (cfs) | Cover Dn (ft) | Cover Up (ft) | DnStm Ln No | Known Q (cfs) | Drng Area (ac) | Flow Rate (cfs) | Gnd/Rim El Dn (ft) | Gnd/Rim El Up (ft) | HGL Dn (ft) | HGL Up (ft) | Invert Dn (ft) | Invert Up (ft) | Line Length (ft) | Line Size (in) | Line Slope (%) | Runoff Coeff (C) | Tc (min) |
|----------|---------|------------------|---------------|---------------|-------------|---------------|----------------|-----------------|--------------------|--------------------|-------------|-------------|----------------|----------------|------------------|----------------|----------------|------------------|----------|
| 1        | MH 6-0  | 22.63            | 0.00          | 2.60          | Outfall     | 0.00          | 0.00           | 11.68           | 5745.30            | 5748.30            | 5744.51     | 5744.91     | 5743.30        | 5743.70        | 40.00            | 24             | 1.00           | 0.00             | 17.2     |
| 2        | MH 6-1  | 93.67            | 2.40          | 3.12          | 1           | 0.00          | 0.00           | 11.78           | 5748.30            | 5763.60            | 5744.99     | 5759.70     | 5743.90        | 5758.48        | 85.00            | 24             | 17.15          | 0.00             | 16.9     |
| 3        | MH 6-2  | 50.57            | 2.92          | 4.42          | 2           | 0.00          | 0.00           | 11.90           | 5763.60            | 5770.20            | 5759.94     | 5765.00     | 5758.68        | 5763.78        | 102.00           | 24             | 5.00           | 0.00             | 16.4     |
| 4        | MH 6-3  | 50.58            | 4.22          | 4.62          | 3           | 0.00          | 0.00           | 12.00           | 5770.20            | 5774.80            | 5765.08     | 5769.41     | 5763.98        | 5768.18        | 84.00            | 24             | 5.00           | 0.00             | 16.1     |
| 5        | MH 6-4  | 50.58            | 4.42          | 3.02          | 4           | 0.00          | 0.00           | 11.51           | 5774.80            | 5784.70            | 5769.96     | 5780.88     | 5768.38        | 5779.68        | 226.00           | 24             | 5.00           | 0.00             | 15.1     |
| 6        | MH 6-5  | 43.38            | 2.82          | 3.59          | 5           | 0.00          | 0.00           | 11.96           | 5784.70            | 5790.40            | 5781.33     | 5786.04     | 5779.88        | 5784.81        | 134.00           | 24             | 3.68           | 0.00             | 11.4     |
| 7        | C20     | 22.62            | 3.39          | 6.96          | 6           | 0.00          | 0.21           | 11.79           | 5790.40            | 5795.10            | 5786.58     | 5787.36     | 5785.01        | 5786.14        | 113.00           | 24             | 1.00           | 0.71             | 10.9     |
| 8        | MH 6-7  | 27.70            | 6.76          | 8.29          | 7           | 0.00          | 0.00           | 11.66           | 5795.10            | 5797.50            | 5787.63     | 5788.42     | 5786.34        | 5787.21        | 58.00            | 24             | 1.50           | 0.00             | 10.6     |
| 9        | OS7/OS8 | 27.74            | 8.09          | 7.83          | 8           | 3.18          | 10.97          | 10.03           | 5797.50            | 5799.00            | 5788.96     | 5790.29     | 5787.41        | 5789.17        | 117.00           | 24             | 1.50           | 0.41             | 10.0     |
| 10       | C11     | 7.96             | 4.62          | 4.27          | 4           | 0.00          | 0.39           | 0.64            | 5774.80            | 5774.70            | 5769.96     | 5769.93     | 5769.18        | 5769.43        | 5.00             | 12             | 5.00           | 0.82             | 5.0      |
| 11       | C10     | 7.96             | 4.62          | 2.37          | 4           | 0.00          | 0.51           | 0.61            | 5774.80            | 5775.10            | 5769.96     | 5772.06     | 5769.18        | 5771.73        | 51.00            | 12             | 5.00           | 0.60             | 5.0      |
| 12       | C21     | 2.53             | 3.02          | 4.00          | 5           | 0.00          | 0.15           | 0.74            | 5784.70            | 5786.30            | 5781.33     | 5781.66     | 5780.68        | 5781.30        | 123.00           | 12             | 0.50           | 0.71             | 13.5     |
| 13       | C4      | 7.96             | 3.70          | 3.60          | 12          | 0.00          | 0.37           | 0.50            | 5786.30            | 5787.50            | 5781.82     | 5783.20     | 5781.60        | 5782.90        | 26.00            | 12             | 5.00           | 0.68             | 5.0      |
| 14       | MH 6-9  | 3.56             | 3.80          | 2.33          | 12          | 0.00          | 0.00           | 0.36            | 5786.30            | 5786.80            | 5781.82     | 5783.72     | 5781.50        | 5783.47        | 197.00           | 12             | 1.00           | 0.00             | 6.9      |
| 15       | C3      | 3.56             | 2.13          | 1.95          | 14          | 0.00          | 0.26           | 0.40            | 5786.80            | 5787.20            | 5783.90     | 5784.52     | 5783.67        | 5784.25        | 58.00            | 12             | 1.00           | 0.77             | 5.0      |
| 16       | C6      | 7.96             | 3.16          | 2.91          | 6           | 0.00          | 0.15           | 0.22            | 5790.40            | 5790.40            | 5786.58     | 5786.69     | 5786.24        | 5786.49        | 5.00             | 12             | 5.00           | 0.75             | 5.0      |
| 17       | C5      | 4.38             | 3.16          | 2.25          | 6           | 0.00          | 0.18           | 0.26            | 5790.40            | 5790.20            | 5786.58     | 5787.17     | 5786.24        | 5786.95        | 47.00            | 12             | 1.51           | 0.73             | 5.0      |
| 18       | C1      | 3.56             | 7.09          | 8.45          | 8           | 0.00          | 1.39           | 2.44            | 5797.50            | 5799.80            | 5790.02     | 5791.01     | 5789.41        | 5790.35        | 94.00            | 12             | 1.00           | 0.88             | 5.0      |

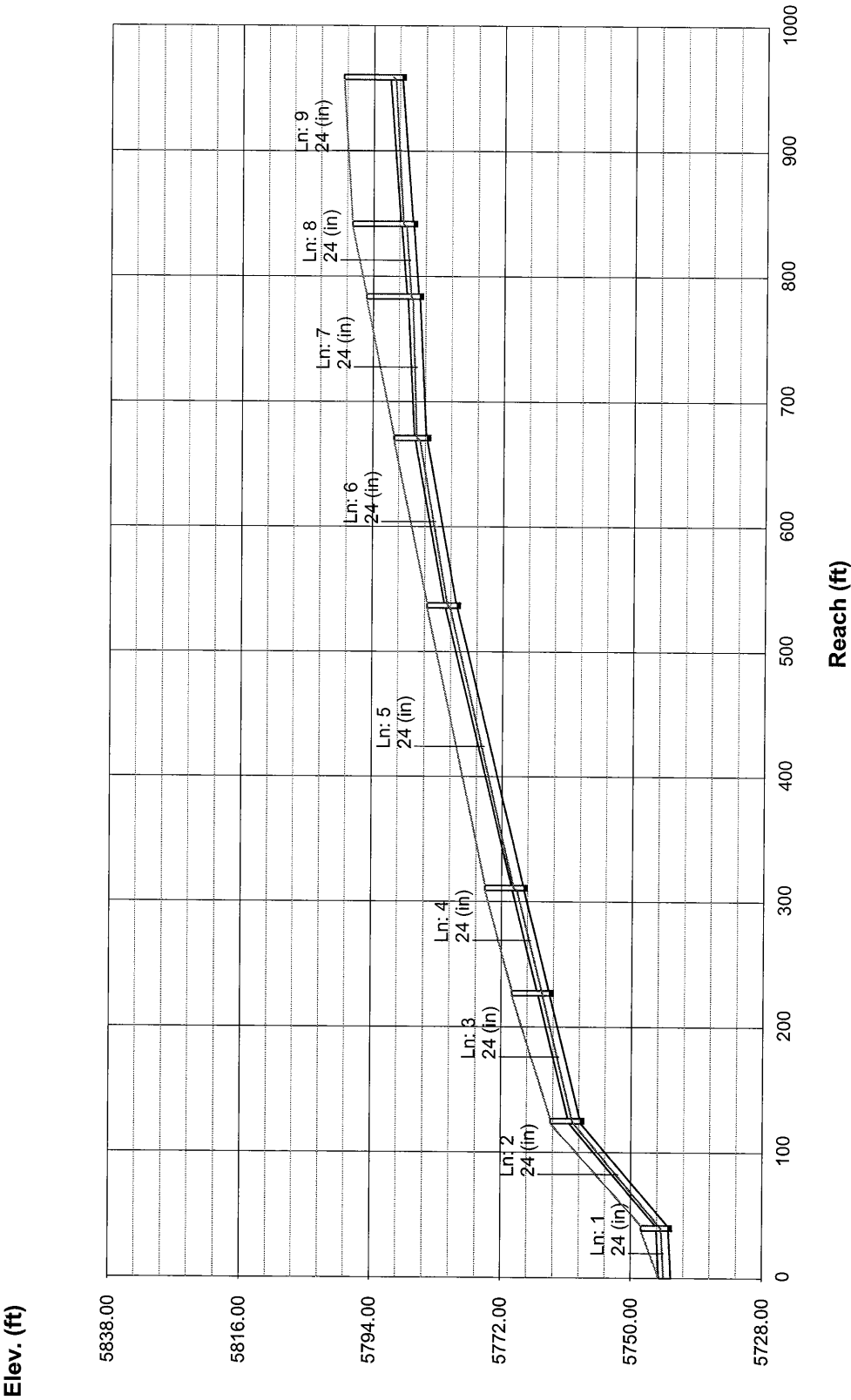
Project File: D02049 Line-6 2-yr.stm

Number of lines: 18

Date: 07-29-2004

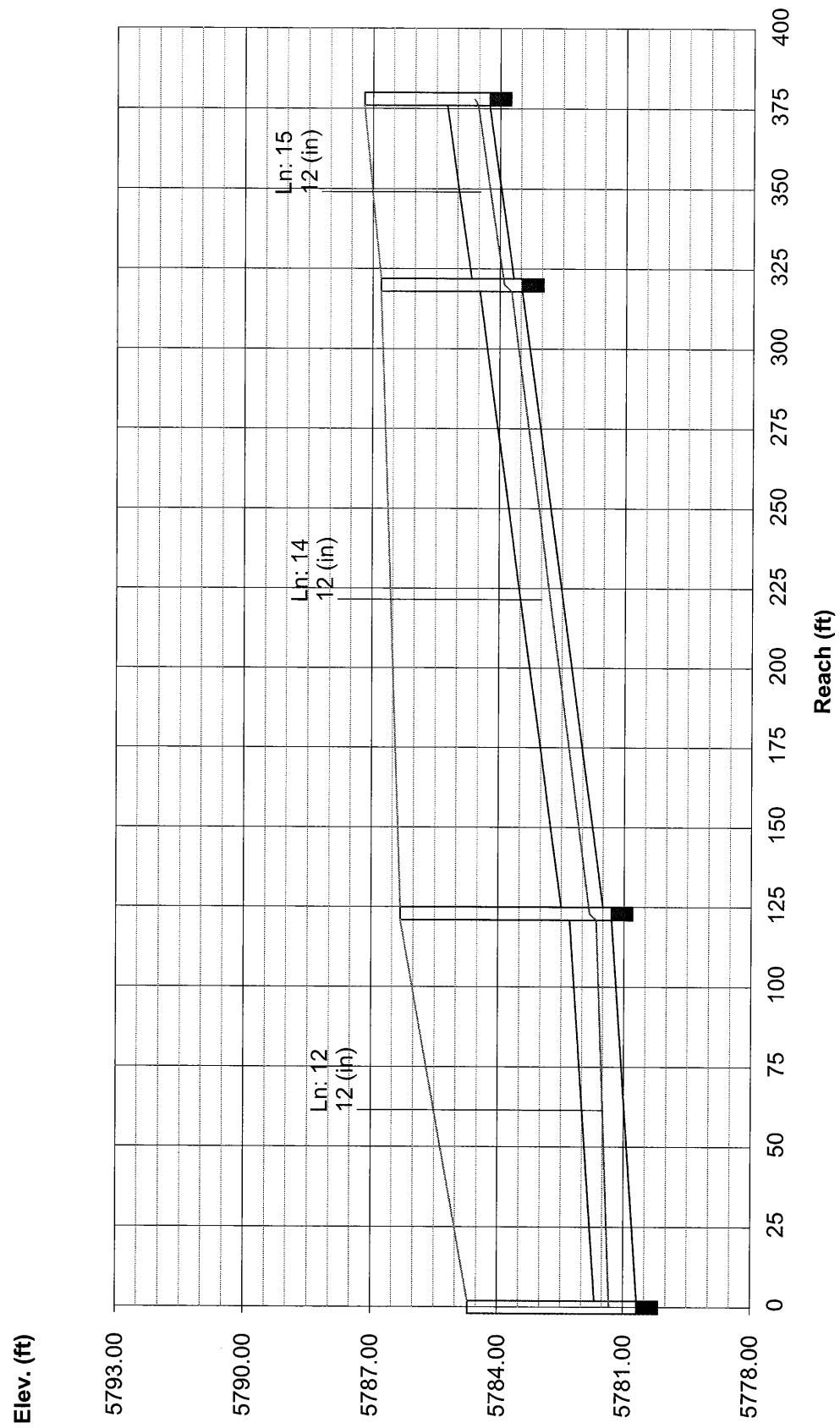
NOTES: \*\* At critical depth

Storm Sewer Profile



# Storm Sewer Profile

Proj. file: D02049 Line-6 2-yr.stm



| Line No. | Line ID | Capac Full (cfs) | Cover Dn (ft) | Cover Up (ft) | DnStm Ln No | Known Q (cfs) | Drng Area (ac) | Flow Rate (cfs) | Gnd/Rim El Dn (ft) | Gnd/Rim El Up (ft) | HGL Dn (ft) | HGL Up (ft) | Invert Dn (ft) | Invert Up (ft) | Line Length (ft) | Line Size (in) | Line Slope (%) | Runoff Coeff (C) | Tc (min) |
|----------|---------|------------------|---------------|---------------|-------------|---------------|----------------|-----------------|--------------------|--------------------|-------------|-------------|----------------|----------------|------------------|----------------|----------------|------------------|----------|
| 1        | MH 6-0  | 22.63            | 0.00          | 2.60          | Outfall     | 0.00          | 0.00           | 31.05           | 5745.30            | 5748.30            | 5745.30     | 5746.06     | 5743.30        | 5743.70        | 40.00            | 24             | 1.00           | 0.00             | 11.8     |
| 2        | MH 6-1  | 93.67            | 2.40          | 3.12          | 1           | 0.00          | 0.00           | 31.22           | 5748.30            | 5763.60            | 5746.28     | 5760.36     | 5743.90        | 5758.48        | 85.00            | 24             | 17.15          | 0.00             | 11.6     |
| 3        | MH 6-2  | 50.57            | 2.92          | 4.42          | 2           | 0.00          | 0.00           | 31.43           | 5763.60            | 5770.20            | 5761.09     | 5765.66     | 5758.68        | 5763.78        | 102.00           | 24             | 5.00           | 0.00             | 11.4     |
| 4        | MH 6-3  | 50.58            | 4.22          | 4.62          | 3           | 0.00          | 0.00           | 31.59           | 5770.20            | 5774.80            | 5765.91     | 5770.07     | 5763.98        | 5768.18        | 84.00            | 24             | 5.00           | 0.00             | 11.3     |
| 5        | MH 6-4  | 50.58            | 4.42          | 3.02          | 4           | 0.00          | 0.00           | 29.76           | 5774.80            | 5784.70            | 5771.71     | 5781.54     | 5768.38        | 5779.68        | 226.00           | 24             | 5.00           | 0.00             | 10.9     |
| 6        | MH 6-5  | 43.38            | 2.82          | 3.59          | 5           | 0.00          | 0.00           | 27.99           | 5784.70            | 5790.40            | 5782.80     | 5786.64     | 5779.88        | 5784.81        | 134.00           | 24             | 3.68           | 0.00             | 10.6     |
| 7        | MH 6-6  | 22.62            | 3.39          | 6.96          | 6           | 0.00          | 0.21           | 27.31           | 5790.40            | 5795.10            | 5787.98     | 5789.63     | 5785.01        | 5786.14        | 113.00           | 24             | 1.00           | 0.78             | 10.4     |
| 8        | MH 6-7  | 27.70            | 6.76          | 8.29          | 7           | 0.00          | 0.00           | 26.88           | 5795.10            | 5797.50            | 5790.22     | 5791.04     | 5786.34        | 5787.21        | 58.00            | 24             | 1.50           | 0.00             | 10.3     |
| 9        | OS7/OS8 | 27.74            | 8.09          | 7.83          | 8           | 3.18          | 10.09          | 22.81           | 5797.50            | 5799.00            | 5792.18     | 5793.37     | 5787.41        | 5789.17        | 117.00           | 24             | 1.50           | 0.58             | 10.0     |
| 10       | C11     | 7.96             | 4.62          | 4.27          | 4           | 0.00          | 0.39           | 1.46            | 5774.80            | 5774.70            | 5771.71     | 5771.72     | 5769.18        | 5769.43        | 5.00             | 12             | 5.00           | 0.88             | 5.0      |
| 11       | C10     | 7.96             | 4.62          | 2.37          | 4           | 0.00          | 0.51           | 1.56            | 5774.80            | 5775.10            | 5771.71     | 5772.26     | 5769.18        | 5771.73        | 51.00            | 12             | 5.00           | 0.72             | 5.0      |
| 12       | MH 6-8  | 2.53             | 3.02          | 4.00          | 5           | 0.00          | 0.15           | 2.23            | 5784.70            | 5786.30            | 5782.80     | 5783.29     | 5780.68        | 5781.30        | 123.00           | 12             | 0.50           | 0.78             | 8.6      |
| 13       | C4      | 7.96             | 3.70          | 3.60          | 12          | 0.00          | 0.37           | 1.22            | 5786.30            | 5787.50            | 5783.44     | 5783.41     | 5781.60        | 5782.90        | 26.00            | 12             | 5.00           | 0.78             | 5.0      |
| 14       | MH 6-9  | 3.56             | 3.80          | 2.33          | 12          | 0.00          | 0.00           | 0.90            | 5786.30            | 5786.80            | 5783.44     | 5783.88     | 5781.50        | 5783.47        | 197.00           | 12             | 1.00           | 0.00             | 5.8      |
| 15       | C3      | 3.56             | 2.13          | 1.95          | 14          | 0.00          | 0.26           | 0.94            | 5786.80            | 5787.20            | 5784.02     | 5784.66     | 5783.67        | 5784.25        | 58.00            | 12             | 1.00           | 0.85             | 5.0      |
| 16       | C6      | 7.96             | 3.16          | 2.91          | 6           | 0.00          | 0.15           | 0.53            | 5790.40            | 5790.40            | 5787.98     | 5787.98     | 5786.24        | 5786.49        | 5.00             | 12             | 5.00           | 0.83             | 5.0      |
| 17       | C5      | 4.38             | 3.16          | 2.25          | 6           | 0.00          | 0.18           | 0.63            | 5790.40            | 5790.20            | 5787.98     | 5788.00     | 5786.24        | 5786.95        | 47.00            | 12             | 1.51           | 0.82             | 5.0      |
| 18       | C1      | 3.56             | 7.09          | 8.45          | 8           | 0.00          | 1.39           | 5.49            | 5797.50            | 5799.80            | 5792.18     | 5794.41     | 5789.41        | 5790.35        | 94.00            | 12             | 1.00           | 0.93             | 5.0      |

Project File: D02049 Line-6 25-yr.stm

Number of lines: 18

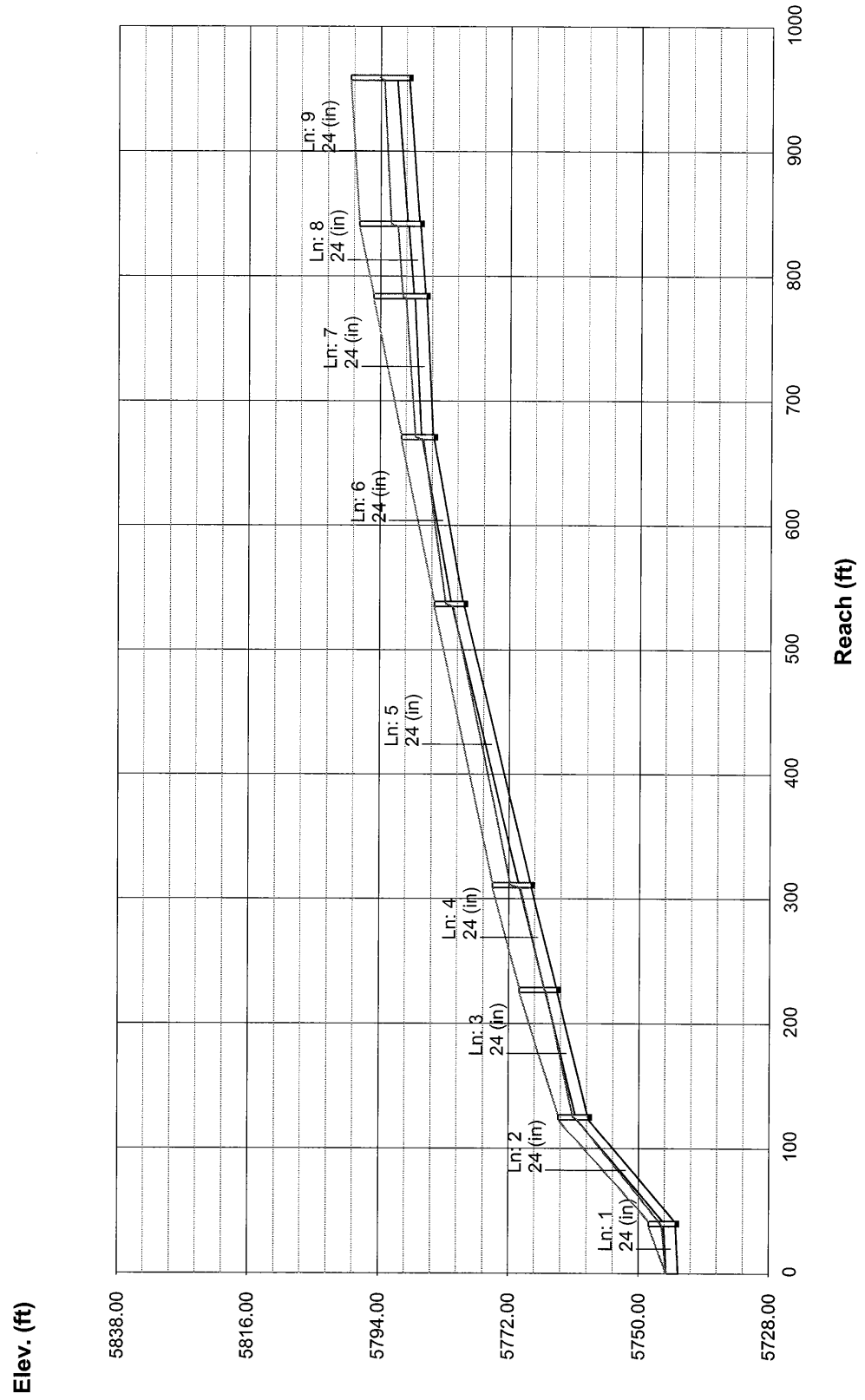
Date: 07-29-2004

NOTES: \*\* At critical depth

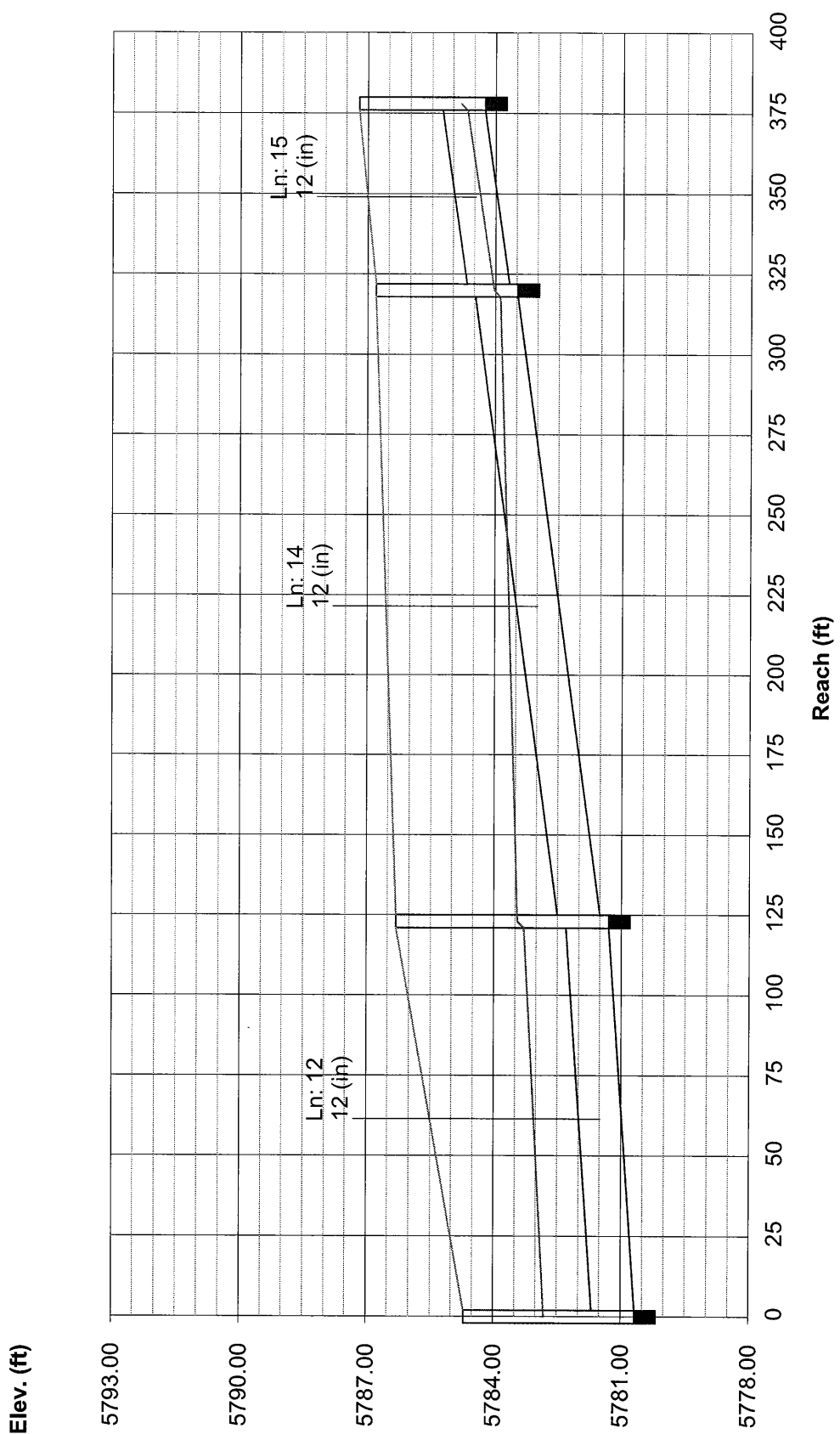


# Storm Sewer Profile

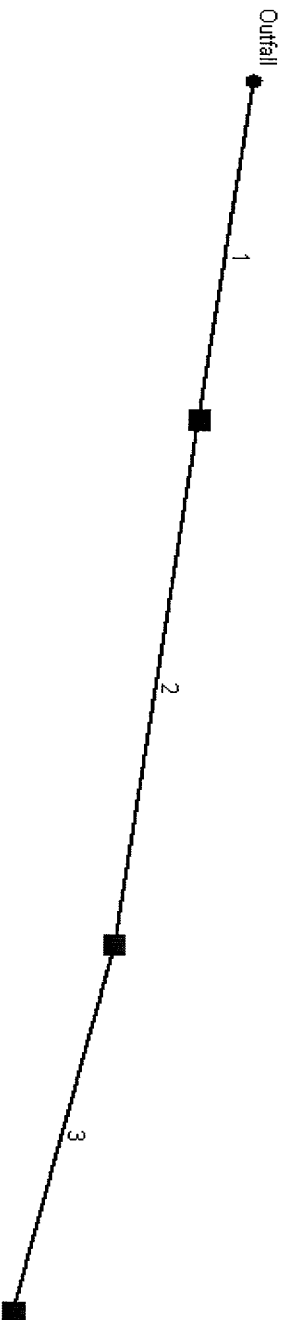
Proj. file: D02049 Line-6 25-yr.stm



Storm Sewer Profile



# Hydraflow Plan View



Project file: D02049 Line-7 2-yr.stm

No. Lines: 3

07-29-2004

## Page 1

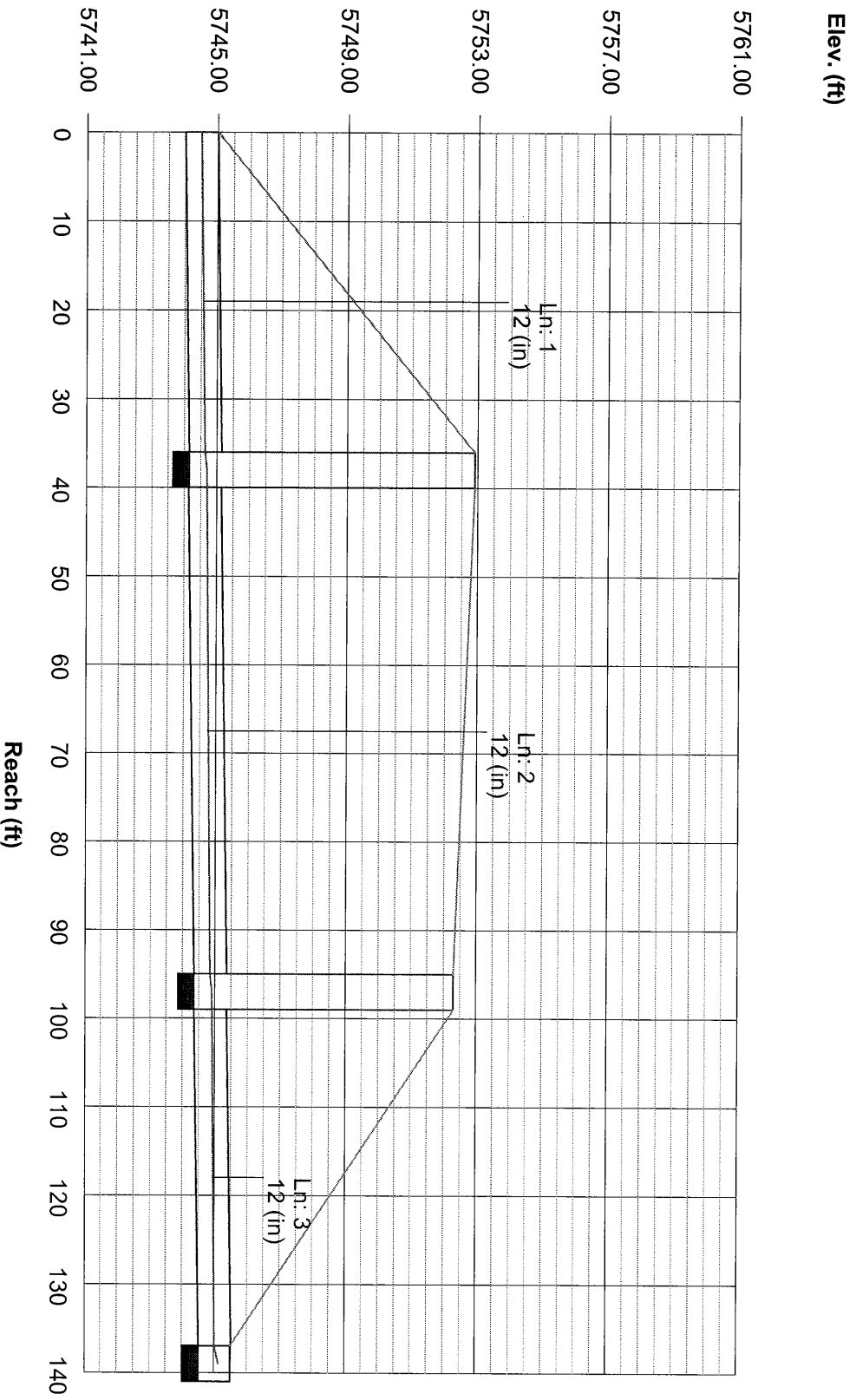
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|----------|------------|------------|----------|----------|-------------|---------|-----------|-----------|---------------|---------------|---------|---------|-----------|-----------|-------------|-----------|------------|--------------|-----|
| 1        | A27        | 2.24       | 0.00     | 7.75     | Outfall     | 0.00    | 0.40      | 1.07      | 5745.00       | 5752.90       | 5744.49 | 5744.64 | 5744.00   | 5744.15   | 38.00       | 12        | 0.39       | 0.86         | 6.2 |
| 2        | A34        | 2.17       | 7.76     | 6.94     | 1           | 0.00    | 0.32      | 1.07      | 5752.90       | 5752.30       | 5744.70 | 5744.85 | 5744.14   | 5744.36   | 59.00       | 12        | 0.37       | 0.77         | 5.5 |
| 3        | Line-2/A38 | 2.20       | 6.94     | -0.02    | 2           | 1.07    | 0.83      | 1.07      | 5752.30       | 5745.50       | 5744.91 | 5745.02 | 5744.36   | 5744.52   | 42.00       | 12        | 0.38       | 0.13         | 5.0 |

Date: 07-29-2004

NOTES: \*\* At critical depth

# Storm Sewer Profile

Proj. file: D02049 Line-7 2-yr.stm



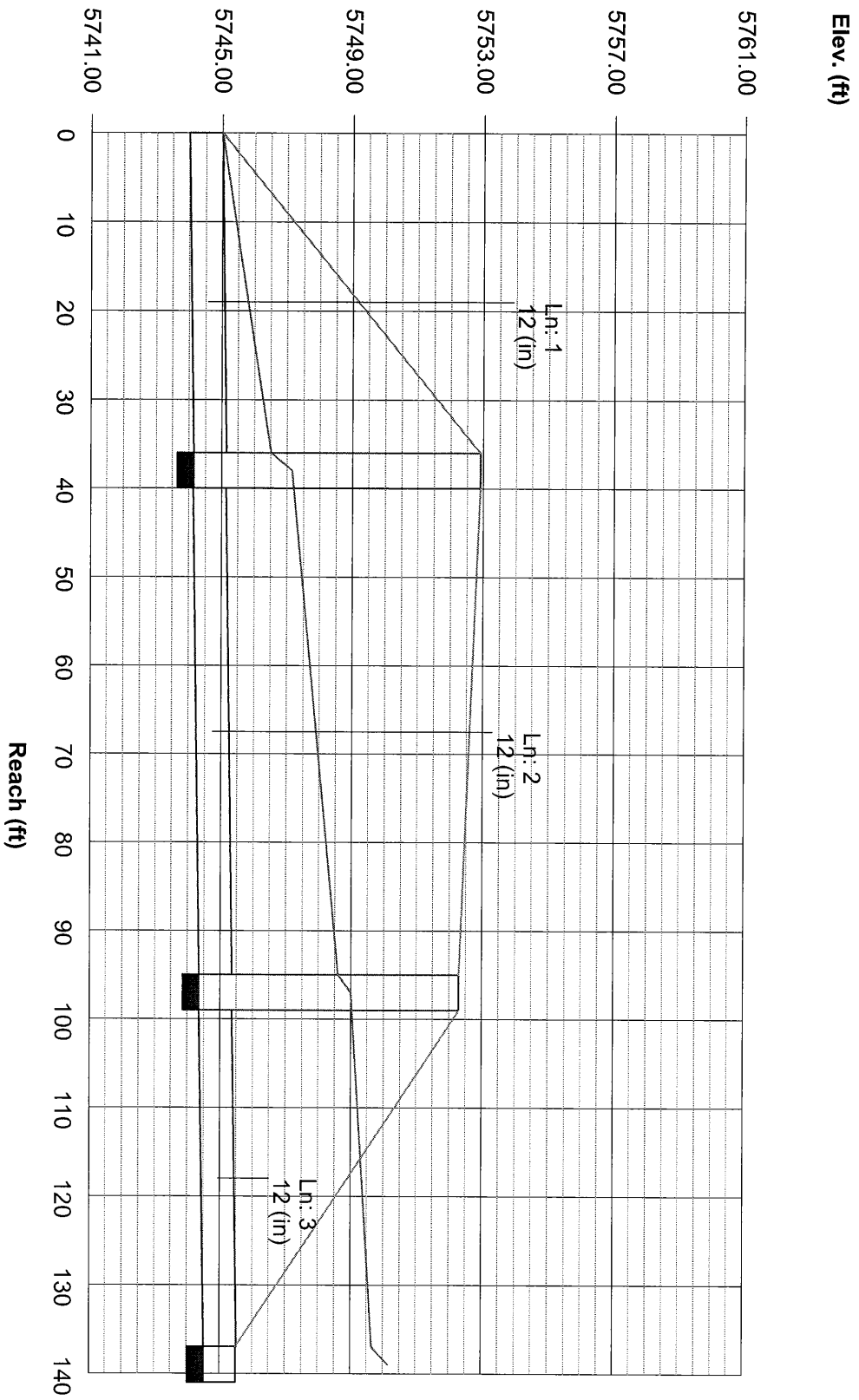
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|----------|------------|------------|----------|----------|-------------|---------|-----------|-----------|---------------|---------------|---------|---------|-----------|-----------|-------------|-----------|------------|--------------|-----|
| 1        | A27        | 2.24       | 0.00     | 7.75     | Outfall     | 0.00    | 0.40      | 7.10      | 5745.00       | 5752.90       | 5745.00 | 5746.51 | 5744.00   | 5744.15   | 38.00       | 12        | 0.39       | 0.92         | 5.3 |
| 2        | A34        | 2.17       | 7.76     | 6.94     | 1           | 0.00    | 0.32      | 5.58      | 5752.90       | 5752.30       | 5747.15 | 5748.60 | 5744.14   | 5744.36   | 59.00       | 12        | 0.37       | 0.85         | 5.1 |
| 3        | Line-2/A38 | 2.20       | 6.94     | -0.02    | 2           | 2.80    | 1.11      | 4.45      | 5752.30       | 5745.50       | 5748.99 | 5749.65 | 5744.36   | 5744.52   | 42.00       | 12        | 0.38       | 0.35         | 5.0 |

Project File: D02049 Line-7 25-yr.stm

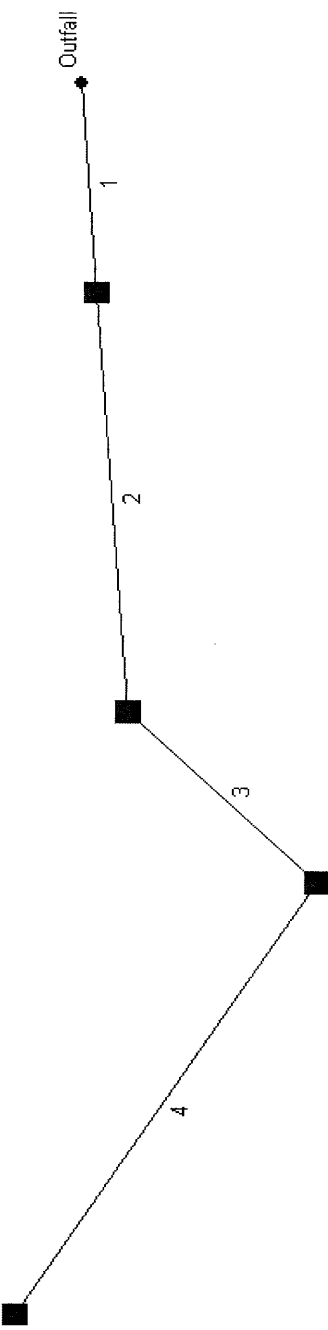
Date: 07-29-2004

# Storm Sewer Profile

Proj. file: D02049 Line-7 25-yr.stm



Hydraflow Plan View



Project file: D02049 Line-8 2-yr.stm

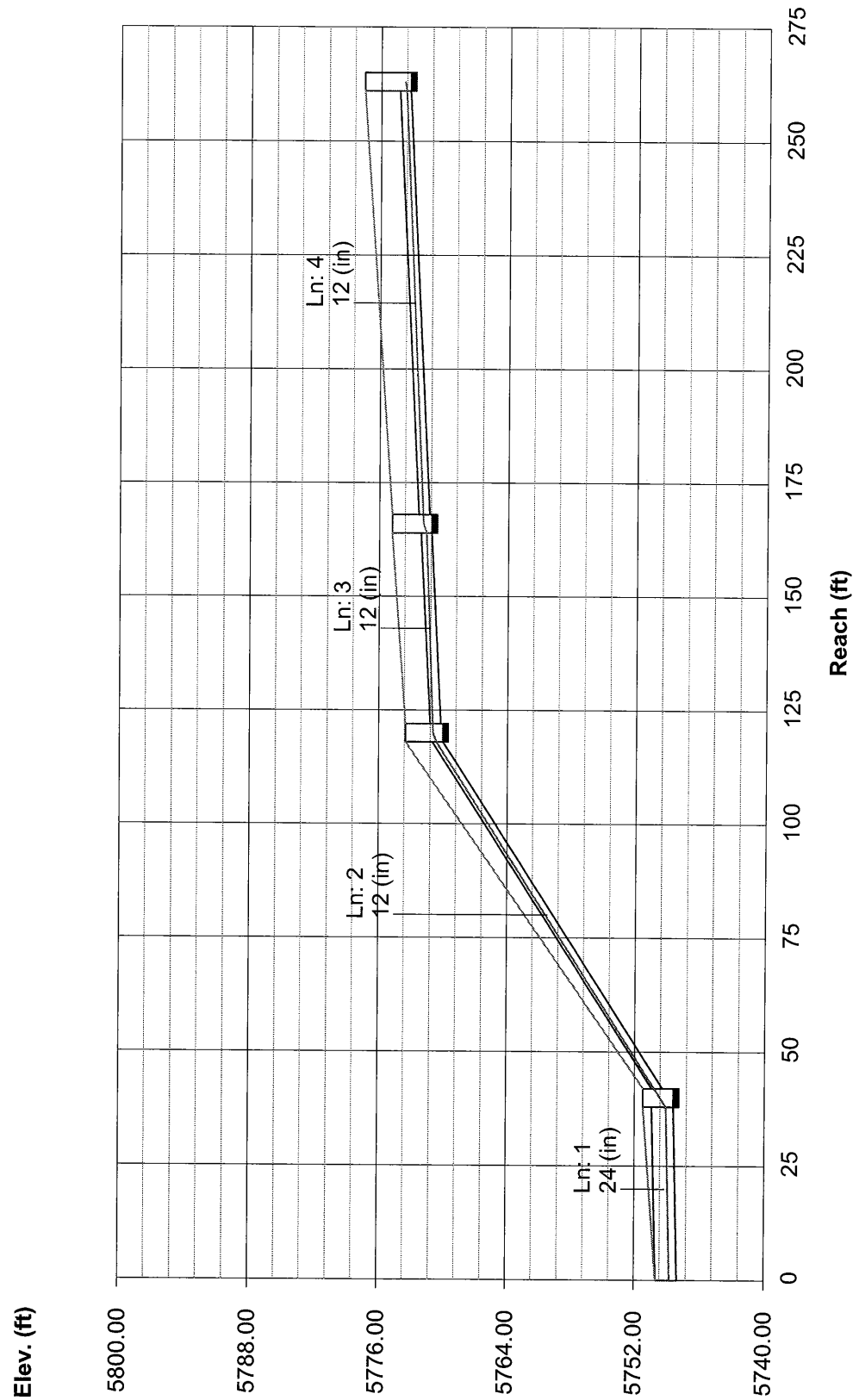
No. Lines: 4

07-29-2004



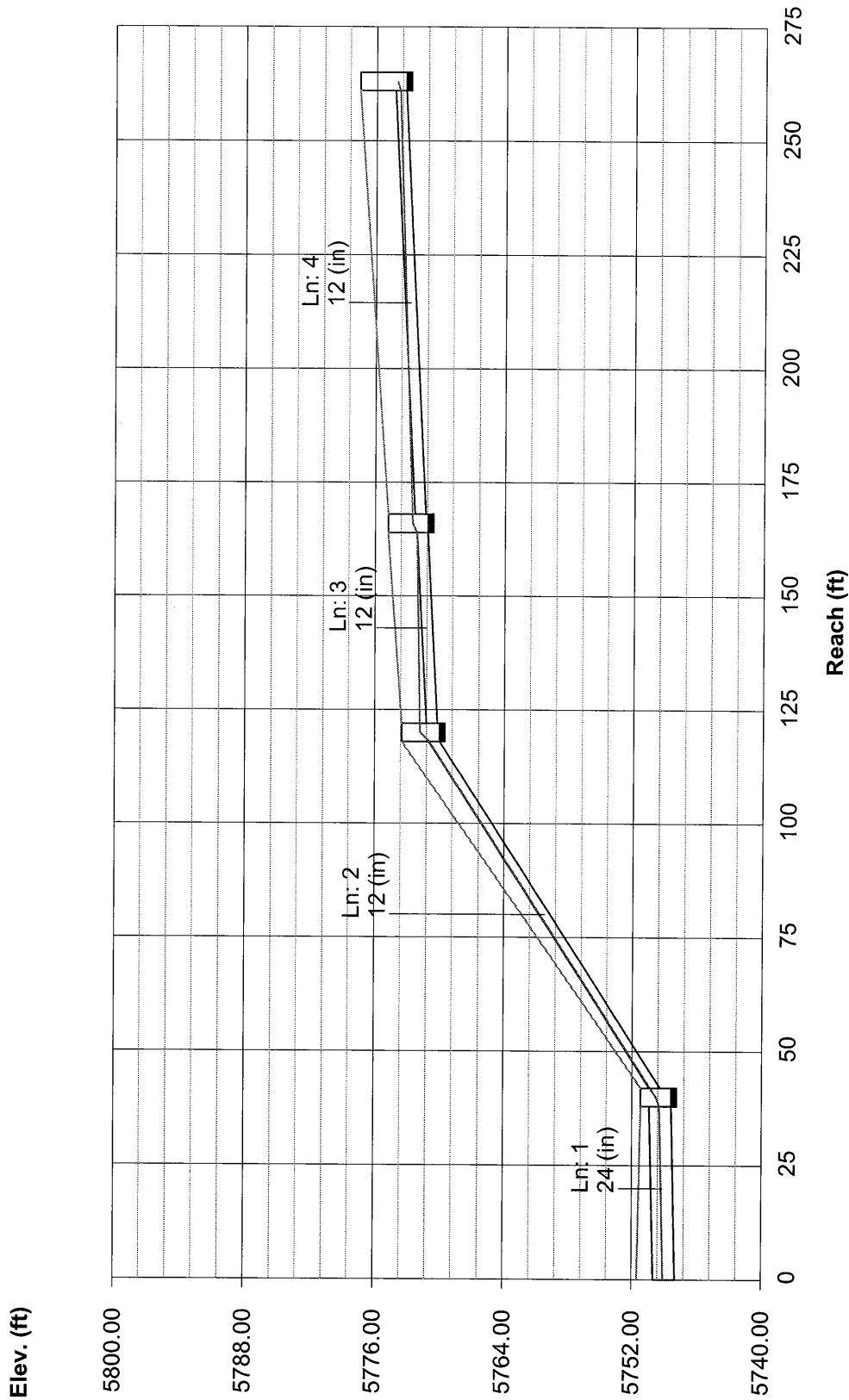
| Line No.                             | Line ID | Capac Full (cfs) | Cover Dn (ft) | Cover Up (ft) | DnStm Ln No | Known Q (cfs) | Drng Area (ac) | Flow Rate (cfs) | Gnd/Rim El Dn (ft) | Gnd/Rim El Up (ft) | HGL Dn (ft) | HGL Up (ft)        | Invert Dn (ft) | Invert Up (ft) | Line Length (ft) | Line Size (in)   | Line Slope (%) | Runoff Coeff (C) | Tc (min) |
|--------------------------------------|---------|------------------|---------------|---------------|-------------|---------------|----------------|-----------------|--------------------|--------------------|-------------|--------------------|----------------|----------------|------------------|------------------|----------------|------------------|----------|
| 1                                    | C16     | 22.62            | 0.00          | 0.80          | Outfall     | 0.00          | 1.17           | 3.70            | 5750.00            | 5751.20            | 5748.68     | 5749.08            | 5748.00        | 5748.40        | 40.00            | 24               | 1.00           | 0.82             | 7.5      |
| 2                                    | C15     | 18.07            | 0.80          | 2.50          | 1           | 0.00          | 0.68           | 2.11            | 5751.20            | 5773.50            | 5749.63     | 5770.62            | 5749.40        | 5770.00        | 80.00            | 12               | 25.75          | 0.69             | 7.1      |
| 3                                    | C2      | 5.04             | 2.30          | 2.68          | 2           | 0.00          | 0.47           | 1.31            | 5773.50            | 5774.80            | 5770.91     | 5771.61            | 5770.20        | 5771.12        | 46.00            | 12               | 2.00           | 0.71             | 6.6      |
| 4                                    | C12     | 5.04             | 2.48          | 3.24          | 3           | 0.00          | 0.55           | 0.78            | 5774.80            | 5777.50            | 5771.89     | 5773.63            | 5771.32        | 5773.26        | 97.00            | 12               | 2.00           | 0.71             | 5.0      |
| Project File: D02049 Line-8 2-yr.stm |         |                  |               |               |             |               |                |                 |                    |                    |             | Number of lines: 4 |                |                |                  | Date: 07-29-2004 |                |                  |          |
| NOTES: ** At critical depth          |         |                  |               |               |             |               |                |                 |                    |                    |             |                    |                |                |                  |                  |                |                  |          |

# Storm Sewer Profile

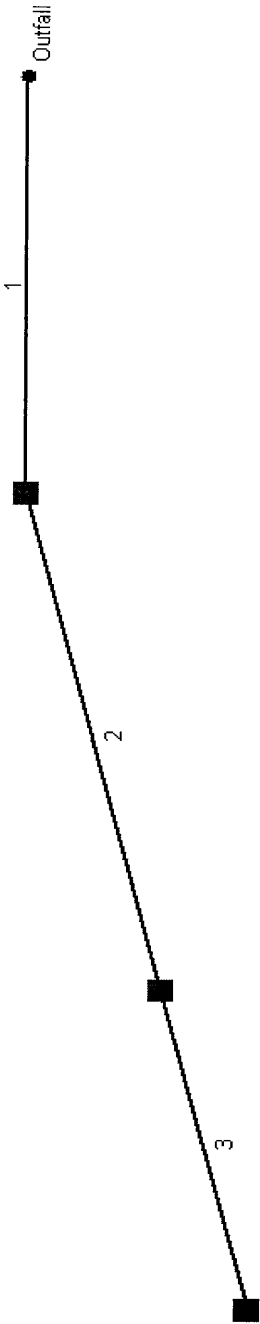


| Line No.                              | Line ID | Capac Full (cfs) | Cover Dn (ft) | Cover Up (ft) | DnStm Ln No | Known Q (cfs) | Drng Area (ac) | Flow Rate (cfs) | Gnd/Rim El Dn (ft) | Gnd/Rim El Up (ft) | HGL Dn (ft) | HGL Up (ft) | Invert Dn (ft) | Invert Up (ft) | Line Length (ft) | Line Size (in)     | Line Slope (%) | Runoff Coeff (C) | Tc (min)         |  |
|---------------------------------------|---------|------------------|---------------|---------------|-------------|---------------|----------------|-----------------|--------------------|--------------------|-------------|-------------|----------------|----------------|------------------|--------------------|----------------|------------------|------------------|--|
| 1                                     | C16     | 22.62            | N/A           | 0.80          | Outfall     | 0.00          | 1.17           | 9.47            | 0.00               | 5751.20            | 5749.09     | 5749.49     | 5748.00        | 5748.40        | 40.00            | 24                 | 1.00           | 0.88             | 6.1              |  |
| 2                                     | C15     | 18.07            | 0.80          | 2.50          | 1           | 0.00          | 0.68           | 5.40            | 5751.20            | 5773.50            | 5749.78     | 5770.94     | 5749.40        | 5770.00        | 80.00            | 12                 | 25.75          | 0.79             | 5.9              |  |
| 3                                     | C2      | 5.04             | 2.30          | 2.68          | 2           | 0.00          | 0.47           | 3.25            | 5773.50            | 5774.80            | 5771.79     | 5772.12     | 5770.20        | 5771.12        | 46.00            | 12                 | 2.00           | 0.78             | 5.7              |  |
| 4                                     | C12     | 5.04             | 2.48          | 3.24          | 3           | 0.00          | 0.55           | 1.82            | 5774.80            | 5777.50            | 5772.52     | 5773.83     | 5771.32        | 5773.26        | 97.00            | 12                 | 2.00           | 0.78             | 5.0              |  |
| Project File: D02049 Line-8 25-yr.stm |         |                  |               |               |             |               |                |                 |                    |                    |             |             |                |                |                  | Number of lines: 4 |                |                  | Date: 07-29-2004 |  |
| NOTES: ** At critical depth           |         |                  |               |               |             |               |                |                 |                    |                    |             |             |                |                |                  |                    |                |                  |                  |  |

# Storm Sewer Profile



Hydraflow Plan View



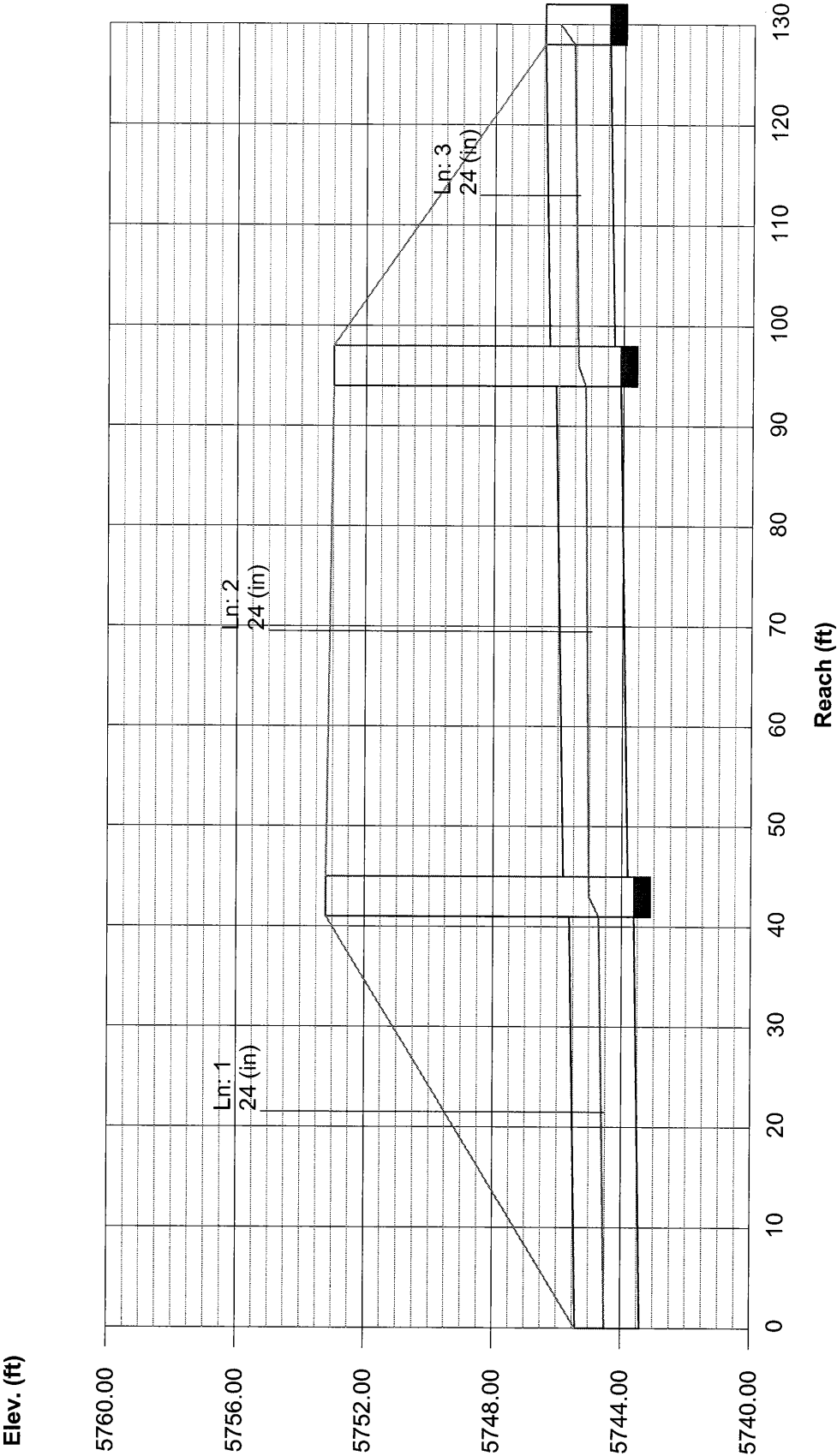
Project file: D02049 Line-9 2-yr.stm

No. Lines: 3

07-29-2004

| Line No.                             | Line ID     | Capac Full (cfs) | Cover Dn (ft) | Cover Up (ft) | DnStm Ln No | Known Q (cfs) | Drng Area (ac) | Flow Rate (cfs) | Gnd/Rim El Dn (ft) | Gnd/Rim El Up (ft) | HGL Dn (ft) | HGL Up (ft) | Invert Dn (ft) | Invert Up (ft) | Line Length (ft) | Line Size (in)     | Line Slope (%) | Runoff Coeff (C) | Tc (min)         |  |
|--------------------------------------|-------------|------------------|---------------|---------------|-------------|---------------|----------------|-----------------|--------------------|--------------------|-------------|-------------|----------------|----------------|------------------|--------------------|----------------|------------------|------------------|--|
| 1                                    | C18         | 16.19            | 0.00          | 7.58          | Outfall     | 0.00          | 0.28           | 9.35            | 5745.40            | 5753.20            | 5744.49     | 5744.71     | 5743.40        | 5743.62        | 43.00            | 24                 | 0.51           | 0.81             | 5.5              |  |
| 2                                    | C17         | 16.14            | 7.38          | 6.91          | 1           | 0.00          | 0.48           | 9.35            | 5753.20            | 5753.00            | 5745.02     | 5745.18     | 5743.82        | 5744.09        | 53.00            | 24                 | 0.51           | 0.88             | 5.2              |  |
| 3                                    | Pond C1/C16 | 15.99            | 6.71          | 0.00          | 2           | 9.35          | 1.17           | 9.35            | 5753.00            | 5746.46            | 5745.40     | 5745.55     | 5744.29        | 5744.46        | 34.00            | 24                 | 0.50           | 0.82             | 5.0              |  |
| Project File: D02049 Line-9 2-yr.stm |             |                  |               |               |             |               |                |                 |                    |                    |             |             |                |                |                  | Number of lines: 3 |                |                  | Date: 07-29-2004 |  |
| NOTES: ** At critical depth          |             |                  |               |               |             |               |                |                 |                    |                    |             |             |                |                |                  |                    |                |                  |                  |  |

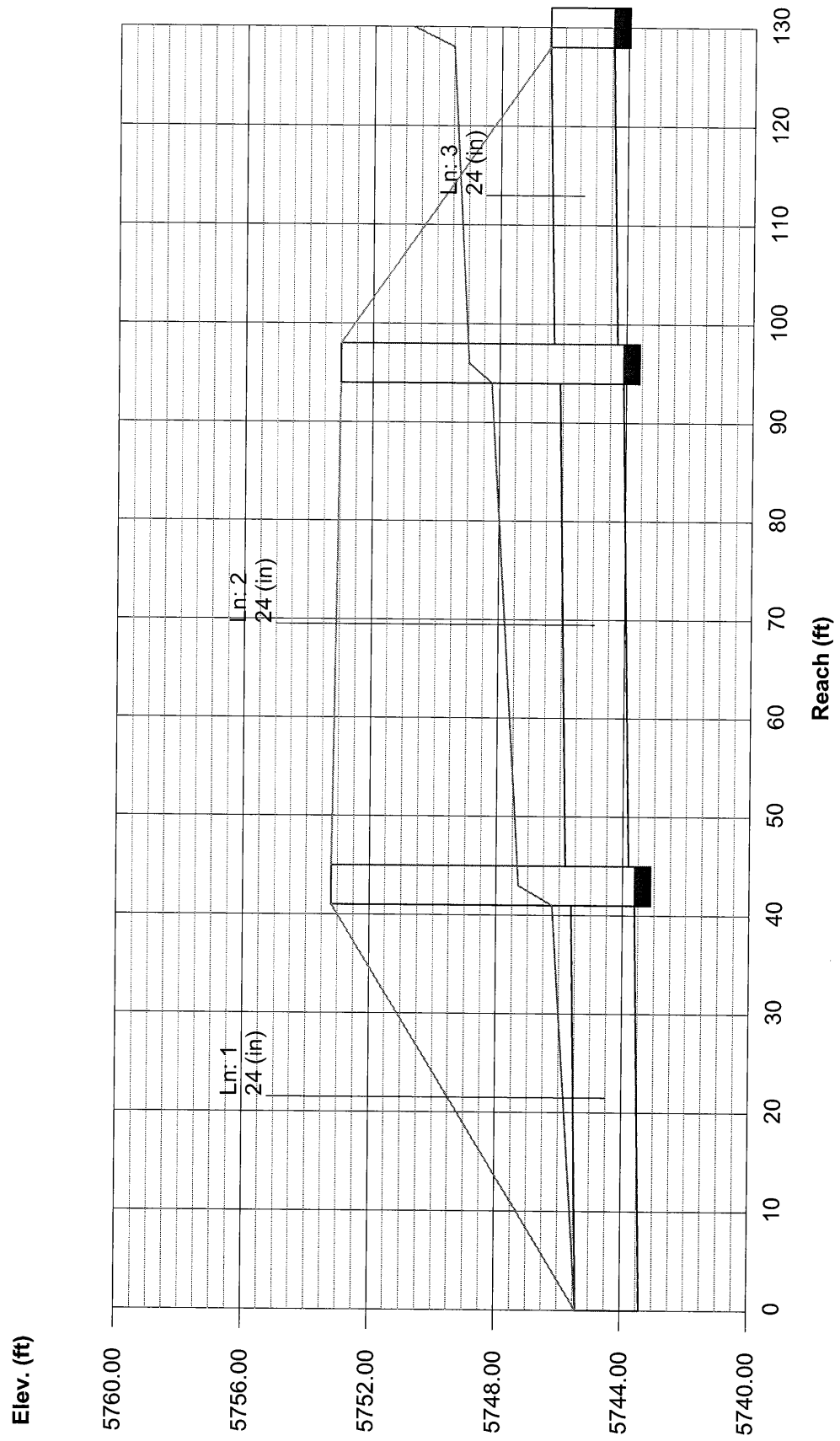
Storm Sewer Profile



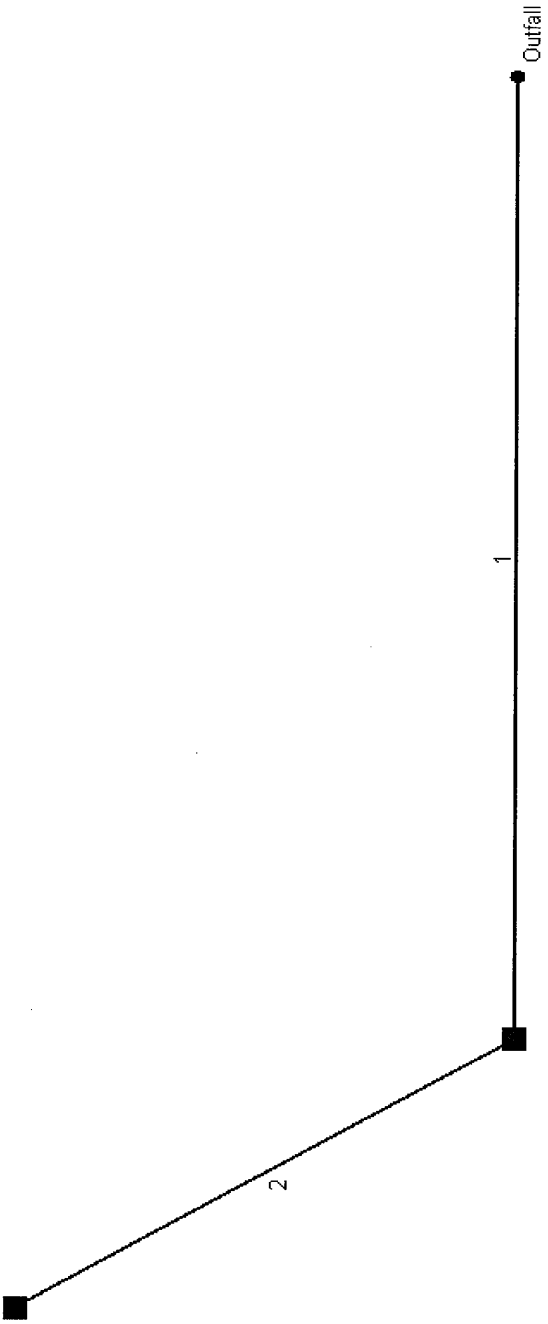
| Line No.                              | Line ID     | Capac Full (cfs) | Cover Dn (ft) | Cover Up (ft) | DnStm Ln No | Known Q (cfs) | Drng Area (ac) | Flow Rate (cfs) | Gnd/Rim El Dn (ft) | Gnd/Rim El Up (ft) | HGL Dn (ft) | HGL Up (ft) | Invert Dn (ft) | Invert Up (ft) | Line Length (ft) | Line Size (in)     | Line Slope (%) | Runoff Coeff (C) | Tc (min) |  |
|---------------------------------------|-------------|------------------|---------------|---------------|-------------|---------------|----------------|-----------------|--------------------|--------------------|-------------|-------------|----------------|----------------|------------------|--------------------|----------------|------------------|----------|--|
| 1                                     | C18         | 16.19            | 0.00          | 7.58          | Outfall     | 0.00          | 0.28           | 31.25           | 5745.40            | 5753.20            | 5745.40     | 5746.22     | 5743.40        | 5743.62        | 43.00            | 24                 | 0.51           | 0.88             | 5.2      |  |
| 2                                     | C17         | 16.14            | 7.38          | 6.91          | 1           | 0.00          | 0.48           | 30.24           | 5753.20            | 5753.00            | 5747.30     | 5748.25     | 5743.82        | 5744.09        | 53.00            | 24                 | 0.51           | 0.93             | 5.1      |  |
| 3                                     | Pond C1/C16 | 15.99            | 6.71          | 0.00          | 2           | 24.00         | 1.17           | 28.37           | 5753.00            | 5746.46            | 5748.97     | 5749.50     | 5744.29        | 5744.46        | 34.00            | 24                 | 0.50           | 0.88             | 5.0      |  |
| Project File: D02049 Line-9 25-yr.stm |             |                  |               |               |             |               |                |                 |                    |                    |             |             |                |                |                  | Number of lines: 3 |                | Date: 07-29-2004 |          |  |
| NOTES: ** At critical depth           |             |                  |               |               |             |               |                |                 |                    |                    |             |             |                |                |                  |                    |                |                  |          |  |



# Storm Sewer Profile



Hydraflow Plan View



Project file: D02049 Line-10 2-yr.stm

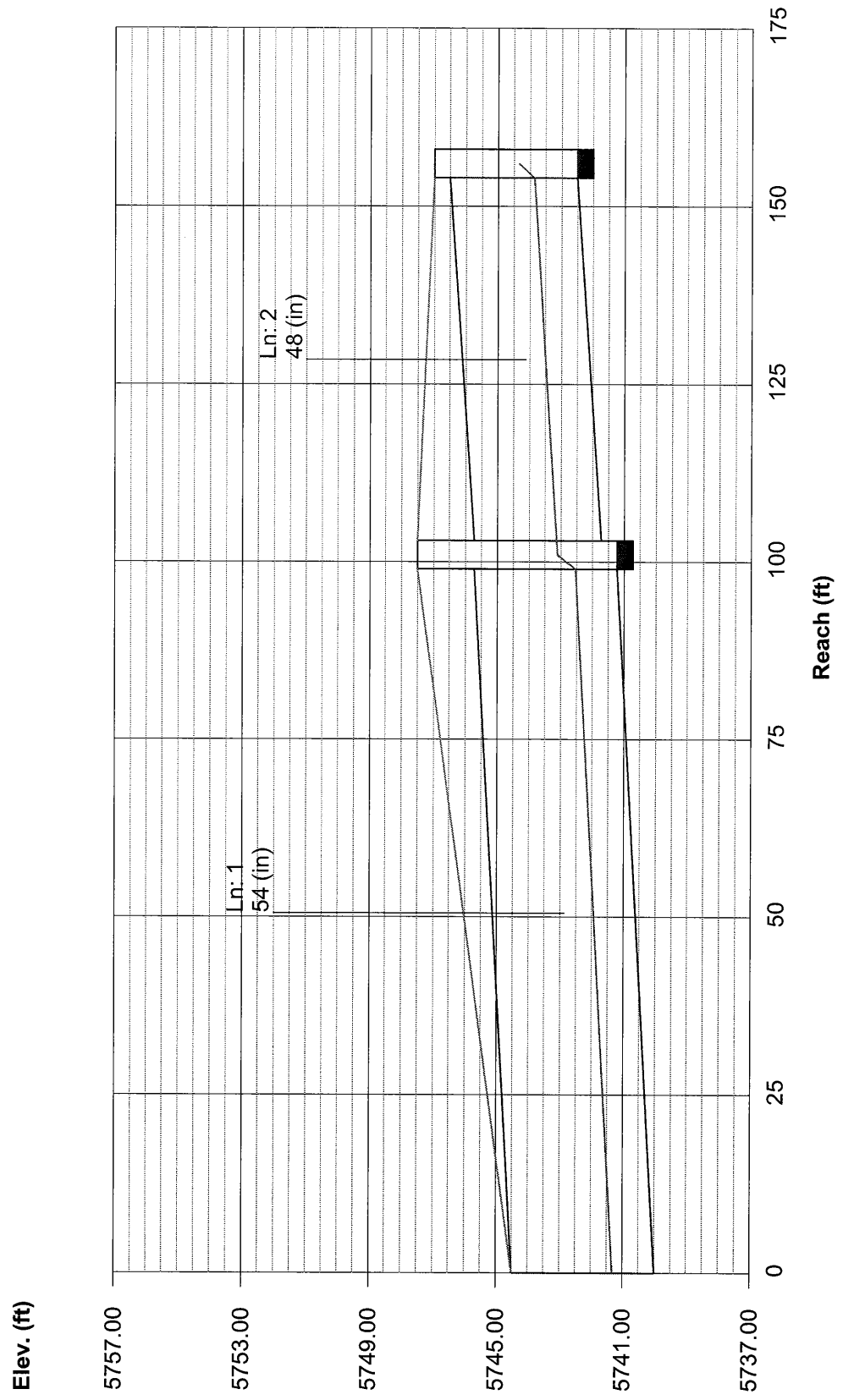
No. Lines: 2

07-29-2004

| Line No.                              | Line ID | Capac Full (cfs) | Cover Dn (ft) | Cover Up (ft) | DnStm Ln No | Known Q (cfs) | Drng Area (ac) | Flow Rate (cfs) | Gnd/Rim El Dn (ft) | Gnd/Rim El Up (ft) | HGL Dn (ft) | HGL Up (ft) | Invert Dn (ft) | Invert Up (ft) | Line Length (ft) | Line Size (in)     | Line Slope (%) | Runoff Coeff (C) | Tc (min) |  |
|---------------------------------------|---------|------------------|---------------|---------------|-------------|---------------|----------------|-----------------|--------------------|--------------------|-------------|-------------|----------------|----------------|------------------|--------------------|----------------|------------------|----------|--|
| 1                                     | C19     | 216.16           | 0.00          | 1.78          | Outfall     | 0.00          | 6.24           | 21.03           | 5744.50            | 5747.50            | 5741.32     | 5742.54     | 5740.00        | 5741.22        | 101.00           | 54                 | 1.21           | 0.81             | 7.0      |  |
| 2                                     | Pond C2 | 171.04           | 1.78          | 0.50          | 1           | 21.03         | 0.00           | 21.03           | 5747.50            | 5747.00            | 5743.11     | 5743.86     | 5741.72        | 5742.50        | 55.00            | 48                 | 1.42           | 0.00             | 0.0      |  |
| Project File: D02049 Line-10 2-yr.stm |         |                  |               |               |             |               |                |                 |                    |                    |             |             |                |                |                  | Number of lines: 2 |                | Date: 07-29-2004 |          |  |
| NOTES: ** At critical depth           |         |                  |               |               |             |               |                |                 |                    |                    |             |             |                |                |                  |                    |                |                  |          |  |

# Storm Sewer Profile

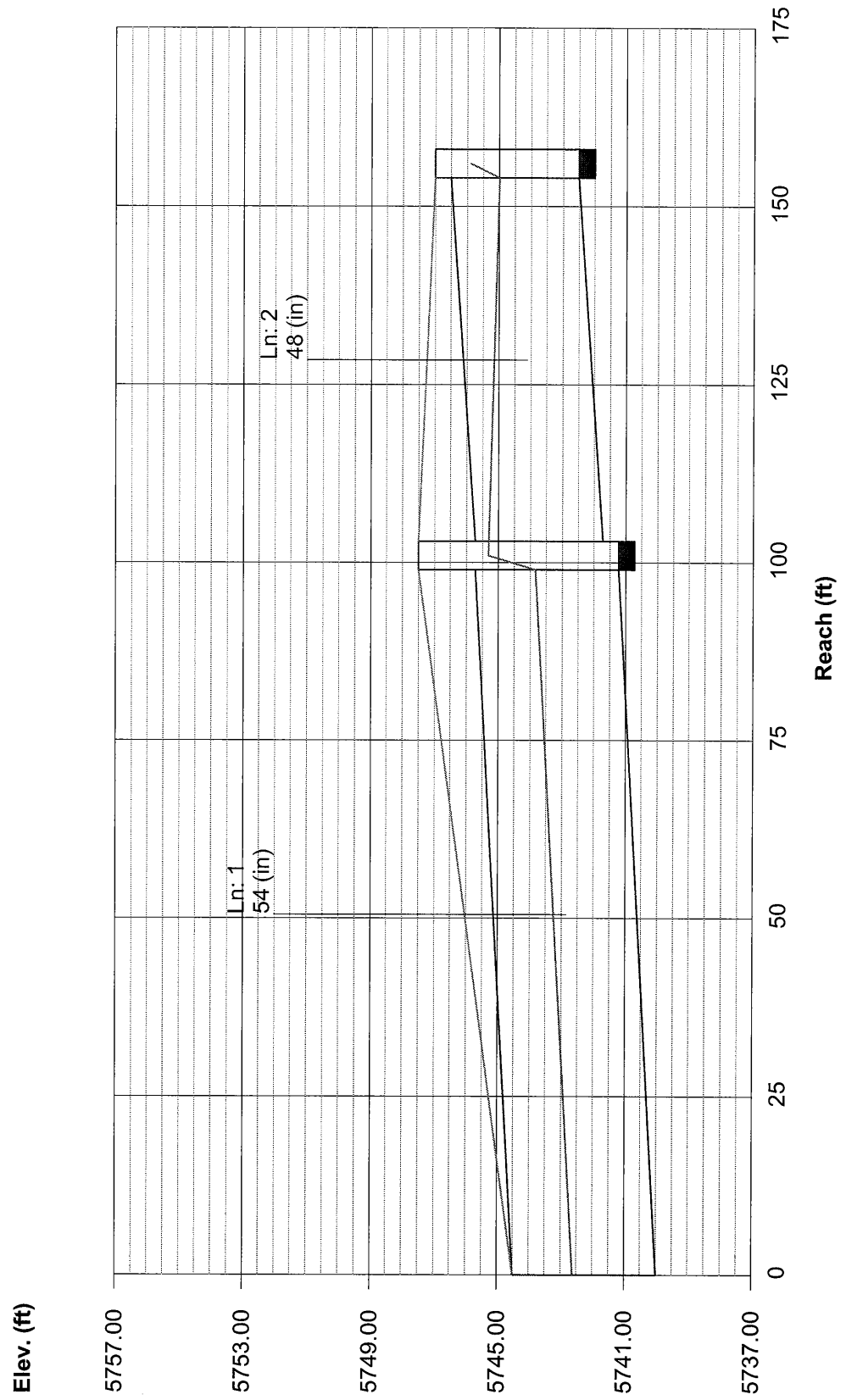
Proj. file: D02049 Line-10 2-yr.stm



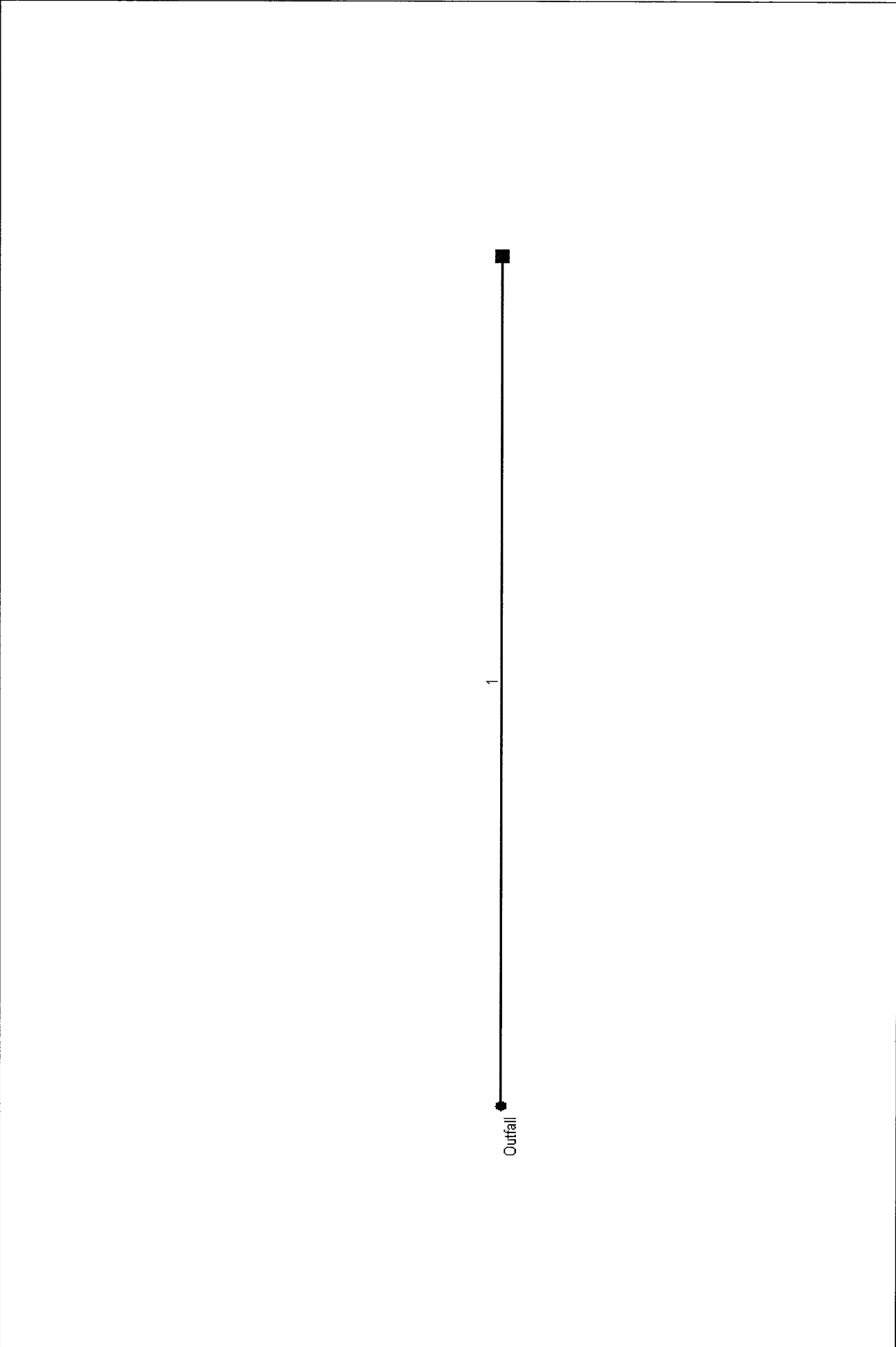
| Line No.                               | Line ID | Capac Full (cfs) | Cover Dn (ft) | Cover Up (ft) | DnStm Ln No | Known Q (cfs) | Drng Area (ac) | Flow Rate (cfs) | Gnd/Rim El Dn (ft) | Gnd/Rim El Up (ft) | HGL Dn (ft) | HGL Up (ft) | Invert Dn (ft) | Invert Up (ft) | Line Length (ft) | Line Size (in)     | Line Slope (%) | Runoff Coeff (C) | Tc (min)         |  |
|----------------------------------------|---------|------------------|---------------|---------------|-------------|---------------|----------------|-----------------|--------------------|--------------------|-------------|-------------|----------------|----------------|------------------|--------------------|----------------|------------------|------------------|--|
| 1                                      | C19     | 216.16           | 0.00          | 1.78          | Outfall     | 0.00          | 6.24           | 83.34           | 5744.50            | 5747.50            | 5742.62     | 5743.84     | 5740.00        | 5741.22        | 101.00           | 54                 | 1.21           | 0.88             | 7.0              |  |
| 2                                      | Pond C2 | 171.04           | 1.78          | 0.50          | 1           | 62.30         | 0.00           | 62.30           | 5747.50            | 5747.00            | 5745.30     | 5744.98     | 5741.72        | 5742.50        | 55.00            | 48                 | 1.42           | 0.00             | 0.0              |  |
| Project File: D02049 Line-10 25-yr.stm |         |                  |               |               |             |               |                |                 |                    |                    |             |             |                |                |                  | Number of lines: 2 |                |                  | Date: 07-29-2004 |  |
| NOTES: ** At critical depth            |         |                  |               |               |             |               |                |                 |                    |                    |             |             |                |                |                  |                    |                |                  |                  |  |

# Storm Sewer Profile

Proj. file: D02049 Line-10 25-yr.stm



Hydraflow Plan View



|                                        |              |            |
|----------------------------------------|--------------|------------|
| Project file: D02049 Line-11 25-yr.stm | No. Lines: 1 | 07-29-2004 |
|----------------------------------------|--------------|------------|

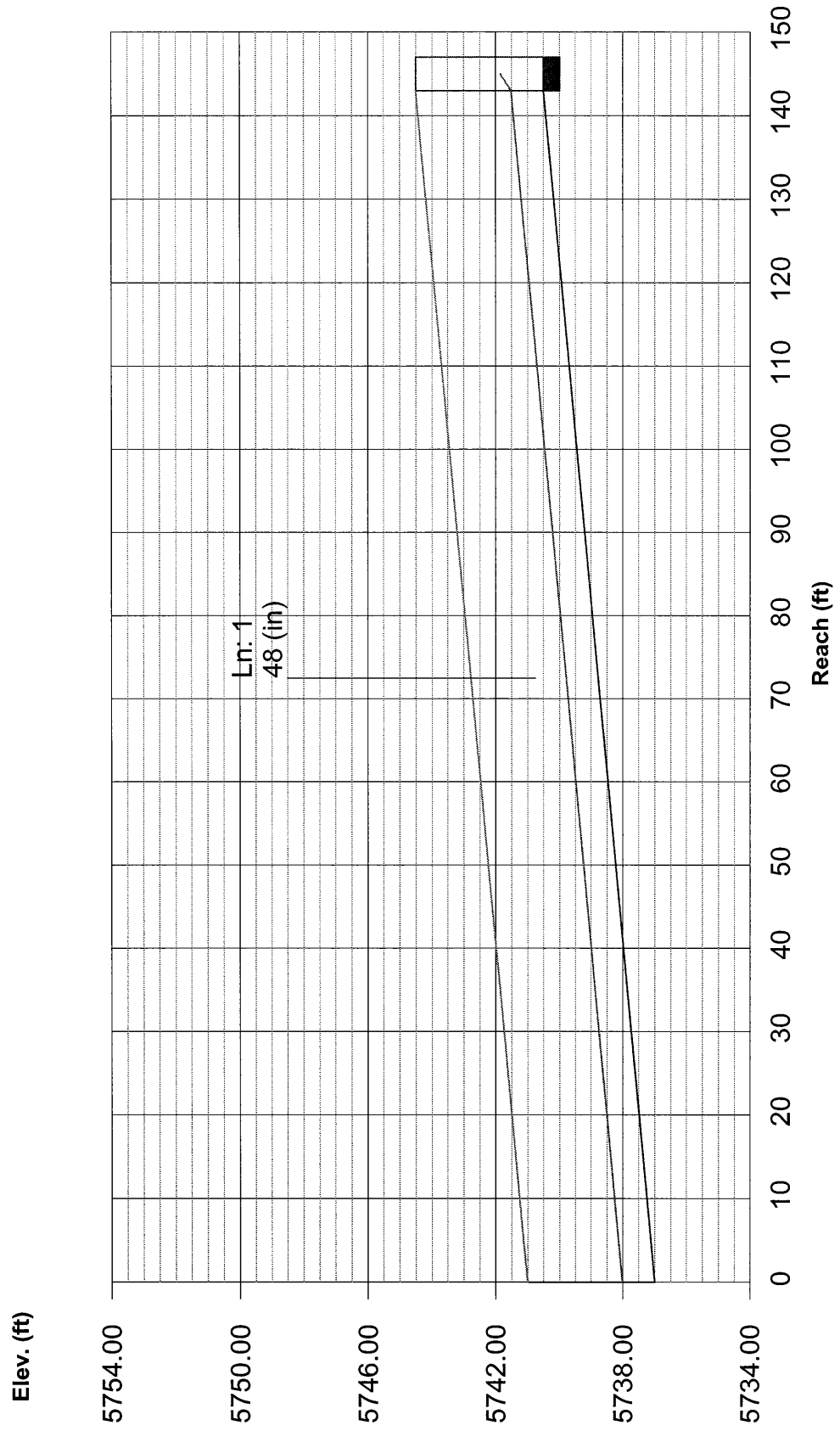
| Line No. | Line ID   | Capac Full (cfs) | Cover Dn (ft) | Cover Up (ft) | DnStm Ln No | Known Q (cfs) | Drng Area (ac) | Flow Rate (cfs) | Gnd/Rim El Dn (ft) | Gnd/Rim El Up (ft) | HGL Dn (ft) | HGL Up (ft) | Invert Dn (ft) | Invert Up (ft) | Line Length (ft) | Line Size (in) | Line Slope (%) | Runoff Coeff (C) | Tc (min) |
|----------|-----------|------------------|---------------|---------------|-------------|---------------|----------------|-----------------|--------------------|--------------------|-------------|-------------|----------------|----------------|------------------|----------------|----------------|------------------|----------|
| 1        | Pond B/B5 | 223.18           | 0.00          | 0.00          | Outfall     | 11.63         | 2.34           | 11.63           | 5741.00            | 5744.50            | 5738.01     | 5741.51     | 5737.00        | 5740.50        | 145.00           | 48             | 2.41           | 0.13             | 5.0      |

|                                       |  |  |  |  |  |  |  |  |  |  |  |  |  |  |                    |  |  |  |  |                  |  |  |  |  |
|---------------------------------------|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--------------------|--|--|--|--|------------------|--|--|--|--|
| Project File: D02049 Line-11 2-yr.stm |  |  |  |  |  |  |  |  |  |  |  |  |  |  | Number of lines: 1 |  |  |  |  | Date: 07-29-2004 |  |  |  |  |
| NOTES: ** At critical depth           |  |  |  |  |  |  |  |  |  |  |  |  |  |  |                    |  |  |  |  |                  |  |  |  |  |



# Storm Sewer Profile

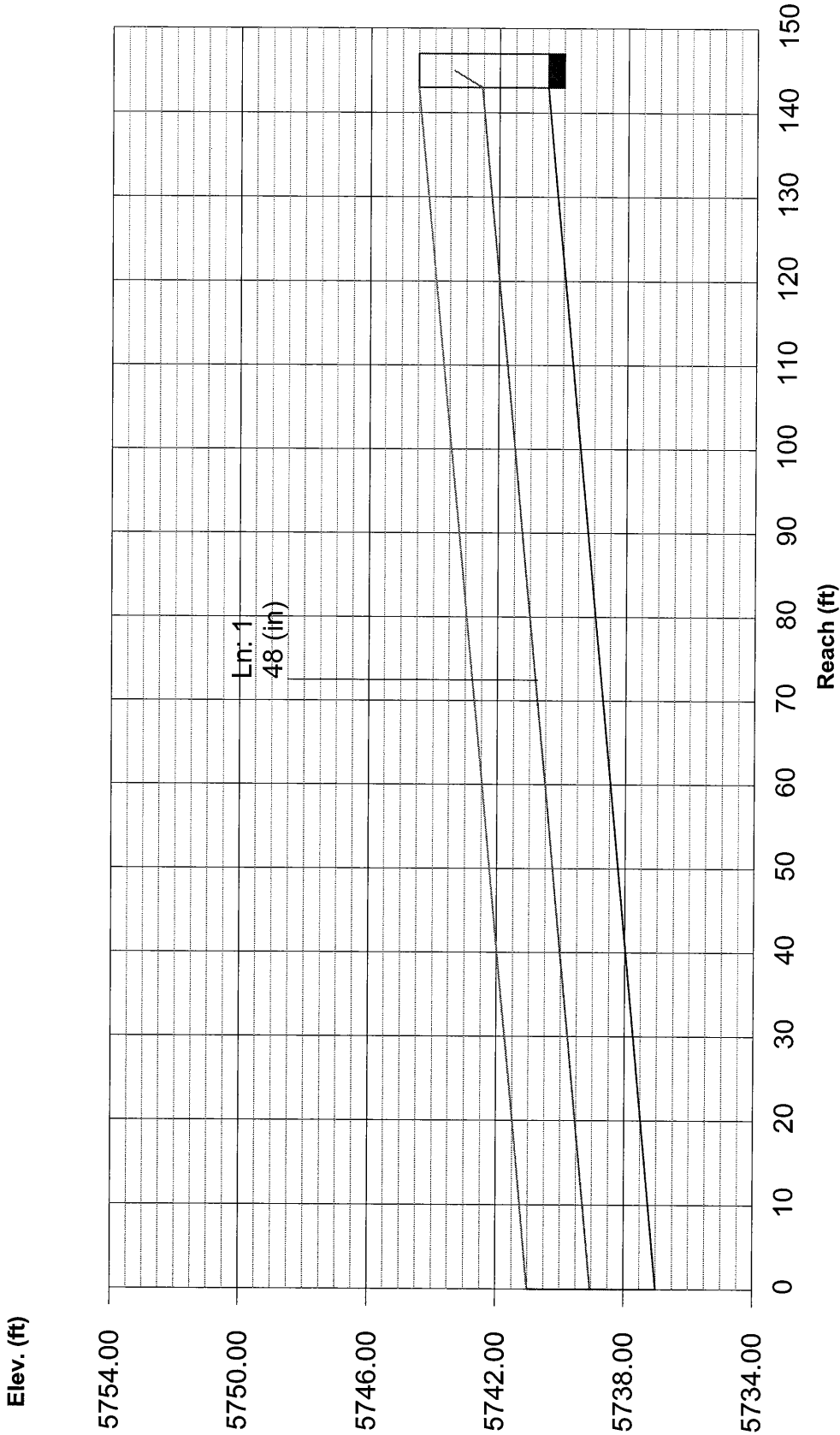
Proj. file: D02049 Line-11 2-yr.stm



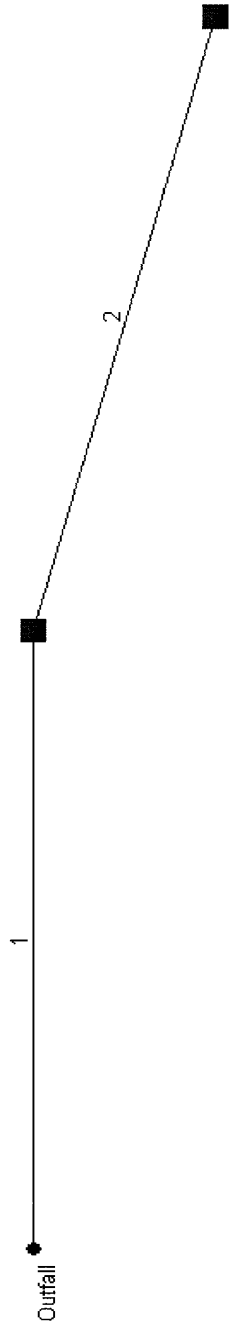
| Line No. | Line ID   | Capac Full (cfs) | Cover Dn (ft) | Cover Up (ft) | DnStm Ln No | Known Q (cfs) | Drng Area (ac) | Flow Rate (cfs) | Gnd/Rim El Dn (ft) | Gnd/Rim El Up (ft) | HGL Dn (ft) | HGL Up (ft) | Invert Dn (ft) | Invert Up (ft) | Line Length (ft) | Line Size (in) | Line Slope (%) | Runoff Coeff (C) | Tc (min) |
|----------|-----------|------------------|---------------|---------------|-------------|---------------|----------------|-----------------|--------------------|--------------------|-------------|-------------|----------------|----------------|------------------|----------------|----------------|------------------|----------|
| 1        | Pond B/B5 | 223.18           | 0.00          | 0.00          | Outfall     | 44.20         | 2.34           | 47.68           | 5741.00            | 5744.50            | 5739.04     | 5742.54     | 5737.00        | 5740.50        | 145.00           | 48             | 2.41           | 0.35             | 5.0      |

|                                        |  |  |  |  |  |  |  |  |  |  |  |  |  |  |                    |  |                  |  |  |  |
|----------------------------------------|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--------------------|--|------------------|--|--|--|
| Project File: D02049 Line-11 25-yr.stm |  |  |  |  |  |  |  |  |  |  |  |  |  |  | Number of lines: 1 |  | Date: 07-29-2004 |  |  |  |
| NOTES: ** At critical depth            |  |  |  |  |  |  |  |  |  |  |  |  |  |  |                    |  |                  |  |  |  |

# Storm Sewer Profile



Hydraflow Plan View



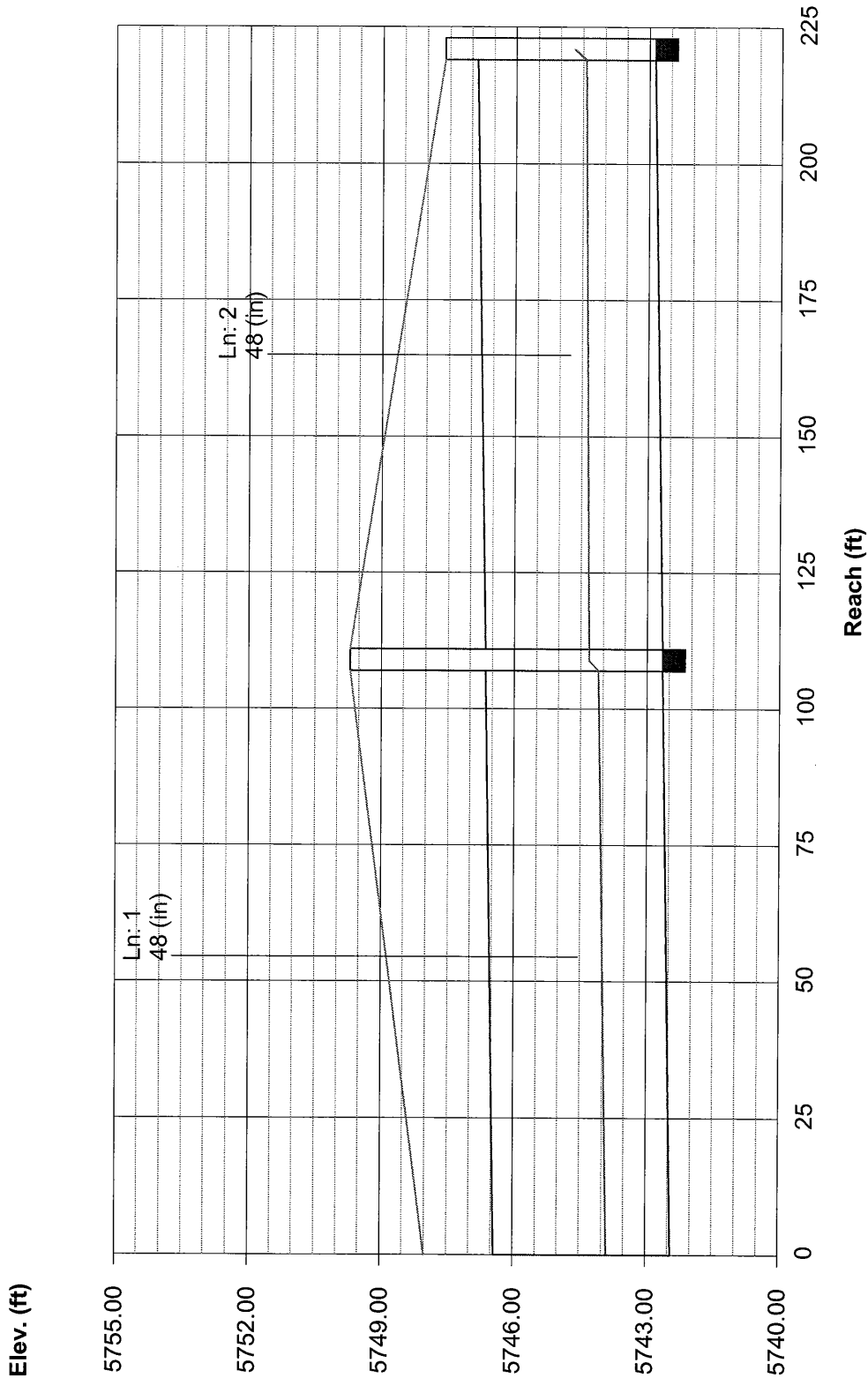
Project file: D02049 Line-12 2-yr.stm

No. Lines: 2

07-29-2004

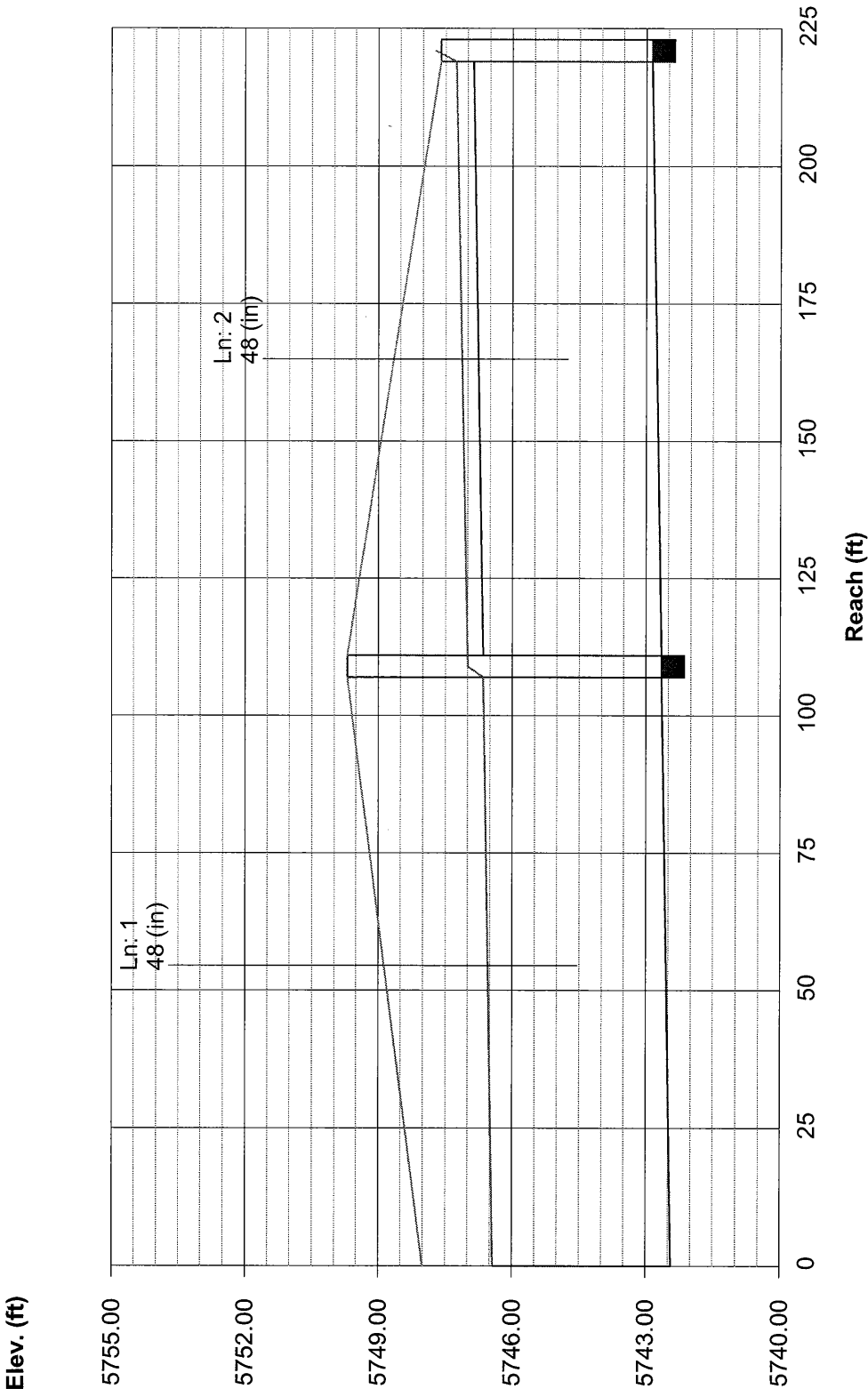
| Line No.                              | Line ID     | Capac Full (cfs) | Cover Dn (ft) | Cover Up (ft) | DnStm Ln No | Known Q (cfs) | Drng Area (ac) | Flow Rate (cfs) | Gnd/Rim El Dn (ft) | Gnd/Rim El Up (ft) | HGL Dn (ft) | HGL Up (ft) | Invert Dn (ft) | Invert Up (ft) | Line Length (ft) | Line Size (in)     | Line Slope (%) | Runoff Coeff (C) | Tc (min) |  |
|---------------------------------------|-------------|------------------|---------------|---------------|-------------|---------------|----------------|-----------------|--------------------|--------------------|-------------|-------------|----------------|----------------|------------------|--------------------|----------------|------------------|----------|--|
| 1                                     | A25         | 64.49            | 1.57          | 3.05          | Outfall     | 0.00          | 0.92           | 18.18           | 5748.00            | 5749.70            | 5743.89     | 5744.10     | 5742.43        | 5742.65        | 109.00           | 48                 | 0.20           | 0.37             | 9.3      |  |
| 2                                     | Pond A1/A28 | 63.70            | 3.05          | 0.73          | 1           | 18.18         | 0.77           | 18.18           | 5749.70            | 5747.60            | 5744.31     | 5744.43     | 5742.65        | 5742.87        | 112.00           | 48                 | 0.20           | 0.11             | 8.0      |  |
| Project File: D02049 Line-12 2-yr.stm |             |                  |               |               |             |               |                |                 |                    |                    |             |             |                |                |                  | Number of lines: 2 |                | Date: 07-29-2004 |          |  |
| NOTES: ** At critical depth           |             |                  |               |               |             |               |                |                 |                    |                    |             |             |                |                |                  |                    |                |                  |          |  |

# Storm Sewer Profile



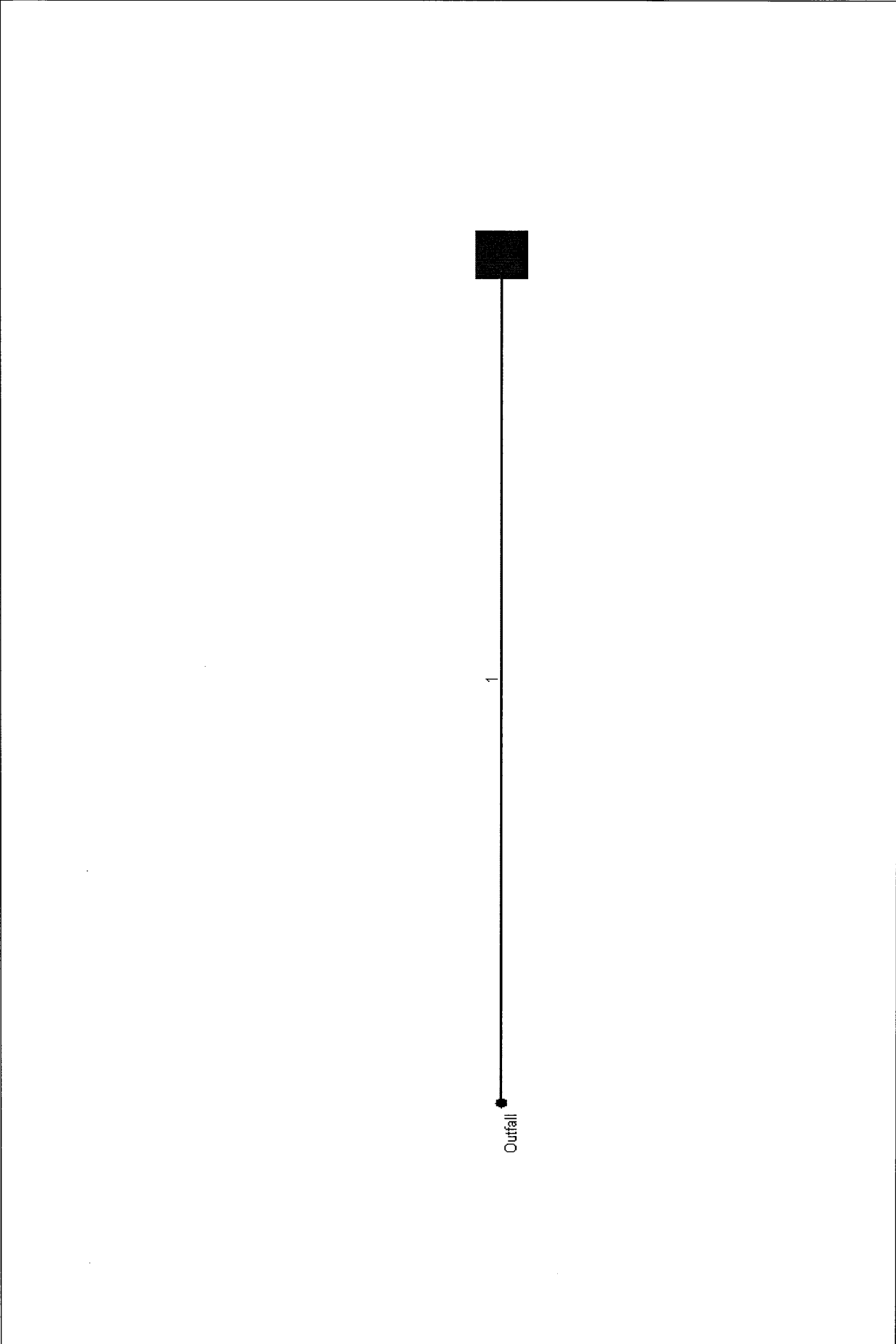
| Line No.                               | Line ID     | Capac Full (cfs) | Cover Dn (ft) | Cover Up (ft) | DnStm Ln No | Known Q (cfs) | Drng Area (ac) | Flow Rate (cfs) | Gnd/Rim El Dn (ft) | Gnd/Rim El Up (ft) | HGL Dn (ft) | HGL Up (ft) | Invert Dn (ft) | Invert Up (ft) | Line Length (ft) | Line Size (in)     | Line Slope (%) | Runoff Coeff (C) | Tc (min)         |  |
|----------------------------------------|-------------|------------------|---------------|---------------|-------------|---------------|----------------|-----------------|--------------------|--------------------|-------------|-------------|----------------|----------------|------------------|--------------------|----------------|------------------|------------------|--|
| 1                                      | A25         | 64.49            | 1.57          | 3.05          | Outfall     | 0.00          | 0.92           | 70.67           | 5748.00            | 5749.70            | 5746.43     | 5746.65     | 5742.43        | 5742.65        | 109.00           | 48                 | 0.20           | 0.53             | 8.3              |  |
| 2                                      | Pond A1/A28 | 63.70            | 3.05          | 0.73          | 1           | 68.00         | 0.77           | 68.93           | 5749.70            | 5747.60            | 5746.99     | 5747.25     | 5742.65        | 5742.87        | 112.00           | 48                 | 0.20           | 0.33             | 8.0              |  |
| Project File: D02049 Line-12 25-yr.stm |             |                  |               |               |             |               |                |                 |                    |                    |             |             |                |                |                  | Number of lines: 2 |                |                  | Date: 07-29-2004 |  |
| NOTES: ** At critical depth            |             |                  |               |               |             |               |                |                 |                    |                    |             |             |                |                |                  |                    |                |                  |                  |  |

# Storm Sewer Profile





Hydraflow Plan View

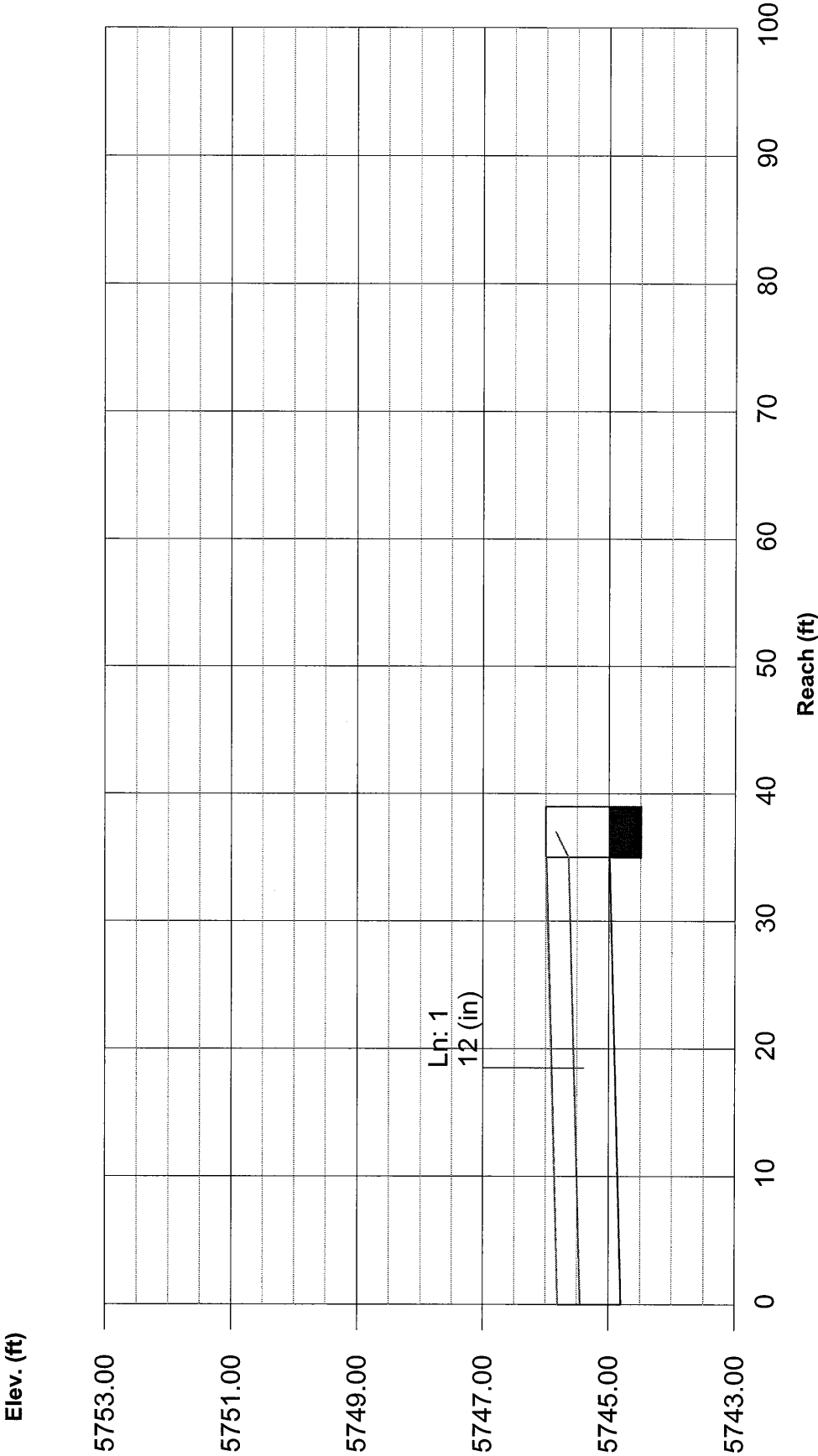


|                                       |              |            |
|---------------------------------------|--------------|------------|
| Project file: D02049 Line-13 2-yr.stm | No. Lines: 1 | 07-29-2004 |
|---------------------------------------|--------------|------------|

| Line No. | Line ID | Capac Full (cfs) | Cover Dn (ft) | Cover Up (ft) | DnStm Ln No | Known Q (cfs) | Drng Area (ac) | Flow Rate (cfs) | Gnd/Rim El Dn (ft) | Gnd/Rim El Up (ft) | HGL Dn (ft) | HGL Up (ft) | Invert Dn (ft) | Invert Up (ft) | Line Length (ft) | Line Size (in) | Line Slope (%) | Runoff Coeff (C) | Tc (min) |
|----------|---------|------------------|---------------|---------------|-------------|---------------|----------------|-----------------|--------------------|--------------------|-------------|-------------|----------------|----------------|------------------|----------------|----------------|------------------|----------|
| 1        | C16     | 2.55             | 0.00          | 0.01          | Outfall     | 0.00          | 1.17           | 1.92            | 5745.80            | 5746.00            | 5745.45     | 5745.64     | 5744.80        | 5744.99        | 37.00            | 12             | 0.51           | 0.82             | 5.0      |

|                                       |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |                    |  |                  |  |
|---------------------------------------|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--------------------|--|------------------|--|
| Project File: D02049 Line-13 2-yr.stm |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  | Number of lines: 1 |  | Date: 07-29-2004 |  |
| NOTES: ** At critical depth           |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |                    |  |                  |  |

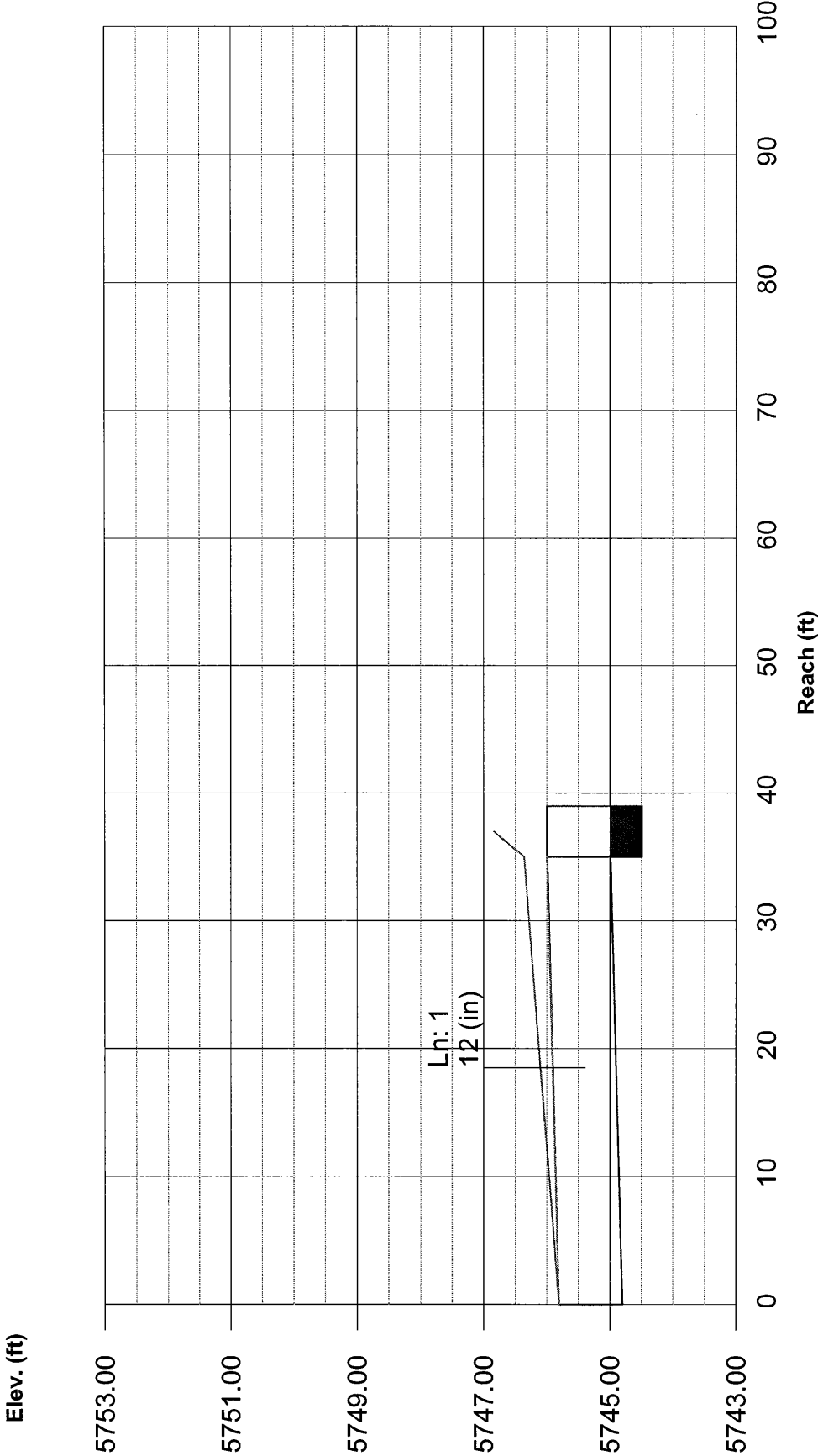
Storm Sewer Profile



| Line No. | Line ID | Capac Full (cfs) | Cover Dn (ft) | Cover Up (ft) | DnStm Ln No | Known Q (cfs) | Drng Area (ac) | Flow Rate (cfs) | Gnd/Rim El Dn (ft) | Gnd/Rim El Up (ft) | HGL Dn (ft) | HGL Up (ft) | Invert Dn (ft) | Invert Up (ft) | Line Length (ft) | Line Size (in) | Line Slope (%) | Runoff Coeff (C) | Tc (min) |
|----------|---------|------------------|---------------|---------------|-------------|---------------|----------------|-----------------|--------------------|--------------------|-------------|-------------|----------------|----------------|------------------|----------------|----------------|------------------|----------|
| 1        | C-16    | 2.55             | 0.00          | 0.01          | Outfall     | 0.00          | 1.17           | 4.37            | 5745.80            | 5746.00            | 5745.80     | 5746.36     | 5744.80        | 5744.99        | 37.00            | 12             | 0.51           | 0.88             | 5.0      |

|                                        |  |  |  |  |  |  |  |  |  |  |  |  |  |  |                    |  |                  |  |  |  |
|----------------------------------------|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--------------------|--|------------------|--|--|--|
| Project File: D02049 Line-13 25-yr.stm |  |  |  |  |  |  |  |  |  |  |  |  |  |  | Number of lines: 1 |  | Date: 07-29-2004 |  |  |  |
| NOTES: ** At critical depth            |  |  |  |  |  |  |  |  |  |  |  |  |  |  |                    |  |                  |  |  |  |

# Storm Sewer Profile



Hydraflow Plan View

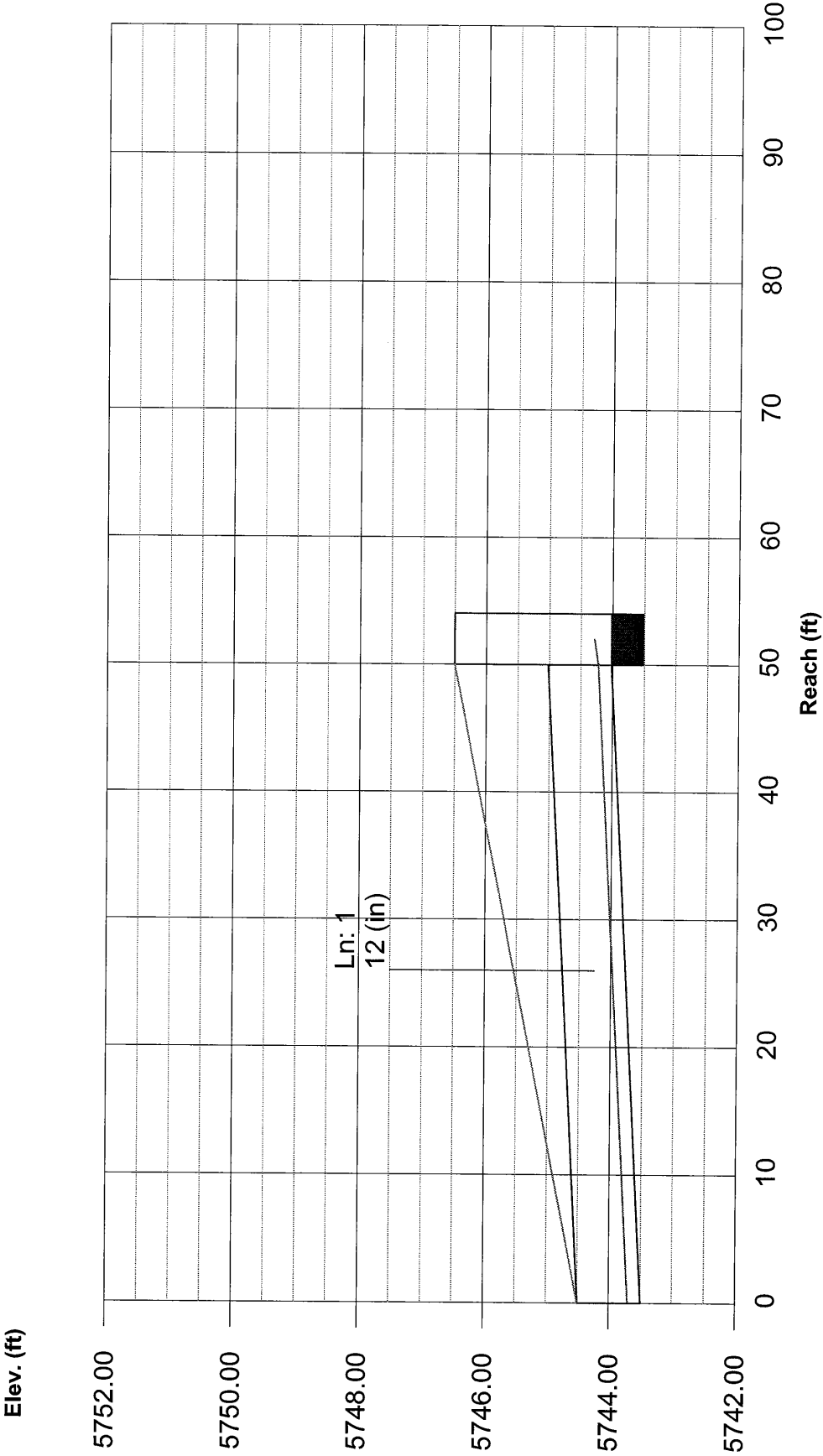


|                                       |  |              |            |
|---------------------------------------|--|--------------|------------|
| Project file: D02049 Line-14 2-yr.stm |  | No. Lines: 1 | 07-29-2004 |
|---------------------------------------|--|--------------|------------|

| Line No. | Line ID | Capac Full (cfs) | Cover Dn (ft) | Cover Up (ft) | DnStm Ln No | Known Q (cfs) | Drng Area (ac) | Flow Rate (cfs) | Gnd/Rim El Dn (ft) | Gnd/Rim El Up (ft) | HGL Dn (ft) | HGL Up (ft) | Invert Dn (ft) | Invert Up (ft) | Line Length (ft) | Line Size (in) | Line Slope (%) | Runoff Coeff (C) | Tc (min) |
|----------|---------|------------------|---------------|---------------|-------------|---------------|----------------|-----------------|--------------------|--------------------|-------------|-------------|----------------|----------------|------------------|----------------|----------------|------------------|----------|
| 1        | E1      | 3.56             | 0.00          | 1.48          | Outfall     | 0.00          | 0.65           | 0.23            | 5744.50            | 5746.50            | 5743.71     | 5744.23     | 5743.50        | 5744.02        | 52.00            | 12             | 1.00           | 0.18             | 5.0      |

|                                       |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |                    |  |                  |  |
|---------------------------------------|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--------------------|--|------------------|--|
| Project File: D02049 Line-14 2-yr.stm |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  | Number of lines: 1 |  | Date: 07-29-2004 |  |
| NOTES: ** At critical depth           |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |                    |  |                  |  |

# Storm Sewer Profile

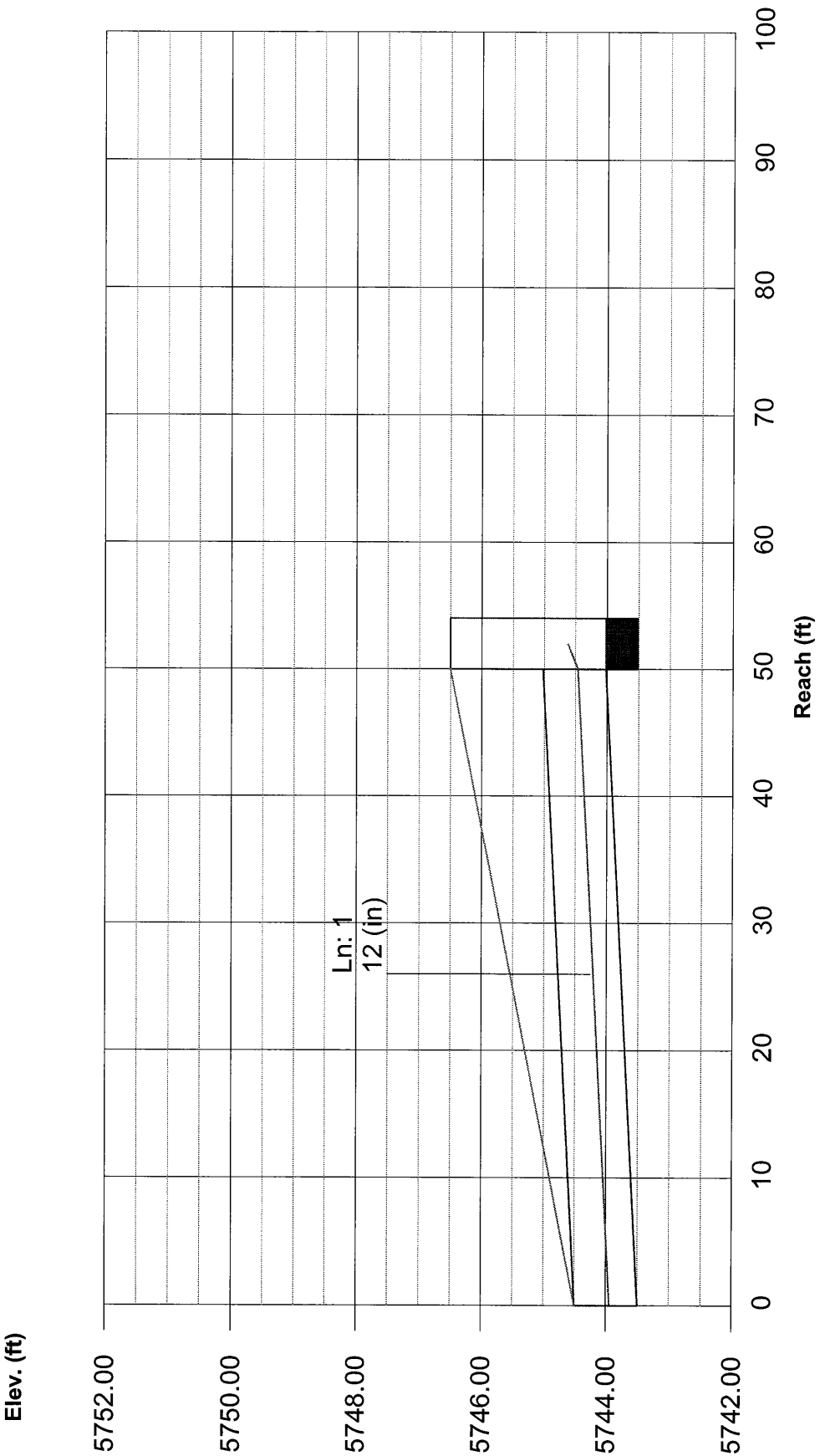




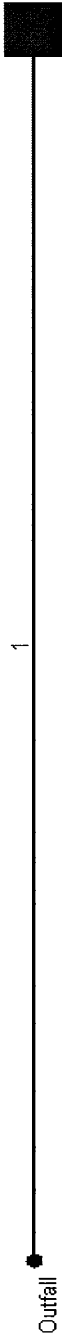
| Line No. | Line ID | Capac Full (cfs) | Cover Dn (ft) | Cover Up (ft) | DnStm Ln No | Known Q (cfs) | Dmg Area (ac) | Flow Rate (cfs) | Gnd/Rim El Dn (ft) | Gnd/Rim El Up (ft) | HGL Dn (ft) | HGL Up (ft) | Invert Dn (ft) | Invert Up (ft) | Line Length (ft) | Line Size (in) | Line Slope (%) | Runoff Coeff (C) | Tc (min) |
|----------|---------|------------------|---------------|---------------|-------------|---------------|---------------|-----------------|--------------------|--------------------|-------------|-------------|----------------|----------------|------------------|----------------|----------------|------------------|----------|
| 1        | E1      | 3.56             | 0.00          | 1.48          | Outfall     | 0.00          | 0.65          | 1.08            | 5744.50            | 5746.50            | 5743.94     | 5744.46     | 5743.50        | 5744.02        | 52.00            | 12             | 1.00           | 0.39             | 5.0      |

|                                        |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |                    |  |                  |  |
|----------------------------------------|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--------------------|--|------------------|--|
| Project File: D02049 Line-14 25-yr.stm |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  | Number of lines: 1 |  | Date: 07-29-2004 |  |
| NOTES: ** At critical depth            |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |                    |  |                  |  |

Storm Sewer Profile



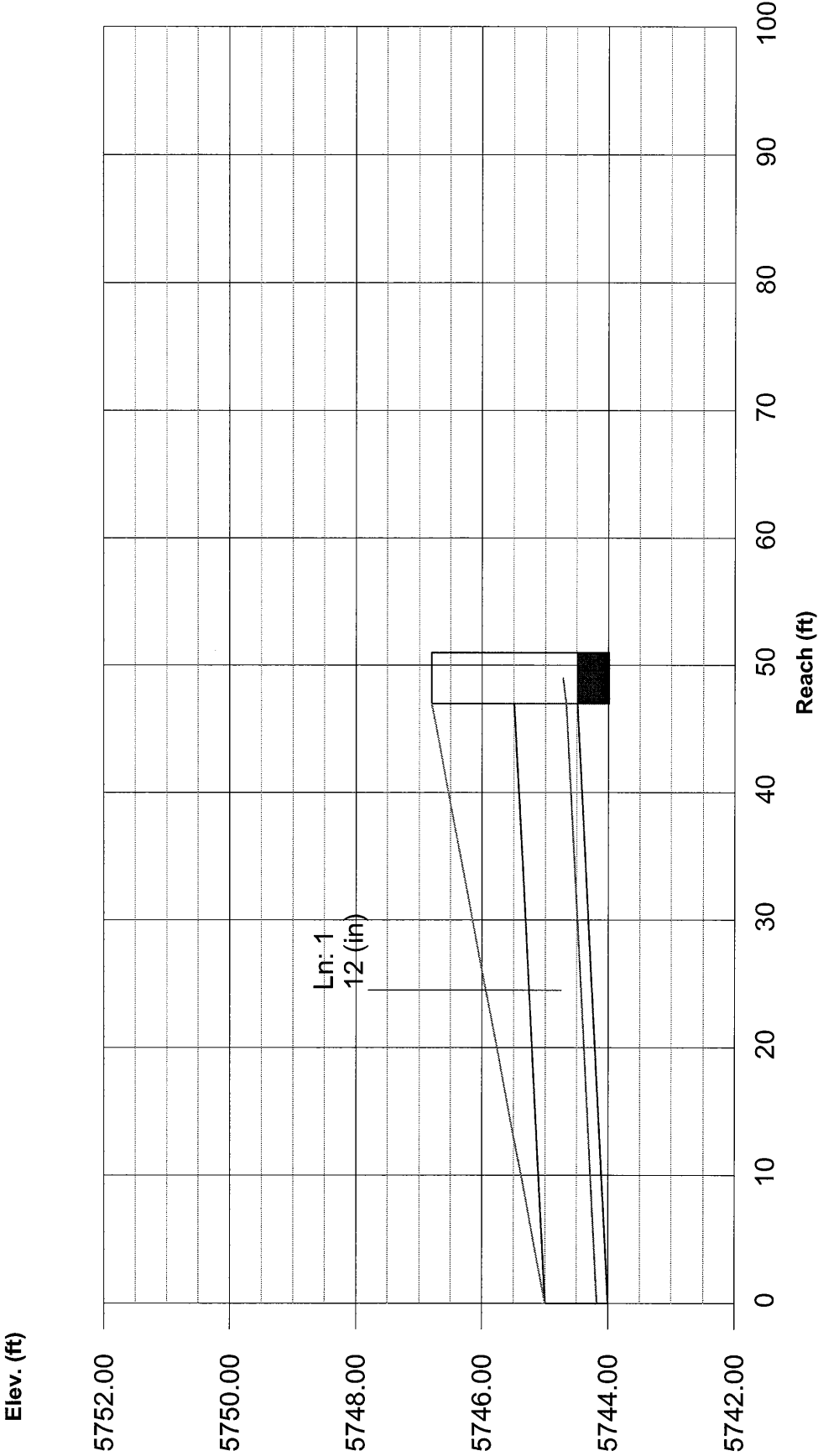
Hydraflow Plan View



|                                       |              |            |
|---------------------------------------|--------------|------------|
| Project file: D02049 Line-15 2-yr.stm | No. Lines: 1 | 07-29-2004 |
|---------------------------------------|--------------|------------|

| Line No.                              | Line ID | Capac Full (cfs) | Cover Dn (ft) | Cover Up (ft) | DnStm Ln No | Known Q (cfs) | Drng Area (ac) | Flow Rate (cfs) | Gnd/Rim El Dn (ft) | Gnd/Rim El Up (ft) | HGL Dn (ft) | HGL Up (ft) | Invert Dn (ft) | Invert Up (ft) | Line Length (ft) | Line Size (in)     | Line Slope (%) | Runoff Coeff (C) | Tc (min) |  |
|---------------------------------------|---------|------------------|---------------|---------------|-------------|---------------|----------------|-----------------|--------------------|--------------------|-------------|-------------|----------------|----------------|------------------|--------------------|----------------|------------------|----------|--|
| 1                                     | A28     | 3.56             | 0.00          | 1.31          | Outfall     | 0.00          | 0.77           | 0.17            | 5745.00            | 5746.80            | 5744.17     | 5744.67     | 5744.00        | 5744.49        | 49.00            | 12                 | 1.00           | 0.11             | 5.0      |  |
| Project File: D02049 Line-15 2-yr.stm |         |                  |               |               |             |               |                |                 |                    |                    |             |             |                |                |                  | Number of lines: 1 |                | Date: 07-29-2004 |          |  |
| NOTES: ** At critical depth           |         |                  |               |               |             |               |                |                 |                    |                    |             |             |                |                |                  |                    |                |                  |          |  |

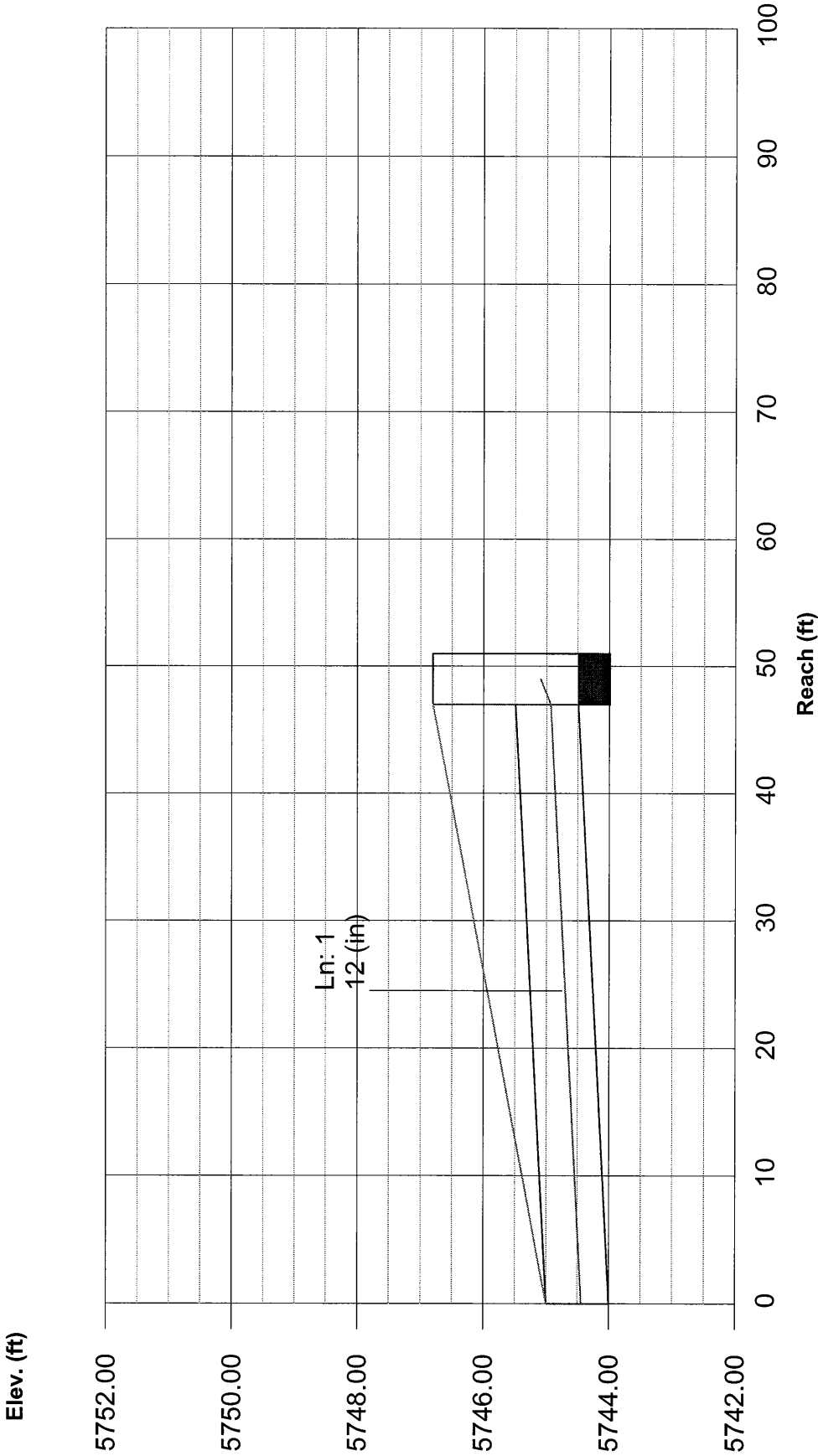
# Storm Sewer Profile



| Line No. | Line ID | Capac Full (cfs) | Cover Dn (ft) | Cover Up (ft) | DnStm Ln No | Known Q (cfs) | Drng Area (ac) | Flow Rate (cfs) | Gnd/Rim El Dn (ft) | Gnd/Rim El Up (ft) | HGL Dn (ft) | HGL Up (ft) | Invert Dn (ft) | Invert Up (ft) | Line Length (ft) | Line Size (in) | Line Slope (%) | Runoff Coeff (C) | Tc (min) |
|----------|---------|------------------|---------------|---------------|-------------|---------------|----------------|-----------------|--------------------|--------------------|-------------|-------------|----------------|----------------|------------------|----------------|----------------|------------------|----------|
| 1        | A28     | 3.56             | 0.00          | 1.31          | Outfall     | 0.00          | 0.77           | 1.08            | 5745.00            | 5746.80            | 5744.44     | 5744.93     | 5744.00        | 5744.49        | 49.00            | 12             | 1.00           | 0.33             | 5.0      |

|                                        |  |  |  |  |  |  |  |  |  |  |  |  |  |  |                    |  |                  |  |  |  |
|----------------------------------------|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--------------------|--|------------------|--|--|--|
| Project File: D02049 Line-15 25-yr.stm |  |  |  |  |  |  |  |  |  |  |  |  |  |  | Number of lines: 1 |  | Date: 07-29-2004 |  |  |  |
| NOTES: ** At critical depth            |  |  |  |  |  |  |  |  |  |  |  |  |  |  |                    |  |                  |  |  |  |

# Storm Sewer Profile



# **APPENDIX O**

## **RIP RAP CALCULATIONS**



## RIP RAP CALCULATIONS

### OUTLET FROM STORM LINE-3 TO POND A-1:

$$Q = 59.8 \text{ cfs}, A = \frac{Q}{V} = \frac{59.8 \text{ ft}^3/\text{s}}{9.6 \text{ ft/s}} = 6.2 \text{ ft}^2$$

$$V = 9.6 \text{ ft/s}$$

$$D = 36" = 3.0'$$

$$\frac{Y_t}{D} = 0.40; Y_t = 0.40(3.0') = 1.2'$$

$$\left. \begin{array}{l} \frac{Y_t}{D} = 0.40 \\ \frac{Q}{D^{1.5}} = \frac{59.8 \text{ ft}^3/\text{s}}{(3.0')^{1.5}} = 11.5 \end{array} \right\} \text{FIGURE MD-21} \Rightarrow \text{TYPE-L RIPRAP}$$

$$\left. \begin{array}{l} \frac{Y_t}{D} = 0.40 \\ \frac{Q}{D^{2.5}} = \frac{59.8 \text{ ft}^3/\text{s}}{(3.0')^{2.5}} = 3.8 \end{array} \right\} \text{FIGURE MD-23} \Rightarrow \frac{1}{2} \tan \theta = 3.8$$

$$L_p = \frac{1}{2 \tan \theta} \left[ \frac{A}{Y_t} - D \right] = 3.8 \left[ \frac{6.2 \text{ ft}^2}{0.40} - 3.0' \right] = 8.2' < 3D$$

USE TYPE-L RIPRAP FOR 12.0'

### OUTLET FROM STORM LINE-2 TO POND A-2:

$$Q = 2.8 \text{ cfs}, A = \frac{Q}{V} = \frac{2.8 \text{ ft}^3/\text{s}}{4.7 \text{ ft/s}} = 0.6 \text{ ft}^2$$

$$V = 4.7 \text{ ft/s}$$

$$D = 12" = 1.0'$$

$$\frac{Y_t}{D} = 0.40 \Rightarrow Y_t = 0.40(1.0') = 0.40$$

$$\left. \begin{array}{l} \frac{Y_t}{D} = 0.40 \\ \frac{Q}{D^{1.5}} = \frac{2.8}{(1.0')^{1.5}} = 2.8 \end{array} \right\} \text{FIGURE MD-21} \Rightarrow \text{TYPE-L RIPRAP}$$

$$\left. \begin{array}{l} \frac{Y_t}{D} = 0.40 \\ \frac{Q}{D^{2.5}} = \frac{2.8}{(1.0')^{2.5}} = 2.8 \end{array} \right\} \text{FIGURE MD-23} \Rightarrow \frac{1}{2} \tan \theta = 4.7$$

$$L_p = 3.0 \left[ \frac{0.6}{0.4} - 1.0 \right] = 1.5' < 3D$$

USE TYPE-L RIPRAP FOR 3.0'

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CONSULTANTS

ENGINEERING CALCULATIONS

PROJECT:

SUBJECT:

SHEET NO:

### OUTFALL FROM STORM LINE-7 TO POND A-1:

$$Q = 7.1 \frac{\text{ft}^3}{\text{s}}, A = \frac{Q}{V} = \frac{7.1 \frac{\text{ft}^3}{\text{s}}}{9.0 \frac{\text{ft}}{\text{s}}} = 0.8 \text{ ft}^2$$

$$V = 9.0 \frac{\text{ft}}{\text{s}}$$

$$D = 12'' = 1.0', \frac{V}{D} = 0.40 \Rightarrow Y_L = 0.40(1.0') = 0.40$$

$$\frac{V}{D} = 0.40$$

$$\frac{Q}{D^{1.5}} = \frac{7.1}{(1.0)^{1.5}} = 7.1$$

} FIGURE MD-21  $\Rightarrow$  TYPE-L RIP RAP

$$\frac{V}{D} = 0.40$$

$$\frac{Q}{D^{2.5}} = 7.1$$

} FIGURE MD-23  $\Rightarrow \frac{1}{2 \tan \theta} = \text{N/A}$ , USE  $L_p = 30 = 30(1.0)$

USE TYPE-L RIP RAP FOR 30'

### OUTFALL FROM STORM LINE-4 TO POND B:

$$Q = 37.8 \frac{\text{ft}^3}{\text{s}}, A = \frac{Q}{V} = \frac{37.8}{7.4} = 5.1 \text{ ft}^2$$

$$V = 7.4 \frac{\text{ft}}{\text{s}}$$

$$D = 36'' = 3.0', \frac{V}{D} = 0.40, \Rightarrow Y_L = 1.2$$

$$\frac{V}{D} = 0.40$$

$$\frac{Q}{D^{1.5}} = \frac{37.8}{(3.0)^{1.5}} = 7.3$$

} FIGURE MD-21  $\Rightarrow$  TYPE-L RIP RAP

$$\frac{V}{D} = 0.40$$

$$\frac{Q}{D^{2.5}} = \frac{37.8}{(3.0)^{2.5}} = 2.4$$

} FIGURE MD-23  $\Rightarrow \frac{1}{2 \tan \theta} = 5.2$

$$L_p = \frac{1}{2 \tan \theta} \left[ \frac{A}{Y_L} - D \right] = 5.2 \left[ \frac{5.1}{1.2} - 3.0' \right] = 6.5' < 30$$

USE TYPE-L RIP RAP FOR 9.0'

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CONSULTANTS

ENGINEERING CALCULATIONS

PROJECT:

SUBJECT:

SHEET NO:

### OUTFALL FROM STORM LINE-5 TO POND C-1:

$$Q = 10.1 \text{ cfs}, A = \frac{Q}{V} = \frac{10.1}{5.4} = 1.9 \text{ ft}^2$$

$$V = 5.4 \text{ ft/s}$$

$$D = 24" = 2.0', \frac{Y_c}{D} = 0.40 \Rightarrow Y_c = 0.8$$

$$\left. \begin{array}{l} \frac{Y_c}{D} = 0.40 \\ \frac{Q}{D^{1.5}} = \frac{10.1}{(2.0)^{1.5}} = 3.6 \end{array} \right\} \text{FIG. MD-21} \Rightarrow \text{TYPE-L RIP RAP}$$

$$\left. \begin{array}{l} \frac{Y_c}{D} = 0.40 \\ \frac{Q}{D^{2.5}} = \frac{10.1}{(2.0)^{2.5}} = 1.8 \end{array} \right\} \text{FIG. MD-23} \Rightarrow \frac{1}{2\sqrt{gD}} = 0.0$$

$$L_p = \frac{1}{2\sqrt{gD}} \left[ \frac{A}{Y_c - D} \right] = 0.0 \left[ \frac{1.9}{0.8 - 2.0} \right] = 2.3' < 3.0$$

USE TYPE-L RIP RAP FOR 6.0'

### OUTFALL FROM STORM LINE-6 TO POND C-1:

$$Q = 31.1 \text{ cfs}, A = \frac{Q}{V} = \frac{31.1}{9.9} = 3.1 \text{ ft}^2$$

$$V = 9.9 \text{ ft/s}$$

$$D = 24" = 2.0', \frac{Y_c}{D} = 0.40, Y_c = 0.80$$

$$\left. \begin{array}{l} \frac{Y_c}{D} = 0.40 \\ \frac{Q}{D^{1.5}} = \frac{31.1}{(2.0)^{1.5}} = 3.6 \end{array} \right\} \text{FIG. MD-21, TYPE-L RIP RAP}$$

$$\left. \begin{array}{l} \frac{Y_c}{D} = 0.40 \\ \frac{Q}{D^{2.5}} = \frac{31.1}{(2.0)^{2.5}} = 1.8 \end{array} \right\} \text{FIG. MD-23,} \Rightarrow \frac{1}{2\sqrt{gD}} = 0.0$$

$$L_p = 0.0 \left[ \frac{3.1}{0.8 - 2.0} \right] = 11.25$$

USE TYPE-L RIP RAP FOR 11.25'

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ENGINEERING CALCULATIONS

PROJECT:

SUBJECT:

SHEET NO:

### OUTFALL FROM STORM LINE-8 TO POND C-1:

$$Q = 9.5 \text{ cfs}, A = \frac{Q}{V} = \frac{9.5}{12.1} = 0.78 \text{ ft}^2$$
$$V = 12.1 \text{ ft/s}$$
$$D = 12'' = 1.0', \frac{Y_b}{D} = 0.40, Y_b = 0.40$$

$$\frac{Y_b}{D} = 0.40$$
$$\frac{Q}{D^{1.5}} = \frac{9.5}{(1.0)^{1.5}} = 9.5$$
$$\left. \begin{array}{l} \frac{Y_b}{D} = 0.40 \\ \frac{Q}{D^{1.5}} = 9.5 \end{array} \right\} \text{FIG. MD-21} \Rightarrow \text{TYPE-L RIP RAP}$$

$$\frac{Y_b}{D} = 0.40$$
$$\frac{Q}{D^{2.5}} = \frac{9.5}{(1.0)^{2.5}} = 9.5$$
$$\left. \begin{array}{l} \frac{Y_b}{D} = 0.40 \\ \frac{Q}{D^{2.5}} = 9.5 \end{array} \right\} \text{FIG. MD-23} \Rightarrow \frac{1}{2 \tan \theta} = \text{NA}, \text{ USE } L_p = 3D$$

USE TYPE-L RIP RAP FOR 3'-0"

### OUTFALL FROM STORM LINE-9 TO POND C-1:

$$Q = 7.2 \text{ cfs}, A = \frac{Q}{V} = \frac{7.2}{9.2} = 0.8 \text{ ft}^2$$
$$V = 9.2 \text{ ft/s}$$
$$D = 12'' = 1.0', \frac{Y_b}{D} = 0.40, Y_b = 0.40$$

$$\frac{Y_b}{D} = 0.40$$
$$\frac{Q}{D^{1.5}} = \frac{7.2}{(1.0)^{1.5}} = 7.2$$
$$\left. \begin{array}{l} \frac{Y_b}{D} = 0.40 \\ \frac{Q}{D^{1.5}} = 7.2 \end{array} \right\} \text{FIG. MD-21} \Rightarrow \text{TYPE-L RIP RAP}$$

$$\frac{Y_b}{D} = 0.40$$
$$\frac{Q}{D^{2.5}} = \frac{7.2}{(1.0)^{2.5}} = 7.2$$
$$\left. \begin{array}{l} \frac{Y_b}{D} = 0.40 \\ \frac{Q}{D^{2.5}} = 7.2 \end{array} \right\} \text{FIG. MD-23} \Rightarrow \frac{1}{2 \tan \theta} = \text{NA}, \text{ USE } L_p = 3D$$

USE TYPE-L RIP RAP FOR 3'-0"

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CONSULTANTS

ENGINEERING CALCULATIONS

PROJECT:

SUBJECT:

SHEET NO:

# OUTFALL FROM STORM LINE-10 / POND C2 TO PROPOSED MIDLAND CULVERT No. 14, 54" RCP

$$Q = 83.3 \text{ cfs}, A = \frac{Q}{V} = \frac{83.3}{8.7} = 9.6 \text{ ft}^2$$

$$V = 8.7 \text{ fps}$$

$$D = 54" = 4.5', \frac{y_e}{D} = 0.40 \Rightarrow y_e = 1.8$$

$$\frac{y_e}{D} = 0.40$$

$$\frac{Q}{D^{1.5}} = \frac{83.3}{(4.5)^{1.5}} = 8.7$$

FIG. MD-21  $\Rightarrow$  TYPE-L RIP RAP

$$\frac{y_e}{D} = 0.40$$

$$\frac{Q}{D^{2.5}} = \frac{83.3}{(4.5)^{2.5}} = 1.9$$

FIG. MD-23  $\Rightarrow \frac{1}{2 \tan \theta} = 6.0$

$$L_p = \frac{1}{2 \tan \theta} \left[ \frac{A}{y_e} - D \right] = 6.0 \left[ \frac{9.6}{1.8} - 4.5 \right] = 5.0' < 3D$$

$$L_p = 3D = 3(4.5') = 13.5'$$

USE TYPE-L RIP RAP FOR 13.5'

# OUTFALL FROM STORM LINE-11 TO PROPOSED MIDLAND CULVERT 12. - 48" RCP

$$Q = 47.7 \text{ cfs}, A = \frac{Q}{V} = \frac{47.7}{7.4} = 6.4 \text{ ft}^2$$

$$V = 7.4 \text{ fps}$$

$$D = 48" = 4.0', \frac{y_e}{D} = 0.40 \Rightarrow y_e = 1.6$$

$$\frac{y_e}{D} = 0.40$$

$$\frac{Q}{D^{1.5}} = 6.0$$

FIG. MD-21  $\Rightarrow$  TYPE-L RIP RAP

$$\frac{y_e}{D} = 0.40$$

$$\frac{Q}{D^{2.5}} = 1.5$$

FIG. MD-23  $\Rightarrow \frac{1}{2 \tan \theta} = 6.3$

$$L_p = \frac{1}{2 \tan \theta} \left[ \frac{A}{y_e} - D \right] = 6.3 \left[ \frac{6.4}{1.6} - 4.0 \right] = \text{NA}; \text{ Use } L_p = 3D = 3(4.0) = 12'$$

USE TYPE-L RIP RAP FOR 12.0'

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CONSULTANTS

ENGINEERING CALCULATIONS

PROJECT:

SUBJECT:

SHEET NO:

OUTFALL FROM STORM LINE-15 TO POND A-1:

$$Q = 1.1 \text{ cfs}, A = \frac{Q}{V} = \frac{1.1}{3.2} = 0.34 \text{ ft}^2$$

$$V = 3.2 \text{ fps}$$

$$D = 12'' = 1.0', \frac{Y_E}{D} = 0.40 \Rightarrow Y_E = 0.40$$

$$\frac{Y_E}{D} = 0.40$$

$$\frac{Q}{D^{1.5}} = \frac{1.1}{(1.0)^{1.5}} = 1.1$$

} FIG. MD-21, TYPE-L RIPRAP  
 $L_p = 3D = 3.0'$

USE TYPE-L RIPRAP FOR 3.0'

OUTLET FROM STORM LINE-13 TO POND C1:

$$Q = 4.4 \text{ cfs}, A = \frac{Q}{V} = \frac{4.4}{5.6} = 0.8$$

$$V = 5.6 \text{ cfs}$$

$$D = 12'' = 1.0', \frac{Y_E}{D} = 0.40 \Rightarrow Y_E = 0.40$$

$$\frac{Y_E}{D} = 0.40$$

$$\frac{Q}{D^{1.5}} = \frac{4.4}{(1.0)^{1.5}} = 4.4$$

} FIG. MD-21, TYPE-L RIPRAP

$$\frac{Y_E}{D} = 0.40$$

$$\frac{Q}{D^{1.5}} = 4.4$$

} FIG. MD-23,  $\frac{1}{2} \tan \theta = 3.0$

$$L_p = \frac{1}{2 \tan \theta} \left[ \frac{A}{Y_E} - D \right] = 3.0 \left[ \frac{0.8}{0.4} - 1.0 \right] = 3.0' = 3D$$

USE TYPE-L RIPRAP FOR 3.0'

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CONSULTANTS

ENGINEERING CALCULATIONS

PROJECT:

SUBJECT:

SHEET NO:



OUTFALL FROM STORM LINE-14 TO EXISTING MIDLAND CULVERT No. 10 - 18" CMP

$$Q = 1.1 \text{ cfs}, A = \frac{Q}{V} = \frac{1.1}{3.2} = 0.3$$

$$V = 3.2 \text{ fps}$$

$$D = 12'' = 1.0', \frac{V_e}{V} = 0.40, V_e = 0.40$$

$$\left. \begin{array}{l} \frac{V_e}{V} = 0.40 \\ \frac{Q}{D^3} = 1.1 \end{array} \right\} \text{FIG MD-21} \Rightarrow \text{TYPE-L RIP RAP FOR } L_p = 30$$

USE TYPE-L RIP RAP FOR 3-0'

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CONSULTANTS

ENGINEERING CALCULATIONS

PROJECT:

SUBJECT:

SHEET NO:

**TABLE MD-7**

## Classification and Gradation of Ordinary Riprap

| Riprap Designation | % Smaller Than<br>Given Size by Weight | Intermediate Rock<br>Dimensions (inches) | $d_{50}$ (inches)* |
|--------------------|----------------------------------------|------------------------------------------|--------------------|
| Type VL            | 70-100                                 | 12                                       | 6**                |
|                    | 50-70                                  | 9                                        |                    |
|                    | 35-50                                  | 6                                        |                    |
|                    | 2-10                                   | 2                                        |                    |
| Type L             | 70-100                                 | 15                                       | 9**                |
|                    | 50-70                                  | 12                                       |                    |
|                    | 35-50                                  | 9                                        |                    |
|                    | 2-10                                   | 3                                        |                    |
| Type M             | 70-100                                 | 21                                       | 12**               |
|                    | 50-70                                  | 18                                       |                    |
|                    | 35-50                                  | 12                                       |                    |
|                    | 2-10                                   | 4                                        |                    |
| Type H             | 70-100                                 | 30                                       | 18                 |
|                    | 50-70                                  | 24                                       |                    |
|                    | 35-50                                  | 18                                       |                    |
|                    | 2-10                                   | 6                                        |                    |
| Type VH            | 70-100                                 | 42                                       | 24                 |
|                    | 50-70                                  | 33                                       |                    |
|                    | 35-50                                  | 24                                       |                    |
|                    | 2-10                                   | 9                                        |                    |

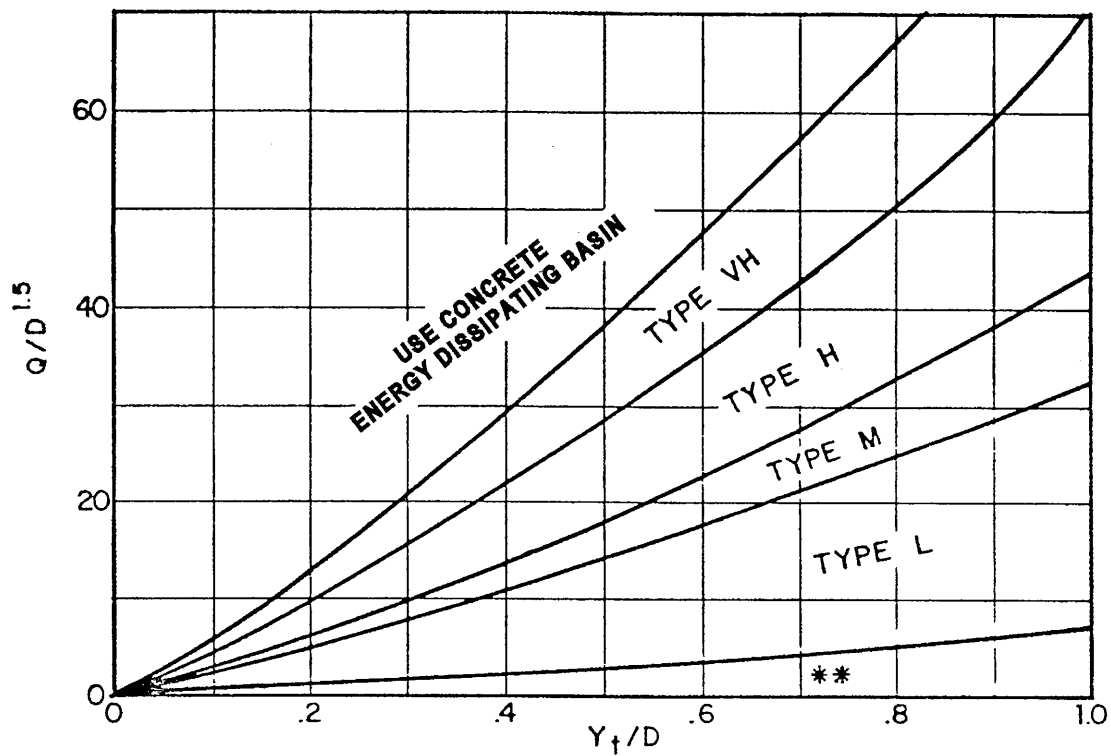
\*  $d_{50}$  = mean particle size (intermediate dimension) by weight.

\*\* Mix VL and L riprap with 30% (by volume) topsoil and bury it with 6+ inches of topsoil, all vibration compacted, and revegetate.

Rock used for riprap should be hard, durable, angular in shape, and free from cracks, overburden, shale, and organic matter. Neither breadth nor thickness of a single stone should be less than one-third its length, and rounded stone should be avoided. The rock should sustain a loss of not more than 40% after 500 revolutions in an abrasion test (Los Angeles machine—ASTM C-535-69) and should sustain a loss of not more than 10% after 12 cycles of freezing and thawing (AASHTO test 103 for ledge rock procedure A). Rock having a minimum specific gravity of 2.65 is preferred; however, in no case should rock have a specific gravity less than 2.50.

**4.4.1.2 Grouted Boulders.** Table MD-8 provides the classification and size requirements for boulders. When grouted boulders are used, they provide a relatively impervious channel lining which is less subject to vandalism than ordinary riprap. Grouted boulders require less routine maintenance by reducing silt and trash accumulation and are particularly useful for lining low-flow channels and steep banks. The appearance of grouted boulders is enhanced by exposing the tops of individual stones and by cleaning the projecting rocks with a wet broom right after the grouting operation. In addition, it is recommended that grouted boulders on channel banks and outside of frequent flow areas be buried with topsoil and revegetated with native grasses, with or without shrubs depending on the local setting. Boulders used for





Use  $D_a$  instead of  $D$  whenever flow is supercritical in the barrel.  
 \*\* Use Type L for a distance of  $3D$  downstream.

FIGURE MD-21

Riprap Erosion Protection at Circular Conduit Outlet Valid for  $Q/D^{2.5} \leq 6.0$

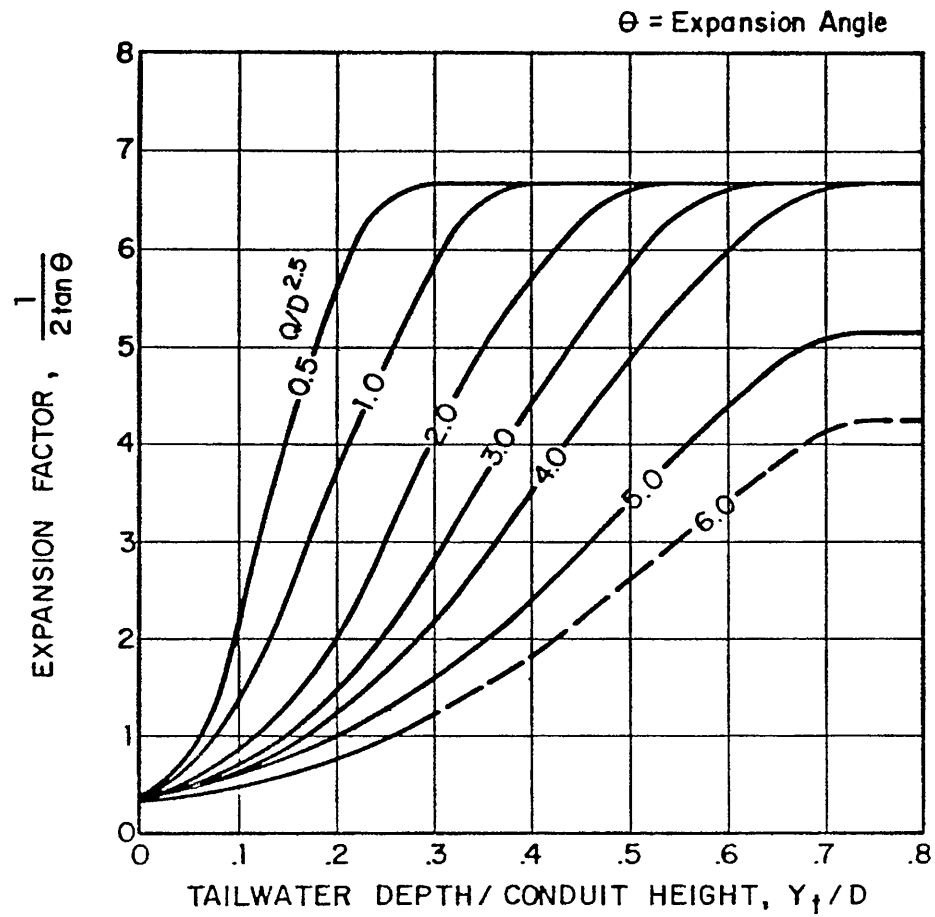


FIGURE MD-23

Expansion Factor for Circular Conduits

# **APPENDIX P**

## **OUTLET STRUCTURE CALCULATIONS**

# OUTLET STRUCTURE WATER QUALITY ORIFICE SIZING

$$Q = CA[2gh]^{0.5} \Rightarrow A = \frac{Q}{C[2gh]^{0.5}}$$

POND A1:

$$A = \frac{Q}{C[2gh]^{0.5}} ; \begin{aligned} Q &= 1.41 \text{ cfs} \\ C &= 0.60 \\ g &= 32.2 \frac{\text{ft}}{\text{s}^2} \\ h &= 5747.0' - 5742.87' = 4.1' \end{aligned}$$

$$A = \frac{1.41 \frac{\text{ft}^3}{\text{s}}}{0.60 [2(32.2 \frac{\text{ft}}{\text{s}^2})(4.1')]^{0.5}} = 0.14 \text{ ft}^2$$

$$A = \pi r^2 \Rightarrow r = \sqrt{\frac{A}{\pi}} = \sqrt{\frac{0.14 \text{ ft}^2}{\pi}} = 0.21 \text{ ft} = 2.5''$$

d = 5.0'', FOR A CIRCULAR ORIFICE

POND B:

$$A = \frac{Q}{C[2gh]^{0.5}} ; \begin{aligned} Q &= 1.50 \text{ cfs} \\ C &= 0.60 \\ g &= 32.2 \frac{\text{ft}}{\text{s}^2} \\ h &= 5745.0' - 5740.5' = 4.5' \end{aligned}$$

$$A = \frac{1.50 \frac{\text{ft}^3}{\text{s}}}{0.60 [2(32.2 \frac{\text{ft}}{\text{s}^2})(4.5')]^{0.5}} = 0.15'$$

$$r = \sqrt{\frac{A}{\pi}} = \sqrt{\frac{0.15'}{\pi}} = 0.22' = 2.62''$$

d = 5.25'', FOR A CIRCULAR ORIFICE

POND C2:

$$A = \frac{Q}{C[2gh]^{0.5}} ; \begin{aligned} Q &= 1.2 \text{ cfs} \\ C &= 0.60 \\ g &= 32.2 \frac{\text{ft}}{\text{s}^2} \\ h &= 5747.0' - 5742.5' = 4.5' \end{aligned}$$

$$A = \frac{1.2 \frac{\text{ft}^3}{\text{s}}}{0.60 [2(32.2 \frac{\text{ft}}{\text{s}^2})(4.5')]^{0.5}} = 0.12'$$

$$r = \sqrt{\frac{A}{\pi}} = \sqrt{\frac{0.12'}{\pi}} = 0.19' = 2.32''$$

d = 4.64''

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ENGINEERING CALCULATIONS

PROJECT:

SUBJECT:

SHEET NO:

## CAPACITY OF CDOT TYPE-D OUTLET STRUCTURE

$$Q = C \cdot A (2gh)^{3/2} ; \text{ Where } Q = \text{MAX. OUTFALL FLOW RATE - 100 YR.}$$

$C = \text{WEIR COEFF.} = 0.67$   
 $A = \text{EFFECTIVE ORIFICE AREA}$   
 $g = \text{GRAVITATIONAL CONSTANT} = 32.2 \text{ ft/s}^2$   
 $h = \text{HEAD ABOVE ORIFICE}$

POND A:

$$C = 0.67$$

$$A = L \times W \times \text{EFFECTIVE AREA} = 20' \times 12' \times (0.80) ; \text{ CDOT Type-D Outlet Structure}$$
$$= 13.22 \text{ ft}^2$$

$$h = 5750.0' - 5747.5' = 2.5' \quad (5750.0 \text{ IS MAXIMUM ELEV. OF PONDING DEPTH IN POND A-2})$$

$$Q(\text{Outlet Max.}) = (0.67)(13.22 \text{ ft}^2) \left[ 2(32.2 \text{ ft/s}^2)(2.5') \right]^{3/2}$$
$$= 123 \text{ cfs}$$

$$Q_{100}(\text{POND A, ACTUAL}) = 95.0 \text{ cfs} \quad \checkmark \text{ OK}$$

POND B:

$$C = 0.67$$

$$A = 13.22 \text{ ft}^2$$

$$h = 5746.5' - 5744.8' = 1.7' \quad (5746.5 \text{ IS MAXIMUM ELEV. OF PONDING DEPTH IN POND B})$$

$$Q(\text{Outlet Max.}) = (0.67)(13.22 \text{ ft}^2) \left[ 2(32.2 \text{ ft/s}^2)(1.7') \right]^{3/2}$$
$$= 92.7 \text{ cfs}$$

$$Q_{100}(\text{POND B, ACTUAL}) = 66.7 \text{ cfs} \quad \checkmark \text{ OK}$$

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ENGINEERING CALCULATIONS

PROJECT:

SUBJECT:

SHEET NO:

## CAPACITY OF CDOT TYPE-D OUTLET STRUCTURE (CONT.)

POND C:

$$C = 0.67$$

$$A = 13.22 \text{ ft}^2$$

$$h = 5749.0' - 5747.0' = 2.0', \text{ (5749.0' IS THE MAXIMUM ELEV. OF PONDING DEPTH)}$$

$$Q(\text{OUTLET C2, MAX}) = (0.67)(13.22)[2(32.2)(2.0')]^{0.5}$$
$$= \underline{\underline{100.5 \text{ cfs}}}$$

$$Q_{100}(\text{POND C-2, ACTUAL}) = \underline{\underline{54.8}} \quad \checkmark \text{ OK}$$

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ENGINEERING CALCULATIONS

PROJECT:

SUBJECT:

SHEET NO:

# OUTLET STRUCTURE RESTRICTOR PLATE

POND A-1

N.T.S.

$$Q = C A (Zgh)^{1/2}; \text{ ORIFICE Eq. } C = 0.67$$

$\Rightarrow A = \frac{Q}{C (Zgh)^{1/2}}$

$A = \text{EFFECTIVE AREA, ft}^2$   
 $h = \text{TOTAL HEAD, ft}$   
 $g = 32.2 \text{ ft/s}^2$   
 $Q = \text{FLOWRATE, cfs}$

$$A = \frac{95.0 \text{ ft}^3/\text{s}}{0.67 (2 (32.2 \text{ ft/s}^2) (2.7 \text{ ft}))^{1/2}}$$
$$= 8.83 \text{ ft}^2$$

POND A-1,  $Q_{100} = 95.0 \text{ cfs}$   
POND A,  $h_{100} = 2.7 \text{ ft}$

$$A = \pi r^2$$
$$\left( \frac{8.83 \text{ ft}^2}{\pi} \right)^{1/2} = r = 1.67', d = 3.35'$$

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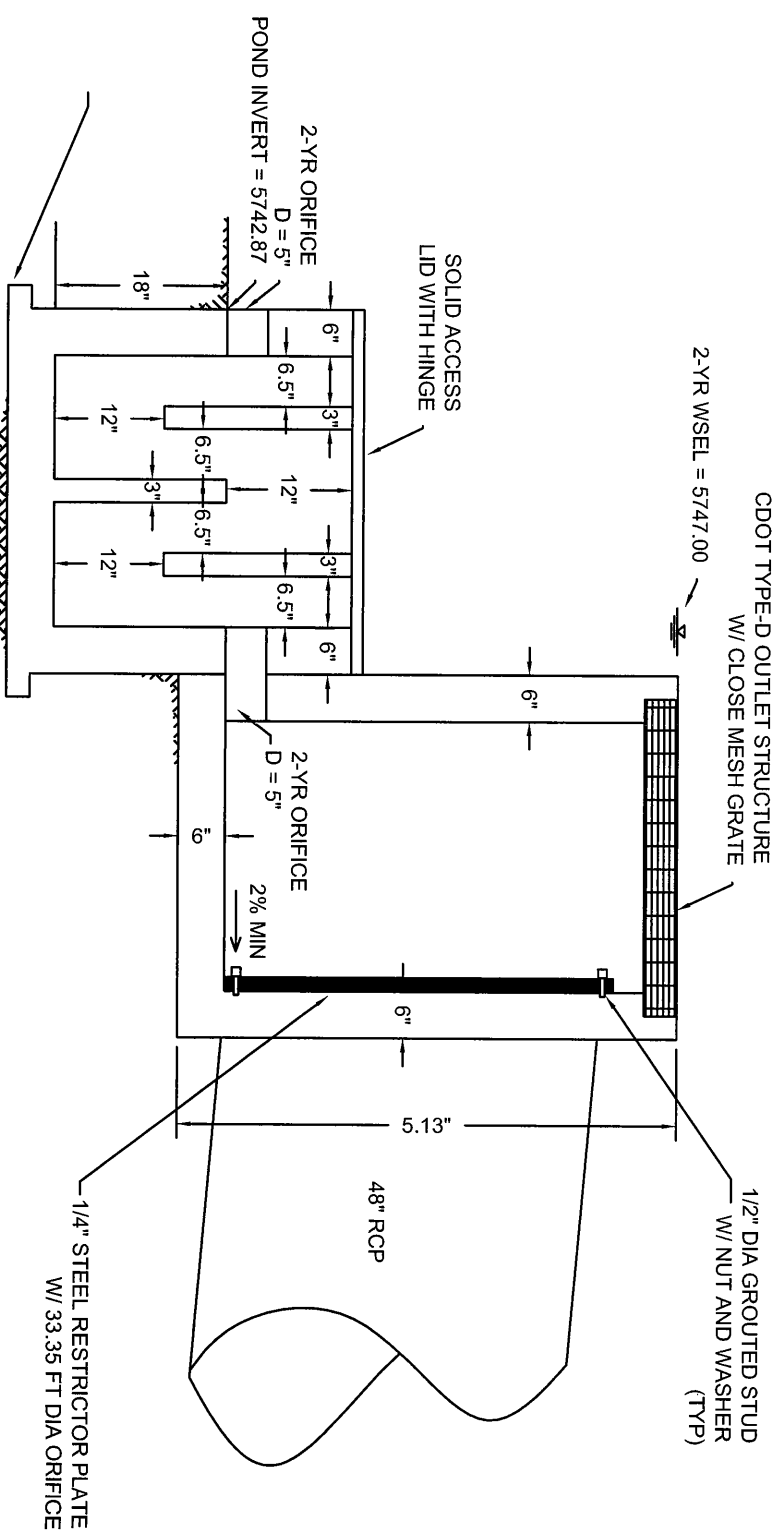
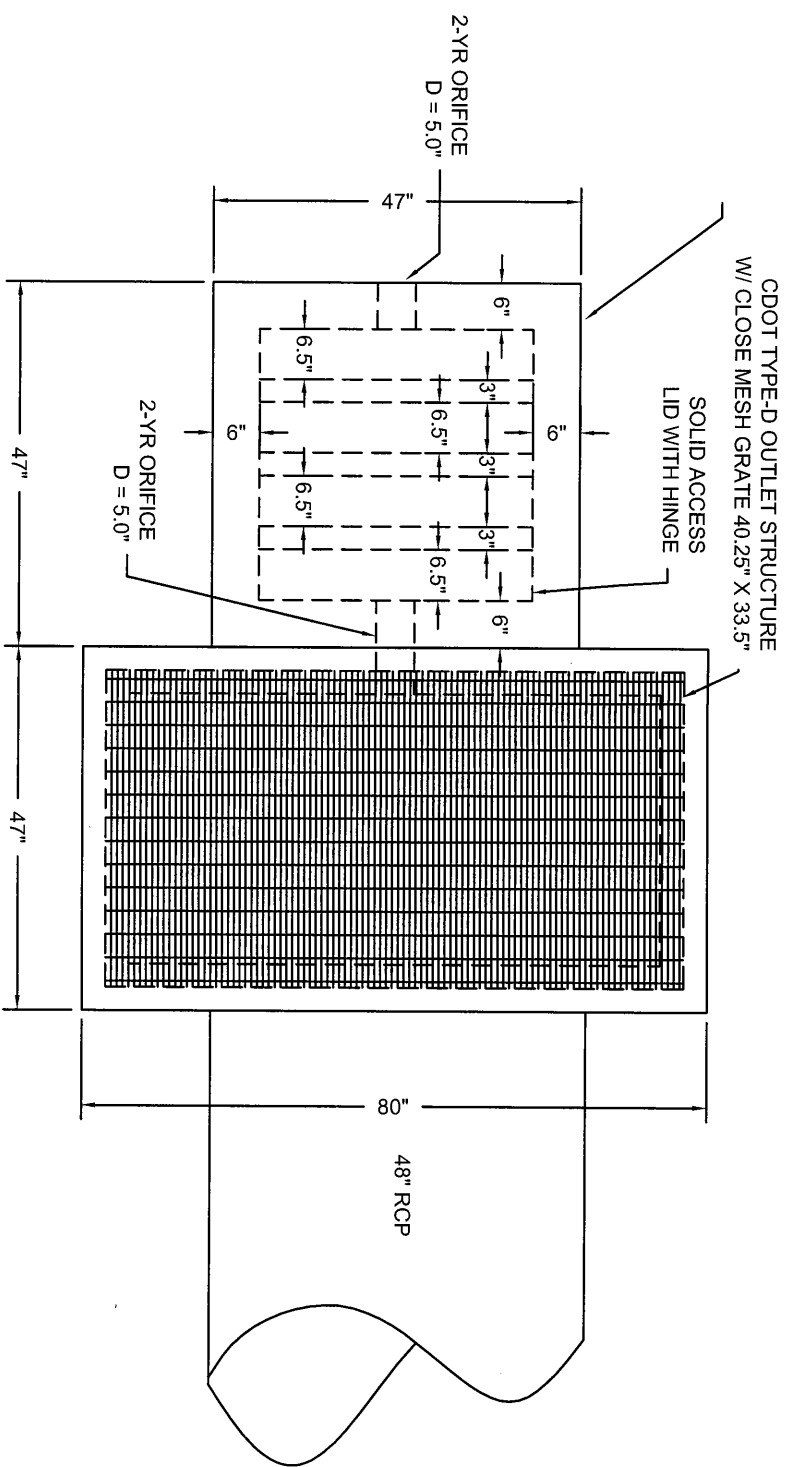
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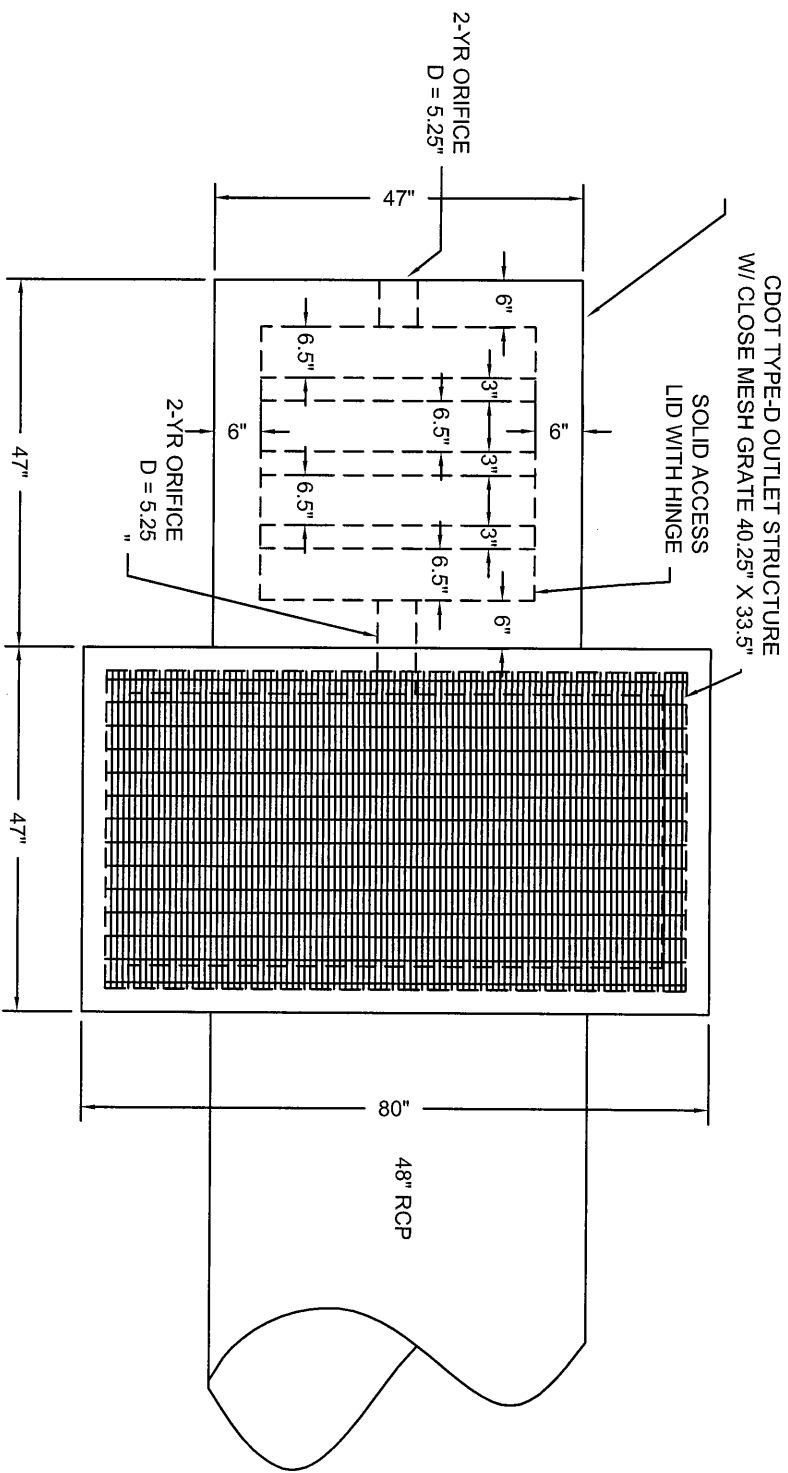
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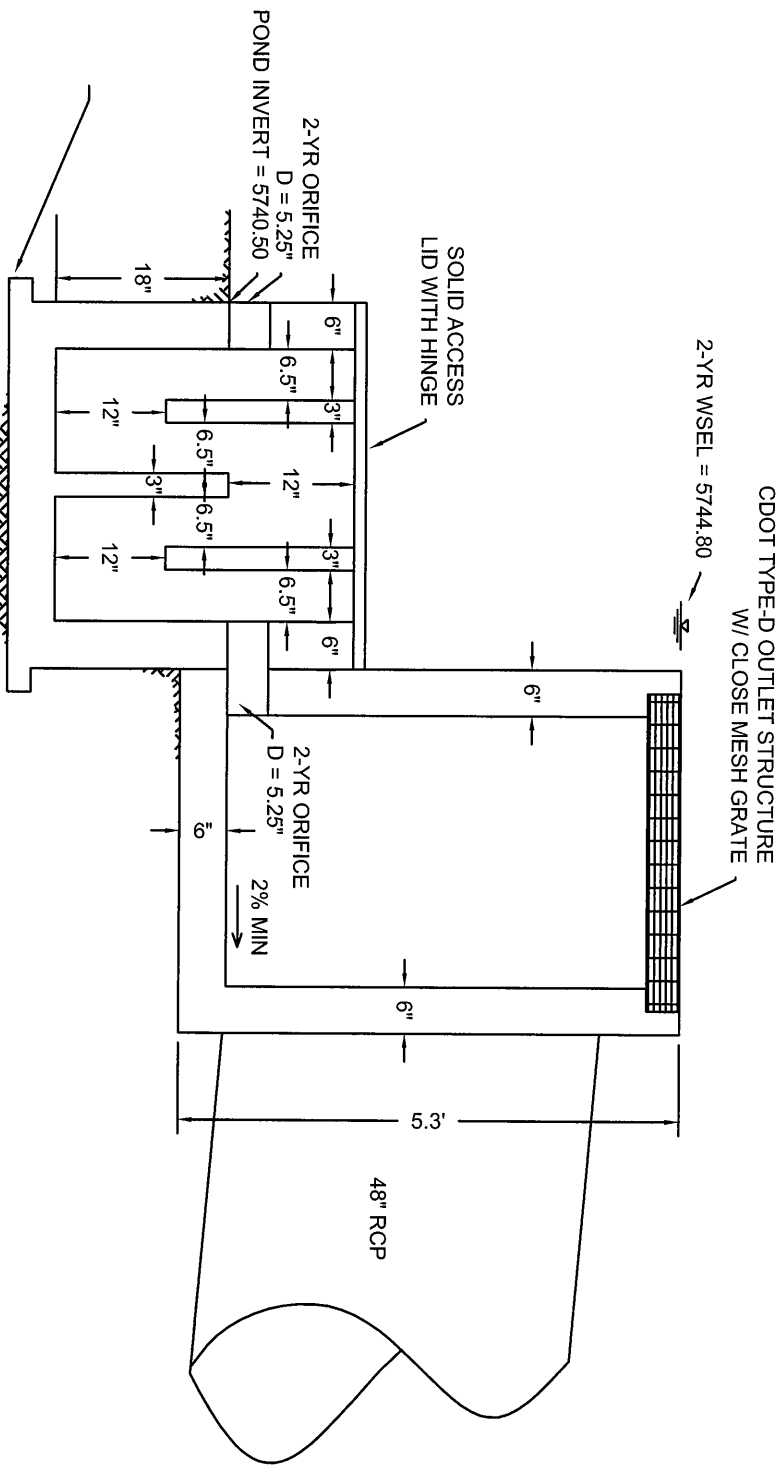


## **POND A1 OUTLET STRUCTURE CROSS SECTION N.T.S.**

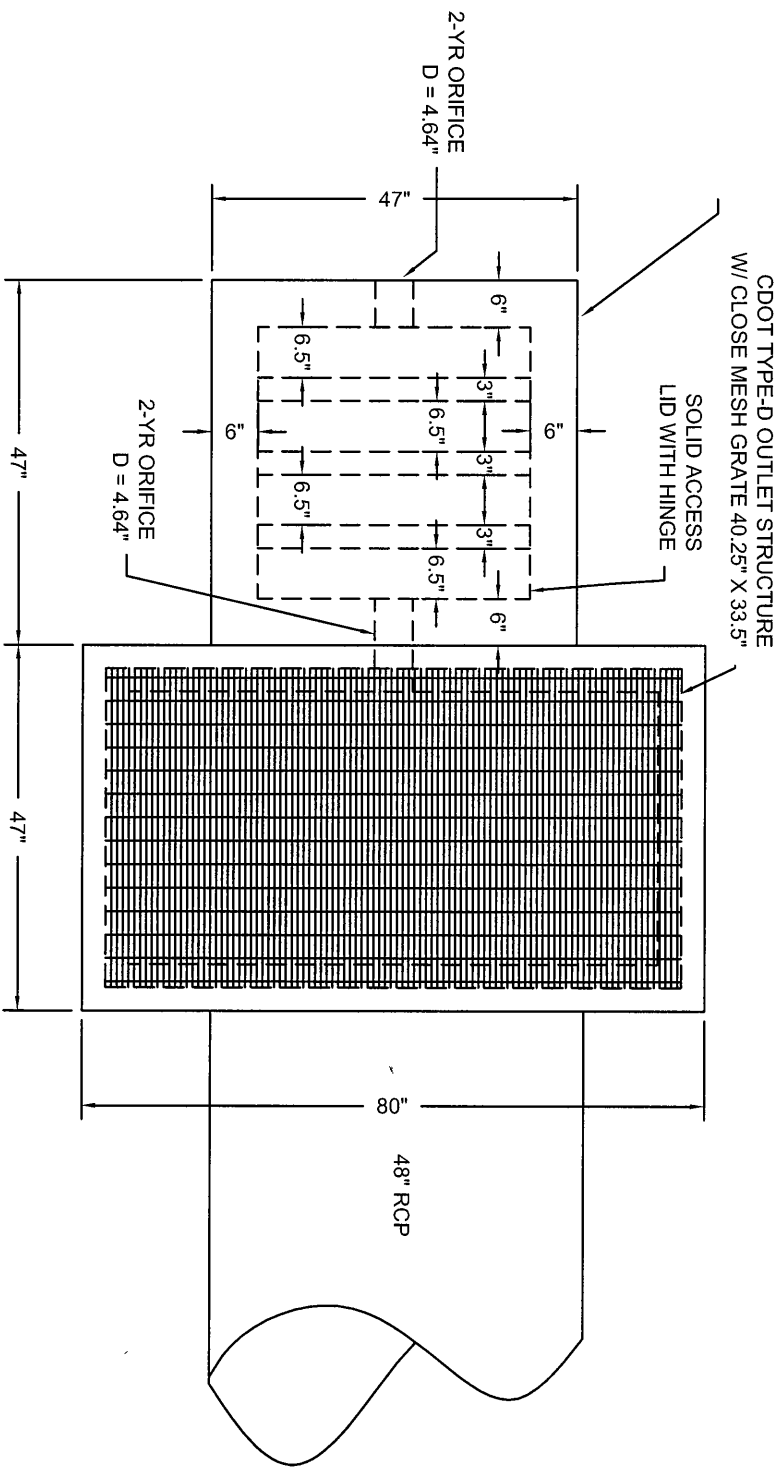




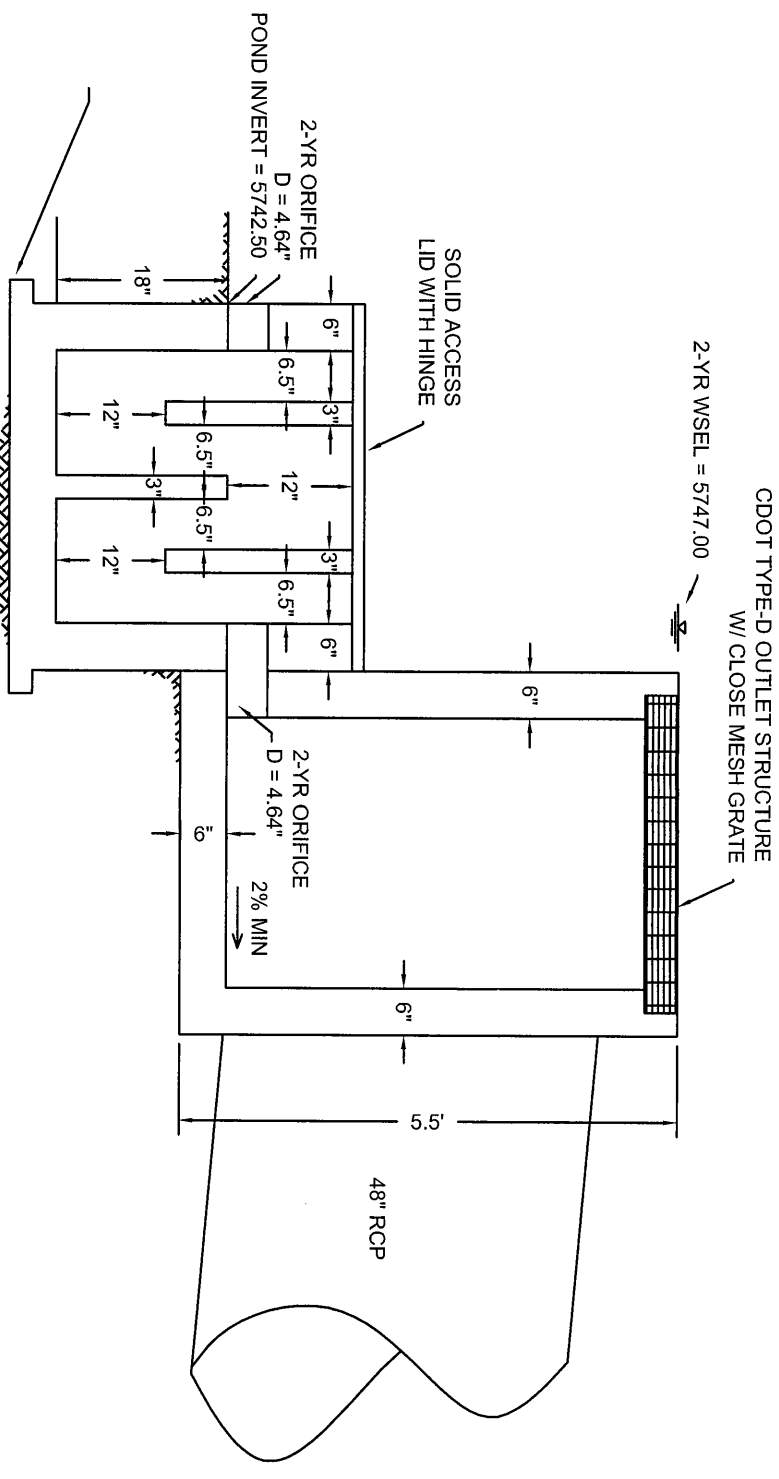
# PLAN VIEW



# POND B1 OUTLET STRUCTURE CROSS SECTION N.T.S.



PLAN VIEW

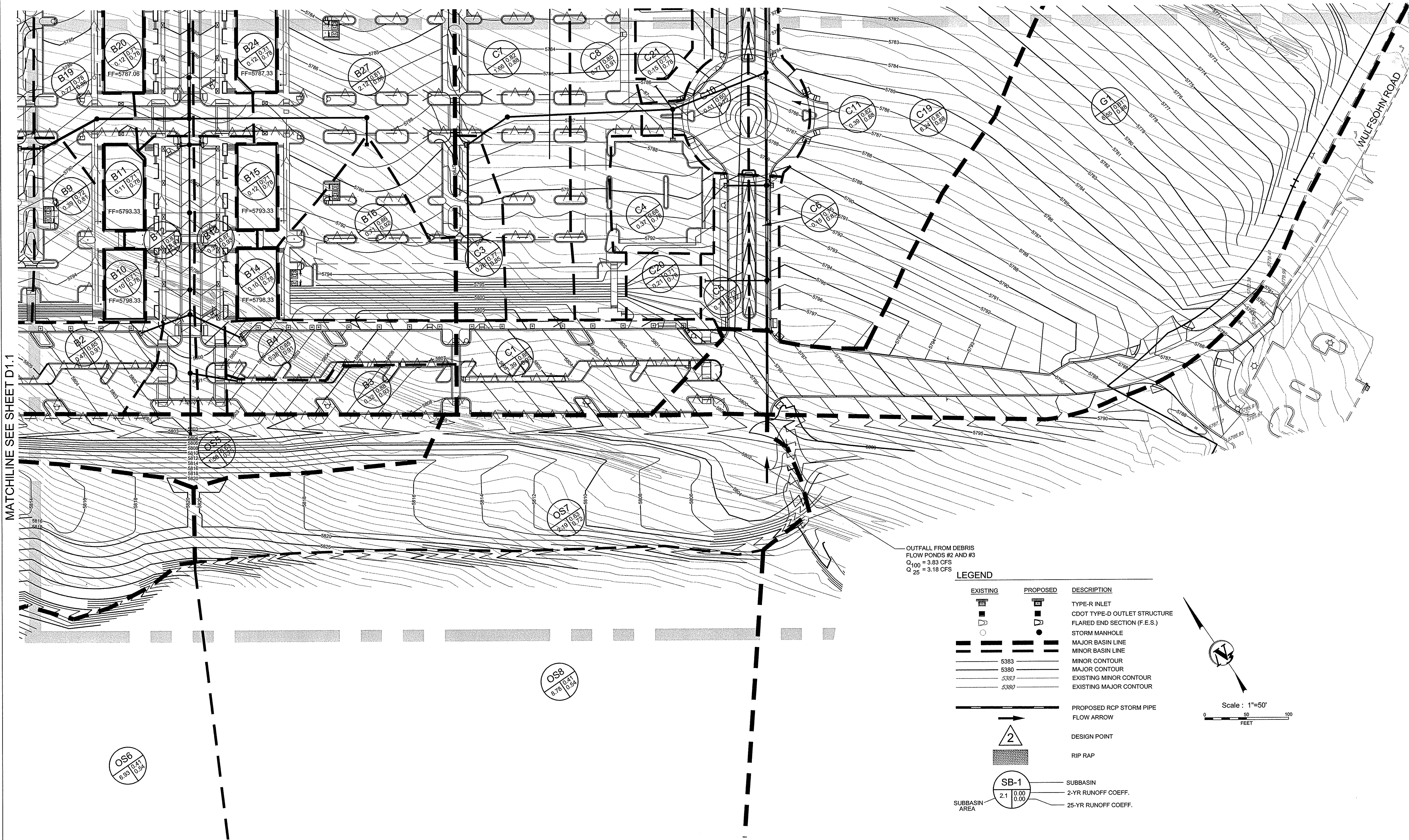


CROSS SECTION

POND C2 OUTLET STRUCTURE N.T.S.



MATCHLINE SEE SHEET D1.4



Engineers  
Scientists  
Surveyors

200 Union Boulevard, Suite 200  
Lakewood, CO 80228  
303.989.8588 voice  
303.989.9932 fax  
v3consultants.com

| REVISIONS |          |                |     |      |             |
|-----------|----------|----------------|-----|------|-------------|
| NO.       | DATE     | DESCRIPTION    | NO. | DATE | DESCRIPTION |
| 1         | 7-14-04  | MISC REVISIONS |     |      |             |
| 2         | 07-30-04 | MISC REVISIONS |     |      |             |
|           |          |                |     |      |             |
|           |          |                |     |      |             |
|           |          |                |     |      |             |

SEAL:

PROJ. NO.: D02049  
FILE NAME: D1.0 Storm  
DATE: July 3, 2003  
SCALE: 1"=100'

DESIGNED BY: SA  
DRAWN BY: SA  
CHECKED BY: MC  
PROJ. MANAGER: MC

GLENWOOD MEADOWS

GLENWOOD SPRINGS

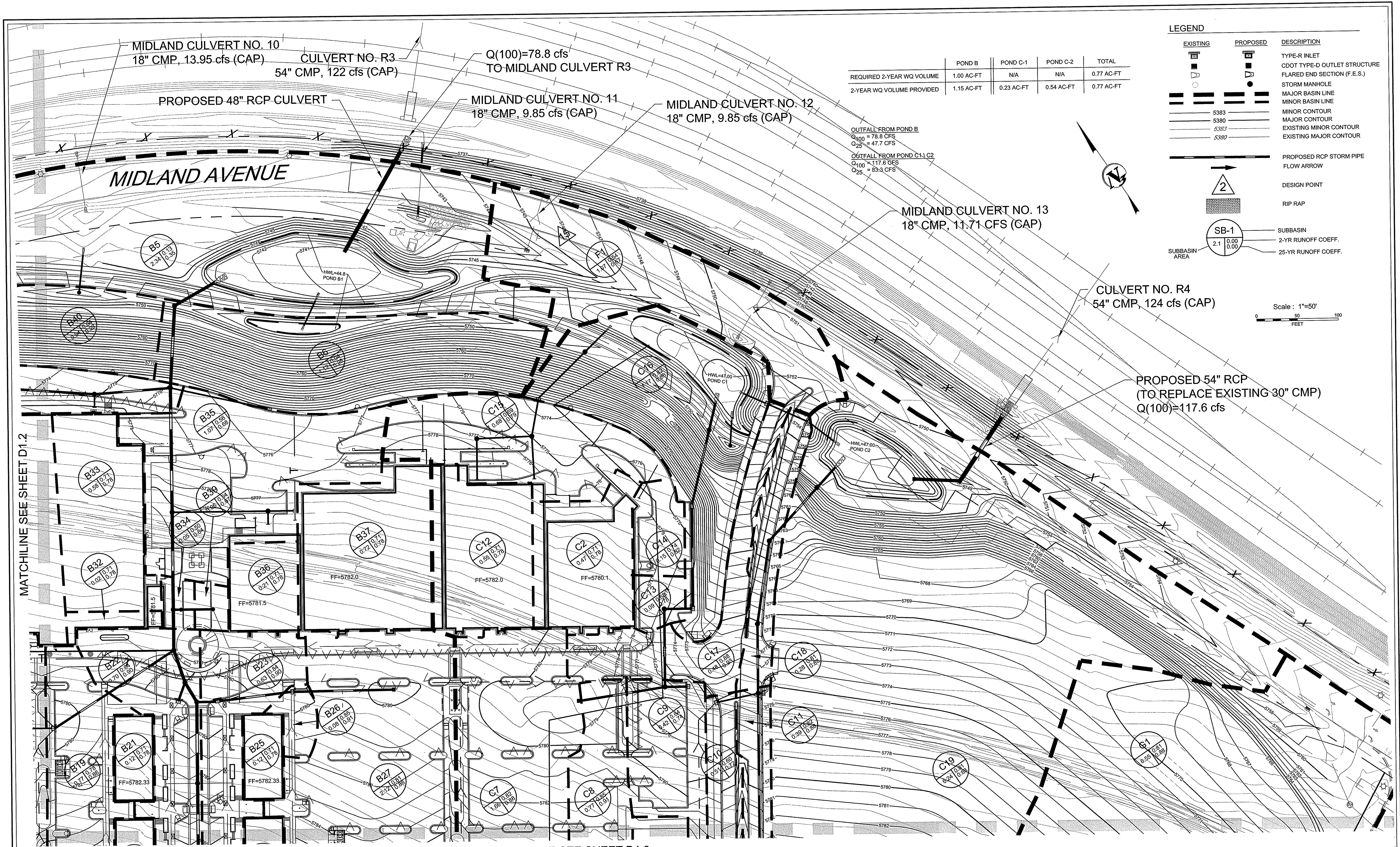
COLORADO

STORMWATER DRAINAGE PLAN

DRAWING NO.

D1.3





**LEGEND**

| EXISTING | PROPOSED | DESCRIPTION                  |
|----------|----------|------------------------------|
|          |          | TYPE-R INLET                 |
|          |          | CDOT TYPE-D OUTLET STRUCTURE |
|          |          | FLARED END SECTION (F.E.S.)  |
|          |          | STORM MANHOLE                |
|          |          | MAJOR BASIN LINE             |
|          |          | MINOR BASIN LINE             |
|          |          | MINOR CONTOUR                |
|          |          | MAJOR CONTOUR                |
|          |          | EXISTING MINOR CONTOUR       |
|          |          | EXISTING MAJOR CONTOUR       |
|          |          | PROPOSED RCP STORM PIPE      |
|          |          | FLOW ARROW                   |
|          |          | DESIGN POINT                 |
|          |          | RIP RAP                      |
|          |          | SUBBASIN AREA                |
|          |          | SUBBASIN                     |
|          |          | 2-YR RUNOFF COEFF.           |
|          |          | 25-YR RUNOFF COEFF.          |

Scale: 1"=50'  
0 50 100  
FEET

MATCHLINE SEE SHEET D1.2

MATCHLINE SEE SHEET D1.3

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Scientists  
Surveyors  
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Lakewood, CO 80228  
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303.989.9932 fax  
v3consultants.com

| REVISIONS |          |                |     |      |             |
|-----------|----------|----------------|-----|------|-------------|
| NO.       | DATE     | DESCRIPTION    | NO. | DATE | DESCRIPTION |
| 1         | 7-14-04  | MISC REVISIONS |     |      |             |
| 2         | 07-30-04 | MISC REVISIONS |     |      |             |

|            |              |                |    |
|------------|--------------|----------------|----|
| PROJ. NO:  | D02049       | DESIGNED BY:   | SA |
| FILE NAME: | D1.0 Storm   | DRAWN BY:      | SA |
| DATE:      | July 3, 2003 | CHECKED BY:    | MC |
| SCALE:     | 1"=100'      | PROJ. MANAGER: | MC |

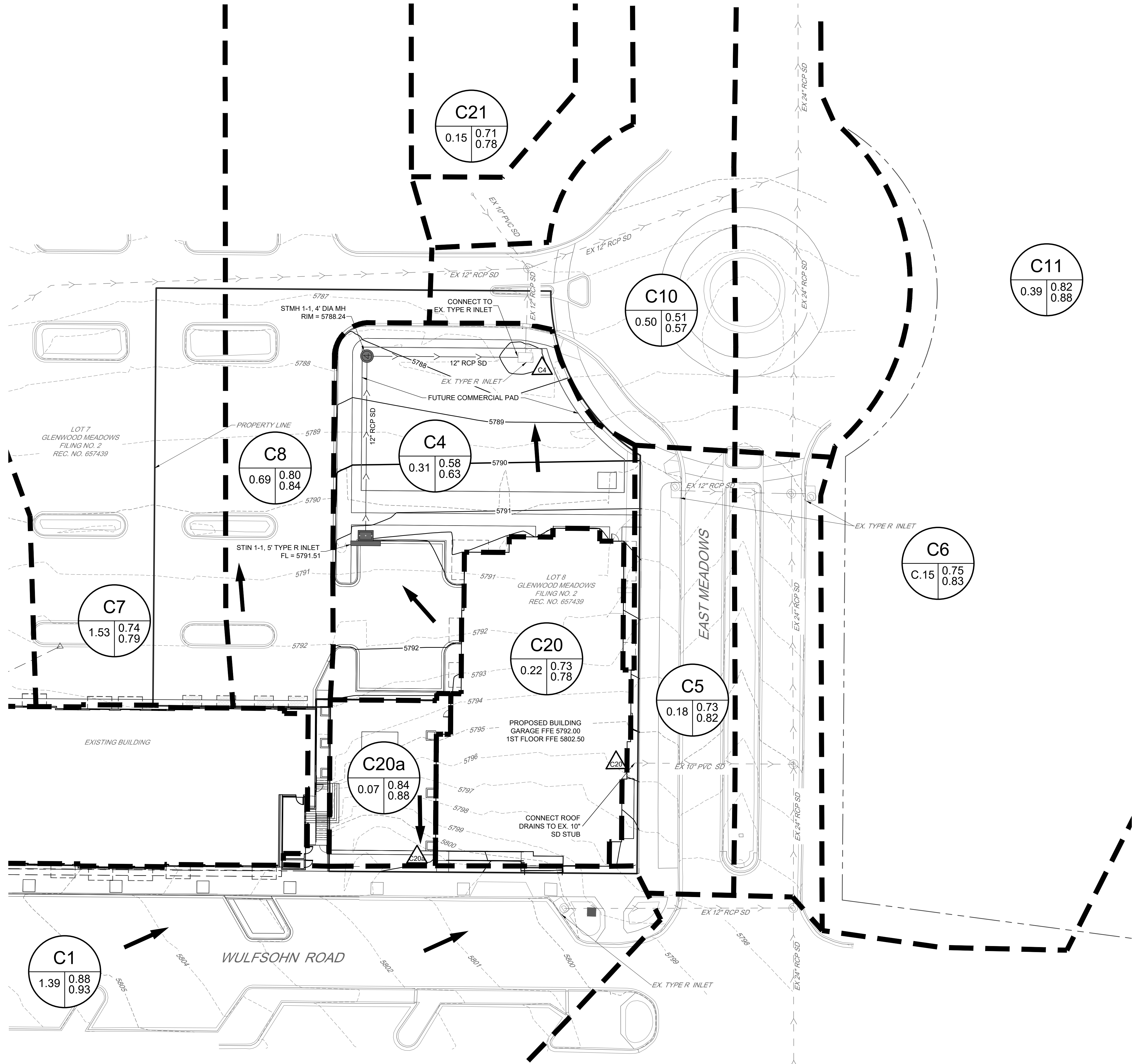
**GLENWOOD MEADOWS**  
GLENWOOD SPRINGS  
COLORADO

**STORMWATER DRAINAGE PLAN**

DRAWING NO.  
**D1.4**



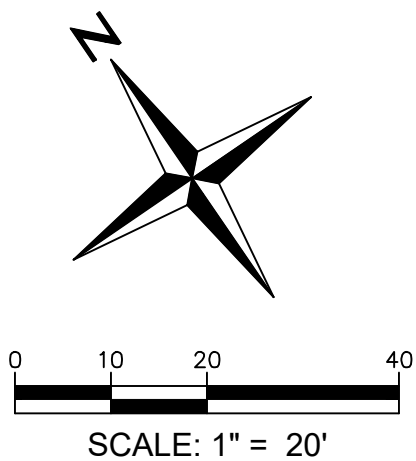
I:\2012\12013 - Glenwood Meadows\CADD\Sheet Sets\12013.12 - LARM Phase 4\Drainage Plan\12013.12 - Drainage Plan.dwg tab: Drainage Plan.dwg 10:06pm 2/26/2021 7:06pm b.john



DRAINAGE LEGEND

- 5281--- EXISTING MINOR CONTOUR
- 5280--- EXISTING MAJOR CONTOUR
- 5281--- PROPOSED MINOR CONTOUR
- 5280--- PROPOSED MAJOR CONTOUR
- PROPOSED STORM SEWER LINE
- PROPOSED MANHOLE
- PROPOSED BOX BASE MANHOLE
- PROPOSED INLET
- PROPOSED FLARED END SECTION
- PROPOSED BASIN BOUNDARY
- A1 BASIN ID
- 0.000 0.00 1.00 2 YEAR RUNOFF COEFFICIENT
- 0.000 0.00 1.00 25 YEAR RUNOFF COEFFICIENT
- 0.000 0.00 1.00 BASIN AREA (ACRES)
- 90 PROPOSED DESIGN POINT
- FLOW ARROW

| Basin Summary Table - Developed |           |                     |      |        |                  |      |
|---------------------------------|-----------|---------------------|------|--------|------------------|------|
| Basin                           | Area (AC) | Runoff Coefficients |      |        | Peak Flows (cfs) |      |
|                                 |           | C2                  | C25  | I (%)  | Q2               | Q25  |
| C4                              | 0.31      | 0.58                | 0.63 | 74.8%  | 0.29             | 0.65 |
| C8                              | 0.69      | 0.80                | 0.84 | 95.9%  | 0.95             | 2.07 |
| C10                             | 0.50      | 0.52                | 0.58 | 69.5%  | 0.31             | 0.72 |
| C20                             | 0.22      | 0.73                | 0.78 | 90.0%  | 0.28             | 0.61 |
| C20a                            | 0.07      | 0.84                | 0.88 | 100.0% | 0.10             | 0.22 |



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## **PHASE I ENVIRONMENTAL SITE ASSESSMENT**

**Lot 8 – 0.95-acre Vacant Parcel  
Northwest of Intersection of Wulfsohn Road and East Meadows  
Drive  
Glenwood Springs, Colorado 81601**

AEC Project No. 20-062C  
September 14, 2020

*Prepared for:*

Stoneleigh Companies LLC  
760 West Main Street Suite 140  
Barrington, Illinois 60010

*Prepared by:*

Advantage Environmental Consultants, LLC  
6395 Gunpark Drive, Unit W  
Boulder, Colorado 80301  
Phone (720) 459-7251





September 14, 2020

Mr. Anthony Rodriguez  
Stoneleigh Companies LLC  
760 West Main Street Suite 140  
Barrington, Illinois 60010

Subject: **Phase I Environmental Site Assessment  
Lot 8 – 0.95-acre Vacant Parcel  
Northwest of Intersection of Wulfsohn Road and East Meadows Drive  
Glenwood Springs, Colorado 81601  
AEC Project No. 20-062C**

Dear Mr. Rodriguez:

Advantage Environmental Consultants, LLC (AEC) has performed a Phase I Environmental Site Assessment (ESA) in conformance with the scope and limitations of American Society for Testing and Materials Practice E1527-13 and 40 Code of Federal Regulations Part 312, of the above-referenced property (hereinafter referred to as "the Site"). This ESA included public environmental agency and historical record reviews, interviews, site observations, and report preparation. This report includes AEC's findings, conclusions, recommendations, and supporting documentation.

We appreciate the opportunity to be of service to you on this project. If you should have any questions regarding this report, or if we can be of further assistance, please contact David Svrjcek at (720) 459-7251.

Sincerely,

**ADVANTAGE ENVIRONMENTAL CONSULTANTS, LLC**

A handwritten signature in blue ink, appearing to read 'D. Svrjcek', is positioned above a horizontal line.

David F. Svrjcek  
Branch Manager  
ASTM Environmental Professional

---

## TABLE OF CONTENTS

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|            |                                                                              |           |
|------------|------------------------------------------------------------------------------|-----------|
| <b>1.0</b> | <b>INTRODUCTION .....</b>                                                    | <b>1</b>  |
| 1.1        | PURPOSE.....                                                                 | 1         |
| 1.2        | DETAILED SCOPE OF SERVICES .....                                             | 2         |
| 1.3        | SIGNIFICANT ASSUMPTIONS.....                                                 | 3         |
| 1.4        | LIMITATIONS AND EXCEPTIONS .....                                             | 3         |
| 1.5        | SPECIAL TERMS AND CONDITIONS.....                                            | 4         |
| 1.6        | USER RELIANCE .....                                                          | 4         |
| <b>2.0</b> | <b>SITE DESCRIPTION.....</b>                                                 | <b>5</b>  |
| 2.1        | LOCATION AND LEGAL DESCRIPTION .....                                         | 5         |
| 2.2        | SITE AND VICINITY GENERAL CHARACTERISTICS.....                               | 5         |
| 2.3        | CURRENT USE OF THE SITE .....                                                | 5         |
| 2.4        | DESCRIPTION OF STRUCTURES, ROADS, OTHER IMPROVEMENTS ON THE SITE .....       | 5         |
| 2.5        | CURRENT USES OF THE ADJOINING PROPERTIES.....                                | 5         |
| <b>3.0</b> | <b>USER PROVIDED INFORMATION .....</b>                                       | <b>7</b>  |
| 3.1        | TITLE RECORDS .....                                                          | 7         |
| 3.2        | ENVIRONMENTAL LIENS OR ACTIVITY AND LAND USE LIMITATIONS.....                | 7         |
| 3.3        | SPECIALIZED KNOWLEDGE.....                                                   | 7         |
| 3.4        | COMMONLY KNOWN OR REASONABLY ASCERTAINABLE INFORMATION .....                 | 7         |
| 3.5        | VALUATION REDUCTION FOR ENVIRONMENTAL ISSUES .....                           | 7         |
| 3.6        | OWNER, PROPERTY MANAGER, AND OCCUPANT INFORMATION.....                       | 7         |
| 3.7        | REASON FOR PERFORMING PHASE I ESA.....                                       | 7         |
| <b>4.0</b> | <b>RECORDS REVIEW .....</b>                                                  | <b>7</b>  |
| 4.1        | STANDARD ENVIRONMENTAL RECORD SOURCES .....                                  | 8         |
| 4.2        | ADDITIONAL ENVIRONMENTAL RECORD SOURCES .....                                | 9         |
| 4.3        | PHYSICAL SETTING SOURCES .....                                               | 9         |
| 4.3.1      | TOPOGRAPHY AND HYDROLOGY .....                                               | 10        |
| 4.3.2      | GEOLOGY .....                                                                | 10        |
| 4.3.3      | HYDROGEOLOGY .....                                                           | 10        |
| 4.4        | HISTORICAL USE INFORMATION ON THE SUBJECT SITE AND ADJOINING PROPERTIES..... | 10        |
| 4.4.1      | TOPOGRAPHIC MAPS .....                                                       | 11        |
| 4.4.2      | AERIAL PHOTOGRAPHS .....                                                     | 11        |
| 4.4.3      | CITY DIRECTORIES .....                                                       | 12        |
| 4.4.4      | FIRE INSURANCE MAPS.....                                                     | 12        |
| 4.4.5      | PRIOR ENVIRONMENTAL REPORTS.....                                             | 12        |
| 4.4.6      | HISTORICAL USE SUMMARY .....                                                 | 12        |
| 4.4.7      | HISTORICAL DATA FAILURE.....                                                 | 12        |
| <b>5.0</b> | <b>SITE RECONNAISSANCE .....</b>                                             | <b>13</b> |
| 5.1        | METHODOLOGY AND LIMITING CONDITIONS.....                                     | 13        |
| 5.2        | GENERAL PROPERTY SETTING .....                                               | 13        |
| 5.3        | SITE OBSERVATIONS.....                                                       | 13        |
| <b>6.0</b> | <b>INTERVIEW INFORMATION.....</b>                                            | <b>15</b> |
| 6.1.       | INTERVIEW WITH OWNER.....                                                    | 15        |
| 6.2        | INTERVIEW WITH PROPERTY MANAGER .....                                        | 15        |



|             |                                                                          |           |
|-------------|--------------------------------------------------------------------------|-----------|
| 6.3         | INTERVIEWS WITH OCCUPANTS.....                                           | 15        |
| 6.4         | INTERVIEW WITH LOCAL GOVERNMENT OFFICIAL .....                           | 15        |
| 6.5         | INTERVIEW WITH OTHERS.....                                               | 15        |
| <b>7.0</b>  | <b>ADDITIONAL SERVICES .....</b>                                         | <b>16</b> |
| <b>8.0</b>  | <b>FINDINGS, OPINIONS, CONCLUSIONS AND RECOMMENDATIONS .....</b>         | <b>17</b> |
| <b>9.0</b>  | <b>DEVIATIONS AND DATA GAPS.....</b>                                     | <b>18</b> |
| <b>10.0</b> | <b>REFERENCES.....</b>                                                   | <b>19</b> |
| <b>11.0</b> | <b>SIGNATURES AND QUALIFICATIONS OF ENVIRONMENTAL PROFESSIONALS.....</b> | <b>20</b> |
| <b>12.0</b> | <b>APPENDICES</b>                                                        |           |
| 12.1        | VICINITY MAP                                                             |           |
| 12.2        | SITE PLAN                                                                |           |
| 12.3        | SITE PHOTOGRAPHS                                                         |           |
| 12.4        | REGULATORY DATABASE REPORT                                               |           |
| 12.5        | HISTORICAL RESEARCH DOCUMENTATION                                        |           |
| 12.5.1      | TOPOGRAPHIC MAPS                                                         |           |
| 12.5.2      | FIRE INSURANCE MAPS (NOT USED)                                           |           |
| 12.5.3      | AERIAL PHOTOGRAPHS                                                       |           |
| 12.5.4      | CITY DIRECTORIES (NOT USED)                                              |           |
| 12.6        | INTERVIEW QUESTIONNAIRE, FOIA RESPONSES                                  |           |
| 12.7        | PRIOR ENVIRONMENTAL REPORTS/DOCUMENTATION                                |           |
| 12.8        | QUALIFICATIONS OF THE ENVIRONMENTAL PROFESSIONAL                         |           |

## **1.0 Introduction**

### **1.1 Purpose**

---

The purpose of this Phase I ESA is to provide a professional opinion on the presence of recognized environmental conditions and other suspect environmental conditions in connection with the Site as they existed on the date of the site inspection, and to recommend whether further investigation is required. ASTM Standard Practice E 1527-13, Standard Practice for Environmental Site Assessments: Phase I Environmental Site Assessment Process, specifies minimum requirements for conducting an ESA of a parcel of commercial real estate with respect to the range of contaminants pertinent to the scope of the Comprehensive Environmental Response, Compensation and Liability Act (CERCLA), as well as petroleum products. As such, this ESA is intended to satisfy one of the threshold criteria for satisfying the landowner liability protections to CERCLA liability assuming compliance with other elements of the defense. In other words, this ESA represents one of the practices that constitute "all appropriate inquiry" into the previous ownership and uses of the property consistent with good commercial or customary practice, as defined in 42 USC Section 9601(35)(B) and 40 CFR Part 312.

The goal of the process is to identify recognized environmental conditions, which are defined by the Practice as "the presence or likely presence of any hazardous substances or petroleum products in, on, or at a property: 1) due to any release to the environment; 2) under conditions indicative of a release to the environment; or 3) under conditions that pose a material threat of a future release to the environment. The term recognized environmental condition includes hazardous substances or petroleum products even under conditions in compliance with laws. In addition, the term also included historical recognized environmental conditions and controlled recognized environmental conditions. A historical recognized environmental condition is defined by the Practice as "a past release of hazardous substances or petroleum products that has occurred in connection with a property and has been addressed to the satisfaction of the applicable regulatory authority or meeting unrestricted use criteria established by a regulatory authority, without subjecting the property to any required controls (for example, property use restrictions, activity and use limitations, institutional controls, or engineering controls)." A controlled recognized environmental condition is defined by the Practice as "a recognized environmental condition resulting from a past release of hazardous substances or petroleum products that has been addressed to the satisfaction of the applicable regulatory authority (for example, as evidenced by the issuance of a no further action letter or equivalent, or meeting risk-based criteria established by regulatory authority), with hazardous substances or petroleum products allowed to remain in place subject to the implementation of required controls (for example, property use restrictions, activity and use limitations, institutional controls, or engineering controls)." The term recognized environmental condition is not intended to include de minimis conditions that generally do not present a material risk of harm to public health or the environment and that generally would not be the subject of an enforcement action if brought to the attention of appropriate governmental agencies.

The term "environment" is defined in CERCLA 42 USC 9601(8) as "(A) the navigable waters, the water of the contiguous zone, and the ocean waters of which the natural resources are under the exclusive management authority of the United States under the Magnuson-Stevens Fishery conservation and Management Act, and (B) any other surface water, ground water, drinking water supply, land surface or subsurface strata, or ambient air within the United States or under the jurisdiction of the United States.

The term “release” means any spilling, leaking, pumping, pouring, emitting, emptying, discharging, injecting, escaping, leaching, dumping, or disposing into the environment (including the abandonment or discarding of barrels, containers, and other closed receptacles containing any hazardous substance or pollutant or contaminant), but excludes (A) any release which results in exposure to persons solely within a workplace, with respect to a claim which such persons may assert against the employer of such persons, (B) emissions from the engine exhaust of a motor vehicle, rolling stock, aircraft, vessel, or pipeline pumping station engine, (C) release of source, byproduct, or special nuclear material from a nuclear incident, as those terms are defined in the Atomic Energy Act of 1954 [42 U.S.C. 2011 et seq.], if such release is subject to requirements with respect to financial protection established by the Nuclear Regulatory Commission under section 170 of such Act [42 U.S.C. 2210], or, for the purposes of 42 USC 9604 or any other response action, any release of source byproduct, or special nuclear material from any processing site designated under section 7912(a)(1) or 7942(a) of this title, and (D) the normal application of fertilizer.

## **1.2 Detailed Scope of Services**

---

The Phase I ESA was conducted in accordance with generally accepted Phase I industry standards using ASTM Standard Practice E 1527-13 and 40 CFR Part 312. The following services were provided for this assessment:

- A search for environmental liens in connection with the Site.
- An evaluation of standard environmental record sources contained within Federal, State and local environmental databases within specific search distances.
- A qualitative evaluation of the physical characteristics of the Site through a review of published topographic, geologic, and hydrogeologic maps; published groundwater data; and area observations to characterize surface water flow in the Site area.
- An evaluation of past Site and adjacent/nearby property uses through a review of historical resources including historical aerial photographs and topographic maps.
- A physical inspection of the Site (interior and exterior) conducted to search for conditions indicative of potential environmental concerns including underground storage tanks (USTs), above ground storage tanks (ASTs), and associated tank piping; stained soil or pavement; equipment that may contain or have historically contained polychlorinated biphenyls (PCBs); and other potential environmental concerns as defined in the ASTM E 1527-13 standard.
- A physical assessment of indications of past uses and visual observations of adjacent and surrounding properties (from curbside or public spaces) to assess potential impacts to the Site.
- Interviews completed with a representative of the current owner of the Site and local regulatory officials.
- The preparation of this Phase I ESA report, which includes the findings of the study and our opinion regarding their level of significance. Conclusions have been drawn based on the significance levels of the findings with subsequent recommendations provided.

### **1.3 Significant Assumptions**

---

This Phase I ESA was conducted in accordance with ASTM guidelines and 40 CFR Part 312, for the performance of such assessment. No other warranties either express or implied, are made by AEC. AEC's evaluations, analyses, and opinions should not be taken as representations regarding subsurface conditions or the actual value of the Site. Subsurface conditions may differ from the conditions implied by the surficial observations, and can only be reliably evaluated through intrusive techniques.

Documentation and data provided by the client, designated representatives, other interested third parties, or from the public domain, and referred to in the preparation of this assessment, are assumed to be complete and correct and have been used and referenced with the understanding that AEC assumes no responsibility or liability for their accuracy. AEC's conclusions are based upon such information and documentation and on our observations of site conditions, as they existed on the date of the site inspection. Because Site conditions may change significantly over a short period of time and additional data may become available, data reported and conclusions drawn in this report are limited to current conditions and may not be relied upon on a significantly later date.

### **1.4 Limitations and Exceptions**

---

Reasonable efforts have been made during this assessment to uncover evidence of USTs, ASTs, ancillary equipment associated with such tanks, and other subsurface structures. "Reasonable efforts" are limited to information gained from visual observation of unobstructed areas, recorded database information held in public record, and available information gathered from interviews. Such methods may not identify subsurface equipment that may have been hidden from view due to paving, construction or debris pile storage, or incorrect information from sources.

This investigation was not an environmental compliance audit. While some observations and discussion in this report may address conditions and/or operations that may be regulated, the regulatory compliance of those conditions and/or operations is outside the scope of this investigation. Nothing in this report constitutes a legal opinion or legal advice. For information regarding specific individual or organizational liability, AEC recommends consultation with independent legal counsel.

According to 40 CFR Part 312, Standards and Practices for All Appropriate Inquiry: Final Rule, CERCLA liability rests with the owner or operator of a property and not with an environmental professional hired by the prospective landowner and who is not involved with the ownership or operation of the property. This report meets the requirements set forth in 40 CFR Part 312 Standards and Practices for All Appropriate Inquiries; Final Rule. However, in order to qualify for certain landowner liability protections under CERCLA. Bona Fide Prospective Purchasers, Contiguous Property Owners, and/or Innocent Landowners must meet additional requirements of CERCLA (42 U.S.C. 9601 (35)(B)).

This ESA does not address non-scope ASTM considerations including asbestos containing materials, radon, lead-based paint, lead in drinking water, wetlands, protected environments and habitat, industrial hygiene concerns, indoor air quality (unrelated to releases of hazardous substances or petroleum products into the environment) and high voltage power lines.

## **1.5 Special Terms and Conditions**

---

No special terms and conditions between AEC and the client pertinent to the findings of this ESA or methodology used to complete this assessment are noted. In addition, AEC does not have a financial interest in the Site.

## **1.6 User Reliance**

---

This report was prepared for use solely and exclusively by Stoneleigh Companies LLC and is not for the use or benefit of, nor may it be relied upon by, any other person or entity for any purpose without the advance written consent of AEC. AEC makes no representation to any third party except that it has used the degree of care and skill ordinarily exercised by a reasonable prudent environmental professional in the same community and in the same time frame given the same or similar facts and circumstances. No other use or disclosure is intended or authorized by AEC, and no other warranties are made to any third party, either express or implied.

## 2.0 Site Description

### 2.1 Location and Legal Description

The Site is approximately 0.95 acres (41,643 square feet) and is identified as Lot 8 Glenwood Meadows. The Site is further identified by Garfield County Parcel No. 218508138008. The Site is located immediately northwest of the intersection of Wulfsohn Road and East Meadows Drive, in Garfield County, Glenwood Springs, Colorado. The Site consists of vacant land and an asphalt-paved parking lot. According to tax records, the Site is owned by Weingarten Miller Glenwood LLC. A Vicinity Map depicting the general location of the Site is included in Section 12.1.

### 2.2 Site and Vicinity General Characteristics

The Site and its adjacent/nearby properties are situated within the City of Glenwood Springs, Garfield County, Colorado in an area comprised of vacant land, and light commercial and residential properties. Additional details pertaining to the Site and its adjoining properties are provided in the sections below.

### 2.3 Current Use of the Site

The Site is vacant of structures and includes an asphalt-paved parking lot at the northern portion of the Site.

### 2.4 Description of Structures, Roads, Other Improvements on the Site

Other than public utilities and parking areas, no improvements are located on the Site. Potable water and sanitary sewer services in the area are provided by the City of Glenwood Springs. Electric and natural gas services in the area are provided by the City of Glenwood. A Site Plan is included in Appendix 12.2. Photographs taken of the Site during the visit are included in Appendix 12.3.

### 2.5 Current Uses of the Adjoining Properties

AEC performed a visual inspection of adjoining properties from the Site property boundaries, adjacent sidewalks and public right-of-ways. The following table identifies the adjacent property uses:

| Direction | Adjoining Property Use                                                                                                          |
|-----------|---------------------------------------------------------------------------------------------------------------------------------|
| North     | Wells Fargo (205 East Meadows Drive) followed by a parking lot and Glenwood Meadows Retail Center (105-135 East Meadows Drive). |
| South     | Intersection of Wulfsohn Road and East Meadows Drive followed by Flat Tops View Drive, vacant land and an apartment complex.    |
| East      | East Meadows Drive followed by a Residence Inn (125 Wulfsohn Road).                                                             |
| West      | Vacant land, followed by commercial retail and restaurant buildings (10-45 Market Street).                                      |

No adjoining properties were observed to be an environmental concern to the Site based on AEC's visual inspection from public right-of-ways and none were identified on any of the provided regulatory databases.

### **3.0 User Provided Information**

#### **3.1 Title Records**

---

No title information was provided to AEC. No environmentally related liens, deed restrictions, activity and use limitations or institutional/engineering controls related to environmental concerns are known for the Site.

#### **3.2 Environmental Liens or Activity and Land Use Limitations**

---

No knowledge of any environmental related liens, deed restrictions or activity and land use limitations that are related to potential environmental issues at the Site are known for the property.

#### **3.3 Specialized Knowledge**

---

The owner representative provided no specialized knowledge pertinent to potential recognized environmental conditions at the Site.

#### **3.4 Commonly Known or Reasonably Ascertainable Information**

---

The owner representative provided no knowledge of commonly known or reasonably ascertainable information pertinent to potential recognized environmental conditions at the Site.

#### **3.5 Valuation Reduction for Environmental Issues**

---

AEC was not made aware of information pertaining to the relationship of the purchase price to the estimated fair market value of the Site that might indicate that significant contamination exists.

#### **3.6 Owner, Property Manager, and Occupant Information**

---

As the Site has no occupants, no interviews were conducted during the Site visit. AEC was unescorted during the Site inspection. However, AEC submitted an environmental questionnaire to a property owner representative. AEC received a response from Stoneleigh Companies Analyst, Mr. Anthony Rodriguez. Mr. Rodriguez was unaware of any environmental concerns related to the Site. This questionnaire response is provided in Appendix 12.6

#### **3.7 Reason for Performing Phase I ESA**

---

AEC has been retained to conduct this Phase I ESA to identify environmental issues that may be present and to comply with 40 CFR Part 312.

## 4.0 Records Review

### 4.1 Standard Environmental Record Sources

AEC reviewed Federal and State environmental databases provided by ERIS of Toronto, Canada for information pertaining to documented and/or suspected releases of regulated hazardous substances and/or petroleum products within specified search distances. A copy of the ERIS Report is included in Section 12.4.

AEC also reviewed unmappable sites listed in the environmental database report by cross-referencing addresses and site names. Unmappable sites are sites that cannot be plotted with confidence, but can be located by zip code or city name. In general, a site cannot be mapped because of inaccurate or missing location information in the record provided by the regulatory agency. Any unmappable sites that AEC identifies within the specified search radii were evaluated as part of the preparation of this report.

The following Federal databases related to potential on-site and off-site sources of contamination were reviewed and interpreted by AEC:

| <b>Federal Databases</b>                                                                     | <b>Search Distance From Site</b> |
|----------------------------------------------------------------------------------------------|----------------------------------|
| National Priorities List (NPL)                                                               | One mile                         |
| Delisted NPL                                                                                 | One mile                         |
| Superfund Enterprise Management System (SEMS)                                                | One-half mile                    |
| SEMS No Further Remedial Action Planned (NFRAP)                                              | One-half mile                    |
| Resource Conservation and Recovery Act (RCRA) Corrective Action Report (CORRACTS) Facilities | One mile                         |
| RCRA non-CORRACTS Hazardous Waste Treatment, Storage and Disposal Facilities (TSDF)          | One-half mile                    |
| RCRA Hazardous Waste Generators (RCRA GEN)                                                   | One-eighth mile                  |
| Emergency Response Notification System (ERNS)                                                | One-eighth mile                  |
| Institutional Controls/Engineering Control (IC/EC) Registries                                | One-half mile                    |

The following State/local databases related to potential on-site and off-site sources of contamination were also searched and reviewed:

| <b>State/Local Databases</b>                                                 | <b>Search Distance From Site</b> |
|------------------------------------------------------------------------------|----------------------------------|
| State-equivalent NPL and SEMS                                                | One mile                         |
| State and Tribal Voluntary Cleanup Sites (Indian VCP)                        | One-half mile                    |
| State and Tribal Landfill and/or Solid Waste Disposal Sites (SWF/LF)         | One-half mile                    |
| State and Tribal Leaking Storage Tank (LST, LAST, Indian LUST)               | One-half mile                    |
| State and Tribal Registered Storage Tank (UST, AST, Indian UST and FEMA UST) | One-eighth mile                  |

Descriptions/sources of each of the above referenced regulatory databases and the dates these databases were last updated by the applicable regulatory agencies are included in the ERIS report



### ***Subject Site***

The Site was not identified on any of the reviewed regulatory databases.

### ***Adjoining and Nearby Properties***

Petco #1446 (105 East Meadows Drive) was listed on the Resource Conservation and Recovery Act (RCRA) Conditionally Exempt Small Quantity Generator (CESQG) database and is located approximately 400 feet north and topographically downgradient from the Site. This facility is a documented generator of hazardous products such as benzene, lead, mercury, and corrosive wastes. No violations were identified for this facility. Based on distance, topography, and reported regulatory status, this listing is not considered likely to have adversely impacted the Site.

Target Store T2029 (110 West Meadows Drive) was listed on RCRA Large-Quantity Generator (LQG) and FINDS/FRS database and is located approximately 600 feet northwest and topographically downgradient of the Site. This facility is a documented generator of hazardous products such as lead, benzene, formaldehyde, and corrosive waste. One violation was reported for this facility regarding waste management in mid-2017. According to EPA Enforcement and Compliance History Online (ECHO) database, the last RCRA Inspection was in 2017. No other violations were identified for this facility. Based on distance, topography and reported regulatory status, this listing is not considered likely to have adversely impacted the Site.

Six additional listings between one-eighth and one mile of the Site were listed on regulatory databases. These additional properties are not considered environmental concerns to the Site. This opinion is based on several factors including distance of the off-Site listed properties from the Site, orientation of the listed properties relative to the Site, interpreted direction of groundwater flow, current operation of the Site, and/or regulatory case status information (i.e. "closed case") for the various properties as described in the database report.

## **4.2 Additional Environmental Record Sources**

---

### **State Health Departments**

AEC searched the Colorado Division of Oil & Public Safety (OPS) online facility database system (COSTIS) for information pertaining to the Site. However, no records were identified for the Site location after searching the COSTIS database.

## **4.3 Physical Setting Sources**

---

The following physical setting sources were reviewed to provide information about the topographic, hydrologic, geologic and/or hydrogeologic characteristics of the Site.

### **4.3.1 Topography and Hydrology**

---

#### ***USGS Topographic Quadrangle***

Based on the review of United States Geological Survey (USGS) 7.5-minute topographic map of the Glenwood Springs, CO Quadrangle (2019), regional topography is depicted with a northwestern/northeastern slope toward Atkinson Canal. The Site is situated on the map at an elevation ranging from approximately 5,800 feet above mean sea level. No structures are depicted on the Site. Public roadways bordering and in the general vicinity of the Site are depicted in their current configurations on the map.

### ***Hydrology/Storm Water Management***

Surface runoff at the Site and along adjacent roads moves north/northeast and occurs as sheet flow towards nearby storm drains or infiltrates into undeveloped and/or landscaped areas.

#### **4.3.2 Geology**

According to the USGS geologic map of Colorado as provided on Google Earth, the Site is primarily underlain by the Eagle Valley Formation consisting of siltstone, shale, and evaporite, primarily of the Phanerozoic age.

#### **4.3.3 Hydrogeology**

Regional groundwater flow at the Site appears to flow northwest/northeast in the direction of the Colorado River. The depth to groundwater at the Site is anticipated to be approximately 30 to 50 feet below ground surface.

### **4.4 Historical Use Information on the Subject Site and Adjoining Properties**

Historical sources (as described in the following sections) were reviewed during this assessment to develop a history of the previous uses of the Site and adjoining properties, and to help identify the likelihood of past uses having led to recognized environmental conditions in connection with the Site.

#### **4.4.1 Topographic Maps**

AEC reviewed topographic maps provided by the USGS dated 1927, 1930, 1961, 1981, 2011, 2013, 2016, and 2019. The results of the topographic map review are summarized in the following table:

| <b>Topographic Map Review</b> |                                                                                                                                           |
|-------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Year</b>                   | <b>Observations</b>                                                                                                                       |
| <b>1927</b>                   | <b>Site:</b> The Site is illustrated with no structures.                                                                                  |
| <b>1930</b>                   | <b>Adjacent Properties:</b> Areas surrounding the Site are relatively undeveloped. A railroad track is depicted to the north of the Site. |
| <b>1961</b>                   | <b>Site:</b> The Site is illustrated with no structures.                                                                                  |
| <b>1981</b>                   | <b>Adjacent Properties:</b> No structures are depicted. Atkinson Canal is depicted to the north of the Site.                              |
| <b>2011</b>                   | <b>Site:</b> The Site is illustrated with no structures.                                                                                  |
|                               | <b>Adjacent Properties:</b> No structures are depicted. Wulfsohn Road is depicted to the south of the Site.                               |
| <b>2013</b>                   | <b>Site:</b> The Site is illustrated with no structures.                                                                                  |
| <b>2016</b>                   | <b>Adjacent Properties:</b> No structures are depicted. Roadways are generally depicted in their current configurations.                  |
| <b>2019</b>                   |                                                                                                                                           |

No on-Site or off-Site environmental concerns for adjacent facilities were noted on the topographic maps. A copy of representative maps is included in Section 12.5.1.

#### 4.4.2 Aerial Photographs

AEC reviewed historical aerial photographs dated 1945, 1955, 1960, 1979, 1983, 1989, 1993, 2002, 2005, 2011, 2015, and 2017 provided by ERIS and Google Earth. The results of the aerial photograph review are summarized in the following table:

| Aerial Photograph Review                                     |                                                                                                                                                                                                                                                                                                                                                                                                         |
|--------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Year                                                         | Observations                                                                                                                                                                                                                                                                                                                                                                                            |
| 1945<br>1955<br>1960<br>1979<br>1983<br>1989<br>1993<br>2002 | <p><b>Site:</b> The Site appears as agricultural fields. A temporary structure is present on the eastern edge of the Site on the 2002 aerial but is not observed on any other photographs.</p> <p><b>Adjacent Properties:</b> Areas surrounding the Site appears as undeveloped land and/or agricultural fields.</p>                                                                                    |
| 2005                                                         | <p><b>Site:</b> The Site appears to be undeveloped with an asphalt-paved parking lot on the northern portion of the Site.</p> <p><b>Adjacent Properties:</b> Areas surrounding the Site are developed with commercial structures to the northwest, northeast and southeast of the Site. East Meadows Drive is depicted to the east of the Site. Wulfsohn Road is depicted to the south of the Site.</p> |
| 2011<br>2015<br>2017                                         | <p><b>Site:</b> The Site appears to be undeveloped with an asphalt-paved parking lot on the northern portion of the Site.</p> <p><b>Adjacent Properties:</b> Areas surrounding the Site are developed to the northwest, northeast, southeast and south of the Site.</p>                                                                                                                                 |

No on-Site or off-Site environmental concerns for adjacent facilities were noted on the aerial photographs. A temporary metal structure appears only on the 2002 photograph, but does not appear to be an environmental concern based on AEC's site visit and regulatory review. A copy of representative maps is included in Section 12.5.3.

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#### 4.4.3 City Directories

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As the Site has been historically undeveloped, city directories were not researched.

#### 4.4.4 Fire Insurance Maps

---

As the Site has been historically undeveloped, fire insurance maps were not researched as they are not expected to be available.

#### 4.4.5 Prior Environmental Reports

---

AEC was provided with a Phase I ESA of a 250-acre commercial development tract of land that appears to include the Site parcel, prepared by Braun Intertec and dated June 8, 2006. No RECs were identified for the Site. A copy of the report is included in Section 12.7.

AEC was provided with a Phase I ESA of a 436-acre tract of land that included the Site parcel referenced as the Wulfsohn Ranch Property, prepared by Western Technologies, Inc. and dated June 5, 1996. No RECs were identified for the parcel. A copy of the report is included in Section 12.7.

AEC was not provided with any additional environmental reports (i.e., Phase I ESAs or Phase II Subsurface Investigations) for the Site from the client.

#### 4.4.6 Historical Use Summary

---

The past uses of the Site, as determined by a review of reasonably ascertainable historical information, are summarized in the following table:

| Historical Use of the Site |                                                                                         |
|----------------------------|-----------------------------------------------------------------------------------------|
| Years                      | Site Use                                                                                |
| 1945 to 2002               | Vacant and/or agricultural land.                                                        |
| 2005 to Present            | Undeveloped land with an asphalt-paved parking lot on the northern portion of the Site. |

#### 4.4.7 Historical Data Failure

---

AEC encountered no historical data failures as defined by ASTM E 1527-13 and 40 CFR Part 312.

## 5.0 Site Reconnaissance

The objective of the Site reconnaissance was to obtain information indicating the likelihood of recognized environmental conditions in connection with the Site. The reconnaissance was conducted on September 10, 2020 by Ms. Morgan Torstenson of AEC's Colorado office. Ms. Torstenson was unescorted during the survey.

### 5.1 Methodology and Limiting Conditions

The reconnaissance consisted of walking accessible portions of the Site, and walking accessible roadways and pedestrian walkways surrounding the Site. Full access to the Site was provided. As stated previously, a Site Plan is included in Section 12.2. Photographs of the Site were taken to document existing Site conditions, and are included and described in Section 12.3.

### 5.2 General Property Setting

The Site is vacant of structures with an asphalt-paved parking lot on the northern portion of the Site. The Site and its adjacent/nearby properties are situated within Glenwood Springs, Colorado in an area comprised of undeveloped land, light commercial and residential properties. The current uses of nearby properties are not ones that are indicative of the use, treatment, storage, disposal or generation of hazardous substances.

### 5.3 Site Observations

AEC examined the Site for evidence of the following potential environmental concerns:

| Conditions                               | Not Observed or Noted | Observed or Noted | Significant Concern? |
|------------------------------------------|-----------------------|-------------------|----------------------|
| Hazardous Substances/Petroleum Products  | X                     |                   |                      |
| Waste Generation/Storage/Disposal        | X                     |                   |                      |
| Aboveground Storage Tanks (ASTs)         | X                     |                   |                      |
| Underground Storage Tanks (USTs)         | X                     |                   |                      |
| PCB Containing Equipment                 | X                     | X                 | No                   |
| Chemical/Petroleum Odors                 | X                     |                   |                      |
| Pools of Liquid                          | X                     |                   |                      |
| Floor Drains/Sumps/Wells                 | X                     |                   |                      |
| Drums                                    | X                     |                   |                      |
| Stains or Corrosion                      | X                     |                   |                      |
| Unidentified Substance Containers        | X                     |                   |                      |
| Stained Soil or Pavement                 | X                     |                   |                      |
| Stressed Vegetation                      | X                     |                   |                      |
| Pits, Ponds or Lagoons                   | X                     |                   |                      |
| Wastewater Discharges/Disposal Systems   | X                     |                   |                      |
| Septic Systems/Cesspools                 | X                     |                   |                      |
| Non-Hazardous Waste Disposal Areas       | X                     |                   |                      |
| Drinking Water Systems/Water Wells/Other | X                     |                   |                      |
| Other Features                           | X                     |                   |                      |

### ***Polychlorinated Biphenyls (PCBs)***

One presumed utility-owned pad-mounted transformer was observed on the eastern portion of the Site. The transformer was not labeled with regard to PCB content but as observed to be in good condition with no evidence of leaks. Based on utility ownership and observed condition, this transformer is not considered to represent an environmental concern to the Site.

No on-site equipment containing fluids potentially contaminated with PCBs, including capacitors, transformers, hydraulically operated elevators, trash compactors, box balers, or dock levelers were noted.

### ***Natural Gas Pipeline***

AEC observed a natural gas pipeline marker on the eastern portion of the Site. No concerns related to releases from pipelines in the Site vicinity were noted on the database.

## **6.0 Interview Information**

### **6.1 Interview with Owner**

---

AEC submitted an environmental questionnaire to a property owner representative. AEC received a response from Stoneleigh Companies Analyst, Mr. Anthony Rodriguez. Mr. Rodriguez was unaware of any environmental concerns related to the Site. This questionnaire response is provided in Appendix 12.6

### **6.2 Interview with Property Manager**

---

The Site owner is also considered to be the Site manager. No structures are located on the Site.

### **6.3 Interviews with Occupants**

---

No occupants are located on the Site, therefore, no interviews with Site occupants were conducted.

### **6.4 Interview with Local Government Official**

---

No interviews with local government officials were conducted.

### **6.5 Interview with Others**

---

No other interviews with others were conducted

## **7.0 Additional Services**

### **7.1. Radon**

---

A review of the CDPHE Map of Radon Zones indicates the Site is located in Zone 1. Zone 1 is an area of high radon propensity and has a predicted average indoor radon screening level greater than four pCi/L. As the Site is vacant, radon is not considered a significant environmental risk; however, future buildings may require initial radon screening and/or mitigation systems to reduce radon risk to an acceptable level. A copy of the CDPHE radon map is included in Appendix 12.7.

### **7.2 Mold/Fungi/Microbial Growth**

---

As the Site is vacant of permanent structures, a mold inspection was not completed.

### **7.3 Vapor Intrusion and Encroachment**

---

In conjunction with this Phase I ESA, AEC has evaluated the potential for vapor intrusion to occur at the Site by way of a Tier 1 vapor encroachment screening (VES) consistent with ASTM International Standard E2600-10 (Standard Guide for Vapor Encroachment Screening on Property Involved in Real Estate Transactions). As stated in the ASTM E 2600-10 standard, a VES screening makes use of information similar to information generally collected as part of an ASTM-compliant Phase I ESA. As such, it is AEC's opinion that the information gathered during this Phase I ESA, including regulatory and historical research, the Site reconnaissance, physical setting characteristics, and interviews is sufficient to conclude that a vapor intrusion concern at the Site can be ruled out because such a condition is not likely to exist at the Site.

### **7.4 Asbestos Containing Building Materials**

---

As the Site is vacant, no suspect asbestos containing building materials are present. In addition, no areas of dumping were noted that may contain suspect materials.

### **7.5 Lead-Based Pain (LBP)**

---

As the Site is vacant, no suspect lead-based paint surfaces are present.



## **8.0 Findings, Opinions, Conclusions and Recommendations**

Advantage Environmental Consultants, LLC has performed a Phase I Environmental Site Assessment, in conformance with the scope and limitations of ASTM Practice E1527-13 at Lot 8 Glenwood Meadows, Garfield County, Glenwood Springs, Colorado. Any exceptions to, or deletions from, this practice are described in Section 10.0 of this report.

Based on the results of this assessment, no evidence of recognized environmental conditions (RECs) were identified in connection with the Site and no further investigation (i.e., Phase II Subsurface Investigation) is recommended.

## **9.0 Deviations and Data Gaps**

AEC encountered no historical data failures as defined by ASTM E 1527-13 and 40 CFR Part 312.

## 10.0 References

"All Appropriate Inquiry" as necessary to satisfy the defenses available under 42 U.S.C. §§ 9607(b) (3), 9607(r) (1), and 9607(q), relying on definitions provided at 42 U.S.C. §§ 9601(35) (B); and as further explained in 40 CFR §§ 312.1 – 312.31.

ASTM International, "Standard Practice for Environmental Site Assessments: Phase I Environmental Site Assessment Process," ASTM Designation E 1527-13, Published November 2013;

Environmental Risk Information Services (ERIS), Inc., September 12, 2020, Report, Inquiry #2029100819 at Lot 8 Glenwood Springs, Colorado";

ERIS, Inc., July 20, 2017, "Aerial Photographs, Inquiry #20170719160 at Glenwood Springs, Colorado" dated 1945, 1955, 1960, 1979, 1983, 1989, 1993, 2005, 2006, 2011, 2013, and 2015;

Google Aerials, dated 2002, 2005, 2011, 2015 and 2017;

Phase I Environmental Site Assessment of Wulfsohn Ranch Property, dated June 5, 1996, prepared by Western Technologies Inc;

US Geologic Map of Colorado;

United States Geological Survey (USGS), 1927, 1930, 1961, 1981, 2011, 2013, 2016, and 2019 "Glenwood Springs, CO, Quadrangle 7.5 Minute Topographic Maps".

### **11.0 Signatures and Qualifications of Environmental Professionals**

I declare that, to the best of my professional knowledge and belief, I meet the definition of Environmental Professional as defined in 40 CFR 312.10. I have the specific qualifications based on education, training and experience to assess a property of the nature, history and setting of the subject Site. I have developed and performed the all appropriate inquiries in conformance with the standards and practices set forth in 40 CFR Part 312.



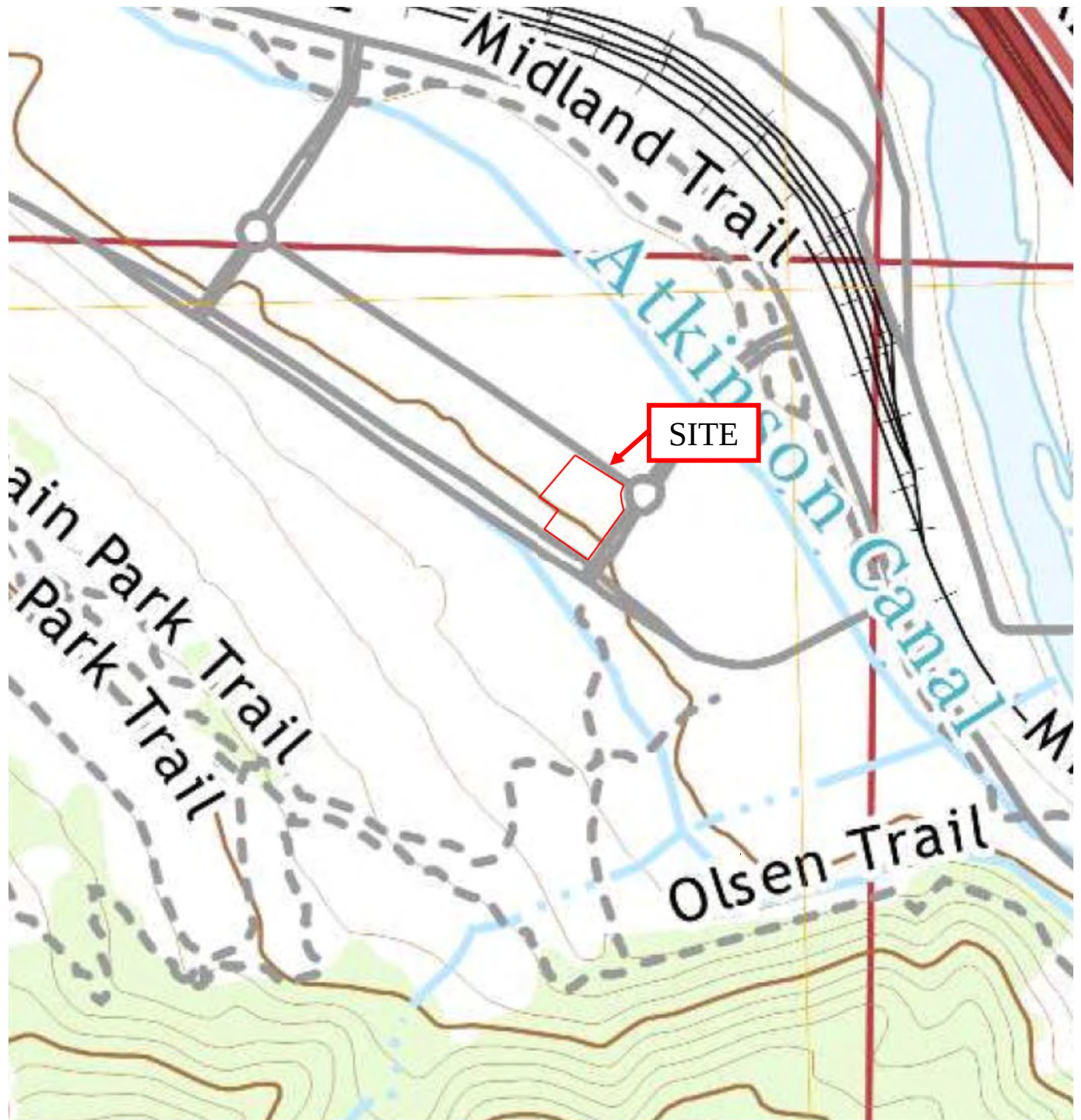
---

David F. Svrjcek  
Branch Manager  
AEC Colorado Regional Manager

Qualifications for the environmental professionals involved in the performance of the Phase I ESA are included in Section 12.

## **12.0 Appendices**

## **12.1 Vicinity Map**



Source: United States Geological Survey Glenwood Springs, Colorado 7.5 Minute Quadrangle



6395 Gunpark Drive, Unit W  
Boulder, Colorado 80301  
Phone: 720-459-7251 • Fax: 720-459-7298

**Site Vicinity Map**  
Lot 8 Glenwood Meadows  
Glenwood Springs, Colorado 81601

Work Order No.:  
20-062C

Report Date:  
September 2020

Drawn By:  
MLT

## **12.2 Site Plan**





6395 Gunpark Drive, Unit W  
Boulder, Colorado 80301  
Phone: 720-459-7251 • Website: [www.aec-env.com](http://www.aec-env.com)

# **Site Plan** Lot 8 Glenwood Meadows Glenwood Springs, Colorado 81601

Work Order No.:  
20-062C

Report Date:  
September 2020

Drawn By:  
MLT

## **12.3 Site Photographs**





**Photograph 1:** View of the Site, facing northeast.



**Photograph 2:** Another view of the Site, facing east.





**Photograph 3:** Another view of the Site, facing northwest.



**Photograph 4:** Another view of the Site, facing south/southeast.





**Photograph 5:** Another view of the Site, facing east.



**Photograph 6:** View of natural gas pipeline signage at the Site.





**Photograph 7:** View of property signage at the Site.



**Photograph 8:** View of drainage at the northeast corner of the parking lot at the Site.





**Photograph 9:** View of pad-mounted transformer along the eastern Site boundary.



**Photograph 10:** View to the south of the Site, facing south.





**Photograph 11:** View to the east of the Site, facing east.



**Photograph 12:** View to the north of the Site, facing north.





**Photograph 13:** View to the northeast of the Site, facing northeast.



**Photograph 14:** View to the west of the Site, facing west.

## **12.4 Regulatory Database Report**



# DATABASE REPORT

**Project Property:** *405 Wulsohn Road  
405 Wulsohn Road  
Glenwood Springs CO 81601*

**Project No:**

**Report Type:** *Database Report*

**Order No:** *20291000819*

**Requested by:** *Advantage Environmental Consultants, LLC*

**Date Completed:** *September 12, 2020*

## Environmental Risk Information Services

A division of Glacier Media Inc.

1.866.517.5204 | [info@erisinfo.com](mailto:info@erisinfo.com) | [erisinfo.com](http://erisinfo.com)

# Table of Contents

|                                                                      |    |
|----------------------------------------------------------------------|----|
| Table of Contents.....                                               | 2  |
| Executive Summary.....                                               | 3  |
| Executive Summary: Report Summary.....                               | 4  |
| Executive Summary: Site Report Summary - Project Property.....       | 7  |
| Executive Summary: Site Report Summary - Surrounding Properties..... | 8  |
| Executive Summary: Summary by Data Source.....                       | 9  |
| Map.....                                                             | 11 |
| Aerial.....                                                          | 14 |
| Topographic Map.....                                                 | 15 |
| Detail Report.....                                                   | 16 |
| Unplottable Summary.....                                             | 55 |
| Unplottable Report.....                                              | 56 |
| Appendix: Database Descriptions.....                                 | 57 |
| Definitions.....                                                     | 66 |

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## Executive Summary

### Property Information:

**Project Property:** 405 Wulsohn Road  
405 Wulsohn Road Glenwood Springs CO 81601

**Project No:**

**Coordinates:**

**Latitude:** 39.55335061  
**Longitude:** -107.34179862  
**UTM Northing:** 4,380,804.59  
**UTM Easting:** 298,797.77  
**UTM Zone:** 13S

**Elevation:** 5,792 FT

### Order Information:

**Order No:** 20291000819  
**Date Requested:** September 10, 2020  
**Requested by:** Advantage Environmental Consultants, LLC  
**Report Type:** Database Report

### Historicals/Products:

**ERIS Xplorer** [ERIS Xplorer](#)  
**Excel Add-On** Excel Add-On

## Executive Summary: Report Summary

| Database                                     | Searched | Search Radius | Project Property | Within 0.12mi | 0.125mi to 0.25mi | 0.25mi to 0.50mi | 0.50mi to 1.00mi | Total |
|----------------------------------------------|----------|---------------|------------------|---------------|-------------------|------------------|------------------|-------|
| <b><u>Standard Environmental Records</u></b> |          |               |                  |               |                   |                  |                  |       |
| <b>Federal</b>                               |          |               |                  |               |                   |                  |                  |       |
| FRP                                          | Y        | 0.25          | 0                | 0             | 0                 | -                | -                | 0     |
| NPL                                          | Y        | 1             | 0                | 0             | 0                 | 0                | 0                | 0     |
| PROPOSED NPL                                 | Y        | 1             | 0                | 0             | 0                 | 0                | 0                | 0     |
| DELETED NPL                                  | Y        | 0.5           | 0                | 0             | 0                 | 0                | -                | 0     |
| SEMS                                         | Y        | 0.5           | 0                | 0             | 0                 | 0                | -                | 0     |
| SEMS ARCHIVE                                 | Y        | 0.5           | 0                | 0             | 0                 | 0                | -                | 0     |
| ODI                                          | Y        | 0.5           | 0                | 0             | 0                 | 0                | -                | 0     |
| IODI                                         | Y        | 0.5           | 0                | 0             | 0                 | 0                | -                | 0     |
| CERCLIS                                      | Y        | 0.5           | 0                | 0             | 0                 | 0                | -                | 0     |
| CERCLIS NFRAP                                | Y        | 0.5           | 0                | 0             | 0                 | 0                | -                | 0     |
| CERCLIS LIENS                                | Y        | PO            | 0                | -             | -                 | -                | -                | 0     |
| RCRA CORRACTS                                | Y        | 1             | 0                | 0             | 0                 | 0                | 1                | 1     |
| RCRA TSD                                     | Y        | 0.5           | 0                | 0             | 0                 | 0                | -                | 0     |
| RCRA LQG                                     | Y        | 0.25          | 0                | 0             | 1                 | -                | -                | 1     |
| RCRA SQG                                     | Y        | 0.25          | 0                | 0             | 1                 | -                | -                | 1     |
| RCRA CESQG                                   | Y        | 0.25          | 0                | 0             | 1                 | -                | -                | 1     |
| RCRA NON GEN                                 | Y        | 0.25          | 0                | 0             | 0                 | -                | -                | 0     |
| FED ENG                                      | Y        | 0.5           | 0                | 0             | 0                 | 0                | -                | 0     |
| FED INST                                     | Y        | 0.5           | 0                | 0             | 0                 | 0                | -                | 0     |
| ERNS 1982 TO 1986                            | Y        | PO            | 0                | -             | -                 | -                | -                | 0     |
| ERNS 1987 TO 1989                            | Y        | PO            | 0                | -             | -                 | -                | -                | 0     |
| ERNS                                         | Y        | PO            | 0                | -             | -                 | -                | -                | 0     |
| FED BROWNFIELDS                              | Y        | 0.5           | 0                | 0             | 0                 | 0                | -                | 0     |
| FEMA UST                                     | Y        | 0.25          | 0                | 0             | 0                 | -                | -                | 0     |
| REFN                                         | Y        | 0.25          | 0                | 0             | 0                 | -                | -                | 0     |
| BULK TERMINAL                                | Y        | 0.25          | 0                | 0             | 0                 | -                | -                | 0     |
| SEMS LIEN                                    | Y        | PO            | 0                | -             | -                 | -                | -                | 0     |



| Database                                                                         | Searched | Search Radius | Project Property | Within 0.12mi | 0.125mi to 0.25mi | 0.25mi to 0.50mi | 0.50mi to 1.00mi | Total |
|----------------------------------------------------------------------------------|----------|---------------|------------------|---------------|-------------------|------------------|------------------|-------|
| SUPERFUND ROD                                                                    | Y        | 1             | 0                | 0             | 0                 | 0                | 0                | 0     |
| <b>State</b>                                                                     |          |               |                  |               |                   |                  |                  |       |
| DELISTED SHWS                                                                    | Y        | 1             | 0                | 0             | 0                 | 0                | 0                | 0     |
| SHWS                                                                             | Y        | 1             | 0                | 0             | 0                 | 0                | 0                | 0     |
| SWF/LF                                                                           | Y        | 0.5           | 0                | 0             | 0                 | 0                | -                | 0     |
| HIST LF                                                                          | Y        | 0.5           | 0                | 0             | 0                 | 0                | -                | 0     |
| LST                                                                              | Y        | 0.5           | 0                | 0             | 1                 | 3                | -                | 4     |
| DELISTED LST                                                                     | Y        | 0.5           | 0                | 0             | 0                 | 0                | -                | 0     |
| UST                                                                              | Y        | 0.25          | 0                | 0             | 0                 | -                | -                | 0     |
| AST                                                                              | Y        | 0.25          | 0                | 0             | 2                 | -                | -                | 2     |
| TANKS                                                                            | Y        | 0.25          | 0                | 0             | 0                 | -                | -                | 0     |
| DTNK                                                                             | Y        | 0.25          | 0                | 0             | 0                 | -                | -                | 0     |
| AUL                                                                              | Y        | 0.5           | 0                | 0             | 0                 | 0                | -                | 0     |
| VCP                                                                              | Y        | 0.5           | 0                | 0             | 0                 | 0                | -                | 0     |
| BROWNFIELDS                                                                      | Y        | 0.5           | 0                | 0             | 0                 | 0                | -                | 0     |
| <b>Tribal</b>                                                                    |          |               |                  |               |                   |                  |                  |       |
| INDIAN LUST                                                                      | Y        | 0.5           | 0                | 0             | 0                 | 0                | -                | 0     |
| INDIAN UST                                                                       | Y        | 0.25          | 0                | 0             | 0                 | -                | -                | 0     |
| DELISTED ILST                                                                    | Y        | 0.5           | 0                | 0             | 0                 | 0                | -                | 0     |
| DELISTED IUST                                                                    | Y        | 0.25          | 0                | 0             | 0                 | -                | -                | 0     |
| <b>County</b>                                                                    |          |               |                  |               |                   |                  |                  |       |
| <i>No County standard environmental record sources available for this State.</i> |          |               |                  |               |                   |                  |                  |       |
| <b><u>Additional Environmental Records</u></b>                                   |          |               |                  |               |                   |                  |                  |       |
| <b>Federal</b>                                                                   |          |               |                  |               |                   |                  |                  |       |
| PFAS NPL                                                                         | Y        | 0.5           | 0                | 0             | 0                 | 0                | -                | 0     |
| FINDS/FRS                                                                        | Y        | PO            | 0                | -             | -                 | -                | -                | 0     |
| TRIS                                                                             | Y        | PO            | 0                | -             | -                 | -                | -                | 0     |
| PFAS TRI                                                                         | Y        | 0.5           | 0                | 0             | 0                 | 0                | -                | 0     |
| PFAS WATER                                                                       | Y        | 0.5           | 0                | 0             | 0                 | 0                | -                | 0     |
| HMIRS                                                                            | Y        | 0.125         | 0                | 0             | -                 | -                | -                | 0     |
| NCDL                                                                             | Y        | 0.125         | 0                | 0             | -                 | -                | -                | 0     |
| TSCA                                                                             | Y        | 0.125         | 0                | 0             | -                 | -                | -                | 0     |
| HIST TSCA                                                                        | Y        | 0.125         | 0                | 0             | -                 | -                | -                | 0     |
| FTTS ADMIN                                                                       | Y        | PO            | 0                | -             | -                 | -                | -                | 0     |
| FTTS INSP                                                                        | Y        | PO            | 0                | -             | -                 | -                | -                | 0     |

| Database             | Searched                                                                           | Search Radius | Project Property | Within 0.12mi | 0.125mi to 0.25mi | 0.25mi to 0.50mi | 0.50mi to 1.00mi | Total |
|----------------------|------------------------------------------------------------------------------------|---------------|------------------|---------------|-------------------|------------------|------------------|-------|
| PRP                  | Y                                                                                  | PO            | 0                | -             | -                 | -                | -                | 0     |
| SCRD DRYCLEANER      | Y                                                                                  | 0.5           | 0                | 0             | 0                 | 0                | -                | 0     |
| ICIS                 | Y                                                                                  | PO            | 0                | -             | -                 | -                | -                | 0     |
| FED DRYCLEANERS      | Y                                                                                  | 0.25          | 0                | 0             | 0                 | -                | -                | 0     |
| DELISTED FED DRY     | Y                                                                                  | 0.25          | 0                | 0             | 0                 | -                | -                | 0     |
| FUDS                 | Y                                                                                  | 1             | 0                | 0             | 0                 | 0                | 0                | 0     |
| PIPELINE INCIDENT    | Y                                                                                  | PO            | 0                | -             | -                 | -                | -                | 0     |
| MLTS                 | Y                                                                                  | PO            | 0                | -             | -                 | -                | -                | 0     |
| HIST MLTS            | Y                                                                                  | PO            | 0                | -             | -                 | -                | -                | 0     |
| MINES                | Y                                                                                  | 0.25          | 0                | 0             | 0                 | -                | -                | 0     |
| ALT FUELS            | Y                                                                                  | 0.25          | 0                | 0             | 1                 | -                | -                | 1     |
| SSTS                 | Y                                                                                  | 0.25          | 0                | 0             | 0                 | -                | -                | 0     |
| PCB                  | Y                                                                                  | 0.5           | 0                | 0             | 0                 | 0                | -                | 0     |
| <b>State</b>         |                                                                                    |               |                  |               |                   |                  |                  |       |
| SPILLS               | Y                                                                                  | 0.125         | 0                | 0             | -                 | -                | -                | 0     |
| OG SPILLS            | Y                                                                                  | 0.125         | 0                | 0             | -                 | -                | -                | 0     |
| DRYCLEANERS          | Y                                                                                  | 0.25          | 0                | 0             | 0                 | -                | -                | 0     |
| DELISTED DRYCLEANERS | Y                                                                                  | 0.25          | 0                | 0             | 0                 | -                | -                | 0     |
| PFAS                 | Y                                                                                  | 0.5           | 0                | 0             | 0                 | 0                | -                | 0     |
| NPDES                | Y                                                                                  | PO            | 0                | -             | -                 | -                | -                | 0     |
| <b>Tribal</b>        | <b>No Tribal additional environmental record sources available for this State.</b> |               |                  |               |                   |                  |                  |       |
| <b>County</b>        | <b>No County additional environmental record sources available for this State.</b> |               |                  |               |                   |                  |                  |       |

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|               |   |   |   |   |   |    |
|---------------|---|---|---|---|---|----|
| <b>Total:</b> | 0 | 0 | 7 | 3 | 1 | 11 |
|---------------|---|---|---|---|---|----|

\* PO – Property Only

\* 'Property and adjoining properties' database search radii are set at 0.25 miles.



# Executive Summary: Site Report Summary - Project Property

| Map<br>Key | DB | Company/Site Name | Address | Direction | Distance<br>(mi/ft) | Elev Diff<br>(ft) | Page<br>Number |
|------------|----|-------------------|---------|-----------|---------------------|-------------------|----------------|
|------------|----|-------------------|---------|-----------|---------------------|-------------------|----------------|

No records found in the selected databases for the project property.

## Executive Summary: Site Report Summary - Surrounding Properties

| Map Key           | DB               | Company/Site Name                   | Address                                                                                                                               | Direction | Distance (mi/ft)   | Elev Diff (ft) | Page Number        |
|-------------------|------------------|-------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------|-----------|--------------------|----------------|--------------------|
| <a href="#">1</a> | RCRA<br>CESQG    | PETCO STORE #1446                   | 105 E MEADOWS DR<br>GLENWOOD SPRINGS CO<br>81601<br><b>EPA Handler ID:</b> COR000232926                                               | NE        | 0.13 /<br>712.67   | -49            | <a href="#">16</a> |
| <a href="#">2</a> | RCRA<br>LQG      | TARGET STORE T2029                  | 110 W MEADOWS DR<br>GLENWOOD SPRINGS CO<br>81601-9516<br><b>EPA Handler ID:</b> COR000212498                                          | NW        | 0.15 /<br>772.56   | -9             | <a href="#">18</a> |
| <a href="#">3</a> | ALT<br>FUELS     | Target T2029 - Glenwood Springs, CO | 110 W. Meadows Dr.<br>Glenwood Springs CO 81601                                                                                       | WNW       | 0.17 /<br>878.70   | 35             | <a href="#">25</a> |
| <a href="#">4</a> | LST              | Envirotech                          | 777 Deveroux Ln Glenwood Springs 81601 CO<br><b>Facility ID:</b> 17895<br><b>Event ID   Status:</b> 9927   Closed                     | E         | 0.19 /<br>1,024.51 | -64            | <a href="#">25</a> |
| <a href="#">4</a> | AST              | Envirotech                          | 777 Deveroux Ln Glenwood Springs 81601 CO<br><b>Facility ID:</b> 17895<br><b>Tank Tag   Tank Status:</b> 17895-1   Permanently Closed | E         | 0.19 /<br>1,024.51 | -64            | <a href="#">27</a> |
| <a href="#">5</a> | AST              | Lowes #1905                         | 215 W Meadows Dr Glenwood Springs 81601 CO<br><b>Facility ID:</b> 18586<br><b>Tank Tag   Tank Status:</b> 18586-1   Currently In Use  | WNW       | 0.23 /<br>1,239.94 | 30             | <a href="#">28</a> |
| <a href="#">5</a> | RCRA<br>SQG      | LOWES OF GLENWOOD SPRINGS CO #1905  | 215 W MEADOWS DR<br>GLENWOOD SPRINGS CO<br>81601<br><b>EPA Handler ID:</b> COR000247502                                               | WNW       | 0.23 /<br>1,239.94 | 30             | <a href="#">30</a> |
| <a href="#">6</a> | LST              | Coca Cola Bottling Co               | 1220 Devereux Rd Glenwood Springs 81601 CO<br><b>Facility ID:</b> 6956<br><b>Event ID   Status:</b> 7210   Closed                     | NNE       | 0.32 /<br>1,706.51 | -85            | <a href="#">32</a> |
| <a href="#">7</a> | LST              | CDOT Glenwood                       | 202 Centennial Glenwood Springs 81601 CO<br><b>Facility ID:</b> 460<br><b>Event ID   Status:</b> 9806   Closed                        | E         | 0.35 /<br>1,847.63 | -68            | <a href="#">33</a> |
| <a href="#">7</a> | LST              | CDOT Glenwood Springs               | 202 Centennial St Glenwood Springs 81601 CO<br><b>Facility ID:</b> 7564<br><b>Event ID   Status:</b> 784   Closed                     | E         | 0.35 /<br>1,847.63 | -68            | <a href="#">34</a> |
| <a href="#">8</a> | RCRA<br>CORRACTS | EIMCO COAL MACHINERY                | 2222 DEVERUEX RD<br>GLENWOOD SPRINGS CO<br>81601-8702<br><b>EPA Handler ID:</b> COD981544786                                          | WNW       | 0.95 /<br>5,032.18 | -91            | <a href="#">35</a> |

## Executive Summary: Summary by Data Source

### Standard

### Federal

#### **RCRA CORRACTS - RCRA CORRACTS-Corrective Action**

A search of the RCRA CORRACTS database, dated Jul 27, 2020 has found that there are 1 RCRA CORRACTS site(s) within approximately 1.00 miles of the project property.

| <u>Lower Elevation</u> | <u>Address</u>                                                                            | <u>Direction</u> | <u>Distance (mi/ft)</u> | <u>Map Key</u>    |
|------------------------|-------------------------------------------------------------------------------------------|------------------|-------------------------|-------------------|
| EIMCO COAL MACHINERY   | 2222 DEVERUEX RD<br>GLENWOOD SPRINGS CO 81601-8702<br><i>EPA Handler ID: COD981544786</i> | WNW              | 0.95 / 5,032.18         | <a href="#">8</a> |

#### **RCRA LQG - RCRA Generator List**

A search of the RCRA LQG database, dated Jul 27, 2020 has found that there are 1 RCRA LQG site(s) within approximately 0.25 miles of the project property.

| <u>Lower Elevation</u> | <u>Address</u>                                                                            | <u>Direction</u> | <u>Distance (mi/ft)</u> | <u>Map Key</u>    |
|------------------------|-------------------------------------------------------------------------------------------|------------------|-------------------------|-------------------|
| TARGET STORE T2029     | 110 W MEADOWS DR<br>GLENWOOD SPRINGS CO 81601-9516<br><i>EPA Handler ID: COR000212498</i> | NW               | 0.15 / 772.56           | <a href="#">2</a> |

#### **RCRA SQG - RCRA Small Quantity Generators List**

A search of the RCRA SQG database, dated Jul 27, 2020 has found that there are 1 RCRA SQG site(s) within approximately 0.25 miles of the project property.

| <u>Equal/Higher Elevation</u>      | <u>Address</u>                                                                       | <u>Direction</u> | <u>Distance (mi/ft)</u> | <u>Map Key</u>    |
|------------------------------------|--------------------------------------------------------------------------------------|------------------|-------------------------|-------------------|
| LOWES OF GLENWOOD SPRINGS CO #1905 | 215 W MEADOWS DR<br>GLENWOOD SPRINGS CO 81601<br><i>EPA Handler ID: COR000247502</i> | WNW              | 0.23 / 1,239.94         | <a href="#">5</a> |

#### **RCRA CESQG - RCRA Conditionally Exempt and Very Small Quantity Generators List**

A search of the RCRA CESQG database, dated Jul 27, 2020 has found that there are 1 RCRA CESQG site(s) within approximately 0.25 miles of the project property.

| <u>Lower Elevation</u> | <u>Address</u>                                                                       | <u>Direction</u> | <u>Distance (mi/ft)</u> | <u>Map Key</u>    |
|------------------------|--------------------------------------------------------------------------------------|------------------|-------------------------|-------------------|
| PETCO STORE #1446      | 105 E MEADOWS DR<br>GLENWOOD SPRINGS CO 81601<br><i>EPA Handler ID: COR000232926</i> | NE               | 0.13 / 712.67           | <a href="#">1</a> |

### State

#### **LST - Leaking Storage Tanks**

A search of the LST database, dated Jun 30, 2020 has found that there are 4 LST site(s) within approximately 0.50 miles of the project

property.

| <u>Lower Elevation</u> | <u>Address</u>                                                                                                          | <u>Direction</u> | <u>Distance (mi/ft)</u> | <u>Map Key</u>    |
|------------------------|-------------------------------------------------------------------------------------------------------------------------|------------------|-------------------------|-------------------|
| Envirotech             | 777 Deveroux Ln Glenwood Springs<br>81601<br>CO<br><i>Facility ID: 17895</i><br><i>Event ID   Status: 9927   Closed</i> | E                | 0.19 / 1,024.51         | <a href="#">4</a> |
| Coca Cola Bottling Co  | 1220 Devereux Rd Glenwood Springs<br>81601<br>CO<br><i>Facility ID: 6956</i><br><i>Event ID   Status: 7210   Closed</i> | NNE              | 0.32 / 1,706.51         | <a href="#">6</a> |
| CDOT Glenwood Springs  | 202 Centennial St Glenwood Springs<br>81601<br>CO<br><i>Facility ID: 7564</i><br><i>Event ID   Status: 784   Closed</i> | E                | 0.35 / 1,847.63         | <a href="#">7</a> |
| CDOT Glenwood          | 202 Centennial Glenwood Springs<br>81601<br>CO<br><i>Facility ID: 460</i><br><i>Event ID   Status: 9806   Closed</i>    | E                | 0.35 / 1,847.63         | <a href="#">7</a> |

### AST - Aboveground Storage Tanks

A search of the AST database, dated Jun 30, 2020 has found that there are 2 AST site(s) within approximately 0.25 miles of the project property.

| <u>Equal/Higher Elevation</u> | <u>Address</u>                                                                                                                             | <u>Direction</u> | <u>Distance (mi/ft)</u> | <u>Map Key</u>    |
|-------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------|------------------|-------------------------|-------------------|
| Lowes #1905                   | 215 W Meadows Dr Glenwood Springs<br>81601<br>CO<br><i>Facility ID: 18586</i><br><i>Tank Tag   Tank Status: 18586-1   Currently In Use</i> | WNW              | 0.23 / 1,239.94         | <a href="#">5</a> |

| <u>Lower Elevation</u> | <u>Address</u>                                                                                                                              | <u>Direction</u> | <u>Distance (mi/ft)</u> | <u>Map Key</u>    |
|------------------------|---------------------------------------------------------------------------------------------------------------------------------------------|------------------|-------------------------|-------------------|
| Envirotech             | 777 Deveroux Ln Glenwood Springs<br>81601<br>CO<br><i>Facility ID: 17895</i><br><i>Tank Tag   Tank Status: 17895-1   Permanently Closed</i> | E                | 0.19 / 1,024.51         | <a href="#">4</a> |

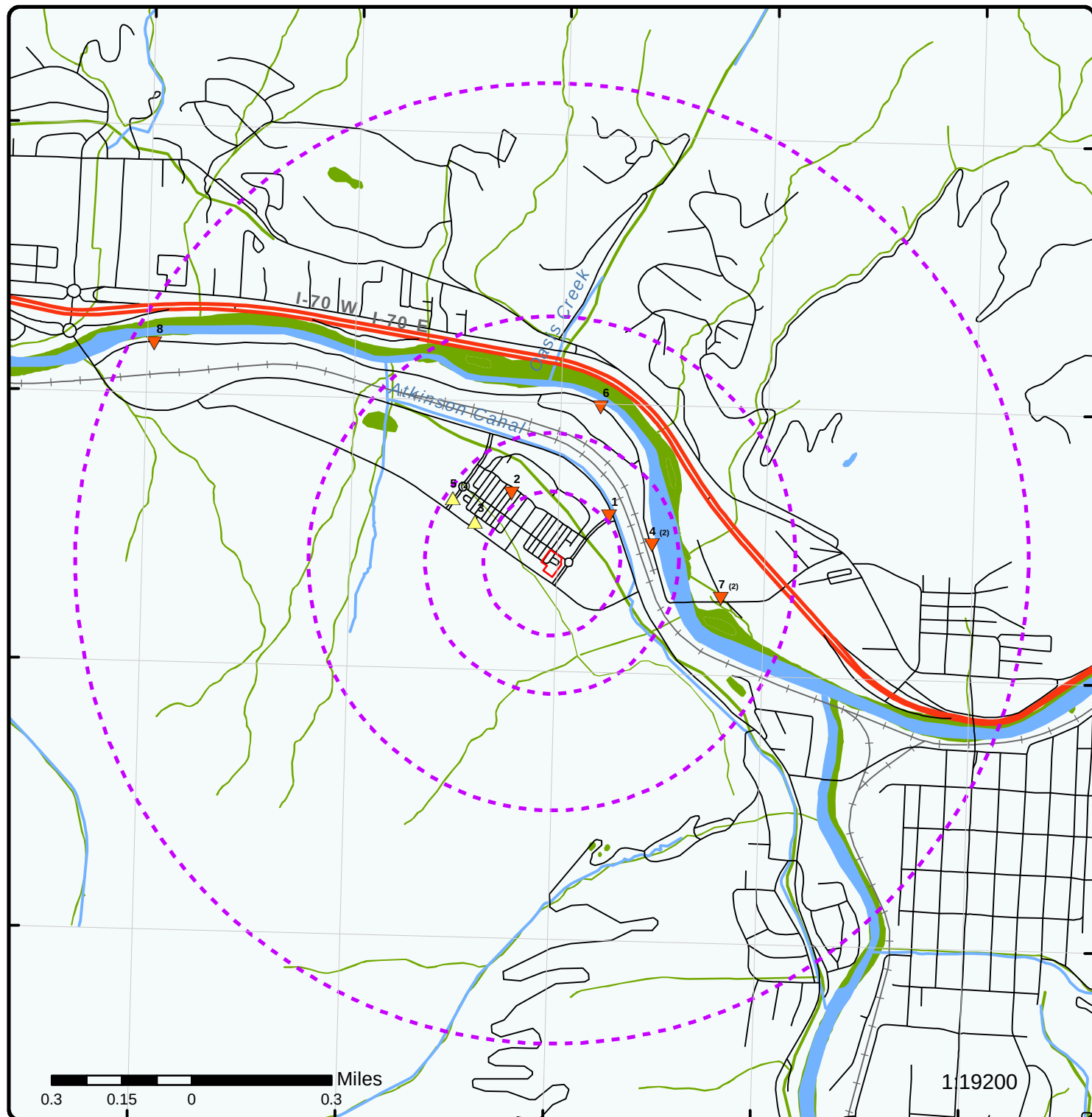
### Non Standard

### Federal

### ALT FUELS - Alternative Fueling Stations

A search of the ALT FUELS database, dated Jun 22, 2020 has found that there are 1 ALT FUELS site(s) within approximately 0.25 miles of the project property.

| <u>Equal/Higher Elevation</u>       | <u>Address</u>                                  | <u>Direction</u> | <u>Distance (mi/ft)</u> | <u>Map Key</u>    |
|-------------------------------------|-------------------------------------------------|------------------|-------------------------|-------------------|
| Target T2029 - Glenwood Springs, CO | 110 W. Meadows Dr.<br>Glenwood Springs CO 81601 | WNW              | 0.17 / 878.70           | <a href="#">3</a> |



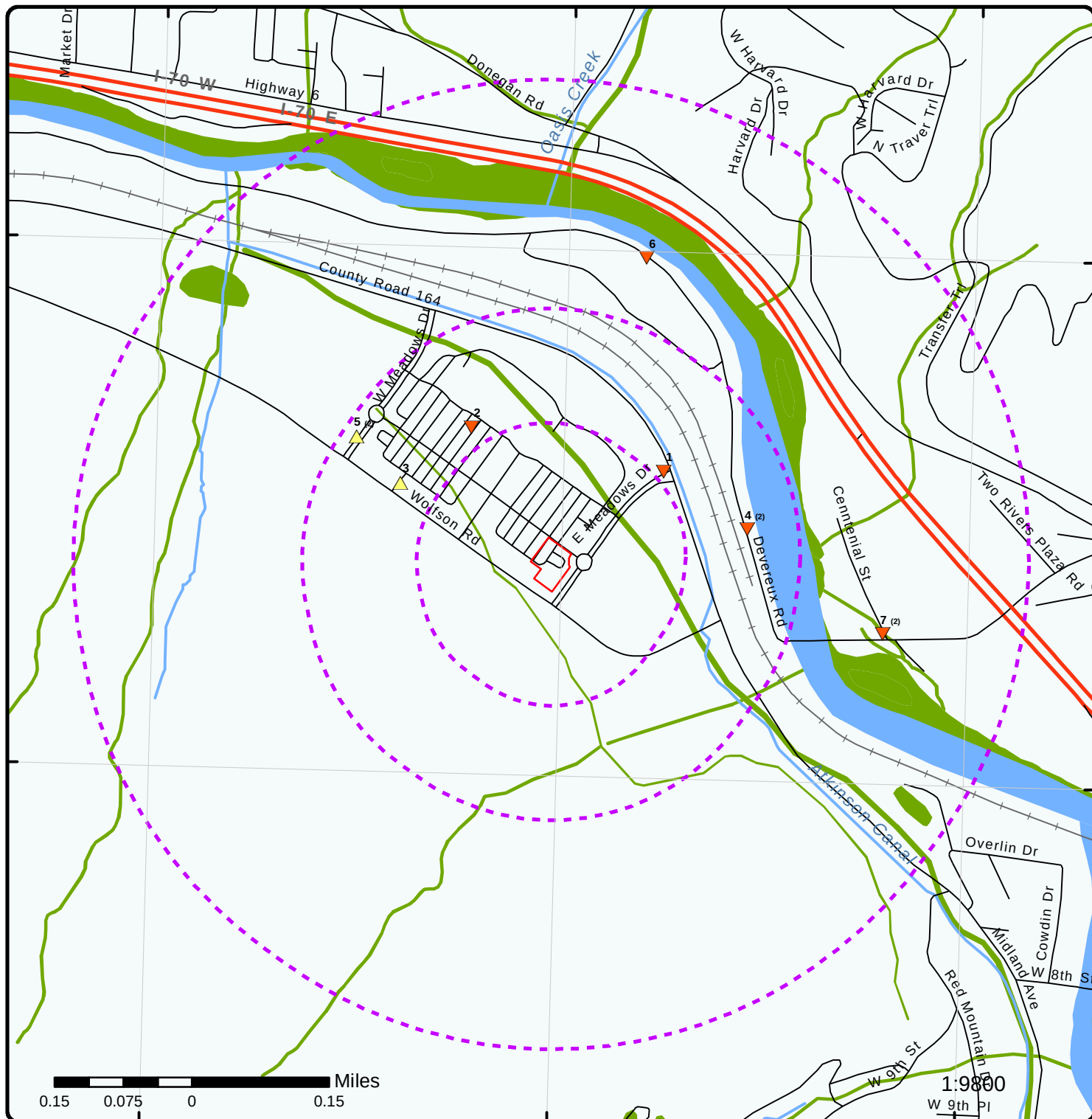
## Map : 1.0 Mile Radius

Order Number: 20291000819

Address: 405 Wulfsohn Road, Glenwood Springs, CO



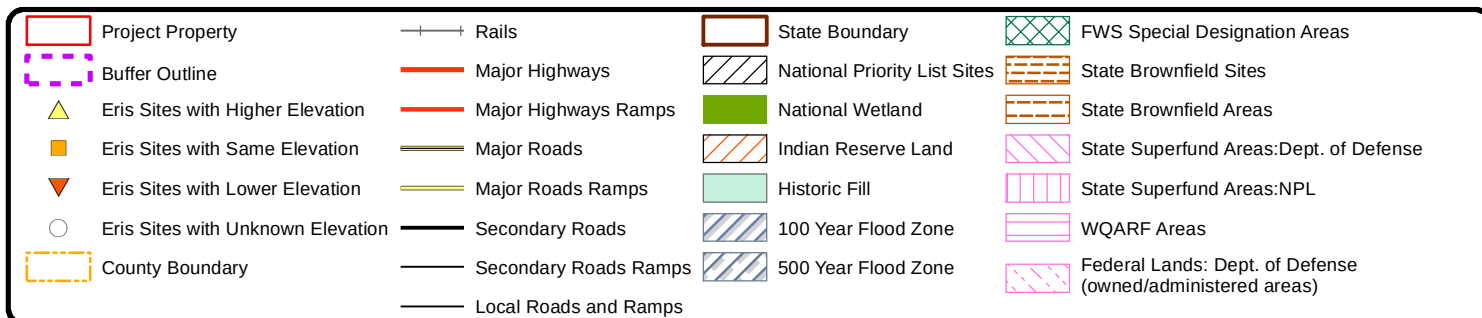
|                                   |                       |                              |                                                            |
|-----------------------------------|-----------------------|------------------------------|------------------------------------------------------------|
| Project Property                  | Rails                 | State Boundary               | FWS Special Designation Areas                              |
| Buffer Outline                    | Major Highways        | National Priority List Sites | State Brownfield Sites                                     |
| Eris Sites with Higher Elevation  | Major Highways Ramps  | National Wetland             | State Brownfield Areas                                     |
| Eris Sites with Same Elevation    | Major Roads           | Indian Reserve Land          | State Superfund Areas: Dept. of Defense                    |
| Eris Sites with Lower Elevation   | Major Roads Ramps     | Historic Fill                | State Superfund Areas: NPL                                 |
| Eris Sites with Unknown Elevation | Secondary Roads       | 100 Year Flood Zone          | WQARF Areas                                                |
| County Boundary                   | Secondary Roads Ramps | 500 Year Flood Zone          | Federal Lands: Dept. of Defense (owned/administered areas) |
|                                   | Local Roads and Ramps |                              |                                                            |

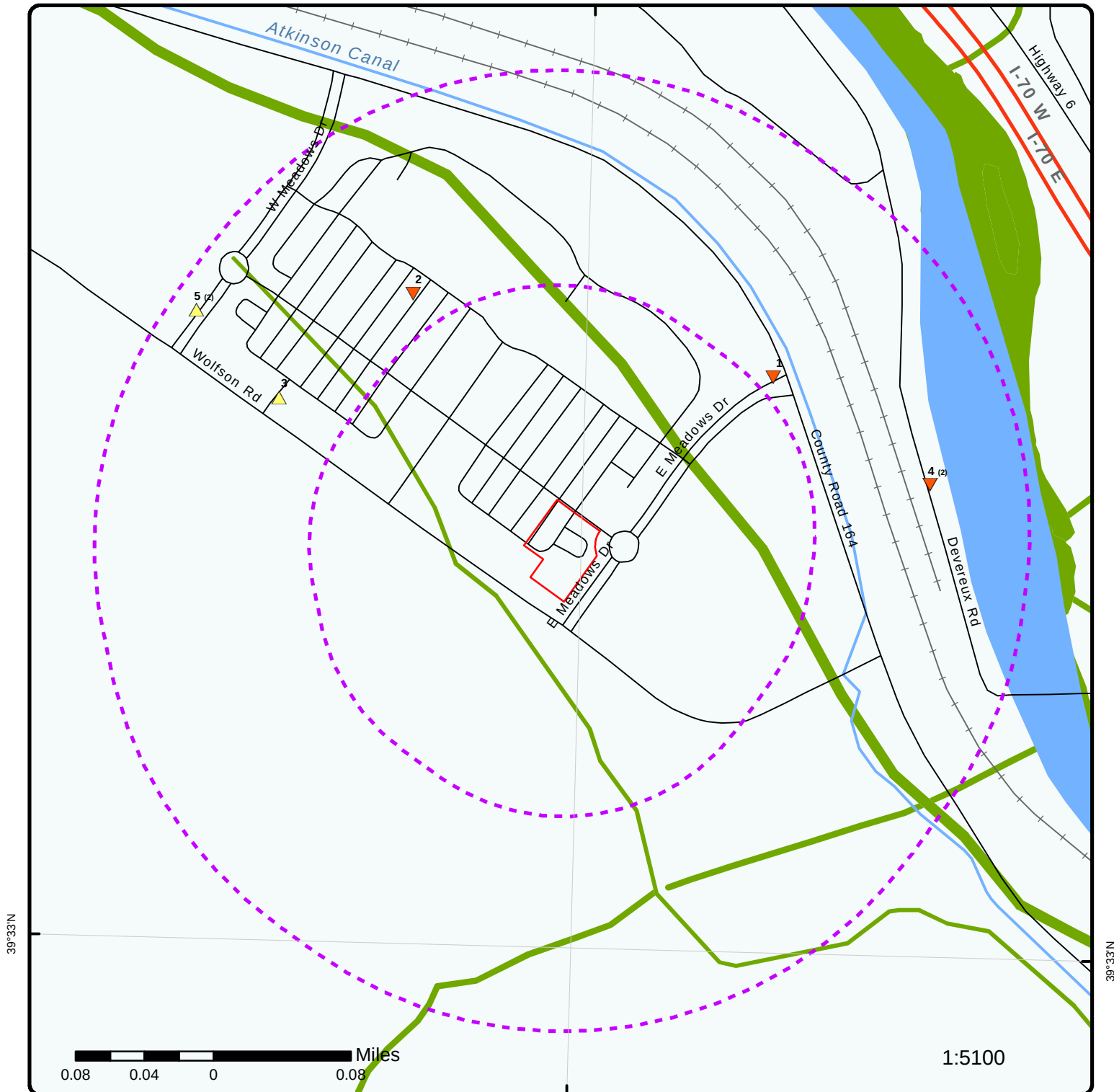


## Map : 0.5 Mile Radius

Order Number: 20291000819

Address: 405 Wulfsohn Road, Glenwood Springs, CO





## Map : 0.25 Mile Radius

Order Number: 20291000819

Address: 405 Wulfsohn Road, Glenwood Springs, CO



|                                   |                       |                              |                                                            |
|-----------------------------------|-----------------------|------------------------------|------------------------------------------------------------|
| Project Property                  | Rails                 | State Boundary               | FWS Special Designation Areas                              |
| Buffer Outline                    | Major Highways        | National Priority List Sites | State Brownfield Sites                                     |
| Eris Sites with Higher Elevation  | Major Highways Ramps  | National Wetland             | State Brownfield Areas                                     |
| Eris Sites with Same Elevation    | Major Roads           | Indian Reserve Land          | State Superfund Areas: Dept. of Defense                    |
| Eris Sites with Lower Elevation   | Major Roads Ramps     | Historic Fill                | State Superfund Areas: NPL                                 |
| Eris Sites with Unknown Elevation | Secondary Roads       | 100 Year Flood Zone          | WQARF Areas                                                |
| County Boundary                   | Secondary Roads Ramps | 500 Year Flood Zone          | Federal Lands: Dept. of Defense (owned/administered areas) |
|                                   | Local Roads and Ramps |                              |                                                            |





**Aerial** Year: 2018

Address: 405 Wulfsohn Road, Glenwood Springs, CO

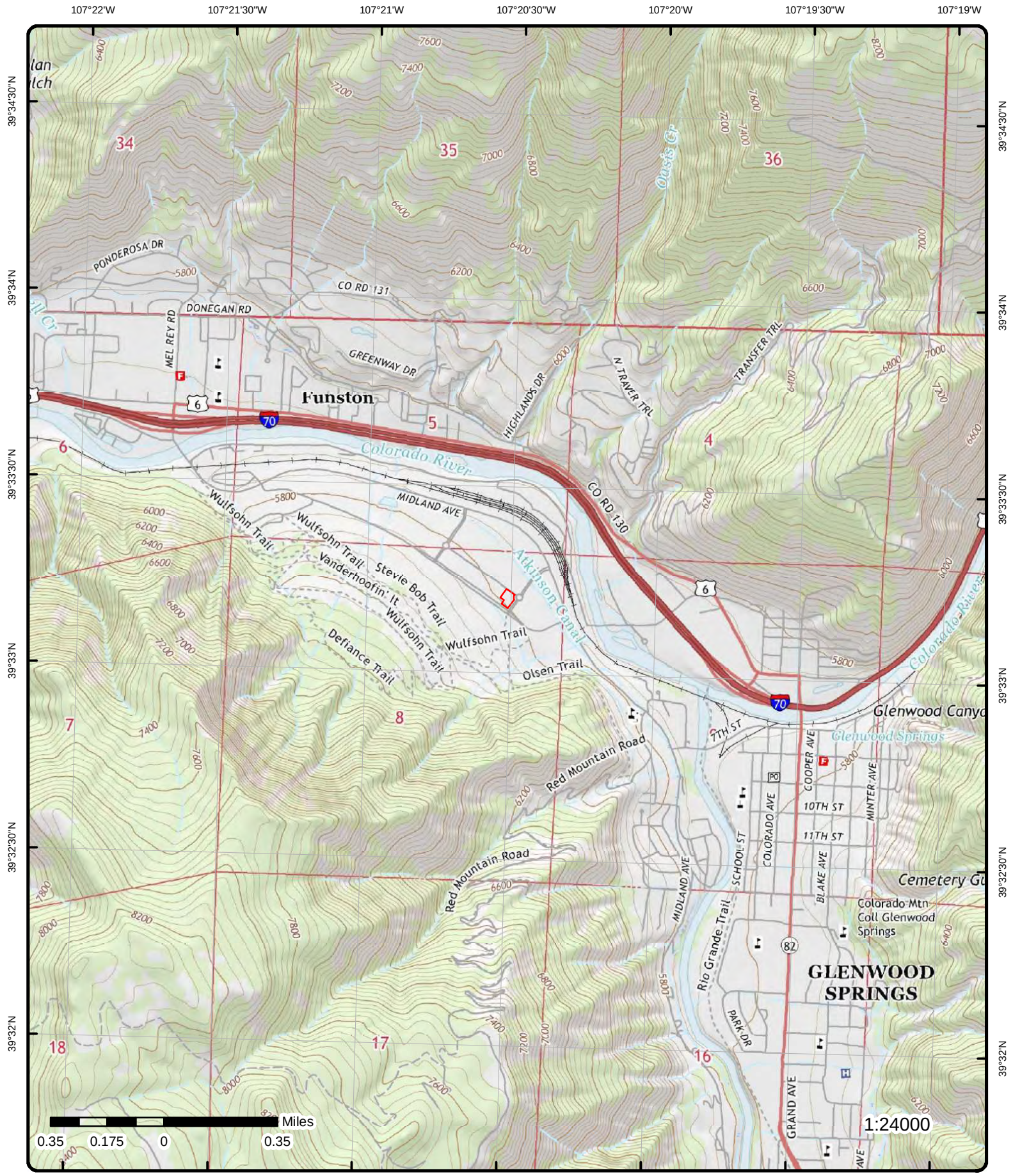
Source: ESRI World Imagery

Order Number: 20291000819



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# Detail Report

| Map Key           | Number of Records | Direction | Distance (mi/ft) | Elev/Diff (ft) | Site                                                               | DB         |
|-------------------|-------------------|-----------|------------------|----------------|--------------------------------------------------------------------|------------|
| <a href="#">1</a> | 1 of 1            | NE        | 0.13 / 712.67    | 5,743.02 / -49 | PETCO STORE #1446<br>105 E MEADOWS DR<br>GLENWOOD SPRINGS CO 81601 | RCRA CESQG |

**EPA Handler ID:** COR000232926  
**Gen Status Universe:** Conditionally Exempt Small Quantity Generator  
**Contact Name:** AMY PATTON  
**Contact Address:** 654 , RICHLAND HILLS DR , , SAN ANTONIO , TX, 78245 , US  
**Contact Phone No and Ext:** 210-201-9241  
**Contact Email:** AMY.PATTON@PETCO.COM  
**Contact Country:** US  
**County Name:** GARFIELD  
**EPA Region:** 08  
**Land Type:** Private  
**Receive Date:** 20140506

## Violation/Evaluation Summary

**Note:** NO RECORDS: As of May 2020, there are no Compliance Monitoring and Enforcement (violation) records associated with this facility (EPA ID).

## Handler Summary

**Importer Activity:** No  
**Mixed Waste Generator:** No  
**Transporter Activity:** No  
**Transfer Facility:** No  
**Onsite Burner Exemption:** No  
**Furnace Exemption:** No  
**Underground Injection Activity:** No  
**Commercial TSD:** No  
**Used Oil Transporter:** No  
**Used Oil Transfer Facility:** No  
**Used Oil Processor:** No  
**Used Oil Refiner:** No  
**Used Oil Burner:** No  
**Used Oil Market Burner:** No  
**Used Oil Spec Marketer:** No

## Hazardous Waste Handler Details

**Sequence No:** 1  
**Receive Date:** 20140402  
**Handler Name:** PETCO STORE #1446  
**Federal Waste Generator Code:** 3  
**Generator Code Description:** Very Small Quantity Generator  
**Source Type:** Notification

## Waste Code Details

**Hazardous Waste Code:** D001  
**Waste Code Description:** IGNITABLE WASTE  
  
**Hazardous Waste Code:** D002  
**Waste Code Description:** CORROSIVE WASTE

| Map Key | Number of Records | Direction | Distance (mi/ft) | Elev/Diff (ft) | Site | DB |
|---------|-------------------|-----------|------------------|----------------|------|----|
|---------|-------------------|-----------|------------------|----------------|------|----|

|                         |                                        |
|-------------------------|----------------------------------------|
| Hazardous Waste Code:   | D005                                   |
| Waste Code Description: | BARIUM                                 |
| Hazardous Waste Code:   | D007                                   |
| Waste Code Description: | CHROMIUM                               |
| Hazardous Waste Code:   | D008                                   |
| Waste Code Description: | LEAD                                   |
| Hazardous Waste Code:   | D009                                   |
| Waste Code Description: | MERCURY                                |
| Hazardous Waste Code:   | D016                                   |
| Waste Code Description: | 2,4-D (2,4-DICHLOROPHENOXYACETIC ACID) |
| Hazardous Waste Code:   | D018                                   |
| Waste Code Description: | BENZENE                                |
| Hazardous Waste Code:   | D035                                   |
| Waste Code Description: | METHYL ETHYL KETONE                    |

#### Hazardous Waste Handler Details

|                               |                               |
|-------------------------------|-------------------------------|
| Sequence No:                  | 2                             |
| Receive Date:                 | 20140506                      |
| Handler Name:                 | PETCO STORE #1446             |
| Federal Waste Generator Code: | 3                             |
| Generator Code Description:   | Very Small Quantity Generator |
| Source Type:                  | Notification                  |

#### Waste Code Details

|                         |                                        |
|-------------------------|----------------------------------------|
| Hazardous Waste Code:   | D001                                   |
| Waste Code Description: | IGNITABLE WASTE                        |
| Hazardous Waste Code:   | D002                                   |
| Waste Code Description: | CORROSIVE WASTE                        |
| Hazardous Waste Code:   | D005                                   |
| Waste Code Description: | BARIUM                                 |
| Hazardous Waste Code:   | D007                                   |
| Waste Code Description: | CHROMIUM                               |
| Hazardous Waste Code:   | D008                                   |
| Waste Code Description: | LEAD                                   |
| Hazardous Waste Code:   | D009                                   |
| Waste Code Description: | MERCURY                                |
| Hazardous Waste Code:   | D016                                   |
| Waste Code Description: | 2,4-D (2,4-DICHLOROPHENOXYACETIC ACID) |
| Hazardous Waste Code:   | D018                                   |
| Waste Code Description: | BENZENE                                |
| Hazardous Waste Code:   | D035                                   |
| Waste Code Description: | METHYL ETHYL KETONE                    |

#### Owner/Operator Details

|                     |                                |            |                        |
|---------------------|--------------------------------|------------|------------------------|
| Owner/Operator Ind: | Current Owner                  | Street No: | 850                    |
| Type:               | Private                        | Street 1:  | ENGLEWOOD PKWY STE 200 |
| Name:               | WEINGARTEN MILLER GLENWOOD LLC | Street 2:  |                        |

| Map Key                     | Number of Records | Direction | Distance (mi/ft) | Elev/Diff (ft)    | Site             | DB |
|-----------------------------|-------------------|-----------|------------------|-------------------|------------------|----|
| <b>Date Became Current:</b> | 20140402          |           |                  | <b>City:</b>      | ENGLEWOOD        |    |
| <b>Date Ended Current:</b>  |                   |           |                  | <b>State:</b>     | CO               |    |
| <b>Phone:</b>               |                   |           |                  | <b>Country:</b>   | US               |    |
| <b>Source Type:</b>         | Notification      |           |                  | <b>Zip Code:</b>  | 80110            |    |
| <b>Owner/Operator Ind:</b>  | Current Operator  |           |                  | <b>Street No:</b> | 105              |    |
| <b>Type:</b>                | Private           |           |                  | <b>Street 1:</b>  | E MEADOWS DR     |    |
| <b>Name:</b>                | PETCO STORE #1446 |           |                  | <b>Street 2:</b>  |                  |    |
| <b>Date Became Current:</b> | 20140402          |           |                  | <b>City:</b>      | GLENWOOD SPRINGS |    |
| <b>Date Ended Current:</b>  |                   |           |                  | <b>State:</b>     | CO               |    |
| <b>Phone:</b>               |                   |           |                  | <b>Country:</b>   | US               |    |
| <b>Source Type:</b>         | Notification      |           |                  | <b>Zip Code:</b>  | 81601            |    |

#### Historical Handler Details

**Receive Dt:** 20140402  
**Generator Code Description:** Very Small Quantity Generator  
**Handler Name:** PETCO STORE #1446

|                   |        |    |                  |                  |                                                                          |          |
|-------------------|--------|----|------------------|------------------|--------------------------------------------------------------------------|----------|
| <a href="#">2</a> | 1 of 1 | NW | 0.15 /<br>772.56 | 5,783.10 /<br>-9 | TARGET STORE T2029<br>110 W MEADOWS DR<br>GLENWOOD SPRINGS CO 81601-9516 | RCRA LQG |
|-------------------|--------|----|------------------|------------------|--------------------------------------------------------------------------|----------|

**EPA Handler ID:** COR000212498  
**Gen Status Universe:** Large Quantity Generator  
**Contact Name:** STEVE MUSSER  
**Contact Address:** P O BOX 111 , , MINNEAPOLIS , MN, 55440 , US  
**Contact Phone No and Ext:** 800-587-2228  
**Contact Email:** POC@TARGET.COM  
**Contact Country:** US  
**County Name:** GARFIELD  
**EPA Region:** 08  
**Land Type:** Private  
**Receive Date:** 20200214

#### Violation/Evaluation Summary

**Note:** VIOLATION or UNDETERMINED: There are VIOLATION or UNDETERMINED details or records associated with this facility (EPA ID) in the Compliance Monitoring and Enforcement table dated May, 2020.

#### Violation Details

**Citation:**  
**Violation Short Description:** Generators - Pre-transport  
**Violation Type:** 262.C  
**Violation Determined Date:** 20170719  
**Scheduled Compliance Date:**  
**Return to Compliance:** Documented  
**Actual Return to Compl:** 20170821  
**Violation Responsible Agency:** State

#### Enforcement Details

**Enforcement Type:** 175  
**Enforcement Type Description:** COMPLIANCE ADVISORY  
**Enforcement Action Date:** 20170719  
**Enf Disposition Status:**  
**Disposition Status Date:**  
**Enforcement Lead Agency:** State  
**Proposed Penalty Amount:**  
**Final Amount:**  
**Paid Amount:**

| Map Key | Number of Records | Direction | Distance (mi/ft) | Elev/Diff (ft) | Site | DB |
|---------|-------------------|-----------|------------------|----------------|------|----|
|---------|-------------------|-----------|------------------|----------------|------|----|

#### Violation Details

**Citation:**  
**Violation Short Description:** Universal Waste - General  
**Violation Type:** 273.A  
**Violation Determined Date:** 20170719  
**Scheduled Compliance Date:**  
**Return to Compliance:** Documented  
**Actual Return to Compl:** 20170821  
**Violation Responsible Agency:** State

#### Enforcement Details

**Enforcement Type:** 175  
**Enforcement Type Description:** COMPLIANCE ADVISORY  
**Enforcement Action Date:** 20170719  
**Enf Disposition Status:**  
**Disposition Status Date:**  
**Enforcement Lead Agency:** State  
**Proposed Penalty Amount:**  
**Final Amount:**  
**Paid Amount:**

#### Evaluation Details

**Evaluation Start Date:** 20170821  
**Evaluation Type Description:** FOCUSED COMPLIANCE INSPECTION  
**Violation Short Description:**  
**Return to Compliance Date:**  
**Evaluation Agency:** State

**Evaluation Start Date:** 20170719  
**Evaluation Type Description:** COMPLIANCE EVALUATION INSPECTION ON-SITE  
**Violation Short Description:** Generators - Pre-transport  
**Return to Compliance Date:** 20170821  
**Evaluation Agency:** State

**Evaluation Start Date:** 20170719  
**Evaluation Type Description:** COMPLIANCE EVALUATION INSPECTION ON-SITE  
**Violation Short Description:** Universal Waste - General  
**Return to Compliance Date:** 20170821  
**Evaluation Agency:** State

#### Handler Summary

**Importer Activity:** No  
**Mixed Waste Generator:** No  
**Transporter Activity:** No  
**Transfer Facility:** No  
**Onsite Burner Exemption:** No  
**Furnace Exemption:** No  
**Underground Injection Activity:** No  
**Commercial TSD:** No  
**Used Oil Transporter:** No  
**Used Oil Transfer Facility:** No  
**Used Oil Processor:** No  
**Used Oil Refiner:** No  
**Used Oil Burner:** No  
**Used Oil Market Burner:** No  
**Used Oil Spec Marketer:** No

#### Hazardous Waste Handler Details

| Map Key                                           | Number of<br>Records | Direction                              | Distance<br>(mi/ft) | Elev/Diff<br>(ft) | Site | DB |
|---------------------------------------------------|----------------------|----------------------------------------|---------------------|-------------------|------|----|
| <hr/>                                             |                      |                                        |                     |                   |      |    |
| <b>Sequence No:</b>                               |                      | 1                                      |                     |                   |      |    |
| <b>Receive Date:</b>                              |                      | 20051017                               |                     |                   |      |    |
| <b>Handler Name:</b>                              |                      | TARGET #2029                           |                     |                   |      |    |
| <b>Federal Waste Generator Code:</b>              |                      | 3                                      |                     |                   |      |    |
| <b>Generator Code Description:</b>                |                      | Very Small Quantity Generator          |                     |                   |      |    |
| <b>Source Type:</b>                               |                      | Notification                           |                     |                   |      |    |
| <br><b><u>Waste Code Details</u></b>              |                      |                                        |                     |                   |      |    |
| <b>Hazardous Waste Code:</b>                      |                      | D001                                   |                     |                   |      |    |
| <b>Waste Code Description:</b>                    |                      | IGNITABLE WASTE                        |                     |                   |      |    |
| <b>Hazardous Waste Code:</b>                      |                      | D002                                   |                     |                   |      |    |
| <b>Waste Code Description:</b>                    |                      | CORROSIVE WASTE                        |                     |                   |      |    |
| <br><b><u>Hazardous Waste Handler Details</u></b> |                      |                                        |                     |                   |      |    |
| <b>Sequence No:</b>                               |                      | 2                                      |                     |                   |      |    |
| <b>Receive Date:</b>                              |                      | 20160411                               |                     |                   |      |    |
| <b>Handler Name:</b>                              |                      | TARGET STORE T2029                     |                     |                   |      |    |
| <b>Federal Waste Generator Code:</b>              |                      | 1                                      |                     |                   |      |    |
| <b>Generator Code Description:</b>                |                      | Large Quantity Generator               |                     |                   |      |    |
| <b>Source Type:</b>                               |                      | Notification                           |                     |                   |      |    |
| <br><b><u>Waste Code Details</u></b>              |                      |                                        |                     |                   |      |    |
| <b>Hazardous Waste Code:</b>                      |                      | D001                                   |                     |                   |      |    |
| <b>Waste Code Description:</b>                    |                      | IGNITABLE WASTE                        |                     |                   |      |    |
| <b>Hazardous Waste Code:</b>                      |                      | D002                                   |                     |                   |      |    |
| <b>Waste Code Description:</b>                    |                      | CORROSIVE WASTE                        |                     |                   |      |    |
| <b>Hazardous Waste Code:</b>                      |                      | D004                                   |                     |                   |      |    |
| <b>Waste Code Description:</b>                    |                      | ARSENIC                                |                     |                   |      |    |
| <b>Hazardous Waste Code:</b>                      |                      | D005                                   |                     |                   |      |    |
| <b>Waste Code Description:</b>                    |                      | BARIUM                                 |                     |                   |      |    |
| <b>Hazardous Waste Code:</b>                      |                      | D006                                   |                     |                   |      |    |
| <b>Waste Code Description:</b>                    |                      | CADMIUM                                |                     |                   |      |    |
| <b>Hazardous Waste Code:</b>                      |                      | D007                                   |                     |                   |      |    |
| <b>Waste Code Description:</b>                    |                      | CHROMIUM                               |                     |                   |      |    |
| <b>Hazardous Waste Code:</b>                      |                      | D008                                   |                     |                   |      |    |
| <b>Waste Code Description:</b>                    |                      | LEAD                                   |                     |                   |      |    |
| <b>Hazardous Waste Code:</b>                      |                      | D009                                   |                     |                   |      |    |
| <b>Waste Code Description:</b>                    |                      | MERCURY                                |                     |                   |      |    |
| <b>Hazardous Waste Code:</b>                      |                      | D010                                   |                     |                   |      |    |
| <b>Waste Code Description:</b>                    |                      | SELENIUM                               |                     |                   |      |    |
| <b>Hazardous Waste Code:</b>                      |                      | D011                                   |                     |                   |      |    |
| <b>Waste Code Description:</b>                    |                      | SILVER                                 |                     |                   |      |    |
| <b>Hazardous Waste Code:</b>                      |                      | D016                                   |                     |                   |      |    |
| <b>Waste Code Description:</b>                    |                      | 2,4-D (2,4-DICHLOROPHENOXYACETIC ACID) |                     |                   |      |    |
| <b>Hazardous Waste Code:</b>                      |                      | D018                                   |                     |                   |      |    |
| <b>Waste Code Description:</b>                    |                      | BENZENE                                |                     |                   |      |    |
| <b>Hazardous Waste Code:</b>                      |                      | D024                                   |                     |                   |      |    |
| <b>Waste Code Description:</b>                    |                      | M-CRESOL                               |                     |                   |      |    |

| Map Key                        | Number of Records | Direction                                                                                                                                                 | Distance (mi/ft) | Elev/Diff (ft) | Site | DB |
|--------------------------------|-------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------|------------------|----------------|------|----|
| <b>Hazardous Waste Code:</b>   |                   | D026                                                                                                                                                      |                  |                |      |    |
| <b>Waste Code Description:</b> |                   | CRESOL                                                                                                                                                    |                  |                |      |    |
| <b>Hazardous Waste Code:</b>   |                   | D035                                                                                                                                                      |                  |                |      |    |
| <b>Waste Code Description:</b> |                   | METHYL ETHYL KETONE                                                                                                                                       |                  |                |      |    |
| <b>Hazardous Waste Code:</b>   |                   | P075                                                                                                                                                      |                  |                |      |    |
| <b>Waste Code Description:</b> |                   | NICOTINE, & SALTS (OR) PYRIDINE, 3-(1-METHYL-2-PYRROLIDINYL)-(S)-, & SALTS                                                                                |                  |                |      |    |
| <b>Hazardous Waste Code:</b>   |                   | U002                                                                                                                                                      |                  |                |      |    |
| <b>Waste Code Description:</b> |                   | 2-PROPANONE (I) (OR) ACETONE (I)                                                                                                                          |                  |                |      |    |
| <b>Hazardous Waste Code:</b>   |                   | U035                                                                                                                                                      |                  |                |      |    |
| <b>Waste Code Description:</b> |                   | BENZENE BUTANOIC ACID, 4-[BIS(2-CHLOROETHYL)AMINO]- (OR) CHLORAMBUCIL                                                                                     |                  |                |      |    |
| <b>Hazardous Waste Code:</b>   |                   | U044                                                                                                                                                      |                  |                |      |    |
| <b>Waste Code Description:</b> |                   | CHLOROFORM (OR) METHANE, TRICHLORO-                                                                                                                       |                  |                |      |    |
| <b>Hazardous Waste Code:</b>   |                   | U058                                                                                                                                                      |                  |                |      |    |
| <b>Waste Code Description:</b> |                   | 2H-1,3,2-OXAZAPHOSPHORIN-2-AMINE, N,N-BIS(2-CHLOROETHYL)TETRAHYDRO-, 2-OXIDE (OR) CYCLOPHOSPHAMIDE                                                        |                  |                |      |    |
| <b>Hazardous Waste Code:</b>   |                   | U072                                                                                                                                                      |                  |                |      |    |
| <b>Waste Code Description:</b> |                   | BENZENE, 1,4-DICHLORO- (OR) P-DICHLOROBENZENE                                                                                                             |                  |                |      |    |
| <b>Hazardous Waste Code:</b>   |                   | U122                                                                                                                                                      |                  |                |      |    |
| <b>Waste Code Description:</b> |                   | FORMALDEHYDE                                                                                                                                              |                  |                |      |    |
| <b>Hazardous Waste Code:</b>   |                   | U129                                                                                                                                                      |                  |                |      |    |
| <b>Waste Code Description:</b> |                   | CYCLOHEXANE, 1,2,3,4,5,6-HEXACHLORO-, (1ALPHA, 2ALPHA, 3BETA, 4ALPHA, 5ALPHA, 6BETA)- (OR) LINDANE                                                        |                  |                |      |    |
| <b>Hazardous Waste Code:</b>   |                   | U150                                                                                                                                                      |                  |                |      |    |
| <b>Waste Code Description:</b> |                   | L-PHENYLALANINE, 4-[BIS(2-CHLOROETHYL)AMINO]- (OR) MELPHALAN                                                                                              |                  |                |      |    |
| <b>Hazardous Waste Code:</b>   |                   | U154                                                                                                                                                      |                  |                |      |    |
| <b>Waste Code Description:</b> |                   | METHANOL (I) (OR) METHYL ALCOHOL (I)                                                                                                                      |                  |                |      |    |
| <b>Hazardous Waste Code:</b>   |                   | U188                                                                                                                                                      |                  |                |      |    |
| <b>Waste Code Description:</b> |                   | PHENOL                                                                                                                                                    |                  |                |      |    |
| <b>Hazardous Waste Code:</b>   |                   | U200                                                                                                                                                      |                  |                |      |    |
| <b>Waste Code Description:</b> |                   | RESERPINE (OR) YOHIMBAN-16-CARBOXYLIC ACID, 11,17-DIMETHOXY-18-[(3,4,5-TRIMETHOXYBENZOYL) OXY]-, METHYL ESTER, (3BETA, 16BETA, 17ALPHA, 18BETA, 20ALPHA)- |                  |                |      |    |
| <b>Hazardous Waste Code:</b>   |                   | U201                                                                                                                                                      |                  |                |      |    |
| <b>Waste Code Description:</b> |                   | 1,3-BENZENEDIOL (OR) RESORCINOL                                                                                                                           |                  |                |      |    |
| <b>Hazardous Waste Code:</b>   |                   | U279                                                                                                                                                      |                  |                |      |    |
| <b>Waste Code Description:</b> |                   | CARBARYL (OR) 1-NAPHTHALENOL, METHYLCARBAMATE                                                                                                             |                  |                |      |    |

#### **Hazardous Waste Handler Details**

**Sequence No:** 1  
**Receive Date:** 20180417  
**Handler Name:** TARGET STORE T2029  
**Federal Waste Generator Code:** 1  
**Generator Code Description:** Large Quantity Generator  
**Source Type:** Annual/Biennial Report update with Notification

#### **Waste Code Details**

**Hazardous Waste Code:** D001  
**Waste Code Description:** IGNITABLE WASTE  
  
**Hazardous Waste Code:** D002

| <b>Map Key</b>                 | <b>Number of Records</b> | <b>Direction</b>                                                           | <b>Distance (mi/ft)</b> | <b>Elev/Diff (ft)</b> | <b>Site</b> | <b>DB</b> |
|--------------------------------|--------------------------|----------------------------------------------------------------------------|-------------------------|-----------------------|-------------|-----------|
| <b>Waste Code Description:</b> |                          | CORROSIVE WASTE                                                            |                         |                       |             |           |
| <b>Hazardous Waste Code:</b>   |                          | D004                                                                       |                         |                       |             |           |
| <b>Waste Code Description:</b> |                          | ARSENIC                                                                    |                         |                       |             |           |
| <b>Hazardous Waste Code:</b>   |                          | D005                                                                       |                         |                       |             |           |
| <b>Waste Code Description:</b> |                          | BARIUM                                                                     |                         |                       |             |           |
| <b>Hazardous Waste Code:</b>   |                          | D006                                                                       |                         |                       |             |           |
| <b>Waste Code Description:</b> |                          | CADMIUM                                                                    |                         |                       |             |           |
| <b>Hazardous Waste Code:</b>   |                          | D007                                                                       |                         |                       |             |           |
| <b>Waste Code Description:</b> |                          | CHROMIUM                                                                   |                         |                       |             |           |
| <b>Hazardous Waste Code:</b>   |                          | D008                                                                       |                         |                       |             |           |
| <b>Waste Code Description:</b> |                          | LEAD                                                                       |                         |                       |             |           |
| <b>Hazardous Waste Code:</b>   |                          | D009                                                                       |                         |                       |             |           |
| <b>Waste Code Description:</b> |                          | MERCURY                                                                    |                         |                       |             |           |
| <b>Hazardous Waste Code:</b>   |                          | D010                                                                       |                         |                       |             |           |
| <b>Waste Code Description:</b> |                          | SELENIUM                                                                   |                         |                       |             |           |
| <b>Hazardous Waste Code:</b>   |                          | D011                                                                       |                         |                       |             |           |
| <b>Waste Code Description:</b> |                          | SILVER                                                                     |                         |                       |             |           |
| <b>Hazardous Waste Code:</b>   |                          | D016                                                                       |                         |                       |             |           |
| <b>Waste Code Description:</b> |                          | 2,4-D (2,4-DICHLOROPHENOXYACETIC ACID)                                     |                         |                       |             |           |
| <b>Hazardous Waste Code:</b>   |                          | D018                                                                       |                         |                       |             |           |
| <b>Waste Code Description:</b> |                          | BENZENE                                                                    |                         |                       |             |           |
| <b>Hazardous Waste Code:</b>   |                          | D024                                                                       |                         |                       |             |           |
| <b>Waste Code Description:</b> |                          | M-CRESOL                                                                   |                         |                       |             |           |
| <b>Hazardous Waste Code:</b>   |                          | D026                                                                       |                         |                       |             |           |
| <b>Waste Code Description:</b> |                          | CRESOL                                                                     |                         |                       |             |           |
| <b>Hazardous Waste Code:</b>   |                          | D027                                                                       |                         |                       |             |           |
| <b>Waste Code Description:</b> |                          | 1,4-DICHLOROBENZENE                                                        |                         |                       |             |           |
| <b>Hazardous Waste Code:</b>   |                          | D035                                                                       |                         |                       |             |           |
| <b>Waste Code Description:</b> |                          | METHYL ETHYL KETONE                                                        |                         |                       |             |           |
| <b>Hazardous Waste Code:</b>   |                          | D039                                                                       |                         |                       |             |           |
| <b>Waste Code Description:</b> |                          | TETRACHLOROETHYLENE                                                        |                         |                       |             |           |
| <b>Hazardous Waste Code:</b>   |                          | P075                                                                       |                         |                       |             |           |
| <b>Waste Code Description:</b> |                          | NICOTINE, & SALTS (OR) PYRIDINE, 3-(1-METHYL-2-PYRROLIDINYL)-(S)-, & SALTS |                         |                       |             |           |
| <b>Hazardous Waste Code:</b>   |                          | U002                                                                       |                         |                       |             |           |
| <b>Waste Code Description:</b> |                          | 2-PROPANONE (I) (OR) ACETONE (I)                                           |                         |                       |             |           |
| <b>Hazardous Waste Code:</b>   |                          | U035                                                                       |                         |                       |             |           |
| <b>Waste Code Description:</b> |                          | BENZENEBUTANOIC ACID, 4-[BIS(2-CHLOROETHYL)AMINO]- (OR) CHLORAMBUCIL       |                         |                       |             |           |
| <b>Hazardous Waste Code:</b>   |                          | U154                                                                       |                         |                       |             |           |
| <b>Waste Code Description:</b> |                          | METHANOL (I) (OR) METHYL ALCOHOL (I)                                       |                         |                       |             |           |
| <b>Hazardous Waste Code:</b>   |                          | U188                                                                       |                         |                       |             |           |
| <b>Waste Code Description:</b> |                          | PHENOL                                                                     |                         |                       |             |           |
| <b>Hazardous Waste Code:</b>   |                          | U279                                                                       |                         |                       |             |           |
| <b>Waste Code Description:</b> |                          | CARBARYL (OR) 1-NAPHTHALENOL, METHYLCARBAMATE                              |                         |                       |             |           |

**Hazardous Waste Handler Details**

**Sequence No:** 2



| Map Key                              | Number of<br>Records | Direction                                                                   | Distance<br>(mi/ft) | Elev/Diff<br>(ft) | Site | DB |
|--------------------------------------|----------------------|-----------------------------------------------------------------------------|---------------------|-------------------|------|----|
| <b>Receive Date:</b>                 |                      | 20200214                                                                    |                     |                   |      |    |
| <b>Handler Name:</b>                 |                      | TARGET STORE T2029                                                          |                     |                   |      |    |
| <b>Federal Waste Generator Code:</b> |                      | 1                                                                           |                     |                   |      |    |
| <b>Generator Code Description:</b>   |                      | Large Quantity Generator                                                    |                     |                   |      |    |
| <b>Source Type:</b>                  |                      | Annual/Biennial Report update with Notification                             |                     |                   |      |    |
| <b><u>Waste Code Details</u></b>     |                      |                                                                             |                     |                   |      |    |
| <b>Hazardous Waste Code:</b>         |                      | D001                                                                        |                     |                   |      |    |
| <b>Waste Code Description:</b>       |                      | IGNITABLE WASTE                                                             |                     |                   |      |    |
| <b>Hazardous Waste Code:</b>         |                      | D002                                                                        |                     |                   |      |    |
| <b>Waste Code Description:</b>       |                      | CORROSIVE WASTE                                                             |                     |                   |      |    |
| <b>Hazardous Waste Code:</b>         |                      | D004                                                                        |                     |                   |      |    |
| <b>Waste Code Description:</b>       |                      | ARSENIC                                                                     |                     |                   |      |    |
| <b>Hazardous Waste Code:</b>         |                      | D005                                                                        |                     |                   |      |    |
| <b>Waste Code Description:</b>       |                      | BARIUM                                                                      |                     |                   |      |    |
| <b>Hazardous Waste Code:</b>         |                      | D006                                                                        |                     |                   |      |    |
| <b>Waste Code Description:</b>       |                      | CADMIUM                                                                     |                     |                   |      |    |
| <b>Hazardous Waste Code:</b>         |                      | D007                                                                        |                     |                   |      |    |
| <b>Waste Code Description:</b>       |                      | CHROMIUM                                                                    |                     |                   |      |    |
| <b>Hazardous Waste Code:</b>         |                      | D008                                                                        |                     |                   |      |    |
| <b>Waste Code Description:</b>       |                      | LEAD                                                                        |                     |                   |      |    |
| <b>Hazardous Waste Code:</b>         |                      | D009                                                                        |                     |                   |      |    |
| <b>Waste Code Description:</b>       |                      | MERCURY                                                                     |                     |                   |      |    |
| <b>Hazardous Waste Code:</b>         |                      | D010                                                                        |                     |                   |      |    |
| <b>Waste Code Description:</b>       |                      | SELENIUM                                                                    |                     |                   |      |    |
| <b>Hazardous Waste Code:</b>         |                      | D011                                                                        |                     |                   |      |    |
| <b>Waste Code Description:</b>       |                      | SILVER                                                                      |                     |                   |      |    |
| <b>Hazardous Waste Code:</b>         |                      | D016                                                                        |                     |                   |      |    |
| <b>Waste Code Description:</b>       |                      | 2,4-D (2,4-DICHLOROPHENOXYACETIC ACID)                                      |                     |                   |      |    |
| <b>Hazardous Waste Code:</b>         |                      | D018                                                                        |                     |                   |      |    |
| <b>Waste Code Description:</b>       |                      | BENZENE                                                                     |                     |                   |      |    |
| <b>Hazardous Waste Code:</b>         |                      | D027                                                                        |                     |                   |      |    |
| <b>Waste Code Description:</b>       |                      | 1,4-DICHLOROBENZENE                                                         |                     |                   |      |    |
| <b>Hazardous Waste Code:</b>         |                      | D035                                                                        |                     |                   |      |    |
| <b>Waste Code Description:</b>       |                      | METHYL ETHYL KETONE                                                         |                     |                   |      |    |
| <b>Hazardous Waste Code:</b>         |                      | D039                                                                        |                     |                   |      |    |
| <b>Waste Code Description:</b>       |                      | TETRACHLOROETHYLENE                                                         |                     |                   |      |    |
| <b>Hazardous Waste Code:</b>         |                      | P075                                                                        |                     |                   |      |    |
| <b>Waste Code Description:</b>       |                      | NICOTINE, & SALTS (OR) PYRIDINE, 3-(1-METHYL-2-PYRROLIDINYL)-,(S)-, & SALTS |                     |                   |      |    |
| <b>Hazardous Waste Code:</b>         |                      | U002                                                                        |                     |                   |      |    |
| <b>Waste Code Description:</b>       |                      | 2-PROPANONE (I) (OR) ACETONE (I)                                            |                     |                   |      |    |
| <b>Hazardous Waste Code:</b>         |                      | U134                                                                        |                     |                   |      |    |
| <b>Waste Code Description:</b>       |                      | HYDROFLUORIC ACID (C,T) (OR) HYDROGEN FLUORIDE (C,T)                        |                     |                   |      |    |
| <b>Hazardous Waste Code:</b>         |                      | U154                                                                        |                     |                   |      |    |
| <b>Waste Code Description:</b>       |                      | METHANOL (I) (OR) METHYL ALCOHOL (I)                                        |                     |                   |      |    |
| <b>Hazardous Waste Code:</b>         |                      | U188                                                                        |                     |                   |      |    |
| <b>Waste Code Description:</b>       |                      | PHENOL                                                                      |                     |                   |      |    |

| Map Key                              | Number of Records                               | Direction                                     | Distance (mi/ft) | Elev/Diff (ft) | Site              | DB               |
|--------------------------------------|-------------------------------------------------|-----------------------------------------------|------------------|----------------|-------------------|------------------|
| <b>Hazardous Waste Code:</b>         |                                                 | U279                                          |                  |                |                   |                  |
| <b>Waste Code Description:</b>       |                                                 | CARBARYL (OR) 1-NAPHTHALENOL, METHYLCARBAMATE |                  |                |                   |                  |
| <b><u>Owner/Operator Details</u></b> |                                                 |                                               |                  |                |                   |                  |
| <b>Owner/Operator Ind:</b>           | Current Owner                                   |                                               |                  |                | <b>Street No:</b> |                  |
| <b>Type:</b>                         | Private                                         |                                               |                  |                | <b>Street 1:</b>  | P O BOX 111      |
| <b>Name:</b>                         | TARGET CORPORATION                              |                                               |                  |                | <b>Street 2:</b>  |                  |
| <b>Date Became Current:</b>          | 20051005                                        |                                               |                  |                | <b>City:</b>      | MINNEAPOLIS      |
| <b>Date Ended Current:</b>           |                                                 |                                               |                  |                | <b>State:</b>     | MN               |
| <b>Phone:</b>                        | 800-587-2228                                    |                                               |                  |                | <b>Country:</b>   | US               |
| <b>Source Type:</b>                  | Annual/Biennial Report update with Notification |                                               |                  |                | <b>Zip Code:</b>  | 55440            |
| <b>Owner/Operator Ind:</b>           | Current Operator                                |                                               |                  |                | <b>Street No:</b> |                  |
| <b>Type:</b>                         | Private                                         |                                               |                  |                | <b>Street 1:</b>  | P O BOX 111      |
| <b>Name:</b>                         | TARGET CORPORATION                              |                                               |                  |                | <b>Street 2:</b>  |                  |
| <b>Date Became Current:</b>          | 20051005                                        |                                               |                  |                | <b>City:</b>      | MINNEAPOLIS      |
| <b>Date Ended Current:</b>           |                                                 |                                               |                  |                | <b>State:</b>     | MN               |
| <b>Phone:</b>                        | 800-587-2228                                    |                                               |                  |                | <b>Country:</b>   | US               |
| <b>Source Type:</b>                  | Annual/Biennial Report update with Notification |                                               |                  |                | <b>Zip Code:</b>  | 55440            |
| <b>Owner/Operator Ind:</b>           | Current Operator                                |                                               |                  |                | <b>Street No:</b> | 110              |
| <b>Type:</b>                         | Private                                         |                                               |                  |                | <b>Street 1:</b>  | W MEADOWS DR     |
| <b>Name:</b>                         | TARGET STORE T2029                              |                                               |                  |                | <b>Street 2:</b>  |                  |
| <b>Date Became Current:</b>          | 20160411                                        |                                               |                  |                | <b>City:</b>      | GLENWOOD SPRINGS |
| <b>Date Ended Current:</b>           |                                                 |                                               |                  |                | <b>State:</b>     | CO               |
| <b>Phone:</b>                        | 800-587-2228                                    |                                               |                  |                | <b>Country:</b>   | US               |
| <b>Source Type:</b>                  | Notification                                    |                                               |                  |                | <b>Zip Code:</b>  | 81601-9516       |
| <b>Owner/Operator Ind:</b>           | Current Owner                                   |                                               |                  |                | <b>Street No:</b> | 33               |
| <b>Type:</b>                         | Private                                         |                                               |                  |                | <b>Street 1:</b>  | S 6TH ST CC-3425 |
| <b>Name:</b>                         | TARGET CORP                                     |                                               |                  |                | <b>Street 2:</b>  |                  |
| <b>Date Became Current:</b>          | 20051102                                        |                                               |                  |                | <b>City:</b>      | MINNEAPOLIS      |
| <b>Date Ended Current:</b>           |                                                 |                                               |                  |                | <b>State:</b>     | MN               |
| <b>Phone:</b>                        |                                                 |                                               |                  |                | <b>Country:</b>   | US               |
| <b>Source Type:</b>                  | Notification                                    |                                               |                  |                | <b>Zip Code:</b>  | 55402            |
| <b>Owner/Operator Ind:</b>           | Previous Operator                               |                                               |                  |                | <b>Street No:</b> | 110              |
| <b>Type:</b>                         | Private                                         |                                               |                  |                | <b>Street 1:</b>  | W MEADOWS DR     |
| <b>Name:</b>                         | TARGET #2029                                    |                                               |                  |                | <b>Street 2:</b>  |                  |
| <b>Date Became Current:</b>          | 20051102                                        |                                               |                  |                | <b>City:</b>      | GLENWOOD SPRINGS |
| <b>Date Ended Current:</b>           | 20160411                                        |                                               |                  |                | <b>State:</b>     | CO               |
| <b>Phone:</b>                        |                                                 |                                               |                  |                | <b>Country:</b>   | US               |
| <b>Source Type:</b>                  | Notification                                    |                                               |                  |                | <b>Zip Code:</b>  | 81601-9516       |
| <b>Owner/Operator Ind:</b>           | Current Operator                                |                                               |                  |                | <b>Street No:</b> | 110              |
| <b>Type:</b>                         | Private                                         |                                               |                  |                | <b>Street 1:</b>  | W MEADOWS DR     |
| <b>Name:</b>                         | TARGET #2029                                    |                                               |                  |                | <b>Street 2:</b>  |                  |
| <b>Date Became Current:</b>          | 20051102                                        |                                               |                  |                | <b>City:</b>      | GLENWOOD SPRINGS |
| <b>Date Ended Current:</b>           |                                                 |                                               |                  |                | <b>State:</b>     | CO               |
| <b>Phone:</b>                        |                                                 |                                               |                  |                | <b>Country:</b>   | US               |
| <b>Source Type:</b>                  | Notification                                    |                                               |                  |                | <b>Zip Code:</b>  | 81601-9516       |
| <b>Owner/Operator Ind:</b>           | Current Owner                                   |                                               |                  |                | <b>Street No:</b> |                  |
| <b>Type:</b>                         | Private                                         |                                               |                  |                | <b>Street 1:</b>  | P O BOX 111      |
| <b>Name:</b>                         | TARGET CORPORATION                              |                                               |                  |                | <b>Street 2:</b>  |                  |
| <b>Date Became Current:</b>          | 20160411                                        |                                               |                  |                | <b>City:</b>      | MINNEAPOLIS      |
| <b>Date Ended Current:</b>           |                                                 |                                               |                  |                | <b>State:</b>     | MN               |
| <b>Phone:</b>                        | 800-587-2228                                    |                                               |                  |                | <b>Country:</b>   | US               |
| <b>Source Type:</b>                  | Notification                                    |                                               |                  |                | <b>Zip Code:</b>  | 55440            |
| <b>Owner/Operator Ind:</b>           | Previous Owner                                  |                                               |                  |                | <b>Street No:</b> | 33               |
| <b>Type:</b>                         | Private                                         |                                               |                  |                | <b>Street 1:</b>  | S 6TH ST CC-3425 |
| <b>Name:</b>                         | TARGET CORP                                     |                                               |                  |                | <b>Street 2:</b>  |                  |
| <b>Date Became Current:</b>          | 20051102                                        |                                               |                  |                | <b>City:</b>      | MINNEAPOLIS      |
| <b>Date Ended Current:</b>           | 20160411                                        |                                               |                  |                | <b>State:</b>     | MN               |
| <b>Phone:</b>                        |                                                 |                                               |                  |                | <b>Country:</b>   | US               |
| <b>Source Type:</b>                  | Notification                                    |                                               |                  |                | <b>Zip Code:</b>  | 55402            |

| Map Key | Number of Records | Direction | Distance (mi/ft) | Elev/Diff (ft) | Site | DB |
|---------|-------------------|-----------|------------------|----------------|------|----|
|---------|-------------------|-----------|------------------|----------------|------|----|

|                             |                                                 |                   |             |
|-----------------------------|-------------------------------------------------|-------------------|-------------|
| <b>Owner/Operator Ind:</b>  | Current Operator                                | <b>Street No:</b> |             |
| <b>Type:</b>                | Private                                         | <b>Street 1:</b>  | PO BOX 111  |
| <b>Name:</b>                | TARGET CORPORATION                              | <b>Street 2:</b>  |             |
| <b>Date Became Current:</b> | 20051005                                        | <b>City:</b>      | MINNEAPOLIS |
| <b>Date Ended Current:</b>  |                                                 | <b>State:</b>     | MN          |
| <b>Phone:</b>               | 800-587-2228                                    | <b>Country:</b>   | US          |
| <b>Source Type:</b>         | Annual/Biennial Report update with Notification | <b>Zip Code:</b>  | 55440       |

### Historical Handler Details

|                                    |                               |
|------------------------------------|-------------------------------|
| <b>Receive Dt:</b>                 | 20180417                      |
| <b>Generator Code Description:</b> | Large Quantity Generator      |
| <b>Handler Name:</b>               | TARGET STORE T2029            |
| <b>Receive Dt:</b>                 | 20160411                      |
| <b>Generator Code Description:</b> | Large Quantity Generator      |
| <b>Handler Name:</b>               | TARGET STORE T2029            |
| <b>Receive Dt:</b>                 | 20051017                      |
| <b>Generator Code Description:</b> | Very Small Quantity Generator |
| <b>Handler Name:</b>               | TARGET #2029                  |

|                   |        |     |               |               |                                                                                        |           |
|-------------------|--------|-----|---------------|---------------|----------------------------------------------------------------------------------------|-----------|
| <a href="#">3</a> | 1 of 1 | WNW | 0.17 / 878.70 | 5,827.06 / 35 | Target T2029 - Glenwood Springs, CO<br>110 W. Meadows Dr.<br>Glenwood Springs CO 81601 | ALT FUELS |
|-------------------|--------|-----|---------------|---------------|----------------------------------------------------------------------------------------|-----------|

|                                     |                                                         |                            |              |
|-------------------------------------|---------------------------------------------------------|----------------------------|--------------|
| <b>ID:</b>                          | 146646                                                  | <b>CNG Dispenser No:</b>   |              |
| <b>Federal Agency ID:</b>           |                                                         | <b>CNG Fill Type Code:</b> |              |
| <b>Federal Agency:</b>              |                                                         | <b>CNG Site Renew Src:</b> |              |
| <b>Fed Agency Name:</b>             |                                                         | <b>CNG PSI:</b>            |              |
| <b>Status:</b>                      | Open: The station is open.                              | <b>CNG Storage Cap:</b>    |              |
| <b>Facility Type:</b>               |                                                         | <b>CNG Tot Compr Cap:</b>  |              |
| <b>Fuel Type Code:</b>              | ELEC: Electric                                          | <b>CNG Vehicle Class:</b>  |              |
| <b>Owner Type Desc:</b>             |                                                         | <b>LPG Nozzle Types:</b>   |              |
| <b>Expected Date:</b>               |                                                         | <b>LNG Site Renew Src:</b> |              |
| <b>Dt Last Confirmed:</b>           | 2020-06-22                                              | <b>LNG Vehicle Class:</b>  |              |
| <b>Open Date:</b>                   |                                                         | <b>Hydrogen is Retail:</b> |              |
| <b>Updated at:</b>                  | 2020-06-22 10:10:55 UTC                                 | <b>Hydrogen Pressures:</b> |              |
| <b>BD Blends:</b>                   |                                                         | <b>Hydrogen Standards:</b> |              |
| <b>NG PSI:</b>                      |                                                         | <b>Station Phone:</b>      | 833-632-2778 |
| <b>NG Fill Type Code:</b>           |                                                         | <b>Latitude:</b>           | 39.556128    |
| <b>NG Fill Type Desc:</b>           |                                                         | <b>Longitude:</b>          | -107.344827  |
| <b>NG Vehicle Class:</b>            |                                                         |                            |              |
| <b>NG Vehicle Class Desc:</b>       |                                                         |                            |              |
| <b>E85 Blender Pump:</b>            |                                                         |                            |              |
| <b>E85 Blender Pump Desc:</b>       |                                                         |                            |              |
| <b>E85 Other Ethanol Blends:</b>    |                                                         |                            |              |
| <b>EV Pricing:</b>                  |                                                         |                            |              |
| <b>EV Pricing French:</b>           |                                                         |                            |              |
| <b>EV on Site Renewable Source:</b> |                                                         |                            |              |
| <b>LPG Primary:</b>                 |                                                         |                            |              |
| <b>LPG Primary Desc:</b>            |                                                         |                            |              |
| <b>Intersection Directions:</b>     |                                                         |                            |              |
| <b>Geocode Status Desc:</b>         | The location is from a real GPS readout at the station. |                            |              |
| <b>Hydrogen Status Link:</b>        |                                                         |                            |              |

|                            |            |                            |                 |                |                                                            |     |
|----------------------------|------------|----------------------------|-----------------|----------------|------------------------------------------------------------|-----|
| <a href="#">4</a>          | 1 of 2     | E                          | 0.19 / 1,024.51 | 5,728.17 / -64 | Envirotech<br>777 Deveroux Ln Glenwood Springs 81601<br>CO | LST |
| <b>Facility ID:</b>        | 17895      | <b>Facility Name(OPS):</b> | Envirotech      |                |                                                            |     |
| <b>Facly Name(COSTIS):</b> | Envirotech | <b>Address(OPS):</b>       | 777 Deveroux Ln |                |                                                            |     |

| Map Key               | Number of Records                                                                                                                                                                                                                                                                      | Direction              | Distance (mi/ft) | Elev/Diff (ft) | Site                  | DB |  |  |
|-----------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------|------------------|----------------|-----------------------|----|--|--|
| <hr/>                 |                                                                                                                                                                                                                                                                                        |                        |                  |                |                       |    |  |  |
| Address (COSTIS):     | 777 Deveroux Ln                                                                                                                                                                                                                                                                        | Glenwood Springs 81601 |                  | City(OPS):     | Glenwood Springs      |    |  |  |
| County (COSTIS):      | Garfield                                                                                                                                                                                                                                                                               |                        |                  | Zip Code(OPS): | 81601                 |    |  |  |
| Facility Type(CDLE):  | Non-Retail                                                                                                                                                                                                                                                                             |                        |                  | County(OPS):   | Garfield              |    |  |  |
| Facilty Catgry(CDLE): | Other                                                                                                                                                                                                                                                                                  |                        |                  | State(OPS):    | CO                    |    |  |  |
| Facility Type(OPS):   | Non-Retail                                                                                                                                                                                                                                                                             |                        |                  | Lat Long(OPS): | 39.55465, -107.338196 |    |  |  |
| Facilty Catgry(OPS):  | Other                                                                                                                                                                                                                                                                                  |                        |                  |                |                       |    |  |  |
| Original Source:      | Colorado Storage Tank Information System (COSTIS); Colorado Department of Labor and Employment (CDLE); Oil & Public Safety(OPS) Regulated Storage Tanks; OPS Petroleum Release Events in Colorado - I-25 N LUST 1; OPS Petroleum Release Events in Colorado - Petroleum Release Events |                        |                  |                |                       |    |  |  |
| Owner ID:             | 20293                                                                                                                                                                                                                                                                                  |                        |                  |                |                       |    |  |  |
| Owner Name:           | Smith; Gary                                                                                                                                                                                                                                                                            |                        |                  |                |                       |    |  |  |
|                       |                                                                                                                                                                                                                                                                                        |                        |                  |                |                       |    |  |  |

#### Events (CDLE-FOIA)

|                           |                 |                            |                       |
|---------------------------|-----------------|----------------------------|-----------------------|
| <b>Event ID:</b>          | 9927            | <b>Proj. Closure Date:</b> |                       |
| <b>Alt Event ID:</b>      |                 | <b>Category:</b>           | 9                     |
| <b>Status:</b>            | Closed          | <b>Sardonyx ID:</b>        |                       |
| <b>UST Tank Count:</b>    |                 | <b>MTBE Classifica:</b>    |                       |
| <b>AST Tank Count:</b>    | 1               | <b>Sum of Reimbur Amt:</b> |                       |
| <b>Source of Release:</b> |                 | <b>Reviewer Full Name:</b> | Tina Sandoval         |
| <b>Cause of Release:</b>  |                 | <b>Logged On:</b>          | 10/24/2005 9:31:27 AM |
| <b>Confirm Rel Dt:</b>    | 10/21/2005      | <b>Logged By:</b>          | tsandova              |
| <b>Site Name:</b>         | Envirotech      |                            |                       |
| <b>Loc Addr:</b>          | 777 Deveroux Ln |                            |                       |
| <b>Loc Addr2:</b>         |                 |                            |                       |
| <b>Loc Addr3:</b>         |                 |                            |                       |
| <b>Aka Name:</b>          |                 |                            |                       |
| <b>Aka Loc Addr:</b>      |                 |                            |                       |

#### Events (COSTIS-Online)

|                             |                                           |                        |                       |
|-----------------------------|-------------------------------------------|------------------------|-----------------------|
| <b>Event ID:</b>            | 9927                                      | <b>Log Date:</b>       | 10/24/2005 9:31:27 AM |
| <b>Process Status Name:</b> | Closed                                    |                        |                       |
| <b>Site Name:</b>           | Envirotech                                |                        |                       |
| <b>Facility Name:</b>       |                                           |                        |                       |
| <b>Address:</b>             | 777 Deveroux Ln Glenwood Springs CO 81601 |                        |                       |
| <b>Loc Address:</b>         | 777 Deveroux Ln                           | Glenwood Springs 81601 |                       |
| <b>Loc City:</b>            | Glenwood Springs                          |                        |                       |
| <b>Loc County:</b>          | Garfield                                  |                        |                       |

#### OPS Petroleum Release Events in Colorado - I-25 N LUST 1 (Jun 30, 2020)

|                          |                                                                                                                                   |                   |             |
|--------------------------|-----------------------------------------------------------------------------------------------------------------------------------|-------------------|-------------|
| <b>Event ID:</b>         | 9927                                                                                                                              | <b>Zip:</b>       | 81601       |
| <b>Status:</b>           | Closed                                                                                                                            | <b>State:</b>     | CO          |
| <b>Release Date:</b>     | 10/21/2005                                                                                                                        | <b>County:</b>    | Garfield    |
| <b>Contact:</b>          | Technical Assistance Line                                                                                                         | <b>Latitude:</b>  | 39.55465    |
| <b>Phone:</b>            | 303-318-8547                                                                                                                      | <b>Longitude:</b> | -107.338196 |
| <b>City:</b>             | Glenwood Springs                                                                                                                  |                   |             |
| <b>Site Name:</b>        | Envirotech                                                                                                                        |                   |             |
| <b>Address:</b>          | 777 Deveroux Ln                                                                                                                   |                   |             |
| <b>Email:</b>            | cdle_ops_public_records_center@state.co.us                                                                                        |                   |             |
| <b>Link to Database:</b> | <a href="https://opus.cdle.state.co.us/OIS2000/event.asp?h_id=9927">https://opus.cdle.state.co.us/OIS2000/event.asp?h_id=9927</a> |                   |             |

#### OPS Petroleum Release Events in Colorado - Petroleum Release Events (Jun 30, 2020)

|                             |                           |                            |                       |
|-----------------------------|---------------------------|----------------------------|-----------------------|
| <b>Event ID:</b>            | 9927                      | <b>Phone:</b>              | 303-318-8547          |
| <b>Status:</b>              | Closed                    | <b>City:</b>               | Glenwood Springs      |
| <b>Release Date:</b>        | 10/21/2005                | <b>Zip:</b>                | 81601                 |
| <b>Closure Date:</b>        | 06/08/2006                | <b>State:</b>              | CO                    |
| <b>NFA Type:</b>            | Tier I                    | <b>County:</b>             | Garfield              |
| <b>Release Cause:</b>       |                           | <b>Latitude:</b>           | 39.55465              |
| <b>Reimbursement Total:</b> |                           | <b>Longitude:</b>          | -107.338196           |
| <b>Contact:</b>             | Technical Assistance Line | <b>Latitude Longitude:</b> | 39.55465, -107.338196 |

| Map Key | Number of Records | Direction | Distance (mi/ft) | Elev/Diff (ft) | Site | DB |
|---------|-------------------|-----------|------------------|----------------|------|----|
|---------|-------------------|-----------|------------------|----------------|------|----|

**Release Source:**

**Site Name:** Envirotech  
**Address:** 777 Deveroux Ln  
**Email:** cdle\_ops\_public\_records\_center@state.co.us  
**Link :** https://opus.cdle.state.co.us/OIS2000/event.asp?h\_id=9927

|                   |        |   |                 |                |                                                         |     |
|-------------------|--------|---|-----------------|----------------|---------------------------------------------------------|-----|
| <a href="#">4</a> | 2 of 2 | E | 0.19 / 1,024.51 | 5,728.17 / -64 | Envirotech<br>777 Deveroux Ln Glenwood Springs 81601 CO | AST |
|-------------------|--------|---|-----------------|----------------|---------------------------------------------------------|-----|

|                             |                                                                                                                                                         |                             |                                           |
|-----------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------|-------------------------------------------|
| <b>Facility ID:</b>         | 17895                                                                                                                                                   | <b>Fac Name (COSTIS):</b>   | Envirotech                                |
| <b>Facility Name (OPS):</b> | Envirotech                                                                                                                                              | <b>Address (COSTIS):</b>    | 777 Deveroux Ln<br>Glenwood Springs 81601 |
| <b>Facility Type (OPS):</b> | Non-Retail                                                                                                                                              | <b>Zip (COSTIS):</b>        | 81601                                     |
| <b>Fac Category (OPS):</b>  | Other                                                                                                                                                   | <b>County (COSTIS):</b>     | Garfield                                  |
| <b>Lat/Longitude (OPS):</b> | 39.55465, -107.338196                                                                                                                                   | <b>Fac Type (CDLE):</b>     | Non-Retail                                |
| <b>Address (OPS):</b>       | 777 Deveroux Ln                                                                                                                                         | <b>Fac Category (CDLE):</b> | Other                                     |
| <b>City (OPS):</b>          | Glenwood Springs                                                                                                                                        |                             |                                           |
| <b>Zip Code (OPS):</b>      | 81601                                                                                                                                                   |                             |                                           |
| <b>County (OPS):</b>        | Garfield                                                                                                                                                |                             |                                           |
| <b>State (OPS):</b>         | CO                                                                                                                                                      |                             |                                           |
| <b>Data Source(s):</b>      | Colorado Storage Tank Information System (COSTIS); Colorado Department of Labor and Employment (CDLE); Oil & Public Safety(OPS) Regulated Storage Tanks |                             |                                           |

**Facility Information (CDLE-FOIA)**

|                           |              |                        |                       |
|---------------------------|--------------|------------------------|-----------------------|
| <b>Tank Type ID:</b>      | 1            | <b>RMFD Inspector:</b> | Murray Brown          |
| <b>Count of Tank Tag:</b> | 1            | <b>OCP Inspector:</b>  | Murray Brown          |
| <b>No. Dispensers:</b>    | 0            | <b>Creation Date:</b>  | 8/15/2005 12:58:00 PM |
| <b>Comp Inspector:</b>    | Murray Brown | <b>Owner ID:</b>       | 20293                 |
| <b>LPG Inspector:</b>     | Murray Brown |                        |                       |

**Owner Information (CDLE-FOIA)**

|                      |                               |                  |       |
|----------------------|-------------------------------|------------------|-------|
| <b>Contact Name:</b> |                               | <b>State:</b>    | CO    |
| <b>City:</b>         | Greeley                       | <b>Zip Code:</b> | 80634 |
| <b>County:</b>       | Weld                          |                  |       |
| <b>Company Name:</b> | Gary Smith                    |                  |       |
| <b>Last Name:</b>    | Smith                         |                  |       |
| <b>First Name:</b>   | Gary                          |                  |       |
| <b>Middle Init:</b>  |                               |                  |       |
| <b>Address:</b>      | 1140 38th Ave Ste #1          |                  |       |
| <b>Comment:</b>      | SECOND CONTACT IS ERIC NEEMAN |                  |       |

**AST Tanks (COSTIS-Online)**

|                               |                                                         |                      |          |
|-------------------------------|---------------------------------------------------------|----------------------|----------|
| <b>Tank ID:</b>               | 39241                                                   | <b>Owner ID:</b>     | 20293    |
| <b>Tank Tag:</b>              | 17895-1                                                 | <b>Tank Owner:</b>   |          |
| <b>Tank Type Desc:</b>        | AST                                                     | <b>County:</b>       | Garfield |
| <b>Tank Count:</b>            | 45350                                                   | <b>Product Name:</b> |          |
| <b>Capacity:</b>              | 1000                                                    |                      |          |
| <b>Facility Owner:</b>        | Gary Smith                                              |                      |          |
| <b>Facility Name Address:</b> | Envirotech<br>777 Deveroux Ln<br>Glenwood Springs 81601 |                      |          |

**AST Tanks 1 (CDLE-FOIA)**

|                      |                    |                          |  |
|----------------------|--------------------|--------------------------|--|
| <b>Tank Tag:</b>     | 17895-1            | <b>Product:</b>          |  |
| <b>Tank Type ID:</b> | 1                  | <b>Tank Material:</b>    |  |
| <b>Tank Type:</b>    | AST                | <b>Tank Wall Type:</b>   |  |
| <b>Tank Status:</b>  | Permanently Closed | <b>Piping System:</b>    |  |
| <b>Capacity:</b>     | 1000               | <b>Piping Type:</b>      |  |
| <b>Install Date:</b> |                    | <b>Piping Material:</b>  |  |
| <b>Date Closed:</b>  | 6/8/2005           | <b>Piping Wall Type:</b> |  |

| Map Key | Number of<br>Records | Direction | Distance<br>(mi/ft) | Elev/Diff<br>(ft) | Site | DB |
|---------|----------------------|-----------|---------------------|-------------------|------|----|
|---------|----------------------|-----------|---------------------|-------------------|------|----|

Overfill Preven:

AST Tanks 2 (CDLE-FOIA)

|                     |          |                      |       |
|---------------------|----------|----------------------|-------|
| Alt Tank ID:        |          | Line CP ID:          |       |
| Tank CP ID:         |          | Anch Method Desc:    |       |
| Closure Meth ID:    | 2        | LLD ID:              |       |
| Unregulated:        | False    | LLD Test Date:       |       |
| Last Used Date:     | 6/7/2005 | Pipe Reld Meth1 ID:  |       |
| Del Prohib Date:    |          | Pipe Reld Meth2 ID:  |       |
| Corr Prot Date:     |          | Pipe Reldet Date:    |       |
| Spill Protected:    | False    | Backfill Mat Desc:   |       |
| Spl Container Size: | 0        | Bfill Drt Cover Amt: | 0     |
| Spl Protection Dt:  |          | Concr Asph Inches:   | 0     |
| Spl Container Mfg:  |          | Manifold:            | False |
| Spl Container Mdel: |          | Tm Name:             |       |
| CP Impcur Ins Dt:   |          | Registration Date:   |       |
| Tank Reld Meth1 ID: |          | Compartment:         | False |
| Tank Reld Meth2 ID: |          | Cpmet:               | False |
| Tank Reldet Date:   |          | Amended:             | False |
| Tank Lining Date:   |          | Invault:             | False |
| CP Test Date:       |          | Serial No:           |       |
| No Fee:             | True     | Category Desc:       | Other |

Oil & Public Safety Regulated Storage Tank Details

No of Tanks: 1

Oil & Public Safety Regulated Storage Tanks (COSTIS)

|                    |                    |                   |                  |
|--------------------|--------------------|-------------------|------------------|
| Tank Tag:          | 17895-1            | Tank Material:    |                  |
| Tank Status:       | Permanently Closed | Tank Wall Type:   |                  |
| Tank Type:         | AST                | Piping Type:      |                  |
| Facility Type:     | Non-Retail         | Piping System:    |                  |
| Installation Date: |                    | Piping Material:  |                  |
| Closure Date:      | 06/08/2005         | Piping Wall Type: |                  |
| Capacity Gallons : | 1000               | City:             | Glenwood Springs |
| Product:           |                    | County:           | Garfield         |
| Overfill Preven:   |                    |                   |                  |
| Facility Name:     | Envirotech         |                   |                  |
| Address:           | 777 Deveroux Ln    |                   |                  |
| Facility Category: | Other              |                   |                  |

AST Owner (COSTIS-Online)

|             |             |           |                      |
|-------------|-------------|-----------|----------------------|
| Owner ID:   | 20293       | Address1: | 1140 38th Ave Ste #1 |
| First Name: | Gary        | City:     | Greeley              |
| Middleinit: |             | State:    | CO                   |
| Last Name:  | Smith       | County:   | Weld                 |
| Full Name:  | Smith, Gary | Zip Code: | 80634                |

|          |        |     |                    |                  |                                                                 |     |
|----------|--------|-----|--------------------|------------------|-----------------------------------------------------------------|-----|
| <u>5</u> | 1 of 2 | WNW | 0.23 /<br>1,239.94 | 5,822.53 /<br>30 | Lowes #1905<br>215 W Meadows Dr Glenwood<br>Springs 81601<br>CO | AST |
|----------|--------|-----|--------------------|------------------|-----------------------------------------------------------------|-----|

|                      |                        |                      |                                               |
|----------------------|------------------------|----------------------|-----------------------------------------------|
| Facility ID:         | 18586                  | Fac Name (COSTIS):   | Lowes #1905                                   |
| Facility Name (OPS): | Lowes #1905            | Address (COSTIS):    | 215 W Meadows Dr<br>Glenwood Springs<br>81601 |
| Facility Type (OPS): | Emergency Generator    | Zip (COSTIS):        | 81601                                         |
| Fac Category (OPS):  | Other                  | County (COSTIS):     | Garfield                                      |
| Lat/Longitude (OPS): | 39.556575, -107.347139 | Fac Type (CDLE):     | Emergency Generator                           |
| Address (OPS):       | 215 W Meadows Dr       | Fac Category (CDLE): | Other                                         |

| Map Key         | Number of Records | Direction                                                                                                                                               | Distance (mi/ft) | Elev/Diff (ft) | Site | DB |
|-----------------|-------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------|------------------|----------------|------|----|
| City (OPS):     |                   | Glenwood Springs                                                                                                                                        |                  |                |      |    |
| Zip Code (OPS): |                   | 81601                                                                                                                                                   |                  |                |      |    |
| County (OPS):   |                   | Garfield                                                                                                                                                |                  |                |      |    |
| State (OPS):    |                   | CO                                                                                                                                                      |                  |                |      |    |
| Data Source(s): |                   | Colorado Storage Tank Information System (COSTIS); Colorado Department of Labor and Employment (CDLE); Oil & Public Safety(OPS) Regulated Storage Tanks |                  |                |      |    |

#### Facility Information (CDLE-FOIA)

|                    |              |                 |                      |
|--------------------|--------------|-----------------|----------------------|
| Tank Type ID:      | 1            | RMFD Inspector: | Murray Brown         |
| Count of Tank Tag: | 1            | OCP Inspector:  | Murray Brown         |
| No. Dispensers:    | 0            | Creation Date:  | 7/28/2008 1:18:56 PM |
| Comp Inspector:    | Murray Brown | Owner ID:       | 21296                |
| LPG Inspector:     | Murray Brown |                 |                      |

#### Owner Information (CDLE-FOIA)

|               |                                                                                                       |           |       |
|---------------|-------------------------------------------------------------------------------------------------------|-----------|-------|
| Contact Name: | Eric Shepherd- Compliance Mngr                                                                        | State:    | NC    |
| City:         | Mooreville                                                                                            | Zip Code: | 28115 |
| County:       | Iredell                                                                                               |           |       |
| Company Name: | Lowes Compliance RFS-92                                                                               |           |       |
| Last Name:    | Lowes Compliance RFS-92                                                                               |           |       |
| First Name:   |                                                                                                       |           |       |
| Middle Init:  |                                                                                                       |           |       |
| Address:      | 1000 Lowes Blvd                                                                                       |           |       |
| Comment:      | MELISSA CALL ENERGY SYSTEM SUPERVISOR (RDR contact)facility aka Lowes Home Improvement Warehouse Inc. |           |       |

#### AST Tanks (COSTIS-Online)

|                        |                                                           |               |          |
|------------------------|-----------------------------------------------------------|---------------|----------|
| Tank ID:               | 41431                                                     | Owner ID:     | 21296    |
| Tank Tag:              | '18586-1                                                  | Tank Owner:   |          |
| Tank Type Desc:        | AST                                                       | County:       | Garfield |
| Tank Count:            | 45350                                                     | Product Name: | Diesel   |
| Capacity:              | 1500                                                      |               |          |
| Facility Owner:        | Lowes Compliance RFS-92                                   |               |          |
| Facility Name Address: | Lowes #1905<br>215 W Meadows Dr<br>Glenwood Springs 81601 |               |          |

#### AST Tanks 1 (CDLE-FOIA)

|                  |                                |                   |                   |
|------------------|--------------------------------|-------------------|-------------------|
| Tank Tag:        | 18586-1                        | Product:          | Diesel            |
| Tank Type ID:    | 1                              | Tank Material:    | AST: UL142/Equiv. |
| Tank Type:       | AST                            | Tank Wall Type:   | Double-Walled     |
| Tank Status:     | Currently In Use               | Piping System:    | SS: Safe Suction  |
| Capacity:        | 1500                           | Piping Type:      | NONE: No piping   |
| Install Date:    | 1/1/2009                       | Piping Material:  | No Piping         |
| Date Closed:     |                                | Piping Wall Type: |                   |
| Overfill Preven: | ULL: Alarm and Fill Tube Valve |                   |                   |

#### AST Tanks 2 (CDLE-FOIA)

|                     |       |                      |       |
|---------------------|-------|----------------------|-------|
| Alt Tank ID:        |       | Line CP ID:          |       |
| Tank CP ID:         | 19    | Anch Method Desc:    |       |
| Closure Meth ID:    |       | LLD ID:              | 3     |
| Unregulated:        | False | LLD Test Date:       |       |
| Last Used Date:     |       | Pipe Reld Meth1 ID:  | 10    |
| Del Prohib Date:    |       | Pipe Reld Meth2 ID:  |       |
| Corr Prot Date:     |       | Pipe Reldet Date:    |       |
| Spill Protected:    | True  | Backfill Mat Desc:   |       |
| Spl Container Size: | 5     | Bfill Drt Cover Amt: | 0     |
| Spl Protection Dt:  |       | Concr Asph Inches:   | 0     |
| Spl Container Mfg:  |       | Manifold:            | False |
| Spl Container Mdel: |       | Tm Name:             |       |







| Map Key | Number of<br>Records | Direction | Distance<br>(mi/ft) | Elev/Diff<br>(ft) | Site | DB |
|---------|----------------------|-----------|---------------------|-------------------|------|----|
|---------|----------------------|-----------|---------------------|-------------------|------|----|

Return to Compliance Date:  
Evaluation Agency: State

#### Handler Summary

Importer Activity: No  
Mixed Waste Generator: No  
Transporter Activity: No  
Transfer Facility: No  
Onsite Burner Exemption: No  
Furnace Exemption: No  
Underground Injection Activity: No  
Commercial TSD: No  
Used Oil Transporter: No  
Used Oil Transfer Facility: No  
Used Oil Processor: No  
Used Oil Refiner: No  
Used Oil Burner: No  
Used Oil Market Burner: No  
Used Oil Spec Marketer: No

#### Hazardous Waste Handler Details

Sequence No: 1  
Receive Date: 20180729  
Handler Name: LOWES OF GLENWOOD SPRINGS CO #1905  
Federal Waste Generator Code: 2  
Generator Code Description: Small Quantity Generator  
Source Type: Notification

#### Waste Code Details

Hazardous Waste Code: D001  
Waste Code Description: IGNITABLE WASTE

Hazardous Waste Code: D002  
Waste Code Description: CORROSIVE WASTE

Hazardous Waste Code: D005  
Waste Code Description: BARIUM

Hazardous Waste Code: D006  
Waste Code Description: CADMIUM

Hazardous Waste Code: D007  
Waste Code Description: CHROMIUM

Hazardous Waste Code: D008  
Waste Code Description: LEAD

Hazardous Waste Code: D009  
Waste Code Description: MERCURY

Hazardous Waste Code: D011  
Waste Code Description: SILVER

Hazardous Waste Code: D016  
Waste Code Description: 2,4-D (2,4-DICHLOROPHENOXYACETIC ACID)

Hazardous Waste Code: D018  
Waste Code Description: BENZENE

Hazardous Waste Code: D035  
Waste Code Description: METHYL ETHYL KETONE

| Map Key | Number of Records | Direction | Distance (mi/ft) | Elev/Diff (ft) | Site | DB |
|---------|-------------------|-----------|------------------|----------------|------|----|
|---------|-------------------|-----------|------------------|----------------|------|----|

|                                |                                      |
|--------------------------------|--------------------------------------|
| <b>Hazardous Waste Code:</b>   | U154                                 |
| <b>Waste Code Description:</b> | METHANOL (I) (OR) METHYL ALCOHOL (I) |

**Owner/Operator Details**

|                             |                                    |                   |                  |
|-----------------------------|------------------------------------|-------------------|------------------|
| <b>Owner/Operator Ind:</b>  | Current Operator                   | <b>Street No:</b> | 215              |
| <b>Type:</b>                | Private                            | <b>Street 1:</b>  | W MEADOWS DR     |
| <b>Name:</b>                | LOWES OF GLENWOOD SPRINGS CO #1905 | <b>Street 2:</b>  |                  |
| <b>Date Became Current:</b> | 20180729                           | <b>City:</b>      | GLENWOOD SPRINGS |
| <b>Date Ended Current:</b>  |                                    | <b>State:</b>     | CO               |
| <b>Phone:</b>               |                                    | <b>Country:</b>   | US               |
| <b>Source Type:</b>         | Notification                       | <b>Zip Code:</b>  | 81601            |
| <b>Owner/Operator Ind:</b>  | Current Owner                      | <b>Street No:</b> | 1605             |
| <b>Type:</b>                | Private                            | <b>Street 1:</b>  | CURTIS BRIDGE RD |
| <b>Name:</b>                | LOWES HOME CENTERS LLC             | <b>Street 2:</b>  |                  |
| <b>Date Became Current:</b> | 20180729                           | <b>City:</b>      | WILKESBORO       |
| <b>Date Ended Current:</b>  |                                    | <b>State:</b>     | NC               |
| <b>Phone:</b>               | 704-758-2955                       | <b>Country:</b>   | US               |
| <b>Source Type:</b>         | Notification                       | <b>Zip Code:</b>  | 28697            |

|          |               |            |                        |                       |                                                                         |            |
|----------|---------------|------------|------------------------|-----------------------|-------------------------------------------------------------------------|------------|
| <b>6</b> | <b>1 of 1</b> | <b>NNE</b> | <b>0.32 / 1,706.51</b> | <b>5,706.98 / -85</b> | <b>Coca Cola Bottling Co 1220 Devereux Rd Glenwood Springs 81601 CO</b> | <b>LST</b> |
|----------|---------------|------------|------------------------|-----------------------|-------------------------------------------------------------------------|------------|

|                              |                                                                                                                                                                                                                                                                                        |                            |                        |
|------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------|------------------------|
| <b>Facility ID:</b>          | 6956                                                                                                                                                                                                                                                                                   | <b>Facility Name(OPS):</b> | Coca Cola Bottling Co  |
| <b>Facilty Name(COSTIS):</b> | Coca Cola Bottling Co                                                                                                                                                                                                                                                                  | <b>Address(OPS):</b>       | 1220 Devereux Rd       |
| <b>Address (COSTIS):</b>     | 1220 Devereux Rd<br>Glenwood Springs 81601                                                                                                                                                                                                                                             | <b>City(OPS):</b>          | Glenwood Springs       |
| <b>County (COSTIS):</b>      | Garfield                                                                                                                                                                                                                                                                               | <b>Zip Code(OPS):</b>      | 81601                  |
| <b>Facility Type(CDLE):</b>  | Non-Retail                                                                                                                                                                                                                                                                             | <b>County(OPS):</b>        | Garfield               |
| <b>Facilty Catgry(CDLE):</b> | Commercial/Industrial                                                                                                                                                                                                                                                                  | <b>State(OPS):</b>         | CO                     |
| <b>Facility Type(OPS):</b>   | Non-Retail                                                                                                                                                                                                                                                                             | <b>Lat Long(OPS):</b>      | 39.557969, -107.340409 |
| <b>Facilty Catgry(OPS):</b>  | Commercial/Industrial                                                                                                                                                                                                                                                                  |                            |                        |
| <b>Original Source:</b>      | Colorado Storage Tank Information System (COSTIS); Colorado Department of Labor and Employment (CDLE); Oil & Public Safety(OPS) Regulated Storage Tanks; OPS Petroleum Release Events in Colorado - I-25 N LUST 1; OPS Petroleum Release Events in Colorado - Petroleum Release Events |                            |                        |
| <b>Owner ID:</b>             | 1239                                                                                                                                                                                                                                                                                   |                            |                        |
| <b>Owner Name:</b>           | Coca Cola Bottling Co;                                                                                                                                                                                                                                                                 |                            |                        |

**Events (CDLE-FOIA)**

|                           |                    |                            |              |
|---------------------------|--------------------|----------------------------|--------------|
| <b>Event ID:</b>          | 7210               | <b>Proj. Closure Date:</b> |              |
| <b>Alt Event ID:</b>      |                    | <b>Category:</b>           | 5            |
| <b>Status:</b>            | Closed             | <b>Sardonyx ID:</b>        |              |
| <b>UST Tank Count:</b>    | 4                  | <b>MTBE Classifica:</b>    |              |
| <b>AST Tank Count:</b>    |                    | <b>Sum of Reimbur Amt:</b> |              |
| <b>Source of Release:</b> |                    | <b>Reviewer Full Name:</b> | John Axelson |
| <b>Cause of Release:</b>  |                    | <b>Logged On:</b>          | 2/1/1999     |
| <b>Confirm Rel Dt:</b>    | 1/28/1999          | <b>Logged By:</b>          | jaxelson     |
| <b>Site Name:</b>         | Coca Cola Bottling |                            |              |
| <b>Loc Addr:</b>          | 1220 Devereux Rd   |                            |              |
| <b>Loc Addr2:</b>         |                    |                            |              |
| <b>Loc Addr3:</b>         |                    |                            |              |
| <b>Aka Name:</b>          |                    |                            |              |
| <b>Aka Loc Addr:</b>      |                    |                            |              |

**Events (COSTIS-Online)**

|                             |                    |                  |          |
|-----------------------------|--------------------|------------------|----------|
| <b>Event ID:</b>            | 7210               | <b>Log Date:</b> | 2/1/1999 |
| <b>Process Status Name:</b> | Closed             |                  |          |
| <b>Site Name:</b>           | Coca Cola Bottling |                  |          |

| Map Key | Number of Records | Direction | Distance (mi/ft) | Elev/Diff (ft) | Site | DB |
|---------|-------------------|-----------|------------------|----------------|------|----|
|---------|-------------------|-----------|------------------|----------------|------|----|

**Facility Name:**  
**Address:** 1220 Devereux Rd Glenwood Springs CO 81601  
**Loc Address:** 1220 Devereux Rd<br>Glenwood Springs 81601  
**Loc City:** Glenwood Springs  
**Loc County:** Garfield

**OPS Petroleum Release Events in Colorado - I-25 N LUST 1 (Jun 30, 2020)**

|                          |                                                           |                   |             |
|--------------------------|-----------------------------------------------------------|-------------------|-------------|
| <b>Event ID:</b>         | 7210                                                      | <b>Zip:</b>       | 81601       |
| <b>Status:</b>           | Closed                                                    | <b>State:</b>     | CO          |
| <b>Release Date:</b>     | 01/28/1999                                                | <b>County:</b>    | Garfield    |
| <b>Contact:</b>          | Technical Assistance Line                                 | <b>Latitude:</b>  | 39.557969   |
| <b>Phone:</b>            | 303-318-8547                                              | <b>Longitude:</b> | -107.340409 |
| <b>City:</b>             | Glenwood Springs                                          |                   |             |
| <b>Site Name:</b>        | Coca Cola Bottling                                        |                   |             |
| <b>Address:</b>          | 1220 Devereux Rd                                          |                   |             |
| <b>Email:</b>            | cdle_ops_public_records_center@state.co.us                |                   |             |
| <b>Link to Database:</b> | https://opus.cdle.state.co.us/OIS2000/event.asp?h_id=7210 |                   |             |

**OPS Petroleum Release Events in Colorado - Petroleum Release Events (Jun 30, 2020)**

|                             |                                                           |                            |                        |
|-----------------------------|-----------------------------------------------------------|----------------------------|------------------------|
| <b>Event ID:</b>            | 7210                                                      | <b>Phone:</b>              | 303-318-8547           |
| <b>Status:</b>              | Closed                                                    | <b>City:</b>               | Glenwood Springs       |
| <b>Release Date:</b>        | 01/28/1999                                                | <b>Zip:</b>                | 81601                  |
| <b>Closure Date:</b>        | 11/12/1999                                                | <b>State:</b>              | CO                     |
| <b>NFA Type:</b>            | Tier I                                                    | <b>County:</b>             | Garfield               |
| <b>Release Cause:</b>       |                                                           | <b>Latitude:</b>           | 39.557969              |
| <b>Reimbursement Total:</b> |                                                           | <b>Longitude:</b>          | -107.340409            |
| <b>Contact:</b>             | Technical Assistance Line                                 | <b>Latitude Longitude:</b> | 39.557969, -107.340409 |
| <b>Release Source:</b>      |                                                           |                            |                        |
| <b>Site Name:</b>           | Coca Cola Bottling                                        |                            |                        |
| <b>Address:</b>             | 1220 Devereux Rd                                          |                            |                        |
| <b>Email:</b>               | cdle_ops_public_records_center@state.co.us                |                            |                        |
| <b>Link :</b>               | https://opus.cdle.state.co.us/OIS2000/event.asp?h_id=7210 |                            |                        |

|                   |        |   |                    |                   |                                                                 |     |
|-------------------|--------|---|--------------------|-------------------|-----------------------------------------------------------------|-----|
| <a href="#">7</a> | 1 of 2 | E | 0.35 /<br>1,847.63 | 5,724.25 /<br>-68 | CDOT Glenwood<br>202 Centennial Glenwood Springs<br>81601<br>CO | LST |
|-------------------|--------|---|--------------------|-------------------|-----------------------------------------------------------------|-----|

|                             |                                                                                                                                                                                                                                                                                        |                            |                       |
|-----------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------|-----------------------|
| <b>Facility ID:</b>         | 460                                                                                                                                                                                                                                                                                    | <b>Facility Name(OPS):</b> | CDOT Glenwood         |
| <b>Facity Name(COSTIS):</b> | CDOT Glenwood                                                                                                                                                                                                                                                                          | <b>Address(OPS):</b>       | 202 Centennial        |
| <b>Address (COSTIS):</b>    | 202 Centennial<br>Glenwood Springs 81601                                                                                                                                                                                                                                               | <b>City(OPS):</b>          | Glenwood Springs      |
| <b>County (COSTIS):</b>     | Garfield                                                                                                                                                                                                                                                                               | <b>Zip Code(OPS):</b>      | 81601                 |
| <b>Facility Type(CDLE):</b> | Non-Retail                                                                                                                                                                                                                                                                             | <b>County(OPS):</b>        | Garfield              |
| <b>Facity Catgry(CDLE):</b> | State/Local Government                                                                                                                                                                                                                                                                 | <b>State(OPS):</b>         | CO                    |
| <b>Facility Type(OPS):</b>  | Non-Retail                                                                                                                                                                                                                                                                             | <b>Lat Long(OPS):</b>      | 39.552707, -107.33554 |
| <b>Facity Catgry(OPS):</b>  | State/Local Government                                                                                                                                                                                                                                                                 |                            |                       |
| <b>Original Source:</b>     | Colorado Storage Tank Information System (COSTIS); Colorado Department of Labor and Employment (CDLE); Oil & Public Safety(OPS) Regulated Storage Tanks; OPS Petroleum Release Events in Colorado - I-25 N LUST 1; OPS Petroleum Release Events in Colorado - Petroleum Release Events |                            |                       |
| <b>Owner ID:</b>            | 1047                                                                                                                                                                                                                                                                                   |                            |                       |
| <b>Owner Name:</b>          |                                                                                                                                                                                                                                                                                        |                            |                       |

**Events (CDLE-FOIA)**

|                           |                                      |                            |                      |
|---------------------------|--------------------------------------|----------------------------|----------------------|
| <b>Event ID:</b>          | 9806                                 | <b>Proj. Closure Date:</b> |                      |
| <b>Alt Event ID:</b>      |                                      | <b>Category:</b>           | 15                   |
| <b>Status:</b>            | Closed                               | <b>Sardonyx ID:</b>        |                      |
| <b>UST Tank Count:</b>    |                                      | <b>MTBE Classifica:</b>    |                      |
| <b>AST Tank Count:</b>    | 2                                    | <b>Sum of Reimbur Amt:</b> |                      |
| <b>Source of Release:</b> | Surface spill - customer error other | <b>Reviewer Full Name:</b> | Tim Kelley           |
| <b>Cause of Release:</b>  |                                      | <b>Logged On:</b>          | 6/10/2005 9:10:23 AM |
| <b>Confirm Rel Dt:</b>    | 6/7/2005                             | <b>Logged By:</b>          | tkelley              |

| Map Key | Number of Records | Direction | Distance (mi/ft) | Elev/Diff (ft) | Site | DB |
|---------|-------------------|-----------|------------------|----------------|------|----|
|---------|-------------------|-----------|------------------|----------------|------|----|

**Site Name:**  
**Loc Addr:**  
**Loc Addr2:**  
**Loc Addr3:**  
**Aka Name:**  
**Aka Loc Addr:**

**Events (COSTIS-Online)**

|                             |                                          |                  |                      |
|-----------------------------|------------------------------------------|------------------|----------------------|
| <b>Event ID:</b>            | 9806                                     | <b>Log Date:</b> | 6/10/2005 9:10:23 AM |
| <b>Process Status Name:</b> | Closed                                   |                  |                      |
| <b>Site Name:</b>           | CDOT Glenwood                            |                  |                      |
| <b>Facility Name:</b>       | CDOT Glenwood                            |                  |                      |
| <b>Address:</b>             | 202 Centennial Glenwood Springs CO 81601 |                  |                      |
| <b>Loc Address:</b>         | 202 Centennial<br>Glenwood Springs 81601 |                  |                      |
| <b>Loc City:</b>            | Glenwood Springs                         |                  |                      |
| <b>Loc County:</b>          | Garfield                                 |                  |                      |

**OPS Petroleum Release Events in Colorado - I-25 N LUST 1 (Jun 30, 2020)**

|                          |                                                           |                   |            |
|--------------------------|-----------------------------------------------------------|-------------------|------------|
| <b>Event ID:</b>         | 9806                                                      | <b>Zip:</b>       | 81601      |
| <b>Status:</b>           | Closed                                                    | <b>State:</b>     | CO         |
| <b>Release Date:</b>     | 06/07/2005                                                | <b>County:</b>    | Garfield   |
| <b>Contact:</b>          | Tim Kelley                                                | <b>Latitude:</b>  | 39.552707  |
| <b>Phone:</b>            | 303-318-8544                                              | <b>Longitude:</b> | -107.33554 |
| <b>City:</b>             | Glenwood Springs                                          |                   |            |
| <b>Site Name:</b>        | CDOT Glenwood                                             |                   |            |
| <b>Address:</b>          | 202 Centennial                                            |                   |            |
| <b>Email:</b>            | tim.kelley@state.co.us                                    |                   |            |
| <b>Link to Database:</b> | https://opus.cdle.state.co.us/OIS2000/event.asp?h_id=9806 |                   |            |

**OPS Petroleum Release Events in Colorado - Petroleum Release Events (Jun 30, 2020)**

|                             |                                                           |                            |                       |
|-----------------------------|-----------------------------------------------------------|----------------------------|-----------------------|
| <b>Event ID:</b>            | 9806                                                      | <b>Phone:</b>              | 303-318-8544          |
| <b>Status:</b>              | Closed                                                    | <b>City:</b>               | Glenwood Springs      |
| <b>Release Date:</b>        | 06/07/2005                                                | <b>Zip:</b>                | 81601                 |
| <b>Closure Date:</b>        | 05/18/2006                                                | <b>State:</b>              | CO                    |
| <b>NFA Type:</b>            | Tier I                                                    | <b>County:</b>             | Garfield              |
| <b>Release Cause:</b>       |                                                           | <b>Latitude:</b>           | 39.552707             |
| <b>Reimbursement Total:</b> |                                                           | <b>Longitude:</b>          | -107.33554            |
| <b>Contact:</b>             | Tim Kelley                                                | <b>Latitude Longitude:</b> | 39.552707, -107.33554 |
| <b>Release Source:</b>      |                                                           |                            |                       |
| <b>Site Name:</b>           | CDOT Glenwood                                             |                            |                       |
| <b>Address:</b>             | 202 Centennial                                            |                            |                       |
| <b>Email:</b>               | tim.kelley@state.co.us                                    |                            |                       |
| <b>Link :</b>               | https://opus.cdle.state.co.us/OIS2000/event.asp?h_id=9806 |                            |                       |

|                             |                                                                                                                                                                                                                                                                                        |                            |                            |                           |                                                                                      |            |
|-----------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------|----------------------------|---------------------------|--------------------------------------------------------------------------------------|------------|
| <b>7</b>                    | <b>2 of 2</b>                                                                                                                                                                                                                                                                          | <b>E</b>                   | <b>0.35 /<br/>1,847.63</b> | <b>5,724.25 /<br/>-68</b> | <b>CDOT Glenwood Springs<br/>202 Centennial St Glenwood<br/>Springs 81601<br/>CO</b> | <b>LST</b> |
| <b>Facility ID:</b>         | 7564                                                                                                                                                                                                                                                                                   | <b>Facility Name(OPS):</b> | CDOT Glenwood Springs      |                           |                                                                                      |            |
| <b>Facly Name(COSTIS):</b>  | CDOT Glenwood Springs                                                                                                                                                                                                                                                                  | <b>Address(OPS):</b>       | 202 Centennial St          |                           |                                                                                      |            |
| <b>Address (COSTIS):</b>    | 202 Centennial St<br>Glenwood Springs 81601                                                                                                                                                                                                                                            | <b>City(OPS):</b>          | Glenwood Springs           |                           |                                                                                      |            |
| <b>County (COSTIS):</b>     | Garfield                                                                                                                                                                                                                                                                               | <b>Zip Code(OPS):</b>      | 81601                      |                           |                                                                                      |            |
| <b>Facility Type(CDLE):</b> | Non-Retail                                                                                                                                                                                                                                                                             | <b>County(OPS):</b>        | Garfield                   |                           |                                                                                      |            |
| <b>Facly Catgry(CDLE):</b>  | State/Local Government                                                                                                                                                                                                                                                                 | <b>State(OPS):</b>         | CO                         |                           |                                                                                      |            |
| <b>Facility Type(OPS):</b>  | Non-Retail                                                                                                                                                                                                                                                                             | <b>Lat Long(OPS):</b>      | 39.552707, -107.33554      |                           |                                                                                      |            |
| <b>Facly Catgry(OPS):</b>   | State/Local Government                                                                                                                                                                                                                                                                 |                            |                            |                           |                                                                                      |            |
| <b>Original Source:</b>     | Colorado Storage Tank Information System (COSTIS); Colorado Department of Labor and Employment (CDLE); Oil & Public Safety(OPS) Regulated Storage Tanks; OPS Petroleum Release Events in Colorado - I-25 N LUST 1; OPS Petroleum Release Events in Colorado - Petroleum Release Events |                            |                            |                           |                                                                                      |            |

| Map Key | Number of Records | Direction | Distance (mi/ft) | Elev/Diff (ft) | Site | DB |
|---------|-------------------|-----------|------------------|----------------|------|----|
|---------|-------------------|-----------|------------------|----------------|------|----|

Owner ID: 1047  
Owner Name:

**Events (CDLE-FOIA)**

|                    |                       |                     |             |
|--------------------|-----------------------|---------------------|-------------|
| Event ID:          | 784                   | Proj. Closure Date: |             |
| Alt Event ID:      | 6378-1                | Category:           | 15          |
| Status:            | Closed                | Sardonyx ID:        |             |
| UST Tank Count:    | 4                     | MTBE Classifica:    |             |
| AST Tank Count:    |                       | Sum of Reimbur Amt: |             |
| Source of Release: |                       | Reviewer Full Name: | Joe'l Lambe |
| Cause of Release:  |                       | Logged On:          | 8/17/1992   |
| Confirm Rel Dt:    | 8/17/1992             | Logged By:          | jlambe      |
| Site Name:         | CDOT Glenwood Springs |                     |             |
| Loc Addr:          | 202 Centennial St     |                     |             |
| Loc Addr2:         |                       |                     |             |
| Loc Addr3:         |                       |                     |             |
| Aka Name:          |                       |                     |             |
| Aka Loc Addr:      |                       |                     |             |

**Events (COSTIS-Online)**

|                      |                                             |           |           |
|----------------------|---------------------------------------------|-----------|-----------|
| Event ID:            | 784                                         | Log Date: | 8/17/1992 |
| Process Status Name: | Closed                                      |           |           |
| Site Name:           | CDOT Glenwood Springs                       |           |           |
| Facility Name:       |                                             |           |           |
| Address:             | 202 Centennial St Glenwood Springs CO 81601 |           |           |
| Loc Address:         | 202 Centennial St<br>Glenwood Springs 81601 |           |           |
| Loc City:            | Glenwood Springs                            |           |           |
| Loc County:          | Garfield                                    |           |           |

**OPS Petroleum Release Events in Colorado - I-25 N LUST 1 (Jun 30, 2020)**

|                   |                                                          |            |            |
|-------------------|----------------------------------------------------------|------------|------------|
| Event ID:         | 784                                                      | Zip:       | 81601      |
| Status:           | Closed                                                   | State:     | CO         |
| Release Date:     | 08/17/1992                                               | County:    | Garfield   |
| Contact:          | Technical Assistance Line                                | Latitude:  | 39.552707  |
| Phone:            | 303-318-8547                                             | Longitude: | -107.33554 |
| City:             | Glenwood Springs                                         |            |            |
| Site Name:        | CDOT Glenwood Springs                                    |            |            |
| Address:          | 202 Centennial St                                        |            |            |
| Email:            | cdle_ops_public_records_center@state.co.us               |            |            |
| Link to Database: | https://opus.cdle.state.co.us/OIS2000/event.asp?h_id=784 |            |            |

**OPS Petroleum Release Events in Colorado - Petroleum Release Events (Jun 30, 2020)**

|                      |                                                          |                     |                       |
|----------------------|----------------------------------------------------------|---------------------|-----------------------|
| Event ID:            | 784                                                      | Phone:              | 303-318-8547          |
| Status:              | Closed                                                   | City:               | Glenwood Springs      |
| Release Date:        | 08/17/1992                                               | Zip:                | 81601                 |
| Closure Date:        | 05/03/2002                                               | State:              | CO                    |
| NFA Type:            | Other/Unknown                                            | County:             | Garfield              |
| Release Cause:       |                                                          | Latitude:           | 39.552707             |
| Reimbursement Total: |                                                          | Longitude:          | -107.33554            |
| Contact:             | Technical Assistance Line                                | Latitude Longitude: | 39.552707, -107.33554 |
| Release Source:      |                                                          |                     |                       |
| Site Name:           | CDOT Glenwood Springs                                    |                     |                       |
| Address:             | 202 Centennial St                                        |                     |                       |
| Email:               | cdle_ops_public_records_center@state.co.us               |                     |                       |
| Link :               | https://opus.cdle.state.co.us/OIS2000/event.asp?h_id=784 |                     |                       |

|                   |        |     |                 |                |                                                                        |                  |
|-------------------|--------|-----|-----------------|----------------|------------------------------------------------------------------------|------------------|
| <a href="#">8</a> | 1 of 1 | WNW | 0.95 / 5,032.18 | 5,701.10 / -91 | EIMCO COAL MACHINERY<br>2222 DEVERUEX RD<br>GLENWOOD SPRINGS CO 81601- | RCRA<br>CORRACTS |
|-------------------|--------|-----|-----------------|----------------|------------------------------------------------------------------------|------------------|

| Map Key | Number of<br>Records | Direction | Distance<br>(mi/ft) | Elev/Diff<br>(ft) | Site | DB |
|---------|----------------------|-----------|---------------------|-------------------|------|----|
|---------|----------------------|-----------|---------------------|-------------------|------|----|

8702

**EPA Handler ID:** COD981544786  
**Gen Status Universe:** No Report  
**Contact Name:** DALE CRUSE  
**Contact Address:** P.O BOX 844 , , GLENWOOD SPRINGS , CO, 81602 , US  
**Contact Phone No and Ext:** 303-945-7836  
**Contact Email:**  
**Contact Country:** US  
**County Name:** GARFIELD  
**EPA Region:** 08  
**Land Type:** Other  
**Receive Date:** 20020913

**Event/Area Details**

**Area Name:** ENTIRE FACILITY  
**Event Code:** CA160  
**Corrective Action Event Descri:** INVESTIGATION SUPPLEMENTAL INFORMATION RECEIVED  
**Actual Date of Event:** 19960627  
**Orig Sched Event Date:**  
**New Sched Event Date:**  
**Best Date:** 19960627  
**Groundwater Release Indicator:** Yes  
**Soil Release Indicator:**  
**Air Release Indicator:**  
**Surface Waste Release Ind:**  
**Event Responsible Agency:** S

**Area Name:** ENTIRE FACILITY  
**Event Code:** CA190  
**Corrective Action Event Descri:** INVESTIGATION REPORT RECEIVED  
**Actual Date of Event:** 19941011  
**Orig Sched Event Date:**  
**New Sched Event Date:**  
**Best Date:** 19941011  
**Groundwater Release Indicator:** Yes  
**Soil Release Indicator:**  
**Air Release Indicator:**  
**Surface Waste Release Ind:**  
**Event Responsible Agency:** S

**Area Name:** ENTIRE FACILITY  
**Event Code:** CA270  
**Corrective Action Event Descri:** CMS WORKPLAN MODIFICATION REQ BY AGENCY  
**Actual Date of Event:** 19930610  
**Orig Sched Event Date:**  
**New Sched Event Date:**  
**Best Date:** 19930610  
**Groundwater Release Indicator:** Yes  
**Soil Release Indicator:**  
**Air Release Indicator:**  
**Surface Waste Release Ind:**  
**Event Responsible Agency:** S

**Area Name:** ENTIRE FACILITY  
**Event Code:** CA300  
**Corrective Action Event Descri:** CMS WORKPLAN APPROVED  
**Actual Date of Event:** 19930610  
**Orig Sched Event Date:**  
**New Sched Event Date:**  
**Best Date:** 19930610  
**Groundwater Release Indicator:** Yes  
**Soil Release Indicator:**  
**Air Release Indicator:**  
**Surface Waste Release Ind:**  
**Event Responsible Agency:** S

| Map Key                         | Number of Records | Direction                                                                | Distance (mi/ft) | Elev/Diff (ft) | Site | DB |
|---------------------------------|-------------------|--------------------------------------------------------------------------|------------------|----------------|------|----|
| <hr/>                           |                   |                                                                          |                  |                |      |    |
| Area Name:                      |                   | ENTIRE FACILITY                                                          |                  |                |      |    |
| Event Code:                     |                   | CA725YE                                                                  |                  |                |      |    |
| Corrective Action Event Descri: |                   | HUMAN EXPOSURES CONTROLLED DETERMINATION-YES, APPLICABLE AS OF THIS DATE |                  |                |      |    |
| Actual Date of Event:           |                   | 20000501                                                                 |                  |                |      |    |
| Orig Sched Event Date:          |                   |                                                                          |                  |                |      |    |
| New Sched Event Date:           |                   |                                                                          |                  |                |      |    |
| Best Date:                      |                   | 20000501                                                                 |                  |                |      |    |
| Groundwater Release Indicator:  |                   | Yes                                                                      |                  |                |      |    |
| Soil Release Indicator:         |                   |                                                                          |                  |                |      |    |
| Air Release Indicator:          |                   |                                                                          |                  |                |      |    |
| Surface Waste Release Ind:      |                   |                                                                          |                  |                |      |    |
| Event Responsible Agency:       |                   | S                                                                        |                  |                |      |    |
| Area Name:                      |                   | ENTIRE FACILITY                                                          |                  |                |      |    |
| Event Code:                     |                   | CA999RM                                                                  |                  |                |      |    |
| Corrective Action Event Descri: |                   | CA PROCESS IS TERMINATED-REMEDIAL ACTIVITIES COMPLETE                    |                  |                |      |    |
| Actual Date of Event:           |                   | 20000501                                                                 |                  |                |      |    |
| Orig Sched Event Date:          |                   |                                                                          |                  |                |      |    |
| New Sched Event Date:           |                   |                                                                          |                  |                |      |    |
| Best Date:                      |                   | 20000501                                                                 |                  |                |      |    |
| Groundwater Release Indicator:  |                   | Yes                                                                      |                  |                |      |    |
| Soil Release Indicator:         |                   |                                                                          |                  |                |      |    |
| Air Release Indicator:          |                   |                                                                          |                  |                |      |    |
| Surface Waste Release Ind:      |                   |                                                                          |                  |                |      |    |
| Event Responsible Agency:       |                   | S                                                                        |                  |                |      |    |
| Area Name:                      |                   | SITE:GROUNDWATER                                                         |                  |                |      |    |
| Event Code:                     |                   | CA450                                                                    |                  |                |      |    |
| Corrective Action Event Descri: |                   | CORRECTIVE MEASURES DESIGN APPROVED                                      |                  |                |      |    |
| Actual Date of Event:           |                   | 19930610                                                                 |                  |                |      |    |
| Orig Sched Event Date:          |                   |                                                                          |                  |                |      |    |
| New Sched Event Date:           |                   |                                                                          |                  |                |      |    |
| Best Date:                      |                   | 19930610                                                                 |                  |                |      |    |
| Groundwater Release Indicator:  |                   | Yes                                                                      |                  |                |      |    |
| Soil Release Indicator:         |                   |                                                                          |                  |                |      |    |
| Air Release Indicator:          |                   |                                                                          |                  |                |      |    |
| Surface Waste Release Ind:      |                   |                                                                          |                  |                |      |    |
| Event Responsible Agency:       |                   | S                                                                        |                  |                |      |    |
| Area Name:                      |                   | SWMU-SUMP                                                                |                  |                |      |    |
| Event Code:                     |                   | CA500                                                                    |                  |                |      |    |
| Corrective Action Event Descri: |                   | CMI WORKPLAN APPROVED                                                    |                  |                |      |    |
| Actual Date of Event:           |                   | 19930610                                                                 |                  |                |      |    |
| Orig Sched Event Date:          |                   |                                                                          |                  |                |      |    |
| New Sched Event Date:           |                   |                                                                          |                  |                |      |    |
| Best Date:                      |                   | 19930610                                                                 |                  |                |      |    |
| Groundwater Release Indicator:  |                   | Yes                                                                      |                  |                |      |    |
| Soil Release Indicator:         |                   |                                                                          |                  |                |      |    |
| Air Release Indicator:          |                   |                                                                          |                  |                |      |    |
| Surface Waste Release Ind:      |                   |                                                                          |                  |                |      |    |
| Event Responsible Agency:       |                   | S                                                                        |                  |                |      |    |
| Area Name:                      |                   | ENTIRE FACILITY                                                          |                  |                |      |    |
| Event Code:                     |                   | CA100                                                                    |                  |                |      |    |
| Corrective Action Event Descri: |                   | INVESTIGATION IMPOSITION                                                 |                  |                |      |    |
| Actual Date of Event:           |                   | 19910724                                                                 |                  |                |      |    |
| Orig Sched Event Date:          |                   |                                                                          |                  |                |      |    |
| New Sched Event Date:           |                   |                                                                          |                  |                |      |    |
| Best Date:                      |                   | 19910724                                                                 |                  |                |      |    |
| Groundwater Release Indicator:  |                   | Yes                                                                      |                  |                |      |    |
| Soil Release Indicator:         |                   |                                                                          |                  |                |      |    |
| Air Release Indicator:          |                   |                                                                          |                  |                |      |    |
| Surface Waste Release Ind:      |                   |                                                                          |                  |                |      |    |
| Event Responsible Agency:       |                   | S                                                                        |                  |                |      |    |
| Area Name:                      |                   | ENTIRE FACILITY                                                          |                  |                |      |    |
| Event Code:                     |                   | CA150                                                                    |                  |                |      |    |
| Corrective Action Event Descri: |                   | INVESTIGATION WORKPLAN APPROVED                                          |                  |                |      |    |

| <b>Map Key</b>                        | <b>Number of<br/>Records</b> | <b>Direction</b>                                                       | <b>Distance<br/>(mi/ft)</b> | <b>Elev/Diff<br/>(ft)</b> | <b>Site</b> | <b>DB</b> |
|---------------------------------------|------------------------------|------------------------------------------------------------------------|-----------------------------|---------------------------|-------------|-----------|
| <hr/>                                 |                              |                                                                        |                             |                           |             |           |
| <b>Actual Date of Event:</b>          |                              | 19921124                                                               |                             |                           |             |           |
| <b>Orig Sched Event Date:</b>         |                              |                                                                        |                             |                           |             |           |
| <b>New Sched Event Date:</b>          |                              |                                                                        |                             |                           |             |           |
| <b>Best Date:</b>                     |                              | 19921124                                                               |                             |                           |             |           |
| <b>Groundwater Release Indicator:</b> |                              | Yes                                                                    |                             |                           |             |           |
| <b>Soil Release Indicator:</b>        |                              |                                                                        |                             |                           |             |           |
| <b>Air Release Indicator:</b>         |                              |                                                                        |                             |                           |             |           |
| <b>Surface Waste Release Ind:</b>     |                              |                                                                        |                             |                           |             |           |
| <b>Event Responsible Agency:</b>      |                              | S                                                                      |                             |                           |             |           |
| <b>Area Name:</b>                     |                              | ENTIRE FACILITY                                                        |                             |                           |             |           |
| <b>Event Code:</b>                    |                              | CA180                                                                  |                             |                           |             |           |
| <b>Corrective Action Event Descr:</b> |                              | INVESTIGATION IMPLEMENTATION BEGUN                                     |                             |                           |             |           |
| <b>Actual Date of Event:</b>          |                              | 19930413                                                               |                             |                           |             |           |
| <b>Orig Sched Event Date:</b>         |                              |                                                                        |                             |                           |             |           |
| <b>New Sched Event Date:</b>          |                              |                                                                        |                             |                           |             |           |
| <b>Best Date:</b>                     |                              | 19930413                                                               |                             |                           |             |           |
| <b>Groundwater Release Indicator:</b> |                              | Yes                                                                    |                             |                           |             |           |
| <b>Soil Release Indicator:</b>        |                              |                                                                        |                             |                           |             |           |
| <b>Air Release Indicator:</b>         |                              |                                                                        |                             |                           |             |           |
| <b>Surface Waste Release Ind:</b>     |                              |                                                                        |                             |                           |             |           |
| <b>Event Responsible Agency:</b>      |                              | S                                                                      |                             |                           |             |           |
| <b>Area Name:</b>                     |                              | ENTIRE FACILITY                                                        |                             |                           |             |           |
| <b>Event Code:</b>                    |                              | CA190                                                                  |                             |                           |             |           |
| <b>Corrective Action Event Descr:</b> |                              | INVESTIGATION REPORT RECEIVED                                          |                             |                           |             |           |
| <b>Actual Date of Event:</b>          |                              | 19950227                                                               |                             |                           |             |           |
| <b>Orig Sched Event Date:</b>         |                              |                                                                        |                             |                           |             |           |
| <b>New Sched Event Date:</b>          |                              |                                                                        |                             |                           |             |           |
| <b>Best Date:</b>                     |                              | 19950227                                                               |                             |                           |             |           |
| <b>Groundwater Release Indicator:</b> |                              | Yes                                                                    |                             |                           |             |           |
| <b>Soil Release Indicator:</b>        |                              |                                                                        |                             |                           |             |           |
| <b>Air Release Indicator:</b>         |                              |                                                                        |                             |                           |             |           |
| <b>Surface Waste Release Ind:</b>     |                              |                                                                        |                             |                           |             |           |
| <b>Event Responsible Agency:</b>      |                              | S                                                                      |                             |                           |             |           |
| <b>Area Name:</b>                     |                              | ENTIRE FACILITY                                                        |                             |                           |             |           |
| <b>Event Code:</b>                    |                              | CA190                                                                  |                             |                           |             |           |
| <b>Corrective Action Event Descr:</b> |                              | INVESTIGATION REPORT RECEIVED                                          |                             |                           |             |           |
| <b>Actual Date of Event:</b>          |                              | 19950530                                                               |                             |                           |             |           |
| <b>Orig Sched Event Date:</b>         |                              |                                                                        |                             |                           |             |           |
| <b>New Sched Event Date:</b>          |                              |                                                                        |                             |                           |             |           |
| <b>Best Date:</b>                     |                              | 19950530                                                               |                             |                           |             |           |
| <b>Groundwater Release Indicator:</b> |                              | Yes                                                                    |                             |                           |             |           |
| <b>Soil Release Indicator:</b>        |                              |                                                                        |                             |                           |             |           |
| <b>Air Release Indicator:</b>         |                              |                                                                        |                             |                           |             |           |
| <b>Surface Waste Release Ind:</b>     |                              |                                                                        |                             |                           |             |           |
| <b>Event Responsible Agency:</b>      |                              | S                                                                      |                             |                           |             |           |
| <b>Area Name:</b>                     |                              | ENTIRE FACILITY                                                        |                             |                           |             |           |
| <b>Event Code:</b>                    |                              | CA500                                                                  |                             |                           |             |           |
| <b>Corrective Action Event Descr:</b> |                              | CMI WORKPLAN APPROVED                                                  |                             |                           |             |           |
| <b>Actual Date of Event:</b>          |                              | 19930610                                                               |                             |                           |             |           |
| <b>Orig Sched Event Date:</b>         |                              |                                                                        |                             |                           |             |           |
| <b>New Sched Event Date:</b>          |                              |                                                                        |                             |                           |             |           |
| <b>Best Date:</b>                     |                              | 19930610                                                               |                             |                           |             |           |
| <b>Groundwater Release Indicator:</b> |                              | Yes                                                                    |                             |                           |             |           |
| <b>Soil Release Indicator:</b>        |                              |                                                                        |                             |                           |             |           |
| <b>Air Release Indicator:</b>         |                              |                                                                        |                             |                           |             |           |
| <b>Surface Waste Release Ind:</b>     |                              |                                                                        |                             |                           |             |           |
| <b>Event Responsible Agency:</b>      |                              | S                                                                      |                             |                           |             |           |
| <b>Area Name:</b>                     |                              | ENTIRE FACILITY                                                        |                             |                           |             |           |
| <b>Event Code:</b>                    |                              | CA750YE                                                                |                             |                           |             |           |
| <b>Corrective Action Event Descr:</b> |                              | RELEASE TO GW CONTROLLED DETERMINATION-YES, APPLICABLE AS OF THIS DATE |                             |                           |             |           |
| <b>Actual Date of Event:</b>          |                              | 20000501                                                               |                             |                           |             |           |
| <b>Orig Sched Event Date:</b>         |                              |                                                                        |                             |                           |             |           |
| <b>New Sched Event Date:</b>          |                              |                                                                        |                             |                           |             |           |
| <b>Best Date:</b>                     |                              | 20000501                                                               |                             |                           |             |           |



| Map Key                         | Number of Records                             | Direction | Distance (mi/ft) | Elev/Diff (ft) | Site | DB |
|---------------------------------|-----------------------------------------------|-----------|------------------|----------------|------|----|
| <hr/>                           |                                               |           |                  |                |      |    |
| Groundwater Release Indicator:  | Yes                                           |           |                  |                |      |    |
| Soil Release Indicator:         |                                               |           |                  |                |      |    |
| Air Release Indicator:          |                                               |           |                  |                |      |    |
| Surface Waste Release Ind:      |                                               |           |                  |                |      |    |
| Event Responsible Agency:       | S                                             |           |                  |                |      |    |
| Area Name:                      | ENTIRE FACILITY                               |           |                  |                |      |    |
| Event Code:                     | CA831AS                                       |           |                  |                |      |    |
| Corrective Action Event Descri: | OTHER REPORT RECEIVED                         |           |                  |                |      |    |
| Actual Date of Event:           |                                               |           |                  |                |      |    |
| Orig Sched Event Date:          | 19970213                                      |           |                  |                |      |    |
| New Sched Event Date:           |                                               |           |                  |                |      |    |
| Best Date:                      | 19970213                                      |           |                  |                |      |    |
| Groundwater Release Indicator:  | Yes                                           |           |                  |                |      |    |
| Soil Release Indicator:         |                                               |           |                  |                |      |    |
| Air Release Indicator:          |                                               |           |                  |                |      |    |
| Surface Waste Release Ind:      |                                               |           |                  |                |      |    |
| Event Responsible Agency:       | S                                             |           |                  |                |      |    |
| Area Name:                      | SITE:GROUNDWATER                              |           |                  |                |      |    |
| Event Code:                     | CA250                                         |           |                  |                |      |    |
| Corrective Action Event Descri: | CMS IMPOSITION                                |           |                  |                |      |    |
| Actual Date of Event:           | 19930610                                      |           |                  |                |      |    |
| Orig Sched Event Date:          |                                               |           |                  |                |      |    |
| New Sched Event Date:           |                                               |           |                  |                |      |    |
| Best Date:                      | 19930610                                      |           |                  |                |      |    |
| Groundwater Release Indicator:  | Yes                                           |           |                  |                |      |    |
| Soil Release Indicator:         |                                               |           |                  |                |      |    |
| Air Release Indicator:          |                                               |           |                  |                |      |    |
| Surface Waste Release Ind:      |                                               |           |                  |                |      |    |
| Event Responsible Agency:       | S                                             |           |                  |                |      |    |
| Area Name:                      | SWMU-SUMP                                     |           |                  |                |      |    |
| Event Code:                     | CA100                                         |           |                  |                |      |    |
| Corrective Action Event Descri: | INVESTIGATION IMPOSITION                      |           |                  |                |      |    |
| Actual Date of Event:           | 19910724                                      |           |                  |                |      |    |
| Orig Sched Event Date:          |                                               |           |                  |                |      |    |
| New Sched Event Date:           |                                               |           |                  |                |      |    |
| Best Date:                      | 19910724                                      |           |                  |                |      |    |
| Groundwater Release Indicator:  | Yes                                           |           |                  |                |      |    |
| Soil Release Indicator:         |                                               |           |                  |                |      |    |
| Air Release Indicator:          |                                               |           |                  |                |      |    |
| Surface Waste Release Ind:      |                                               |           |                  |                |      |    |
| Event Responsible Agency:       | S                                             |           |                  |                |      |    |
| Area Name:                      | ENTIRE FACILITY                               |           |                  |                |      |    |
| Event Code:                     | CA010                                         |           |                  |                |      |    |
| Corrective Action Event Descri: | RFA INITIATION                                |           |                  |                |      |    |
| Actual Date of Event:           | 19900907                                      |           |                  |                |      |    |
| Orig Sched Event Date:          |                                               |           |                  |                |      |    |
| New Sched Event Date:           |                                               |           |                  |                |      |    |
| Best Date:                      | 19900907                                      |           |                  |                |      |    |
| Groundwater Release Indicator:  | Yes                                           |           |                  |                |      |    |
| Soil Release Indicator:         |                                               |           |                  |                |      |    |
| Air Release Indicator:          |                                               |           |                  |                |      |    |
| Surface Waste Release Ind:      |                                               |           |                  |                |      |    |
| Event Responsible Agency:       | S                                             |           |                  |                |      |    |
| Area Name:                      | ENTIRE FACILITY                               |           |                  |                |      |    |
| Event Code:                     | CA155                                         |           |                  |                |      |    |
| Corrective Action Event Descri: | INVESTIGATION SUPPLEMENTAL INFO REQ BY AGENCY |           |                  |                |      |    |
| Actual Date of Event:           | 19921124                                      |           |                  |                |      |    |
| Orig Sched Event Date:          |                                               |           |                  |                |      |    |
| New Sched Event Date:           |                                               |           |                  |                |      |    |
| Best Date:                      | 19921124                                      |           |                  |                |      |    |
| Groundwater Release Indicator:  | Yes                                           |           |                  |                |      |    |
| Soil Release Indicator:         |                                               |           |                  |                |      |    |
| Air Release Indicator:          |                                               |           |                  |                |      |    |
| Surface Waste Release Ind:      |                                               |           |                  |                |      |    |

| <b>Map Key</b>                         | <b>Number of<br/>Records</b> | <b>Direction</b>                                                               | <b>Distance<br/>(mi/ft)</b> | <b>Elev/Diff<br/>(ft)</b> | <b>Site</b> | <b>DB</b> |
|----------------------------------------|------------------------------|--------------------------------------------------------------------------------|-----------------------------|---------------------------|-------------|-----------|
| <hr/>                                  |                              |                                                                                |                             |                           |             |           |
| <b>Event Responsible Agency:</b>       |                              | S                                                                              |                             |                           |             |           |
| <b>Area Name:</b>                      |                              | ENTIRE FACILITY                                                                |                             |                           |             |           |
| <b>Event Code:</b>                     |                              | CA600SR                                                                        |                             |                           |             |           |
| <b>Corrective Action Event Descri:</b> |                              | STABILIZATION/INTERIM MEASURES DECISION-PRIMARY MEAS IS SOURCE REMOVL &/OR TRT |                             |                           |             |           |
| <b>Actual Date of Event:</b>           |                              | 19931107                                                                       |                             |                           |             |           |
| <b>Orig Sched Event Date:</b>          |                              |                                                                                |                             |                           |             |           |
| <b>New Sched Event Date:</b>           |                              |                                                                                |                             |                           |             |           |
| <b>Best Date:</b>                      |                              | 19931107                                                                       |                             |                           |             |           |
| <b>Groundwater Release Indicator:</b>  |                              | Yes                                                                            |                             |                           |             |           |
| <b>Soil Release Indicator:</b>         |                              |                                                                                |                             |                           |             |           |
| <b>Air Release Indicator:</b>          |                              |                                                                                |                             |                           |             |           |
| <b>Surface Waste Release Ind:</b>      |                              |                                                                                |                             |                           |             |           |
| <b>Event Responsible Agency:</b>       |                              | S                                                                              |                             |                           |             |           |
| <b>Area Name:</b>                      |                              | ENTIRE FACILITY                                                                |                             |                           |             |           |
| <b>Event Code:</b>                     |                              | CA725YE                                                                        |                             |                           |             |           |
| <b>Corrective Action Event Descri:</b> |                              | HUMAN EXPOSURES CONTROLLED DETERMINATION-YES, APPLICABLE AS OF THIS DATE       |                             |                           |             |           |
| <b>Actual Date of Event:</b>           |                              | 19950801                                                                       |                             |                           |             |           |
| <b>Orig Sched Event Date:</b>          |                              |                                                                                |                             |                           |             |           |
| <b>New Sched Event Date:</b>           |                              |                                                                                |                             |                           |             |           |
| <b>Best Date:</b>                      |                              | 19950801                                                                       |                             |                           |             |           |
| <b>Groundwater Release Indicator:</b>  |                              | Yes                                                                            |                             |                           |             |           |
| <b>Soil Release Indicator:</b>         |                              |                                                                                |                             |                           |             |           |
| <b>Air Release Indicator:</b>          |                              |                                                                                |                             |                           |             |           |
| <b>Surface Waste Release Ind:</b>      |                              |                                                                                |                             |                           |             |           |
| <b>Event Responsible Agency:</b>       |                              | S                                                                              |                             |                           |             |           |
| <b>Area Name:</b>                      |                              | SITE:GROUNDWATER                                                               |                             |                           |             |           |
| <b>Event Code:</b>                     |                              | CA400                                                                          |                             |                           |             |           |
| <b>Corrective Action Event Descri:</b> |                              | REMEDY DECISION                                                                |                             |                           |             |           |
| <b>Actual Date of Event:</b>           |                              | 19990520                                                                       |                             |                           |             |           |
| <b>Orig Sched Event Date:</b>          |                              |                                                                                |                             |                           |             |           |
| <b>New Sched Event Date:</b>           |                              |                                                                                |                             |                           |             |           |
| <b>Best Date:</b>                      |                              | 19990520                                                                       |                             |                           |             |           |
| <b>Groundwater Release Indicator:</b>  |                              | Yes                                                                            |                             |                           |             |           |
| <b>Soil Release Indicator:</b>         |                              |                                                                                |                             |                           |             |           |
| <b>Air Release Indicator:</b>          |                              |                                                                                |                             |                           |             |           |
| <b>Surface Waste Release Ind:</b>      |                              |                                                                                |                             |                           |             |           |
| <b>Event Responsible Agency:</b>       |                              | S                                                                              |                             |                           |             |           |
| <b>Area Name:</b>                      |                              | SWMU-SUMP                                                                      |                             |                           |             |           |
| <b>Event Code:</b>                     |                              | CA250                                                                          |                             |                           |             |           |
| <b>Corrective Action Event Descri:</b> |                              | CMS IMPOSITION                                                                 |                             |                           |             |           |
| <b>Actual Date of Event:</b>           |                              | 19930610                                                                       |                             |                           |             |           |
| <b>Orig Sched Event Date:</b>          |                              |                                                                                |                             |                           |             |           |
| <b>New Sched Event Date:</b>           |                              |                                                                                |                             |                           |             |           |
| <b>Best Date:</b>                      |                              | 19930610                                                                       |                             |                           |             |           |
| <b>Groundwater Release Indicator:</b>  |                              | Yes                                                                            |                             |                           |             |           |
| <b>Soil Release Indicator:</b>         |                              |                                                                                |                             |                           |             |           |
| <b>Air Release Indicator:</b>          |                              |                                                                                |                             |                           |             |           |
| <b>Surface Waste Release Ind:</b>      |                              |                                                                                |                             |                           |             |           |
| <b>Event Responsible Agency:</b>       |                              | S                                                                              |                             |                           |             |           |
| <b>Area Name:</b>                      |                              | ENTIRE FACILITY                                                                |                             |                           |             |           |
| <b>Event Code:</b>                     |                              | CA050                                                                          |                             |                           |             |           |
| <b>Corrective Action Event Descri:</b> |                              | RFA COMPLETED                                                                  |                             |                           |             |           |
| <b>Actual Date of Event:</b>           |                              | 19900907                                                                       |                             |                           |             |           |
| <b>Orig Sched Event Date:</b>          |                              |                                                                                |                             |                           |             |           |
| <b>New Sched Event Date:</b>           |                              |                                                                                |                             |                           |             |           |
| <b>Best Date:</b>                      |                              | 19900907                                                                       |                             |                           |             |           |
| <b>Groundwater Release Indicator:</b>  |                              | Yes                                                                            |                             |                           |             |           |
| <b>Soil Release Indicator:</b>         |                              |                                                                                |                             |                           |             |           |
| <b>Air Release Indicator:</b>          |                              |                                                                                |                             |                           |             |           |
| <b>Surface Waste Release Ind:</b>      |                              |                                                                                |                             |                           |             |           |
| <b>Event Responsible Agency:</b>       |                              | S                                                                              |                             |                           |             |           |
| <b>Area Name:</b>                      |                              | ENTIRE FACILITY                                                                |                             |                           |             |           |
| <b>Event Code:</b>                     |                              | CA190                                                                          |                             |                           |             |           |

| Map Key                                | Number of Records                                                      | Direction | Distance (mi/ft) | Elev/Diff (ft) | Site | DB |
|----------------------------------------|------------------------------------------------------------------------|-----------|------------------|----------------|------|----|
| <hr/>                                  |                                                                        |           |                  |                |      |    |
| <b>Corrective Action Event Descri:</b> | INVESTIGATION REPORT RECEIVED                                          |           |                  |                |      |    |
| <b>Actual Date of Event:</b>           | 19940627                                                               |           |                  |                |      |    |
| <b>Orig Sched Event Date:</b>          |                                                                        |           |                  |                |      |    |
| <b>New Sched Event Date:</b>           |                                                                        |           |                  |                |      |    |
| <b>Best Date:</b>                      | 19940627                                                               |           |                  |                |      |    |
| <b>Groundwater Release Indicator:</b>  | Yes                                                                    |           |                  |                |      |    |
| <b>Soil Release Indicator:</b>         |                                                                        |           |                  |                |      |    |
| <b>Air Release Indicator:</b>          |                                                                        |           |                  |                |      |    |
| <b>Surface Waste Release Ind:</b>      |                                                                        |           |                  |                |      |    |
| <b>Event Responsible Agency:</b>       | S                                                                      |           |                  |                |      |    |
| <b>Area Name:</b>                      | ENTIRE FACILITY                                                        |           |                  |                |      |    |
| <b>Event Code:</b>                     | CA190                                                                  |           |                  |                |      |    |
| <b>Corrective Action Event Descri:</b> | INVESTIGATION REPORT RECEIVED                                          |           |                  |                |      |    |
| <b>Actual Date of Event:</b>           | 19940919                                                               |           |                  |                |      |    |
| <b>Orig Sched Event Date:</b>          |                                                                        |           |                  |                |      |    |
| <b>New Sched Event Date:</b>           |                                                                        |           |                  |                |      |    |
| <b>Best Date:</b>                      | 19940919                                                               |           |                  |                |      |    |
| <b>Groundwater Release Indicator:</b>  | Yes                                                                    |           |                  |                |      |    |
| <b>Soil Release Indicator:</b>         |                                                                        |           |                  |                |      |    |
| <b>Air Release Indicator:</b>          |                                                                        |           |                  |                |      |    |
| <b>Surface Waste Release Ind:</b>      |                                                                        |           |                  |                |      |    |
| <b>Event Responsible Agency:</b>       | S                                                                      |           |                  |                |      |    |
| <b>Area Name:</b>                      | ENTIRE FACILITY                                                        |           |                  |                |      |    |
| <b>Event Code:</b>                     | CA260                                                                  |           |                  |                |      |    |
| <b>Corrective Action Event Descri:</b> | CMS WORKPLAN RECEIVED                                                  |           |                  |                |      |    |
| <b>Actual Date of Event:</b>           | 19930608                                                               |           |                  |                |      |    |
| <b>Orig Sched Event Date:</b>          |                                                                        |           |                  |                |      |    |
| <b>New Sched Event Date:</b>           |                                                                        |           |                  |                |      |    |
| <b>Best Date:</b>                      | 19930608                                                               |           |                  |                |      |    |
| <b>Groundwater Release Indicator:</b>  | Yes                                                                    |           |                  |                |      |    |
| <b>Soil Release Indicator:</b>         |                                                                        |           |                  |                |      |    |
| <b>Air Release Indicator:</b>          |                                                                        |           |                  |                |      |    |
| <b>Surface Waste Release Ind:</b>      |                                                                        |           |                  |                |      |    |
| <b>Event Responsible Agency:</b>       | S                                                                      |           |                  |                |      |    |
| <b>Area Name:</b>                      | ENTIRE FACILITY                                                        |           |                  |                |      |    |
| <b>Event Code:</b>                     | CA750YE                                                                |           |                  |                |      |    |
| <b>Corrective Action Event Descri:</b> | RELEASE TO GW CONTROLLED DETERMINATION-YES, APPLICABLE AS OF THIS DATE |           |                  |                |      |    |
| <b>Actual Date of Event:</b>           | 19950801                                                               |           |                  |                |      |    |
| <b>Orig Sched Event Date:</b>          |                                                                        |           |                  |                |      |    |
| <b>New Sched Event Date:</b>           |                                                                        |           |                  |                |      |    |
| <b>Best Date:</b>                      | 19950801                                                               |           |                  |                |      |    |
| <b>Groundwater Release Indicator:</b>  | Yes                                                                    |           |                  |                |      |    |
| <b>Soil Release Indicator:</b>         |                                                                        |           |                  |                |      |    |
| <b>Air Release Indicator:</b>          |                                                                        |           |                  |                |      |    |
| <b>Surface Waste Release Ind:</b>      |                                                                        |           |                  |                |      |    |
| <b>Event Responsible Agency:</b>       | S                                                                      |           |                  |                |      |    |
| <b>Area Name:</b>                      | SITE:GROUNDWATER                                                       |           |                  |                |      |    |
| <b>Event Code:</b>                     | CA150                                                                  |           |                  |                |      |    |
| <b>Corrective Action Event Descri:</b> | INVESTIGATION WORKPLAN APPROVED                                        |           |                  |                |      |    |
| <b>Actual Date of Event:</b>           | 19921124                                                               |           |                  |                |      |    |
| <b>Orig Sched Event Date:</b>          |                                                                        |           |                  |                |      |    |
| <b>New Sched Event Date:</b>           |                                                                        |           |                  |                |      |    |
| <b>Best Date:</b>                      | 19921124                                                               |           |                  |                |      |    |
| <b>Groundwater Release Indicator:</b>  | Yes                                                                    |           |                  |                |      |    |
| <b>Soil Release Indicator:</b>         |                                                                        |           |                  |                |      |    |
| <b>Air Release Indicator:</b>          |                                                                        |           |                  |                |      |    |
| <b>Surface Waste Release Ind:</b>      |                                                                        |           |                  |                |      |    |
| <b>Event Responsible Agency:</b>       | S                                                                      |           |                  |                |      |    |
| <b>Area Name:</b>                      | SITE:GROUNDWATER                                                       |           |                  |                |      |    |
| <b>Event Code:</b>                     | CA450                                                                  |           |                  |                |      |    |
| <b>Corrective Action Event Descri:</b> | CORRECTIVE MEASURES DESIGN APPROVED                                    |           |                  |                |      |    |
| <b>Actual Date of Event:</b>           | 19990520                                                               |           |                  |                |      |    |
| <b>Orig Sched Event Date:</b>          |                                                                        |           |                  |                |      |    |
| <b>New Sched Event Date:</b>           |                                                                        |           |                  |                |      |    |

| Map Key                                | Number of Records | Direction                                             | Distance (mi/ft) | Elev/Diff (ft) | Site | DB |
|----------------------------------------|-------------------|-------------------------------------------------------|------------------|----------------|------|----|
| <hr/>                                  |                   |                                                       |                  |                |      |    |
| <b>Best Date:</b>                      |                   | 19990520                                              |                  |                |      |    |
| <b>Groundwater Release Indicator:</b>  |                   | Yes                                                   |                  |                |      |    |
| <b>Soil Release Indicator:</b>         |                   |                                                       |                  |                |      |    |
| <b>Air Release Indicator:</b>          |                   |                                                       |                  |                |      |    |
| <b>Surface Waste Release Ind:</b>      |                   |                                                       |                  |                |      |    |
| <b>Event Responsible Agency:</b>       |                   | S                                                     |                  |                |      |    |
| <b>Area Name:</b>                      |                   | SWMU-SUMP                                             |                  |                |      |    |
| <b>Event Code:</b>                     |                   | CA150                                                 |                  |                |      |    |
| <b>Corrective Action Event Descri:</b> |                   | INVESTIGATION WORKPLAN APPROVED                       |                  |                |      |    |
| <b>Actual Date of Event:</b>           |                   | 19921124                                              |                  |                |      |    |
| <b>Orig Sched Event Date:</b>          |                   |                                                       |                  |                |      |    |
| <b>New Sched Event Date:</b>           |                   |                                                       |                  |                |      |    |
| <b>Best Date:</b>                      |                   | 19921124                                              |                  |                |      |    |
| <b>Groundwater Release Indicator:</b>  |                   | Yes                                                   |                  |                |      |    |
| <b>Soil Release Indicator:</b>         |                   |                                                       |                  |                |      |    |
| <b>Air Release Indicator:</b>          |                   |                                                       |                  |                |      |    |
| <b>Surface Waste Release Ind:</b>      |                   |                                                       |                  |                |      |    |
| <b>Event Responsible Agency:</b>       |                   | S                                                     |                  |                |      |    |
| <b>Area Name:</b>                      |                   | SWMU-SUMP                                             |                  |                |      |    |
| <b>Event Code:</b>                     |                   | CA999RM                                               |                  |                |      |    |
| <b>Corrective Action Event Descri:</b> |                   | CA PROCESS IS TERMINATED-REMEDIAL ACTIVITIES COMPLETE |                  |                |      |    |
| <b>Actual Date of Event:</b>           |                   | 20000501                                              |                  |                |      |    |
| <b>Orig Sched Event Date:</b>          |                   |                                                       |                  |                |      |    |
| <b>New Sched Event Date:</b>           |                   |                                                       |                  |                |      |    |
| <b>Best Date:</b>                      |                   | 20000501                                              |                  |                |      |    |
| <b>Groundwater Release Indicator:</b>  |                   | Yes                                                   |                  |                |      |    |
| <b>Soil Release Indicator:</b>         |                   |                                                       |                  |                |      |    |
| <b>Air Release Indicator:</b>          |                   |                                                       |                  |                |      |    |
| <b>Surface Waste Release Ind:</b>      |                   |                                                       |                  |                |      |    |
| <b>Event Responsible Agency:</b>       |                   | S                                                     |                  |                |      |    |
| <b>Area Name:</b>                      |                   | ENTIRE FACILITY                                       |                  |                |      |    |
| <b>Event Code:</b>                     |                   | CA110                                                 |                  |                |      |    |
| <b>Corrective Action Event Descri:</b> |                   | INVESTIGATION WORKPLAN RECEIVED                       |                  |                |      |    |
| <b>Actual Date of Event:</b>           |                   | 19920701                                              |                  |                |      |    |
| <b>Orig Sched Event Date:</b>          |                   |                                                       |                  |                |      |    |
| <b>New Sched Event Date:</b>           |                   |                                                       |                  |                |      |    |
| <b>Best Date:</b>                      |                   | 19920701                                              |                  |                |      |    |
| <b>Groundwater Release Indicator:</b>  |                   | Yes                                                   |                  |                |      |    |
| <b>Soil Release Indicator:</b>         |                   |                                                       |                  |                |      |    |
| <b>Air Release Indicator:</b>          |                   |                                                       |                  |                |      |    |
| <b>Surface Waste Release Ind:</b>      |                   |                                                       |                  |                |      |    |
| <b>Event Responsible Agency:</b>       |                   | S                                                     |                  |                |      |    |
| <b>Area Name:</b>                      |                   | ENTIRE FACILITY                                       |                  |                |      |    |
| <b>Event Code:</b>                     |                   | CA160                                                 |                  |                |      |    |
| <b>Corrective Action Event Descri:</b> |                   | INVESTIGATION SUPPLEMENTAL INFORMATION RECEIVED       |                  |                |      |    |
| <b>Actual Date of Event:</b>           |                   | 19930122                                              |                  |                |      |    |
| <b>Orig Sched Event Date:</b>          |                   |                                                       |                  |                |      |    |
| <b>New Sched Event Date:</b>           |                   |                                                       |                  |                |      |    |
| <b>Best Date:</b>                      |                   | 19930122                                              |                  |                |      |    |
| <b>Groundwater Release Indicator:</b>  |                   | Yes                                                   |                  |                |      |    |
| <b>Soil Release Indicator:</b>         |                   |                                                       |                  |                |      |    |
| <b>Air Release Indicator:</b>          |                   |                                                       |                  |                |      |    |
| <b>Surface Waste Release Ind:</b>      |                   |                                                       |                  |                |      |    |
| <b>Event Responsible Agency:</b>       |                   | S                                                     |                  |                |      |    |
| <b>Area Name:</b>                      |                   | ENTIRE FACILITY                                       |                  |                |      |    |
| <b>Event Code:</b>                     |                   | CA190                                                 |                  |                |      |    |
| <b>Corrective Action Event Descri:</b> |                   | INVESTIGATION REPORT RECEIVED                         |                  |                |      |    |
| <b>Actual Date of Event:</b>           |                   | 19960516                                              |                  |                |      |    |
| <b>Orig Sched Event Date:</b>          |                   |                                                       |                  |                |      |    |
| <b>New Sched Event Date:</b>           |                   |                                                       |                  |                |      |    |
| <b>Best Date:</b>                      |                   | 19960516                                              |                  |                |      |    |
| <b>Groundwater Release Indicator:</b>  |                   | Yes                                                   |                  |                |      |    |
| <b>Soil Release Indicator:</b>         |                   |                                                       |                  |                |      |    |
| <b>Air Release Indicator:</b>          |                   |                                                       |                  |                |      |    |

| Map Key                         | Number of Records | Direction                                                              | Distance (mi/ft) | Elev/Diff (ft) | Site | DB |
|---------------------------------|-------------------|------------------------------------------------------------------------|------------------|----------------|------|----|
| <hr/>                           |                   |                                                                        |                  |                |      |    |
| Surface Waste Release Ind:      |                   |                                                                        |                  |                |      |    |
| Event Responsible Agency:       |                   | S                                                                      |                  |                |      |    |
| Area Name:                      |                   | ENTIRE FACILITY                                                        |                  |                |      |    |
| Event Code:                     |                   | CA190                                                                  |                  |                |      |    |
| Corrective Action Event Descri: |                   | INVESTIGATION REPORT RECEIVED                                          |                  |                |      |    |
| Actual Date of Event:           |                   | 19950227                                                               |                  |                |      |    |
| Orig Sched Event Date:          |                   |                                                                        |                  |                |      |    |
| New Sched Event Date:           |                   |                                                                        |                  |                |      |    |
| Best Date:                      |                   | 19950227                                                               |                  |                |      |    |
| Groundwater Release Indicator:  |                   | Yes                                                                    |                  |                |      |    |
| Soil Release Indicator:         |                   |                                                                        |                  |                |      |    |
| Air Release Indicator:          |                   |                                                                        |                  |                |      |    |
| Surface Waste Release Ind:      |                   |                                                                        |                  |                |      |    |
| Event Responsible Agency:       |                   | S                                                                      |                  |                |      |    |
| Area Name:                      |                   | ENTIRE FACILITY                                                        |                  |                |      |    |
| Event Code:                     |                   | CA750YE                                                                |                  |                |      |    |
| Corrective Action Event Descri: |                   | RELEASE TO GW CONTROLLED DETERMINATION-YES, APPLICABLE AS OF THIS DATE |                  |                |      |    |
| Actual Date of Event:           |                   | 20000501                                                               |                  |                |      |    |
| Orig Sched Event Date:          |                   |                                                                        |                  |                |      |    |
| New Sched Event Date:           |                   |                                                                        |                  |                |      |    |
| Best Date:                      |                   | 20000501                                                               |                  |                |      |    |
| Groundwater Release Indicator:  |                   | Yes                                                                    |                  |                |      |    |
| Soil Release Indicator:         |                   |                                                                        |                  |                |      |    |
| Air Release Indicator:          |                   |                                                                        |                  |                |      |    |
| Surface Waste Release Ind:      |                   |                                                                        |                  |                |      |    |
| Event Responsible Agency:       |                   | S                                                                      |                  |                |      |    |
| Area Name:                      |                   | SITE:GROUNDWATER                                                       |                  |                |      |    |
| Event Code:                     |                   | CA100                                                                  |                  |                |      |    |
| Corrective Action Event Descri: |                   | INVESTIGATION IMPOSITION                                               |                  |                |      |    |
| Actual Date of Event:           |                   | 19910724                                                               |                  |                |      |    |
| Orig Sched Event Date:          |                   |                                                                        |                  |                |      |    |
| New Sched Event Date:           |                   |                                                                        |                  |                |      |    |
| Best Date:                      |                   | 19910724                                                               |                  |                |      |    |
| Groundwater Release Indicator:  |                   | Yes                                                                    |                  |                |      |    |
| Soil Release Indicator:         |                   |                                                                        |                  |                |      |    |
| Air Release Indicator:          |                   |                                                                        |                  |                |      |    |
| Surface Waste Release Ind:      |                   |                                                                        |                  |                |      |    |
| Event Responsible Agency:       |                   | S                                                                      |                  |                |      |    |
| Area Name:                      |                   | SITE:GROUNDWATER                                                       |                  |                |      |    |
| Event Code:                     |                   | CA750YE                                                                |                  |                |      |    |
| Corrective Action Event Descri: |                   | RELEASE TO GW CONTROLLED DETERMINATION-YES, APPLICABLE AS OF THIS DATE |                  |                |      |    |
| Actual Date of Event:           |                   | 20000501                                                               |                  |                |      |    |
| Orig Sched Event Date:          |                   |                                                                        |                  |                |      |    |
| New Sched Event Date:           |                   |                                                                        |                  |                |      |    |
| Best Date:                      |                   | 20000501                                                               |                  |                |      |    |
| Groundwater Release Indicator:  |                   | Yes                                                                    |                  |                |      |    |
| Soil Release Indicator:         |                   |                                                                        |                  |                |      |    |
| Air Release Indicator:          |                   |                                                                        |                  |                |      |    |
| Surface Waste Release Ind:      |                   |                                                                        |                  |                |      |    |
| Event Responsible Agency:       |                   | S                                                                      |                  |                |      |    |
| Area Name:                      |                   | SWMU-SUMP                                                              |                  |                |      |    |
| Event Code:                     |                   | CA075LO                                                                |                  |                |      |    |
| Corrective Action Event Descri: |                   | CA PRIORITIZATION-LOW CA PRIORITY                                      |                  |                |      |    |
| Actual Date of Event:           |                   | 19950811                                                               |                  |                |      |    |
| Orig Sched Event Date:          |                   |                                                                        |                  |                |      |    |
| New Sched Event Date:           |                   |                                                                        |                  |                |      |    |
| Best Date:                      |                   | 19950811                                                               |                  |                |      |    |
| Groundwater Release Indicator:  |                   | Yes                                                                    |                  |                |      |    |
| Soil Release Indicator:         |                   |                                                                        |                  |                |      |    |
| Air Release Indicator:          |                   |                                                                        |                  |                |      |    |
| Surface Waste Release Ind:      |                   |                                                                        |                  |                |      |    |
| Event Responsible Agency:       |                   | S                                                                      |                  |                |      |    |
| Area Name:                      |                   | ENTIRE FACILITY                                                        |                  |                |      |    |

| <b>Map Key</b>                        | <b>Number of<br/>Records</b> | <b>Direction</b>              | <b>Distance<br/>(mi/ft)</b> | <b>Elev/Diff<br/>(ft)</b> | <b>Site</b> | <b>DB</b> |
|---------------------------------------|------------------------------|-------------------------------|-----------------------------|---------------------------|-------------|-----------|
| <hr/>                                 |                              |                               |                             |                           |             |           |
| <b>Event Code:</b>                    |                              | CA190                         |                             |                           |             |           |
| <b>Corrective Action Event Descr:</b> |                              | INVESTIGATION REPORT RECEIVED |                             |                           |             |           |
| <b>Actual Date of Event:</b>          |                              | 19940919                      |                             |                           |             |           |
| <b>Orig Sched Event Date:</b>         |                              |                               |                             |                           |             |           |
| <b>New Sched Event Date:</b>          |                              |                               |                             |                           |             |           |
| <b>Best Date:</b>                     |                              | 19940919                      |                             |                           |             |           |
| <b>Groundwater Release Indicator:</b> |                              | Yes                           |                             |                           |             |           |
| <b>Soil Release Indicator:</b>        |                              |                               |                             |                           |             |           |
| <b>Air Release Indicator:</b>         |                              |                               |                             |                           |             |           |
| <b>Surface Waste Release Ind:</b>     |                              |                               |                             |                           |             |           |
| <b>Event Responsible Agency:</b>      |                              | S                             |                             |                           |             |           |
| <b>Area Name:</b>                     |                              | ENTIRE FACILITY               |                             |                           |             |           |
| <b>Event Code:</b>                    |                              | CA190                         |                             |                           |             |           |
| <b>Corrective Action Event Descr:</b> |                              | INVESTIGATION REPORT RECEIVED |                             |                           |             |           |
| <b>Actual Date of Event:</b>          |                              | 19940331                      |                             |                           |             |           |
| <b>Orig Sched Event Date:</b>         |                              |                               |                             |                           |             |           |
| <b>New Sched Event Date:</b>          |                              |                               |                             |                           |             |           |
| <b>Best Date:</b>                     |                              | 19940331                      |                             |                           |             |           |
| <b>Groundwater Release Indicator:</b> |                              | Yes                           |                             |                           |             |           |
| <b>Soil Release Indicator:</b>        |                              |                               |                             |                           |             |           |
| <b>Air Release Indicator:</b>         |                              |                               |                             |                           |             |           |
| <b>Surface Waste Release Ind:</b>     |                              |                               |                             |                           |             |           |
| <b>Event Responsible Agency:</b>      |                              | S                             |                             |                           |             |           |
| <b>Area Name:</b>                     |                              | ENTIRE FACILITY               |                             |                           |             |           |
| <b>Event Code:</b>                    |                              | CA190                         |                             |                           |             |           |
| <b>Corrective Action Event Descr:</b> |                              | INVESTIGATION REPORT RECEIVED |                             |                           |             |           |
| <b>Actual Date of Event:</b>          |                              | 19940627                      |                             |                           |             |           |
| <b>Orig Sched Event Date:</b>         |                              |                               |                             |                           |             |           |
| <b>New Sched Event Date:</b>          |                              |                               |                             |                           |             |           |
| <b>Best Date:</b>                     |                              | 19940627                      |                             |                           |             |           |
| <b>Groundwater Release Indicator:</b> |                              | Yes                           |                             |                           |             |           |
| <b>Soil Release Indicator:</b>        |                              |                               |                             |                           |             |           |
| <b>Air Release Indicator:</b>         |                              |                               |                             |                           |             |           |
| <b>Surface Waste Release Ind:</b>     |                              |                               |                             |                           |             |           |
| <b>Event Responsible Agency:</b>      |                              | S                             |                             |                           |             |           |
| <b>Area Name:</b>                     |                              | ENTIRE FACILITY               |                             |                           |             |           |
| <b>Event Code:</b>                    |                              | CA190                         |                             |                           |             |           |
| <b>Corrective Action Event Descr:</b> |                              | INVESTIGATION REPORT RECEIVED |                             |                           |             |           |
| <b>Actual Date of Event:</b>          |                              | 19960202                      |                             |                           |             |           |
| <b>Orig Sched Event Date:</b>         |                              |                               |                             |                           |             |           |
| <b>New Sched Event Date:</b>          |                              |                               |                             |                           |             |           |
| <b>Best Date:</b>                     |                              | 19960202                      |                             |                           |             |           |
| <b>Groundwater Release Indicator:</b> |                              | Yes                           |                             |                           |             |           |
| <b>Soil Release Indicator:</b>        |                              |                               |                             |                           |             |           |
| <b>Air Release Indicator:</b>         |                              |                               |                             |                           |             |           |
| <b>Surface Waste Release Ind:</b>     |                              |                               |                             |                           |             |           |
| <b>Event Responsible Agency:</b>      |                              | S                             |                             |                           |             |           |
| <b>Area Name:</b>                     |                              | ENTIRE FACILITY               |                             |                           |             |           |
| <b>Event Code:</b>                    |                              | CA250                         |                             |                           |             |           |
| <b>Corrective Action Event Descr:</b> |                              | CMS IMPOSITION                |                             |                           |             |           |
| <b>Actual Date of Event:</b>          |                              | 19930610                      |                             |                           |             |           |
| <b>Orig Sched Event Date:</b>         |                              |                               |                             |                           |             |           |
| <b>New Sched Event Date:</b>          |                              |                               |                             |                           |             |           |
| <b>Best Date:</b>                     |                              | 19930610                      |                             |                           |             |           |
| <b>Groundwater Release Indicator:</b> |                              | Yes                           |                             |                           |             |           |
| <b>Soil Release Indicator:</b>        |                              |                               |                             |                           |             |           |
| <b>Air Release Indicator:</b>         |                              |                               |                             |                           |             |           |
| <b>Surface Waste Release Ind:</b>     |                              |                               |                             |                           |             |           |
| <b>Event Responsible Agency:</b>      |                              | S                             |                             |                           |             |           |
| <b>Area Name:</b>                     |                              | ENTIRE FACILITY               |                             |                           |             |           |
| <b>Event Code:</b>                    |                              | CA330                         |                             |                           |             |           |
| <b>Corrective Action Event Descr:</b> |                              | CMS IMPLEMENTATION BEGUN      |                             |                           |             |           |
| <b>Actual Date of Event:</b>          |                              | 19931107                      |                             |                           |             |           |
| <b>Orig Sched Event Date:</b>         |                              |                               |                             |                           |             |           |

| Map Key                                | Number of Records | Direction                                             | Distance (mi/ft) | Elev/Diff (ft) | Site | DB |
|----------------------------------------|-------------------|-------------------------------------------------------|------------------|----------------|------|----|
| <hr/>                                  |                   |                                                       |                  |                |      |    |
| <b>New Sched Event Date:</b>           |                   |                                                       |                  |                |      |    |
| <b>Best Date:</b>                      |                   | 19931107                                              |                  |                |      |    |
| <b>Groundwater Release Indicator:</b>  |                   | Yes                                                   |                  |                |      |    |
| <b>Soil Release Indicator:</b>         |                   |                                                       |                  |                |      |    |
| <b>Air Release Indicator:</b>          |                   |                                                       |                  |                |      |    |
| <b>Surface Waste Release Ind:</b>      |                   |                                                       |                  |                |      |    |
| <b>Event Responsible Agency:</b>       |                   | S                                                     |                  |                |      |    |
| <b>Area Name:</b>                      |                   | SITE:GROUNDWATER                                      |                  |                |      |    |
| <b>Event Code:</b>                     |                   | CA300                                                 |                  |                |      |    |
| <b>Corrective Action Event Descri:</b> |                   | CMS WORKPLAN APPROVED                                 |                  |                |      |    |
| <b>Actual Date of Event:</b>           |                   | 19990520                                              |                  |                |      |    |
| <b>Orig Sched Event Date:</b>          |                   |                                                       |                  |                |      |    |
| <b>New Sched Event Date:</b>           |                   |                                                       |                  |                |      |    |
| <b>Best Date:</b>                      |                   | 19990520                                              |                  |                |      |    |
| <b>Groundwater Release Indicator:</b>  |                   | Yes                                                   |                  |                |      |    |
| <b>Soil Release Indicator:</b>         |                   |                                                       |                  |                |      |    |
| <b>Air Release Indicator:</b>          |                   |                                                       |                  |                |      |    |
| <b>Surface Waste Release Ind:</b>      |                   |                                                       |                  |                |      |    |
| <b>Event Responsible Agency:</b>       |                   | S                                                     |                  |                |      |    |
| <b>Area Name:</b>                      |                   | SITE:GROUNDWATER                                      |                  |                |      |    |
| <b>Event Code:</b>                     |                   | CA500                                                 |                  |                |      |    |
| <b>Corrective Action Event Descri:</b> |                   | CMI WORKPLAN APPROVED                                 |                  |                |      |    |
| <b>Actual Date of Event:</b>           |                   | 19990520                                              |                  |                |      |    |
| <b>Orig Sched Event Date:</b>          |                   |                                                       |                  |                |      |    |
| <b>New Sched Event Date:</b>           |                   |                                                       |                  |                |      |    |
| <b>Best Date:</b>                      |                   | 19990520                                              |                  |                |      |    |
| <b>Groundwater Release Indicator:</b>  |                   | Yes                                                   |                  |                |      |    |
| <b>Soil Release Indicator:</b>         |                   |                                                       |                  |                |      |    |
| <b>Air Release Indicator:</b>          |                   |                                                       |                  |                |      |    |
| <b>Surface Waste Release Ind:</b>      |                   |                                                       |                  |                |      |    |
| <b>Event Responsible Agency:</b>       |                   | S                                                     |                  |                |      |    |
| <b>Area Name:</b>                      |                   | SITE:GROUNDWATER                                      |                  |                |      |    |
| <b>Event Code:</b>                     |                   | CA550                                                 |                  |                |      |    |
| <b>Corrective Action Event Descri:</b> |                   | REMEDY CONSTRUCTION                                   |                  |                |      |    |
| <b>Actual Date of Event:</b>           |                   | 20000421                                              |                  |                |      |    |
| <b>Orig Sched Event Date:</b>          |                   |                                                       |                  |                |      |    |
| <b>New Sched Event Date:</b>           |                   |                                                       |                  |                |      |    |
| <b>Best Date:</b>                      |                   | 20000421                                              |                  |                |      |    |
| <b>Groundwater Release Indicator:</b>  |                   | Yes                                                   |                  |                |      |    |
| <b>Soil Release Indicator:</b>         |                   |                                                       |                  |                |      |    |
| <b>Air Release Indicator:</b>          |                   |                                                       |                  |                |      |    |
| <b>Surface Waste Release Ind:</b>      |                   |                                                       |                  |                |      |    |
| <b>Event Responsible Agency:</b>       |                   | S                                                     |                  |                |      |    |
| <b>Area Name:</b>                      |                   | SWMU-SUMP                                             |                  |                |      |    |
| <b>Event Code:</b>                     |                   | CA450                                                 |                  |                |      |    |
| <b>Corrective Action Event Descri:</b> |                   | CORRECTIVE MEASURES DESIGN APPROVED                   |                  |                |      |    |
| <b>Actual Date of Event:</b>           |                   | 19930610                                              |                  |                |      |    |
| <b>Orig Sched Event Date:</b>          |                   |                                                       |                  |                |      |    |
| <b>New Sched Event Date:</b>           |                   |                                                       |                  |                |      |    |
| <b>Best Date:</b>                      |                   | 19930610                                              |                  |                |      |    |
| <b>Groundwater Release Indicator:</b>  |                   | Yes                                                   |                  |                |      |    |
| <b>Soil Release Indicator:</b>         |                   |                                                       |                  |                |      |    |
| <b>Air Release Indicator:</b>          |                   |                                                       |                  |                |      |    |
| <b>Surface Waste Release Ind:</b>      |                   |                                                       |                  |                |      |    |
| <b>Event Responsible Agency:</b>       |                   | S                                                     |                  |                |      |    |
| <b>Area Name:</b>                      |                   | SWMU-SUMP                                             |                  |                |      |    |
| <b>Event Code:</b>                     |                   | CA999RM                                               |                  |                |      |    |
| <b>Corrective Action Event Descri:</b> |                   | CA PROCESS IS TERMINATED-REMEDIAL ACTIVITIES COMPLETE |                  |                |      |    |
| <b>Actual Date of Event:</b>           |                   | 20000501                                              |                  |                |      |    |
| <b>Orig Sched Event Date:</b>          |                   |                                                       |                  |                |      |    |
| <b>New Sched Event Date:</b>           |                   |                                                       |                  |                |      |    |
| <b>Best Date:</b>                      |                   | 20000501                                              |                  |                |      |    |
| <b>Groundwater Release Indicator:</b>  |                   | Yes                                                   |                  |                |      |    |
| <b>Soil Release Indicator:</b>         |                   |                                                       |                  |                |      |    |

| <b>Map Key</b>                         | <b>Number of<br/>Records</b> | <b>Direction</b>                                 | <b>Distance<br/>(mi/ft)</b> | <b>Elev/Diff<br/>(ft)</b> | <b>Site</b> | <b>DB</b> |
|----------------------------------------|------------------------------|--------------------------------------------------|-----------------------------|---------------------------|-------------|-----------|
| <hr/>                                  |                              |                                                  |                             |                           |             |           |
| <b>Air Release Indicator:</b>          |                              |                                                  |                             |                           |             |           |
| <b>Surface Waste Release Ind:</b>      |                              |                                                  |                             |                           |             |           |
| <b>Event Responsible Agency:</b>       |                              | S                                                |                             |                           |             |           |
| <b>Area Name:</b>                      |                              | ENTIRE FACILITY                                  |                             |                           |             |           |
| <b>Event Code:</b>                     |                              | CA006AC                                          |                             |                           |             |           |
| <b>Corrective Action Event Descri:</b> |                              | AREA OF CONCERN                                  |                             |                           |             |           |
| <b>Actual Date of Event:</b>           |                              | 19900907                                         |                             |                           |             |           |
| <b>Orig Sched Event Date:</b>          |                              |                                                  |                             |                           |             |           |
| <b>New Sched Event Date:</b>           |                              |                                                  |                             |                           |             |           |
| <b>Best Date:</b>                      |                              | 19900907                                         |                             |                           |             |           |
| <b>Groundwater Release Indicator:</b>  |                              | Yes                                              |                             |                           |             |           |
| <b>Soil Release Indicator:</b>         |                              |                                                  |                             |                           |             |           |
| <b>Air Release Indicator:</b>          |                              |                                                  |                             |                           |             |           |
| <b>Surface Waste Release Ind:</b>      |                              |                                                  |                             |                           |             |           |
| <b>Event Responsible Agency:</b>       |                              | S                                                |                             |                           |             |           |
| <b>Area Name:</b>                      |                              | ENTIRE FACILITY                                  |                             |                           |             |           |
| <b>Event Code:</b>                     |                              | CA155                                            |                             |                           |             |           |
| <b>Corrective Action Event Descri:</b> |                              | INVESTIGATION SUPPLEMENTAL INFO REQ BY AGENCY    |                             |                           |             |           |
| <b>Actual Date of Event:</b>           |                              | 19960531                                         |                             |                           |             |           |
| <b>Orig Sched Event Date:</b>          |                              |                                                  |                             |                           |             |           |
| <b>New Sched Event Date:</b>           |                              |                                                  |                             |                           |             |           |
| <b>Best Date:</b>                      |                              | 19960531                                         |                             |                           |             |           |
| <b>Groundwater Release Indicator:</b>  |                              | Yes                                              |                             |                           |             |           |
| <b>Soil Release Indicator:</b>         |                              |                                                  |                             |                           |             |           |
| <b>Air Release Indicator:</b>          |                              |                                                  |                             |                           |             |           |
| <b>Surface Waste Release Ind:</b>      |                              |                                                  |                             |                           |             |           |
| <b>Event Responsible Agency:</b>       |                              | S                                                |                             |                           |             |           |
| <b>Area Name:</b>                      |                              | ENTIRE FACILITY                                  |                             |                           |             |           |
| <b>Event Code:</b>                     |                              | CA170                                            |                             |                           |             |           |
| <b>Corrective Action Event Descri:</b> |                              | INVESTIGATION SUPPLEMENTAL INFO DEEMED SATISFACT |                             |                           |             |           |
| <b>Actual Date of Event:</b>           |                              | 19930302                                         |                             |                           |             |           |
| <b>Orig Sched Event Date:</b>          |                              |                                                  |                             |                           |             |           |
| <b>New Sched Event Date:</b>           |                              |                                                  |                             |                           |             |           |
| <b>Best Date:</b>                      |                              | 19930302                                         |                             |                           |             |           |
| <b>Groundwater Release Indicator:</b>  |                              | Yes                                              |                             |                           |             |           |
| <b>Soil Release Indicator:</b>         |                              |                                                  |                             |                           |             |           |
| <b>Air Release Indicator:</b>          |                              |                                                  |                             |                           |             |           |
| <b>Surface Waste Release Ind:</b>      |                              |                                                  |                             |                           |             |           |
| <b>Event Responsible Agency:</b>       |                              | S                                                |                             |                           |             |           |
| <b>Area Name:</b>                      |                              | ENTIRE FACILITY                                  |                             |                           |             |           |
| <b>Event Code:</b>                     |                              | CA190                                            |                             |                           |             |           |
| <b>Corrective Action Event Descri:</b> |                              | INVESTIGATION REPORT RECEIVED                    |                             |                           |             |           |
| <b>Actual Date of Event:</b>           |                              | 19941011                                         |                             |                           |             |           |
| <b>Orig Sched Event Date:</b>          |                              |                                                  |                             |                           |             |           |
| <b>New Sched Event Date:</b>           |                              |                                                  |                             |                           |             |           |
| <b>Best Date:</b>                      |                              | 19941011                                         |                             |                           |             |           |
| <b>Groundwater Release Indicator:</b>  |                              | Yes                                              |                             |                           |             |           |
| <b>Soil Release Indicator:</b>         |                              |                                                  |                             |                           |             |           |
| <b>Air Release Indicator:</b>          |                              |                                                  |                             |                           |             |           |
| <b>Surface Waste Release Ind:</b>      |                              |                                                  |                             |                           |             |           |
| <b>Event Responsible Agency:</b>       |                              | S                                                |                             |                           |             |           |
| <b>Area Name:</b>                      |                              | ENTIRE FACILITY                                  |                             |                           |             |           |
| <b>Event Code:</b>                     |                              | CA190                                            |                             |                           |             |           |
| <b>Corrective Action Event Descri:</b> |                              | INVESTIGATION REPORT RECEIVED                    |                             |                           |             |           |
| <b>Actual Date of Event:</b>           |                              | 19941121                                         |                             |                           |             |           |
| <b>Orig Sched Event Date:</b>          |                              |                                                  |                             |                           |             |           |
| <b>New Sched Event Date:</b>           |                              |                                                  |                             |                           |             |           |
| <b>Best Date:</b>                      |                              | 19941121                                         |                             |                           |             |           |
| <b>Groundwater Release Indicator:</b>  |                              | Yes                                              |                             |                           |             |           |
| <b>Soil Release Indicator:</b>         |                              |                                                  |                             |                           |             |           |
| <b>Air Release Indicator:</b>          |                              |                                                  |                             |                           |             |           |
| <b>Surface Waste Release Ind:</b>      |                              |                                                  |                             |                           |             |           |
| <b>Event Responsible Agency:</b>       |                              | S                                                |                             |                           |             |           |



| Map Key                         | Number of Records | Direction                                                                | Distance (mi/ft) | Elev/Diff (ft) | Site | DB |
|---------------------------------|-------------------|--------------------------------------------------------------------------|------------------|----------------|------|----|
| <hr/>                           |                   |                                                                          |                  |                |      |    |
| Area Name:                      |                   | ENTIRE FACILITY                                                          |                  |                |      |    |
| Event Code:                     |                   | CA190                                                                    |                  |                |      |    |
| Corrective Action Event Descri: |                   | INVESTIGATION REPORT RECEIVED                                            |                  |                |      |    |
| Actual Date of Event:           |                   | 19950530                                                                 |                  |                |      |    |
| Orig Sched Event Date:          |                   |                                                                          |                  |                |      |    |
| New Sched Event Date:           |                   |                                                                          |                  |                |      |    |
| Best Date:                      |                   | 19950530                                                                 |                  |                |      |    |
| Groundwater Release Indicator:  |                   | Yes                                                                      |                  |                |      |    |
| Soil Release Indicator:         |                   |                                                                          |                  |                |      |    |
| Air Release Indicator:          |                   |                                                                          |                  |                |      |    |
| Surface Waste Release Ind:      |                   |                                                                          |                  |                |      |    |
| Event Responsible Agency:       |                   | S                                                                        |                  |                |      |    |
| <br>                            |                   |                                                                          |                  |                |      |    |
| Area Name:                      |                   | ENTIRE FACILITY                                                          |                  |                |      |    |
| Event Code:                     |                   | CA200                                                                    |                  |                |      |    |
| Corrective Action Event Descri: |                   | INVESTIGATION COMPLETE                                                   |                  |                |      |    |
| Actual Date of Event:           |                   | 19930610                                                                 |                  |                |      |    |
| Orig Sched Event Date:          |                   |                                                                          |                  |                |      |    |
| New Sched Event Date:           |                   |                                                                          |                  |                |      |    |
| Best Date:                      |                   | 19930610                                                                 |                  |                |      |    |
| Groundwater Release Indicator:  |                   | Yes                                                                      |                  |                |      |    |
| Soil Release Indicator:         |                   |                                                                          |                  |                |      |    |
| Air Release Indicator:          |                   |                                                                          |                  |                |      |    |
| Surface Waste Release Ind:      |                   |                                                                          |                  |                |      |    |
| Event Responsible Agency:       |                   | S                                                                        |                  |                |      |    |
| <br>                            |                   |                                                                          |                  |                |      |    |
| Area Name:                      |                   | ENTIRE FACILITY                                                          |                  |                |      |    |
| Event Code:                     |                   | CA450                                                                    |                  |                |      |    |
| Corrective Action Event Descri: |                   | CORRECTIVE MEASURES DESIGN APPROVED                                      |                  |                |      |    |
| Actual Date of Event:           |                   | 19930610                                                                 |                  |                |      |    |
| Orig Sched Event Date:          |                   |                                                                          |                  |                |      |    |
| New Sched Event Date:           |                   |                                                                          |                  |                |      |    |
| Best Date:                      |                   | 19930610                                                                 |                  |                |      |    |
| Groundwater Release Indicator:  |                   | Yes                                                                      |                  |                |      |    |
| Soil Release Indicator:         |                   |                                                                          |                  |                |      |    |
| Air Release Indicator:          |                   |                                                                          |                  |                |      |    |
| Surface Waste Release Ind:      |                   |                                                                          |                  |                |      |    |
| Event Responsible Agency:       |                   | S                                                                        |                  |                |      |    |
| <br>                            |                   |                                                                          |                  |                |      |    |
| Area Name:                      |                   | ENTIRE FACILITY                                                          |                  |                |      |    |
| Event Code:                     |                   | CA725YE                                                                  |                  |                |      |    |
| Corrective Action Event Descri: |                   | HUMAN EXPOSURES CONTROLLED DETERMINATION-YES, APPLICABLE AS OF THIS DATE |                  |                |      |    |
| Actual Date of Event:           |                   | 20000501                                                                 |                  |                |      |    |
| Orig Sched Event Date:          |                   |                                                                          |                  |                |      |    |
| New Sched Event Date:           |                   |                                                                          |                  |                |      |    |
| Best Date:                      |                   | 20000501                                                                 |                  |                |      |    |
| Groundwater Release Indicator:  |                   | Yes                                                                      |                  |                |      |    |
| Soil Release Indicator:         |                   |                                                                          |                  |                |      |    |
| Air Release Indicator:          |                   |                                                                          |                  |                |      |    |
| Surface Waste Release Ind:      |                   |                                                                          |                  |                |      |    |
| Event Responsible Agency:       |                   | S                                                                        |                  |                |      |    |
| <br>                            |                   |                                                                          |                  |                |      |    |
| Area Name:                      |                   | ENTIRE FACILITY                                                          |                  |                |      |    |
| Event Code:                     |                   | CA834AS                                                                  |                  |                |      |    |
| Corrective Action Event Descri: |                   | OTHER REPORT APPROVED                                                    |                  |                |      |    |
| Actual Date of Event:           |                   |                                                                          |                  |                |      |    |
| Orig Sched Event Date:          |                   | 19970620                                                                 |                  |                |      |    |
| New Sched Event Date:           |                   |                                                                          |                  |                |      |    |
| Best Date:                      |                   | 19970620                                                                 |                  |                |      |    |
| Groundwater Release Indicator:  |                   | Yes                                                                      |                  |                |      |    |
| Soil Release Indicator:         |                   |                                                                          |                  |                |      |    |
| Air Release Indicator:          |                   |                                                                          |                  |                |      |    |
| Surface Waste Release Ind:      |                   |                                                                          |                  |                |      |    |
| Event Responsible Agency:       |                   | S                                                                        |                  |                |      |    |
| <br>                            |                   |                                                                          |                  |                |      |    |
| Area Name:                      |                   | SITE:GROUNDWATER                                                         |                  |                |      |    |
| Event Code:                     |                   | CA200                                                                    |                  |                |      |    |
| Corrective Action Event Descri: |                   | INVESTIGATION COMPLETE                                                   |                  |                |      |    |
| Actual Date of Event:           |                   | 19930610                                                                 |                  |                |      |    |

| Map Key                               | Number of Records | Direction                                             | Distance (mi/ft) | Elev/Diff (ft) | Site | DB |
|---------------------------------------|-------------------|-------------------------------------------------------|------------------|----------------|------|----|
| <hr/>                                 |                   |                                                       |                  |                |      |    |
| <b>Orig Sched Event Date:</b>         |                   |                                                       |                  |                |      |    |
| <b>New Sched Event Date:</b>          |                   |                                                       |                  |                |      |    |
| <b>Best Date:</b>                     |                   | 19930610                                              |                  |                |      |    |
| <b>Groundwater Release Indicator:</b> |                   | Yes                                                   |                  |                |      |    |
| <b>Soil Release Indicator:</b>        |                   |                                                       |                  |                |      |    |
| <b>Air Release Indicator:</b>         |                   |                                                       |                  |                |      |    |
| <b>Surface Waste Release Ind:</b>     |                   |                                                       |                  |                |      |    |
| <b>Event Responsible Agency:</b>      |                   | S                                                     |                  |                |      |    |
|                                       |                   |                                                       |                  |                |      |    |
| <b>Area Name:</b>                     |                   | SITE:GROUNDWATER                                      |                  |                |      |    |
| <b>Event Code:</b>                    |                   | CA500                                                 |                  |                |      |    |
| <b>Corrective Action Event Descr:</b> |                   | CMI WORKPLAN APPROVED                                 |                  |                |      |    |
| <b>Actual Date of Event:</b>          |                   | 19930610                                              |                  |                |      |    |
| <b>Orig Sched Event Date:</b>         |                   |                                                       |                  |                |      |    |
| <b>New Sched Event Date:</b>          |                   |                                                       |                  |                |      |    |
| <b>Best Date:</b>                     |                   | 19930610                                              |                  |                |      |    |
| <b>Groundwater Release Indicator:</b> |                   | Yes                                                   |                  |                |      |    |
| <b>Soil Release Indicator:</b>        |                   |                                                       |                  |                |      |    |
| <b>Air Release Indicator:</b>         |                   |                                                       |                  |                |      |    |
| <b>Surface Waste Release Ind:</b>     |                   |                                                       |                  |                |      |    |
| <b>Event Responsible Agency:</b>      |                   | S                                                     |                  |                |      |    |
|                                       |                   |                                                       |                  |                |      |    |
| <b>Area Name:</b>                     |                   | SITE:GROUNDWATER                                      |                  |                |      |    |
| <b>Event Code:</b>                    |                   | CA999RM                                               |                  |                |      |    |
| <b>Corrective Action Event Descr:</b> |                   | CA PROCESS IS TERMINATED-REMEDIAL ACTIVITIES COMPLETE |                  |                |      |    |
| <b>Actual Date of Event:</b>          |                   | 20000501                                              |                  |                |      |    |
| <b>Orig Sched Event Date:</b>         |                   |                                                       |                  |                |      |    |
| <b>New Sched Event Date:</b>          |                   |                                                       |                  |                |      |    |
| <b>Best Date:</b>                     |                   | 20000501                                              |                  |                |      |    |
| <b>Groundwater Release Indicator:</b> |                   | Yes                                                   |                  |                |      |    |
| <b>Soil Release Indicator:</b>        |                   |                                                       |                  |                |      |    |
| <b>Air Release Indicator:</b>         |                   |                                                       |                  |                |      |    |
| <b>Surface Waste Release Ind:</b>     |                   |                                                       |                  |                |      |    |
| <b>Event Responsible Agency:</b>      |                   | S                                                     |                  |                |      |    |
|                                       |                   |                                                       |                  |                |      |    |
| <b>Area Name:</b>                     |                   | SWMU-SUMP                                             |                  |                |      |    |
| <b>Event Code:</b>                    |                   | CA300                                                 |                  |                |      |    |
| <b>Corrective Action Event Descr:</b> |                   | CMS WORKPLAN APPROVED                                 |                  |                |      |    |
| <b>Actual Date of Event:</b>          |                   | 19930610                                              |                  |                |      |    |
| <b>Orig Sched Event Date:</b>         |                   |                                                       |                  |                |      |    |
| <b>New Sched Event Date:</b>          |                   |                                                       |                  |                |      |    |
| <b>Best Date:</b>                     |                   | 19930610                                              |                  |                |      |    |
| <b>Groundwater Release Indicator:</b> |                   | Yes                                                   |                  |                |      |    |
| <b>Soil Release Indicator:</b>        |                   |                                                       |                  |                |      |    |
| <b>Air Release Indicator:</b>         |                   |                                                       |                  |                |      |    |
| <b>Surface Waste Release Ind:</b>     |                   |                                                       |                  |                |      |    |
| <b>Event Responsible Agency:</b>      |                   | S                                                     |                  |                |      |    |
|                                       |                   |                                                       |                  |                |      |    |
| <b>Area Name:</b>                     |                   | ENTIRE FACILITY                                       |                  |                |      |    |
| <b>Event Code:</b>                    |                   | CA060                                                 |                  |                |      |    |
| <b>Corrective Action Event Descr:</b> |                   | NOTICE OF CONTAMINATION                               |                  |                |      |    |
| <b>Actual Date of Event:</b>          |                   | 19920526                                              |                  |                |      |    |
| <b>Orig Sched Event Date:</b>         |                   |                                                       |                  |                |      |    |
| <b>New Sched Event Date:</b>          |                   |                                                       |                  |                |      |    |
| <b>Best Date:</b>                     |                   | 19920526                                              |                  |                |      |    |
| <b>Groundwater Release Indicator:</b> |                   | Yes                                                   |                  |                |      |    |
| <b>Soil Release Indicator:</b>        |                   |                                                       |                  |                |      |    |
| <b>Air Release Indicator:</b>         |                   |                                                       |                  |                |      |    |
| <b>Surface Waste Release Ind:</b>     |                   |                                                       |                  |                |      |    |
| <b>Event Responsible Agency:</b>      |                   | S                                                     |                  |                |      |    |
|                                       |                   |                                                       |                  |                |      |    |
| <b>Area Name:</b>                     |                   | ENTIRE FACILITY                                       |                  |                |      |    |
| <b>Event Code:</b>                    |                   | CA155                                                 |                  |                |      |    |
| <b>Corrective Action Event Descr:</b> |                   | INVESTIGATION SUPPLEMENTAL INFO REQ BY AGENCY         |                  |                |      |    |
| <b>Actual Date of Event:</b>          |                   | 19960711                                              |                  |                |      |    |
| <b>Orig Sched Event Date:</b>         |                   |                                                       |                  |                |      |    |
| <b>New Sched Event Date:</b>          |                   |                                                       |                  |                |      |    |
| <b>Best Date:</b>                     |                   | 19960711                                              |                  |                |      |    |
| <b>Groundwater Release Indicator:</b> |                   | Yes                                                   |                  |                |      |    |

| Map Key                                | Number of Records | Direction                                                               | Distance (mi/ft) | Elev/Diff (ft) | Site | DB |
|----------------------------------------|-------------------|-------------------------------------------------------------------------|------------------|----------------|------|----|
| <b>Soil Release Indicator:</b>         |                   |                                                                         |                  |                |      |    |
| <b>Air Release Indicator:</b>          |                   |                                                                         |                  |                |      |    |
| <b>Surface Waste Release Ind:</b>      |                   |                                                                         |                  |                |      |    |
| <b>Event Responsible Agency:</b>       |                   | S                                                                       |                  |                |      |    |
| <b>Area Name:</b>                      |                   |                                                                         |                  |                |      |    |
| <b>Event Code:</b>                     |                   | ENTIRE FACILITY                                                         |                  |                |      |    |
| <b>Corrective Action Event Descri:</b> |                   | CA190                                                                   |                  |                |      |    |
| <b>Actual Date of Event:</b>           |                   | INVESTIGATION REPORT RECEIVED                                           |                  |                |      |    |
| <b>Orig Sched Event Date:</b>          |                   | 19930608                                                                |                  |                |      |    |
| <b>New Sched Event Date:</b>           |                   |                                                                         |                  |                |      |    |
| <b>Best Date:</b>                      |                   | 19930608                                                                |                  |                |      |    |
| <b>Groundwater Release Indicator:</b>  |                   | Yes                                                                     |                  |                |      |    |
| <b>Soil Release Indicator:</b>         |                   |                                                                         |                  |                |      |    |
| <b>Air Release Indicator:</b>          |                   |                                                                         |                  |                |      |    |
| <b>Surface Waste Release Ind:</b>      |                   |                                                                         |                  |                |      |    |
| <b>Event Responsible Agency:</b>       |                   | S                                                                       |                  |                |      |    |
| <b>Area Name:</b>                      |                   |                                                                         |                  |                |      |    |
| <b>Event Code:</b>                     |                   | ENTIRE FACILITY                                                         |                  |                |      |    |
| <b>Corrective Action Event Descri:</b> |                   | CA190                                                                   |                  |                |      |    |
| <b>Actual Date of Event:</b>           |                   | INVESTIGATION REPORT RECEIVED                                           |                  |                |      |    |
| <b>Orig Sched Event Date:</b>          |                   | 19940331                                                                |                  |                |      |    |
| <b>New Sched Event Date:</b>           |                   |                                                                         |                  |                |      |    |
| <b>Best Date:</b>                      |                   | 19940331                                                                |                  |                |      |    |
| <b>Groundwater Release Indicator:</b>  |                   | Yes                                                                     |                  |                |      |    |
| <b>Soil Release Indicator:</b>         |                   |                                                                         |                  |                |      |    |
| <b>Air Release Indicator:</b>          |                   |                                                                         |                  |                |      |    |
| <b>Surface Waste Release Ind:</b>      |                   |                                                                         |                  |                |      |    |
| <b>Event Responsible Agency:</b>       |                   | S                                                                       |                  |                |      |    |
| <b>Area Name:</b>                      |                   |                                                                         |                  |                |      |    |
| <b>Event Code:</b>                     |                   | ENTIRE FACILITY                                                         |                  |                |      |    |
| <b>Corrective Action Event Descri:</b> |                   | CA190                                                                   |                  |                |      |    |
| <b>Actual Date of Event:</b>           |                   | INVESTIGATION REPORT RECEIVED                                           |                  |                |      |    |
| <b>Orig Sched Event Date:</b>          |                   | 19941121                                                                |                  |                |      |    |
| <b>New Sched Event Date:</b>           |                   |                                                                         |                  |                |      |    |
| <b>Best Date:</b>                      |                   | 19941121                                                                |                  |                |      |    |
| <b>Groundwater Release Indicator:</b>  |                   | Yes                                                                     |                  |                |      |    |
| <b>Soil Release Indicator:</b>         |                   |                                                                         |                  |                |      |    |
| <b>Air Release Indicator:</b>          |                   |                                                                         |                  |                |      |    |
| <b>Surface Waste Release Ind:</b>      |                   |                                                                         |                  |                |      |    |
| <b>Event Responsible Agency:</b>       |                   | S                                                                       |                  |                |      |    |
| <b>Area Name:</b>                      |                   |                                                                         |                  |                |      |    |
| <b>Event Code:</b>                     |                   | ENTIRE FACILITY                                                         |                  |                |      |    |
| <b>Corrective Action Event Descri:</b> |                   | CA225YE                                                                 |                  |                |      |    |
| <b>Actual Date of Event:</b>           |                   | STABILIZATION MEASURES EVALUATION-FACILITY IS AMENABLE TO STABILIZATION |                  |                |      |    |
| <b>Orig Sched Event Date:</b>          |                   | 19950801                                                                |                  |                |      |    |
| <b>New Sched Event Date:</b>           |                   |                                                                         |                  |                |      |    |
| <b>Best Date:</b>                      |                   | 19950801                                                                |                  |                |      |    |
| <b>Groundwater Release Indicator:</b>  |                   | Yes                                                                     |                  |                |      |    |
| <b>Soil Release Indicator:</b>         |                   |                                                                         |                  |                |      |    |
| <b>Air Release Indicator:</b>          |                   |                                                                         |                  |                |      |    |
| <b>Surface Waste Release Ind:</b>      |                   |                                                                         |                  |                |      |    |
| <b>Event Responsible Agency:</b>       |                   | S                                                                       |                  |                |      |    |
| <b>Area Name:</b>                      |                   |                                                                         |                  |                |      |    |
| <b>Event Code:</b>                     |                   | SITE:GROUNDWATER                                                        |                  |                |      |    |
| <b>Corrective Action Event Descri:</b> |                   | CA300                                                                   |                  |                |      |    |
| <b>Actual Date of Event:</b>           |                   | CMS WORKPLAN APPROVED                                                   |                  |                |      |    |
| <b>Orig Sched Event Date:</b>          |                   | 19930610                                                                |                  |                |      |    |
| <b>New Sched Event Date:</b>           |                   |                                                                         |                  |                |      |    |
| <b>Best Date:</b>                      |                   | 19930610                                                                |                  |                |      |    |
| <b>Groundwater Release Indicator:</b>  |                   | Yes                                                                     |                  |                |      |    |
| <b>Soil Release Indicator:</b>         |                   |                                                                         |                  |                |      |    |
| <b>Air Release Indicator:</b>          |                   |                                                                         |                  |                |      |    |
| <b>Surface Waste Release Ind:</b>      |                   |                                                                         |                  |                |      |    |
| <b>Event Responsible Agency:</b>       |                   | S                                                                       |                  |                |      |    |

| Map Key | Number of Records | Direction | Distance (mi/ft) | Elev/Diff (ft) | Site | DB |
|---------|-------------------|-----------|------------------|----------------|------|----|
|---------|-------------------|-----------|------------------|----------------|------|----|

**Area Name:** SITE:GROUNDWATER  
**Event Code:** CA725YE  
**Corrective Action Event Descr:** HUMAN EXPOSURES CONTROLLED DETERMINATION-YES, APPLICABLE AS OF THIS DATE  
**Actual Date of Event:** 20000501  
**Orig Sched Event Date:**  
**New Sched Event Date:**  
**Best Date:** 20000501  
**Groundwater Release Indicator:** Yes  
**Soil Release Indicator:**  
**Air Release Indicator:**  
**Surface Waste Release Ind:**  
**Event Responsible Agency:** S

**Area Name:** SWMU-SUMP  
**Event Code:** CA200  
**Corrective Action Event Descr:** INVESTIGATION COMPLETE  
**Actual Date of Event:** 19930610  
**Orig Sched Event Date:**  
**New Sched Event Date:**  
**Best Date:** 19930610  
**Groundwater Release Indicator:** Yes  
**Soil Release Indicator:**  
**Air Release Indicator:**  
**Surface Waste Release Ind:**  
**Event Responsible Agency:** S

#### Violation/Evaluation Summary

**Note:** VIOLATION or UNDETERMINED: There are VIOLATION or UNDETERMINED details or records associated with this facility (EPA ID) in the Compliance Monitoring and Enforcement table dated May, 2020.

#### Violation Details

**Citation:**  
**Violation Short Description:** Generators - General  
**Violation Type:** 262.A  
**Violation Determined Date:** 19920328  
**Scheduled Compliance Date:** 19950415  
**Return to Compliance:** Observed  
**Actual Return to Compl:** 19920508  
**Violation Responsible Agency:** State

#### Enforcement Details

**Enforcement Type:** 310  
**Enforcement Type Description:** FINAL 3008(A) COMPLIANCE ORDER  
**Enforcement Action Date:** 19920415  
**Enf Disposition Status:**  
**Disposition Status Date:**  
**Enforcement Lead Agency:** State  
**Proposed Penalty Amount:** 17100  
**Final Amount:** 17100  
**Paid Amount:**

#### Violation Details

**Citation:**  
**Violation Short Description:** Generators - General  
**Violation Type:** 262.A  
**Violation Determined Date:** 19900907  
**Scheduled Compliance Date:**  
**Return to Compliance:** Observed  
**Actual Return to Compl:** 19920415

| Map Key | Number of Records | Direction | Distance (mi/ft) | Elev/Diff (ft) | Site | DB |
|---------|-------------------|-----------|------------------|----------------|------|----|
|---------|-------------------|-----------|------------------|----------------|------|----|

Violation Responsible Agency: State

#### Enforcement Details

Enforcement Type: 210  
 Enforcement Type Description: INITIAL 3008(A) COMPLIANCE  
 Enforcement Action Date: 19910326  
 Enf Disposition Status:  
 Disposition Status Date:  
 Enforcement Lead Agency: State  
 Proposed Penalty Amount:  
 Final Amount:  
 Paid Amount:

Enforcement Type: 310  
 Enforcement Type Description: FINAL 3008(A) COMPLIANCE ORDER  
 Enforcement Action Date: 19910904  
 Enf Disposition Status:  
 Disposition Status Date:  
 Enforcement Lead Agency: State  
 Proposed Penalty Amount:  
 Final Amount:  
 Paid Amount:

#### Violation Details

Citation:  
 Violation Short Description: Generators - General  
 Violation Type: 262.A  
 Violation Determined Date: 19880506  
 Scheduled Compliance Date: 19880605  
 Return to Compliance: Observed  
 Actual Return to Compl: 19880605  
 Violation Responsible Agency: State

#### Enforcement Details

Enforcement Type: 120  
 Enforcement Type Description: WRITTEN INFORMAL  
 Enforcement Action Date: 19880520  
 Enf Disposition Status:  
 Disposition Status Date:  
 Enforcement Lead Agency: State  
 Proposed Penalty Amount:  
 Final Amount:  
 Paid Amount:

#### Evaluation Details

Evaluation Start Date: 20000501  
 Evaluation Type Description: FOCUSED COMPLIANCE INSPECTION  
 Violation Short Description:  
 Return to Compliance Date:  
 Evaluation Agency: State

Evaluation Start Date: 19990520  
 Evaluation Type Description: FOCUSED COMPLIANCE INSPECTION  
 Violation Short Description:  
 Return to Compliance Date:  
 Evaluation Agency: State

Evaluation Start Date: 19971008  
 Evaluation Type Description: CORRECTIVE ACTION COMPLIANCE EVALUATION  
 Violation Short Description:

| <b>Map Key</b>                      | <b>Number of<br/>Records</b> | <b>Direction</b>              | <b>Distance<br/>(mi/ft)</b> | <b>Elev/Diff<br/>(ft)</b> | <b>Site</b> | <b>DB</b> |
|-------------------------------------|------------------------------|-------------------------------|-----------------------------|---------------------------|-------------|-----------|
| <hr/>                               |                              |                               |                             |                           |             |           |
| <b>Return to Compliance Date:</b>   |                              |                               |                             |                           |             |           |
| <b>Evaluation Agency:</b>           |                              | State                         |                             |                           |             |           |
| <b>Evaluation Start Date:</b>       |                              | 19970620                      |                             |                           |             |           |
| <b>Evaluation Type Description:</b> |                              | FOCUSED COMPLIANCE INSPECTION |                             |                           |             |           |
| <b>Violation Short Description:</b> |                              |                               |                             |                           |             |           |
| <b>Return to Compliance Date:</b>   |                              |                               |                             |                           |             |           |
| <b>Evaluation Agency:</b>           |                              | State                         |                             |                           |             |           |
| <b>Evaluation Start Date:</b>       |                              | 19960814                      |                             |                           |             |           |
| <b>Evaluation Type Description:</b> |                              | FOCUSED COMPLIANCE INSPECTION |                             |                           |             |           |
| <b>Violation Short Description:</b> |                              |                               |                             |                           |             |           |
| <b>Return to Compliance Date:</b>   |                              |                               |                             |                           |             |           |
| <b>Evaluation Agency:</b>           |                              | State                         |                             |                           |             |           |
| <b>Evaluation Start Date:</b>       |                              | 19960710                      |                             |                           |             |           |
| <b>Evaluation Type Description:</b> |                              | FOCUSED COMPLIANCE INSPECTION |                             |                           |             |           |
| <b>Violation Short Description:</b> |                              |                               |                             |                           |             |           |
| <b>Return to Compliance Date:</b>   |                              |                               |                             |                           |             |           |
| <b>Evaluation Agency:</b>           |                              | State                         |                             |                           |             |           |
| <b>Evaluation Start Date:</b>       |                              | 19960522                      |                             |                           |             |           |
| <b>Evaluation Type Description:</b> |                              | FOCUSED COMPLIANCE INSPECTION |                             |                           |             |           |
| <b>Violation Short Description:</b> |                              |                               |                             |                           |             |           |
| <b>Return to Compliance Date:</b>   |                              |                               |                             |                           |             |           |
| <b>Evaluation Agency:</b>           |                              | State                         |                             |                           |             |           |
| <b>Evaluation Start Date:</b>       |                              | 19960213                      |                             |                           |             |           |
| <b>Evaluation Type Description:</b> |                              | FOCUSED COMPLIANCE INSPECTION |                             |                           |             |           |
| <b>Violation Short Description:</b> |                              |                               |                             |                           |             |           |
| <b>Return to Compliance Date:</b>   |                              |                               |                             |                           |             |           |
| <b>Evaluation Agency:</b>           |                              | State                         |                             |                           |             |           |
| <b>Evaluation Start Date:</b>       |                              | 19950718                      |                             |                           |             |           |
| <b>Evaluation Type Description:</b> |                              | FOCUSED COMPLIANCE INSPECTION |                             |                           |             |           |
| <b>Violation Short Description:</b> |                              |                               |                             |                           |             |           |
| <b>Return to Compliance Date:</b>   |                              |                               |                             |                           |             |           |
| <b>Evaluation Agency:</b>           |                              | State                         |                             |                           |             |           |
| <b>Evaluation Start Date:</b>       |                              | 19950531                      |                             |                           |             |           |
| <b>Evaluation Type Description:</b> |                              | FOCUSED COMPLIANCE INSPECTION |                             |                           |             |           |
| <b>Violation Short Description:</b> |                              |                               |                             |                           |             |           |
| <b>Return to Compliance Date:</b>   |                              |                               |                             |                           |             |           |
| <b>Evaluation Agency:</b>           |                              | State                         |                             |                           |             |           |
| <b>Evaluation Start Date:</b>       |                              | 19950306                      |                             |                           |             |           |
| <b>Evaluation Type Description:</b> |                              | FOCUSED COMPLIANCE INSPECTION |                             |                           |             |           |
| <b>Violation Short Description:</b> |                              |                               |                             |                           |             |           |
| <b>Return to Compliance Date:</b>   |                              |                               |                             |                           |             |           |
| <b>Evaluation Agency:</b>           |                              | State                         |                             |                           |             |           |
| <b>Evaluation Start Date:</b>       |                              | 19941212                      |                             |                           |             |           |
| <b>Evaluation Type Description:</b> |                              | FOCUSED COMPLIANCE INSPECTION |                             |                           |             |           |
| <b>Violation Short Description:</b> |                              |                               |                             |                           |             |           |
| <b>Return to Compliance Date:</b>   |                              |                               |                             |                           |             |           |
| <b>Evaluation Agency:</b>           |                              | State                         |                             |                           |             |           |
| <b>Evaluation Start Date:</b>       |                              | 19940922                      |                             |                           |             |           |
| <b>Evaluation Type Description:</b> |                              | FOCUSED COMPLIANCE INSPECTION |                             |                           |             |           |
| <b>Violation Short Description:</b> |                              |                               |                             |                           |             |           |
| <b>Return to Compliance Date:</b>   |                              |                               |                             |                           |             |           |
| <b>Evaluation Agency:</b>           |                              | State                         |                             |                           |             |           |
| <b>Evaluation Start Date:</b>       |                              | 19940811                      |                             |                           |             |           |
| <b>Evaluation Type Description:</b> |                              | FOCUSED COMPLIANCE INSPECTION |                             |                           |             |           |
| <b>Violation Short Description:</b> |                              |                               |                             |                           |             |           |
| <b>Return to Compliance Date:</b>   |                              |                               |                             |                           |             |           |
| <b>Evaluation Agency:</b>           |                              | State                         |                             |                           |             |           |

| <b>Map Key</b>                                                                                                                                                                | <b>Number of<br/>Records</b> | <b>Direction</b>                                                             | <b>Distance<br/>(mi/ft)</b> | <b>Elev/Diff<br/>(ft)</b> | <b>Site</b> | <b>DB</b> |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------|------------------------------------------------------------------------------|-----------------------------|---------------------------|-------------|-----------|
| <b>Evaluation Start Date:</b><br><b>Evaluation Type Description:</b><br><b>Violation Short Description:</b><br><b>Return to Compliance Date:</b><br><b>Evaluation Agency:</b> |                              | 19940421<br>FOCUSED COMPLIANCE INSPECTION                                    |                             |                           |             |           |
| <b>Evaluation Start Date:</b><br><b>Evaluation Type Description:</b><br><b>Violation Short Description:</b><br><b>Return to Compliance Date:</b><br><b>Evaluation Agency:</b> |                              | 19930609<br>CORRECTIVE ACTION COMPLIANCE EVALUATION                          |                             |                           |             |           |
| <b>Evaluation Start Date:</b><br><b>Evaluation Type Description:</b><br><b>Violation Short Description:</b><br><b>Return to Compliance Date:</b><br><b>Evaluation Agency:</b> |                              | 19930209<br>CORRECTIVE ACTION COMPLIANCE EVALUATION                          |                             |                           |             |           |
| <b>Evaluation Start Date:</b><br><b>Evaluation Type Description:</b><br><b>Violation Short Description:</b><br><b>Return to Compliance Date:</b><br><b>Evaluation Agency:</b> |                              | 19921124<br>CORRECTIVE ACTION COMPLIANCE EVALUATION                          |                             |                           |             |           |
| <b>Evaluation Start Date:</b><br><b>Evaluation Type Description:</b><br><b>Violation Short Description:</b><br><b>Return to Compliance Date:</b><br><b>Evaluation Agency:</b> |                              | 19920505<br>NON-FINANCIAL RECORD REVIEW                                      |                             |                           |             |           |
| <b>Evaluation Start Date:</b><br><b>Evaluation Type Description:</b><br><b>Violation Short Description:</b><br><b>Return to Compliance Date:</b><br><b>Evaluation Agency:</b> |                              | 19920331<br>COMPLIANCE EVALUATION INSPECTION ON-SITE                         |                             |                           |             |           |
| <b>Evaluation Start Date:</b><br><b>Evaluation Type Description:</b><br><b>Violation Short Description:</b><br><b>Return to Compliance Date:</b><br><b>Evaluation Agency:</b> |                              | 19910827<br>COMPLIANCE SCHEDULE EVALUATION                                   |                             |                           |             |           |
| <b>Evaluation Start Date:</b><br><b>Evaluation Type Description:</b><br><b>Violation Short Description:</b><br><b>Return to Compliance Date:</b><br><b>Evaluation Agency:</b> |                              | 19900907<br>COMPLIANCE EVALUATION INSPECTION ON-SITE<br>Generators - General |                             |                           |             |           |
| <b>Evaluation Start Date:</b><br><b>Evaluation Type Description:</b><br><b>Violation Short Description:</b><br><b>Return to Compliance Date:</b><br><b>Evaluation Agency:</b> |                              | 19920415<br>State                                                            |                             |                           |             |           |
| <b>Evaluation Start Date:</b><br><b>Evaluation Type Description:</b><br><b>Violation Short Description:</b><br><b>Return to Compliance Date:</b><br><b>Evaluation Agency:</b> |                              | 19900907<br>COMPLIANCE EVALUATION INSPECTION ON-SITE<br>Generators - General |                             |                           |             |           |
| <b>Evaluation Start Date:</b><br><b>Evaluation Type Description:</b><br><b>Violation Short Description:</b><br><b>Return to Compliance Date:</b><br><b>Evaluation Agency:</b> |                              | 19920508<br>State                                                            |                             |                           |             |           |
| <b>Evaluation Start Date:</b><br><b>Evaluation Type Description:</b><br><b>Violation Short Description:</b><br><b>Return to Compliance Date:</b><br><b>Evaluation Agency:</b> |                              | 19890811<br>FOCUSED COMPLIANCE INSPECTION<br>Generators - General            |                             |                           |             |           |
| <b>Evaluation Start Date:</b><br><b>Evaluation Type Description:</b><br><b>Violation Short Description:</b><br><b>Return to Compliance Date:</b><br><b>Evaluation Agency:</b> |                              | 19920508<br>State                                                            |                             |                           |             |           |
| <b>Evaluation Start Date:</b><br><b>Evaluation Type Description:</b><br><b>Violation Short Description:</b><br><b>Return to Compliance Date:</b><br><b>Evaluation Agency:</b> |                              | 19880506<br>NON-FINANCIAL RECORD REVIEW<br>Generators - General              |                             |                           |             |           |
| <b>Evaluation Start Date:</b><br><b>Evaluation Type Description:</b><br><b>Violation Short Description:</b><br><b>Return to Compliance Date:</b><br><b>Evaluation Agency:</b> |                              | 19880605<br>State                                                            |                             |                           |             |           |

#### Handler Summary

| Map Key                         | Number of Records | Direction | Distance (mi/ft) | Elev/Diff (ft) | Site | DB |
|---------------------------------|-------------------|-----------|------------------|----------------|------|----|
| Importer Activity:              | No                |           |                  |                |      |    |
| Mixed Waste Generator:          | No                |           |                  |                |      |    |
| Transporter Activity:           | No                |           |                  |                |      |    |
| Transfer Facility:              | No                |           |                  |                |      |    |
| Onsite Burner:                  | No                |           |                  |                |      |    |
| Smelting, Melting and Refining: | No                |           |                  |                |      |    |
| Underground Injection Control:  | No                |           |                  |                |      |    |
| Commercial TSD:                 | No                |           |                  |                |      |    |
| Used Oil Transporter:           | No                |           |                  |                |      |    |
| Used Oil Transfer Facility:     | No                |           |                  |                |      |    |
| Used Oil Processor:             | No                |           |                  |                |      |    |
| Used Oil Refiner:               | No                |           |                  |                |      |    |
| Used Oil Burner:                | No                |           |                  |                |      |    |
| Used Oil Market Burner:         | No                |           |                  |                |      |    |
| Used Oil Spec Marketer:         | No                |           |                  |                |      |    |

#### Hazardous Waste Handler Details

**Sequence No:** 1  
**Receive Date:** 19861113  
**Handler Name:** EIMCO COAL MACHINERY  
**Federal Waste Generator Code:** 1  
**Generator Code Description:** Large Quantity Generator  
**Source Type:** Notification

#### Hazardous Waste Handler Details

**Sequence No:** 2  
**Receive Date:** 20020913  
**Handler Name:** EIMCO COAL MACHINERY  
**Federal Waste Generator Code:** N  
**Generator Code Description:** Not a Generator, Verified  
**Source Type:** Notification

#### Waste Code Details

**Hazardous Waste Code:** D000  
**Waste Code Description:** DESCRIPTION

**Hazardous Waste Code:** D001  
**Waste Code Description:** IGNITABLE WASTE

#### Owner/Operator Details

|                             |                     |                   |                    |
|-----------------------------|---------------------|-------------------|--------------------|
| <b>Owner/Operator Ind:</b>  | Current Owner       | <b>Street No:</b> |                    |
| <b>Type:</b>                | Private             | <b>Street 1:</b>  | DATA NOT REQUESTED |
| <b>Name:</b>                | BAKER INTERNATIONAL | <b>Street 2:</b>  |                    |
| <b>Date Became Current:</b> | 18000101            | <b>City:</b>      | DATA NOT REQUESTED |
| <b>Date Ended Current:</b>  |                     | <b>State:</b>     | CO                 |
| <b>Phone:</b>               | 999-999-9999        | <b>Country:</b>   |                    |
| <b>Source Type:</b>         | Notification        | <b>Zip Code:</b>  | 99999              |

#### Historical Handler Details

**Receive Dt:** 19861113  
**Generator Code Description:** Large Quantity Generator  
**Handler Name:** EIMCO COAL MACHINERY



# Unplottable Summary

Total: 0 Unplottable sites

| DB | Company Name/Site Name | Address | City | Zip | ERIS ID |
|----|------------------------|---------|------|-----|---------|
|----|------------------------|---------|------|-----|---------|

No unplottable records were found that may be relevant for the search criteria.

## Unplottable Report

No unplottable records were found that may be relevant for the search criteria.

## Appendix: Database Descriptions

*Environmental Risk Information Services (ERIS) can search the following databases. The extent of historical information varies with each database and current information is determined by what is publicly available to ERIS at the time of update. ERIS updates databases as set out in ASTM Standard E1527-13, Section 8.1.8 Sources of Standard Source Information:*

*"Government information from nongovernmental sources may be considered current if the source updates the information at least every 90 days, or, for information that is updated less frequently than quarterly by the government agency, within 90 days of the date the government agency makes the information available to the public."*

### **Standard Environmental Record Sources**

#### **Federal**

##### **Facility Response Plan:**

FRP

List of facilities that have submitted Facility Response Plans (FRP) to EPA. Facilities that could reasonably be expected to cause "substantial harm" to the environment by discharging oil into or on navigable waters are required to prepare and submit Facility Response Plans (FRPs). Harm is determined based on total oil storage capacity, secondary containment and age of tanks, oil transfer activities, history of discharges, proximity to a public drinking water intake or sensitive environments.

**Government Publication Date: Mar 26, 2020**

##### **National Priority List:**

NPL

National Priorities List (Superfund)-NPL: EPA's (United States Environmental Protection Agency) list of the most serious uncontrolled or abandoned hazardous waste sites identified for possible long-term remedial action under the Superfund program. The NPL, which EPA is required to update at least once a year, is based primarily on the score a site receives from EPA's Hazard Ranking System. A site must be on the NPL to receive money from the Superfund Trust Fund for remedial action.

**Government Publication Date: Jun 26, 2020**

##### **National Priority List - Proposed:**

PROPOSED NPL

Includes sites proposed (by the EPA, the state, or concerned citizens) for addition to the NPL due to contamination by hazardous waste and identified by the Environmental Protection Agency (EPA) as a candidate for cleanup because it poses a risk to human health and/or the environment.

**Government Publication Date: Jun 26, 2020**

##### **Deleted NPL:**

DELETED NPL

The National Oil and Hazardous Substances Pollution Contingency Plan (NCP) establishes the criteria that the EPA uses to delete sites from the NPL. In accordance with 40 CFR 300.425.(e), sites may be deleted from the NPL where no further response is appropriate.

**Government Publication Date: Jun 26, 2020**

##### **SEMS List 8R Active Site Inventory:**

SEMS

The Superfund Program has deployed the Superfund Enterprise Management System (SEMS), which integrates multiple legacy systems into a comprehensive tracking and reporting tool. This inventory contains active sites evaluated by the Superfund program that are either proposed to be or are on the National Priorities List (NPL) as well as sites that are in the screening and assessment phase for possible inclusion on the NPL. The Active Site Inventory Report displays site and location information at active SEMS sites. An active site is one at which site assessment, removal, remedial, enforcement, cost recovery, or oversight activities are being planned or conducted.

**Government Publication Date: May 22, 2020**

##### **SEMS List 8R Archive Sites:**

SEMS ARCHIVE

The Superfund Enterprise Management System (SEMS) Archived Site Inventory displays site and location information at sites archived from SEMS. An archived site is one at which EPA has determined that assessment has been completed and no further remedial action is planned under the Superfund program at this time.

**Government Publication Date: May 22, 2020**

**Inventory of Open Dumps, June 1985:**

ODI

The Resource Conservation and Recovery Act (RCRA) provides for publication of an inventory of open dumps. The Act defines "open dumps" as facilities which do not comply with EPA's "Criteria for Classification of Solid Waste Disposal Facilities and Practices" (40 CFR 257).

**Government Publication Date: Jun 1985**

**EPA Report on the Status of Open Dumps on Indian Lands:**

IODI

Public Law 103-399, The Indian Lands Open Dump Cleanup Act of 1994, enacted October 22, 1994, identified congressional concerns that solid waste open dump sites located on American Indian or Alaska Native (AI/AN) lands threaten the health and safety of residents of those lands and contiguous areas. The purpose of the Act is to identify the location of open dumps on Indian lands, assess the relative health and environment hazards posed by those sites, and provide financial and technical assistance to Indian tribal governments to close such dumps in compliance with Federal standards and regulations or standards promulgated by Indian Tribal governments or Alaska Native entities.

**Government Publication Date: Dec 31, 1998**

**Comprehensive Environmental Response, Compensation and Liability Information System -**

CERCLIS

**CERCLIS:**

Superfund is a program administered by the United States Environmental Protection Agency (EPA) to locate, investigate, and clean up the worst hazardous waste sites throughout the United States. CERCLIS is a database of potential and confirmed hazardous waste sites at which the EPA Superfund program has some involvement. It contains sites that are either proposed to be or are on the National Priorities List (NPL) as well as sites that are in the screening and assessment phase for possible inclusion on the NPL. The EPA administers the Superfund program in cooperation with individual states and tribal governments; this database is made available by the EPA.

**Government Publication Date: Oct 25, 2013**

**CERCLIS - No Further Remedial Action Planned:**

CERCLIS NFRAP

An archived site is one at which EPA has determined that assessment has been completed and no further remedial action is planned under the Superfund program at this time. The Archive designation means that, to the best of EPA's knowledge, assessment at a site has been completed and that EPA has determined no further steps will be taken to list this site on the National Priorities List (NPL). This decision does not necessarily mean that there is no hazard associated with a given site; it only means that, based upon available information, the location is not judged to be a potential NPL site.

**Government Publication Date: Oct 25, 2013**

**CERCLIS Liens:**

CERCLIS LIENS

A Federal Superfund lien exists at any property where EPA has incurred Superfund costs to address contamination ("Superfund site") and has provided notice of liability to the property owner. A Federal CERCLA ("Superfund") lien can exist by operation of law at any site or property at which EPA has spent Superfund monies. This database is made available by the United States Environmental Protection Agency (EPA).

**Government Publication Date: Jan 30, 2014**

**RCRA CORRACTS-Corrective Action:**

RCRA CORRACTS

RCRA Info is EPA's comprehensive information system, providing access to data supporting the Resource Conservation and Recovery Act (RCRA) of 1976 and the Hazardous and Solid Waste Amendments (HSWA) of 1984. At these sites, the Corrective Action Program ensures that cleanups occur. EPA and state regulators work with facilities and communities to design remedies based on the contamination, geology, and anticipated use unique to each site.

**Government Publication Date: Jul 27, 2020**

**RCRA non-CORRACTS TSD Facilities:**

RCRA TSD

RCRA Info is EPA's comprehensive information system, providing access to data supporting the Resource Conservation and Recovery Act (RCRA) of 1976 and the Hazardous and Solid Waste Amendments (HSWA) of 1984. This database includes Non-Corrective Action sites listed as treatment, storage and/or disposal facilities of hazardous waste as defined by the Resource Conservation and Recovery Act (RCRA).

**Government Publication Date: Jul 27, 2020**

**RCRA Generator List:**

RCRA LQG

RCRA Info is EPA's comprehensive information system, providing access to data supporting the Resource Conservation and Recovery Act (RCRA) of 1976 and the Hazardous and Solid Waste Amendments (HSWA) of 1984. RCRA Info replaces the data recording and reporting abilities of the Resource Conservation and Recovery Information System (RCRIS) and the Biennial Reporting System (BRS). A hazardous waste generator is any person or site whose processes and actions create hazardous waste (see 40 CFR 260.10). Large Quantity Generators (LQGs) generate 1,000 kilograms per month or more of hazardous waste or more than one kilogram per month of acutely hazardous waste.

**Government Publication Date: Jul 27, 2020**

**RCRA Small Quantity Generators List:**

RCRA SQG

RCRA Info is the EPA's comprehensive information system, providing access to data supporting the Resource Conservation and Recovery Act (RCRA) of 1976 and the Hazardous and Solid Waste Amendments (HSWA) of 1984. RCRA Info replaces the data recording and reporting abilities of the Resource Conservation and Recovery Information System (RCRIS) and the Biennial Reporting System (BRS). A hazardous waste generator is any person or site whose processes and actions create hazardous waste (see 40 CFR 260.10). Small Quantity Generators (SQGs) generate more than 100 kilograms, but less than 1,000 kilograms, of hazardous waste per month.

**Government Publication Date:** Jul 27, 2020

**RCRA Conditionally Exempt and Very Small Quantity Generators List:**

RCRA CESQG

RCRA Info is the EPA's comprehensive information system, providing access to data supporting the Resource Conservation and Recovery Act (RCRA) of 1976 and the Hazardous and Solid Waste Amendments (HSWA) of 1984. A hazardous waste generator is any person or site whose processes and actions create hazardous waste (see 40 CFR 260.10). Conditionally Exempt and Very Small Quantity Generators (VSQG and CESQG) generate 100 kilograms or less per month of hazardous waste, or one kilogram or less per month of acutely hazardous waste. Additionally, VSQG and CESQG may not accumulate more than 1,000 kilograms of hazardous waste at any time.

**Government Publication Date:** Jul 27, 2020

**RCRA Non-Generators:**

RCRA NON GEN

RCRA Info is EPA's comprehensive information system, providing access to data supporting the Resource Conservation and Recovery Act (RCRA) of 1976 and the Hazardous and Solid Waste Amendments (HSWA) of 1984. RCRA Info replaces the data recording and reporting abilities of the Resource Conservation and Recovery Information System (RCRIS) and the Biennial Reporting System (BRS). A hazardous waste generator is any person or site whose processes and actions create hazardous waste (see 40 CFR 260.10). Non-Generators do not presently generate hazardous waste.

**Government Publication Date:** Jul 27, 2020

**Federal Engineering Controls-ECs:**

FED ENG

Engineering controls (ECs) encompass a variety of engineered and constructed physical barriers (e.g., soil capping, sub-surface venting systems, mitigation barriers, fences) to contain and/or prevent exposure to contamination on a property. This database is made available by the United States Environmental Protection Agency (EPA).

**Government Publication Date:** Feb 26, 2020

**Federal Institutional Controls- ICs:**

FED INST

Institutional controls are non-engineered instruments, such as administrative and legal controls, that help minimize the potential for human exposure to contamination and/or protect the integrity of the remedy. Although it is EPA's (United States Environmental Protection Agency ) expectation that treatment or engineering controls will be used to address principal threat wastes and that groundwater will be returned to its beneficial use whenever practicable, ICs play an important role in site remedies because they reduce exposure to contamination by limiting land or resource use and guide human behavior at a site.

**Government Publication Date:** Feb 26, 2020

**Emergency Response Notification System:**

ERNS 1982 TO 1986

Database of oil and hazardous substances spill reports controlled by the National Response Center. The primary function of the National Response Center is to serve as the sole national point of contact for reporting oil, chemical, radiological, biological, and etiological discharges into the environment anywhere in the United States and its territories.

**Government Publication Date:** 1982-1986

**Emergency Response Notification System:**

ERNS 1987 TO 1989

Database of oil and hazardous substances spill reports controlled by the National Response Center. The primary function of the National Response Center is to serve as the sole national point of contact for reporting oil, chemical, radiological, biological, and etiological discharges into the environment anywhere in the United States and its territories.

**Government Publication Date:** 1987-1989

**Emergency Response Notification System:**

ERNS

Database of oil and hazardous substances spill reports controlled by the National Response Center. The primary function of the National Response Center is to serve as the sole national point of contact for reporting oil, chemical, radiological, biological, and etiological discharges into the environment anywhere in the United States and its territories. This database is made available by the United States Environmental Protection Agency (EPA).

**Government Publication Date:** Nov 25, 2019

**The Assessment, Cleanup and Redevelopment Exchange System (ACRES) Brownfield Database:**

[FED BROWNFIELDS](#)

Brownfields are real property, the expansion, redevelopment, or reuse of which may be complicated by the presence or potential presence of a hazardous substance, pollutant, or contaminant. Cleaning up and reinvesting in these properties protects the environment, reduces blight, and takes development pressures off greenspaces and working lands. This database is made available by the United States Environmental Protection Agency (EPA).

**Government Publication Date:** Sep 3, 2019

**FEMA Underground Storage Tank Listing:**

[FEMA UST](#)

The Federal Emergency Management Agency (FEMA) of the Department of Homeland Security maintains a list of FEMA owned underground storage tanks.

**Government Publication Date:** Dec 31, 2017

**Petroleum Refineries:**

[REFN](#)

List of petroleum refineries from the U.S. Energy Information Administration (EIA) Refinery Capacity Report. Includes operating and idle petroleum refineries (including new refineries under construction) and refineries shut down during the previous year located in the 50 States, the District of Columbia, Puerto Rico, the Virgin Islands, Guam, and other U.S. possessions. Survey locations adjusted using public data.

**Government Publication Date:** Jul 10, 2020

**Petroleum Product and Crude Oil Rail Terminals:**

[BULK TERMINAL](#)

List of petroleum product and crude oil rail terminals made available by the U.S. Energy Information Administration (EIA). Includes operable bulk petroleum product terminals located in the 50 States and the District of Columbia with a total bulk shell storage capacity of 50,000 barrels or more, and/or the ability to receive volumes from tanker, barge, or pipeline; also rail terminals handling the loading and unloading of crude oil that were active between 2017 and 2018. Petroleum product terminals comes from the EIA-815 Bulk Terminal and Blender Report, which includes working, shell in operation, and shell idle for several major product groupings. Survey locations adjusted using public data.

**Government Publication Date:** Apr 28, 2020

**LIEN on Property:**

[SEMS LIEN](#)

The EPA Superfund Enterprise Management System (SEMS) provides LIEN information on properties under the EPA Superfund Program.

**Government Publication Date:** May 22, 2020

**Superfund Decision Documents:**

[SUPERFUND ROD](#)

This database contains a listing of decision documents for Superfund sites. Decision documents serve to provide the reasoning for the choice of (or) changes to a Superfund Site cleanup plan. The decision documents include Records of Decision (ROD), ROD Amendments, Explanations of Significant Differences (ESD), along with other associated memos and files. This information is maintained and made available by the US EPA (Environmental Protection Agency).

**Government Publication Date:** Jun 26, 2020

**State**

**Delisted Superfund Sites:**

[DELISTED SHWS](#)

Sites which once appeared on - but have since been removed from - the list of Superfund sites in Colorado made available by the Colorado Department of Public Health and Environment (CDPHE). In Colorado, the cleanup of Superfund sites is overseen by the CDPHE or the Environmental Protection Agency (EPA).

**Government Publication Date:** Aug 21, 2020

**Superfund Sites:**

[SHWS](#)

A list of Superfund sites in Colorado made available by the Colorado Department of Public Health and Environment (CDPHE). In Colorado, the cleanup of Superfund sites is overseen by the CDPHE or the Environmental Protection Agency (EPA). This list includes active Superfund sites, deleted sites, proposed sites, and natural resource damage sites.

**Government Publication Date:** Aug 21, 2020

**Solid Waste Facilities and Landfills:**

[SWF/LF](#)

The Colorado Department of Public Health and Environment (CDPHE) regulates the management and disposal of solid waste and landfill facilities.

**Government Publication Date:** May 1, 2020

**Historical Solid Waste (Closed or Abandoned Landfills):**

[HIST LF](#)

In the early 1980s the Hazardous Materials Waste Management Division of the Colorado Department of Public Health and Environment (CDPHE) conducted a survey of staff members and local agencies. The information gathered was compiled in 1984 for sites that were known or thought to have waste issues. The information is not complete and generally not very definitive or verifiable. This data became the Solid Waste Historical Data. The data is not maintained and has not been since the late 1980s.

**Government Publication Date: 1984**

**Leaking Storage Tanks:**

**LST**

A list of leaking storage tank locations from the Colorado Storage Tank Information System (COSTIS) database, including those which have applied for reimbursement from the Petroleum Storage Tank Fund. This list has been made available by the Colorado Department of Labor and Employment (CDLE).

**Government Publication Date: Jun 30, 2020**

**Delisted Leaking Storage Tanks:**

**DELISTED LST**

This database contains a list of leaking storage tank sites and their Funds for reimbursement of costs related to assessment and cleanup that were removed from the Colorado Department of Labor and Employment (CDLE) database.

**Government Publication Date: Jun 30, 2020**

**Underground Storage Tanks:**

**UST**

A list of underground storage tanks from the Colorado Storage Tank Information System (COSTIS) database. This database is made available by the Division of Oil and Public Safety of the Colorado Department of Labor and Employment (CDLE).

**Government Publication Date: Jun 30, 2020**

**Aboveground Storage Tanks:**

**AST**

A list of aboveground storage tanks from the Colorado Storage Tank Information System (COSTIS) database. This list is made available by the Division of Oil and Public Safety of the Colorado Department of Labor and Employment (CDLE).

**Government Publication Date: Jun 30, 2020**

**Storage Tank Information System (COSTIS):**

**TANKS**

The Department of Labor and Employment/Division of Oil and Public Safety manages the Colorado Storage Tank Information System (COSTIS) database that stores information on facilities with storage tanks. This database contains facilities with liquified petroleum gas, liquefied natural gas, and compressed natural gas tanks which are not classified as either USTs or ASTs.

**Government Publication Date: Jun 30, 2020**

**Delisted Storage Tanks:**

**DTNK**

This database contains a list of closed storage tank sites that were removed from the Division of Oil and Public Safety of the Colorado Department of Labor and Employment (CDLE) Tank Information System.

**Government Publication Date: Jun 30, 2020**

**Environmental Covenants and Environmental Use Restrictions List:**

**AUL**

The Colorado Department of Public Health and Environment (CDPHE) maintains a list of sites that have environmental covenants and use restrictions in place. Land use restrictions may be used to ensure the cleanup remedy adequately protects human health and the environment when a contaminated site is not cleaned up completely.

**Government Publication Date: Aug 7, 2020**

**The Voluntary Cleanup and Redevelopment Program:**

**VCP**

The Voluntary Cleanup and Redevelopment program of the Colorado Department of Public Health and Environment (CDPHE) was created in 1994 with the objective to facilitate the redevelopment and transfer of contaminated properties.

**Government Publication Date: Aug 17, 2020**

**Brownfield Sites:**

**BROWNFIELDS**

Brownfields Program sites found in the Colorado Environmental Records Search Interactive Map made available by the Colorado Department of Public Health and Environment (CDPHE). Sites which go untouched because of their real or perceived contamination can be rehabilitated using the CDPHE Brownfields Program.

**Government Publication Date: Sep 9, 2020**

**Tribal**

**Leaking Underground Storage Tanks (LUSTs) on Indian Lands:**

INDIAN LUST

LUSTs on Tribal/Indian Lands in Region 8, which includes Colorado.

Government Publication Date: Apr 14, 2020

**Underground Storage Tanks (USTs) on Indian Lands:**

INDIAN UST

USTs on Tribal/Indian Lands in Region 8, which includes Colorado.

Government Publication Date: Apr 14, 2020

**Delisted Tribal Leaking Storage Tanks:**

DELISTED ILST

Leaking Underground Storage Tank facilities which have been removed from the Regional Tribal LUST lists made available by the EPA.

Government Publication Date: Apr 14, 2020

**Delisted Tribal Underground Storage Tanks:**

DELISTED IUST

Underground Storage Tank facilities which have been removed from the Regional Tribal UST lists made available by the EPA.

Government Publication Date: Apr 14, 2020

**County**

No County standard environmental record sources available for this State.

**Additional Environmental Record Sources**

**Federal**

**PFOA/PFOS Contaminated Sites:**

PFAS NPL

List of sites where PFOA or PFOS contaminants have been found in drinking water or soil. Made available by the Federal Environmental Protection Agency (EPA).

Government Publication Date: Jul 7, 2020

**Facility Registry Service/Facility Index:**

FINDS/FRS

The Facility Registry Service (FRS) is a centrally managed database that identifies facilities, sites, or places subject to environmental regulations or of environmental interest. FRS creates high-quality, accurate, and authoritative facility identification records through rigorous verification and management procedures that incorporate information from program national systems, state master facility records, and data collected from EPA's Central Data Exchange registrations and data management personnel. This list is made available by the Environmental Protection Agency (US EPA).

Government Publication Date: Mar 25, 2020

**Toxics Release Inventory (TRI) Program:**

TRIS

The EPA's Toxics Release Inventory (TRI) is a database containing data on disposal or other releases of over 650 toxic chemicals from thousands of U. S. facilities and information about how facilities manage those chemicals through recycling, energy recovery, and treatment. One of TRI's primary purposes is to inform communities about toxic chemical releases to the environment.

Government Publication Date: Feb 19, 2020

**Perfluorinated Alkyl Substances (PFAS) Releases:**

PFAS TRI

List of Toxics Release Inventory (TRI) facilities at which the reported chemical is a Per- or polyfluorinated alkyl substance (PFAS) included in the Environmental Protection Agency (EPA)'s consolidated PFAS Master List of PFAS Substances. The EPA's Toxics Release Inventory (TRI) is a database containing data on disposal or other releases of over 650 toxic chemicals from thousands of U.S. facilities and information about how facilities manage those chemicals through recycling, energy recovery, and treatment.

Government Publication Date: Feb 19, 2020

**Perfluorinated Alkyl Substances (PFAS) Water Quality:**

PFAS WATER

The Water Quality Portal (WQP) is a cooperative service sponsored by the United States Geological Survey (USGS), the Environmental Protection Agency (EPA), and the National Water Quality Monitoring Council (NWQMC). This listing includes records from the Water Quality Portal where the characteristic (environmental measurement) is in the Environmental Protection Agency (EPA)'s consolidated PFAS Master List of PFAS Substances.

Government Publication Date: Dec 20, 2019



**Hazardous Materials Information Reporting System:**

HMIRS

US DOT - Department of Transportation Pipeline and Hazardous Materials Safety Administration (PHMSA) Incidents Reports Database taken from Hazmat Intelligence Portal, U.S. Department of Transportation.

**Government Publication Date:** Jan 8, 2020

**National Clandestine Drug Labs:**

NCDL

The U.S. Department of Justice ("the Department") provides this data as a public service. It contains addresses of some locations where law enforcement agencies reported they found chemicals or other items that indicated the presence of either clandestine drug laboratories or dumpsites. In most cases, the source of the entries is not the Department, and the Department has not verified the entry and does not guarantee its accuracy.

**Government Publication Date:** Mar 19, 2020

**Toxic Substances Control Act:**

TSCA

The Environmental Protection Agency (EPA) is amending the Toxic Substances Control Act (TSCA) section 8(a) Inventory Update Reporting (IUR) rule and changing its name to the Chemical Data Reporting (CDR) rule.

The CDR enables EPA to collect and publish information on the manufacturing, processing, and use of commercial chemical substances and mixtures (referred to hereafter as chemical substances) on the TSCA Chemical Substance Inventory (TSCA Inventory). This includes current information on chemical substance production volumes, manufacturing sites, and how the chemical substances are used. This information helps the Agency determine whether people or the environment are potentially exposed to reported chemical substances. EPA publishes submitted CDR data that is not Confidential Business Information (CBI).

**Government Publication Date:** Apr 11, 2019

**Hist TSCA:**

HIST TSCA

The Environmental Protection Agency (EPA) is amending the Toxic Substances Control Act (TSCA) section 8(a) Inventory Update Reporting (IUR) rule and changing its name to the Chemical Data Reporting (CDR) rule.

The 2006 IUR data summary report includes information about chemicals manufactured or imported in quantities of 25,000 pounds or more at a single site during calendar year 2005. In addition to the basic manufacturing information collected in previous reporting cycles, the 2006 cycle is the first time EPA collected information to characterize exposure during manufacturing, processing and use of organic chemicals. The 2006 cycle also is the first time manufacturers of inorganic chemicals were required to report basic manufacturing information.

**Government Publication Date:** Dec 31, 2006

**FTTS Administrative Case Listing:**

FTTS ADMIN

An administrative case listing from the Federal Insecticide, Fungicide, & Rodenticide Act (FIFRA) and Toxic Substances Control Act (TSCA), together known as FTTS. This database was obtained from the Environmental Protection Agency's (EPA) National Compliance Database (NCDB). The FTTS and NCDB was shut down in 2006.

**Government Publication Date:** Jan 19, 2007

**FTTS Inspection Case Listing:**

FTTS INSP

An inspection case listing from the Federal Insecticide, Fungicide, & Rodenticide Act (FIFRA) and Toxic Substances Control Act (TSCA), together known as FTTS. This database was obtained from the Environmental Protection Agency's (EPA) National Compliance Database (NCDB). The FTTS and NCDB was shut down in 2006.

**Government Publication Date:** Jan 19, 2007

**Potentially Responsible Parties List:**

PRP

Early in the cleanup process, the Environmental Protection Agency (EPA) conducts a search to find the potentially responsible parties (PRPs). EPA looks for evidence to determine liability by matching wastes found at the site with parties that may have contributed wastes to the site.

**Government Publication Date:** Jul 29, 2020

**State Coalition for Remediation of Drycleaners Listing:**

SCRD DRYCLEANER

The State Coalition for Remediation of Drycleaners (SCRD) was established in 1998, with support from the U.S. Environmental Protection Agency (EPA) Office of Superfund Remediation and Technology Innovation. Coalition members are states with mandated programs and funding for drycleaner site remediation. Current members are Alabama, Connecticut, Florida, Illinois, Kansas, Minnesota, Missouri, North Carolina, Oregon, South Carolina, Tennessee, Texas, and Wisconsin.

**Government Publication Date:** Nov 08, 2017

**Integrated Compliance Information System (ICIS):**

ICIS

The Integrated Compliance Information System (ICIS) is a system that provides information for the Federal Enforcement and Compliance (FE&C) and the National Pollutant Discharge Elimination System (NPDES) programs. The FE&C component supports the Environmental Protection Agency's (EPA) Civil Enforcement and Compliance program activities. These activities include Compliance Assistance, Compliance Monitoring and Enforcement. The NPDES program supports tracking of NPDES permits, limits, discharge monitoring data and other program reports.

**Drycleaner Facilities:**

[FED DRYCLEANERS](#)

A list of drycleaner facilities from the Integrated Compliance Information System (ICIS). The Environmental Protection Agency (EPA) tracks facilities that possess NAIC and SIC codes that classify businesses as drycleaner establishments.

Government Publication Date: Jan 20, 2020

**Delisted Drycleaner Facilities:**

[DELISTED FED DRY](#)

List of sites removed from the list of Drycleaner Facilities (sites in the EPA's Integrated Compliance Information System (ICIS) with NAIC or SIC codes identifying the business as a drycleaner establishment).

Government Publication Date: Jan 20, 2020

**Formerly Used Defense Sites:**

[FUDS](#)

Formerly Used Defense Sites (FUDS) are properties that were formerly owned by, leased to, or otherwise possessed by and under the jurisdiction of the Secretary of Defense prior to October 1986, where the Department of Defense (DoD) is responsible for an environmental restoration. This list is published by the U.S. Army Corps of Engineers.

Government Publication Date: Jan 28, 2020

**PHMSA Pipeline Safety Flagged Incidents:**

[PIPELINE INCIDENT](#)

A list of flagged pipeline incidents made available by the U.S. Department of Transportation (US DOT) Pipeline and Hazardous Materials Safety Administration (PHMSA). PHMSA regulations require incident and accident reports for five different pipeline system types.

Government Publication Date: Jul 7, 2020

**Material Licensing Tracking System (MLTS):**

[MLTS](#)

A list of sites that store radioactive material subject to the Nuclear Regulatory Commission (NRC) licensing requirements. This list is maintained by the NRC. As of September 2016, the NRC no longer releases location information for sites. Site locations were last received in July 2016.

Government Publication Date: Oct 31, 2019

**Historic Material Licensing Tracking System (MLTS) sites:**

[HIST MLTS](#)

A historic list of sites that have inactive licenses and/or removed from the Material Licensing Tracking System (MLTS). In some cases, a site is removed from the MLTS when the state becomes an "Agreement State". An Agreement State is a State that has signed an agreement with the Nuclear Regulatory Commission (NRC) authorizing the State to regulate certain uses of radioactive materials within the State.

Government Publication Date: Jan 31, 2010

**Mines Master Index File:**

[MINES](#)

The Master Index File (MIF) contains mine identification numbers issued by the Department of Labor Mine Safety and Health Administration (MSHA) for mines active or opened since 1971. Note that addresses may or may not correspond with the physical location of the mine itself.

Government Publication Date: May 1, 2020

**Alternative Fueling Stations:**

[ALT FUELS](#)

List of alternative fueling stations made available by the US Department of Energy's Office of Energy Efficiency & Renewable Energy. Includes Biodiesel stations, Ethanol (E85) stations, Liquefied Petroleum Gas (Propane) stations, Ethanol (E85) stations, Natural Gas stations, Hydrogen stations, and Electric Vehicle Supply Equipment (EVSE). The National Renewable Energy Laboratory (NREL) obtains information about new stations from trade media, Clean Cities coordinators, a Submit New Station form on the Station Locator website, and through collaborating with infrastructure equipment and fuel providers, original equipment manufacturers (OEMs), and industry groups.

Government Publication Date: Jun 22, 2020

**Registered Pesticide Establishments:**

[SSTS](#)

List of active EPA-registered foreign and domestic pesticide-producing and device-producing establishments based on data from the Section Seven Tracking System (SSTS). The Federal Insecticide, Fungicide, and Rodenticide Act (FIFRA) Section 7 requires that facilities producing pesticides, active ingredients, or devices be registered. The list of establishments is made available by the EPA.

Government Publication Date: Mar 31, 2020

**Polychlorinated Biphenyl (PCB) Notifiers:**

[PCB](#)

Facilities included in the national list of facilities that have notified the United States Environmental Protection Agency (EPA) of Polychlorinated Biphenyl (PCB) activities. Any company or person storing, transporting or disposing of PCBs or conducting PCB research and development must notify the EPA and receive an identification number.

Government Publication Date: Oct 9, 2019

## **State**

### **Spills:**

[SPILLS](#)

A list of hazardous material spills and releases (including Meth Labs) that were reported to the Colorado Department of Public Health and Environment (CDPHE).

*Government Publication Date: Jun 22, 2020*

### **Colorado Oil and Gas Conservation Commission Spills:**

[OG SPILLS](#)

A list of spills made available by the Colorado Oil and Gas Conservation Commission (COGCC).

*Government Publication Date: Sep 8, 2020*

### **Dry Cleaning Facilities:**

[DRYCLEANERS](#)

A list of drycleaning facilities in Colorado that have submitted an Air Pollutant Emission Notice (APEN). This list was provided by the Department of Public Health & Environment.

*Government Publication Date: Jun 20, 2020*

### **Delisted Dry Cleaning Facilities:**

[DELISTED DRYCLEANERS](#)

List of sites removed from the drycleaners database made available by the Department of Public Health & Environment.

*Government Publication Date: Jun 20, 2020*

### **Per- and Polyfluoroalkyl Substances (PFAS):**

[PFAS](#)

A list of incidents that were reported to the Colorado Department of Public Health and Environment (CDPHE) where the release material is in the PFAS Master List of PFAS Substances made available by the Environmental Protection Agency (US EPA).

*Government Publication Date: Jun 22, 2020*

### **Permitted Facilities Listing:**

[NPDES](#)

A list of permitted facilities tracked by the Water Quality Control Division of the Department of Public Health & Environment (DPHE). This list is the state version of the NPDES (National Pollution Discharge Elimination System).

*Government Publication Date: Jul 1, 2020*

## **Tribal**

*No Tribal additional environmental record sources available for this State.*

## **County**

*No County additional environmental record sources available for this State.*

# Definitions

**Database Descriptions:** This section provides a detailed explanation for each database including: source, information available, time coverage, and acronyms used. They are listed in alphabetic order.

**Detail Report:** This is the section of the report which provides the most detail for each individual record. Records are summarized by location, starting with the project property followed by records in closest proximity.

**Distance:** The distance value is the distance between plotted points, not necessarily the distance between the sites' boundaries. All values are an approximation.

**Direction:** The direction value is the compass direction of the site in respect to the project property and/or center point of the report.

**Elevation:** The elevation value is taken from the location at which the records for the site address have been plotted. All values are an approximation. Source: Google Elevation API.

**Executive Summary:** This portion of the report is divided into 3 sections:

'Report Summary'- Displays a chart indicating how many records fall on the project property and, within the report search radii.

'Site Report Summary'-Project Property'- This section lists all the records which fall on the project property. For more details, see the 'Detail Report' section.

'Site Report Summary-Surrounding Properties'- This section summarizes all records on adjacent properties, listing them in order of proximity from the project property. For more details, see the 'Detail Report' section.

**Map Key:** The map key number is assigned according to closest proximity from the project property. Map Key numbers always start at #1. The project property will always have a map key of '1' if records are available. If there is a number in brackets beside the main number, this will indicate the number of records on that specific property. If there is no number in brackets, there is only one record for that property.

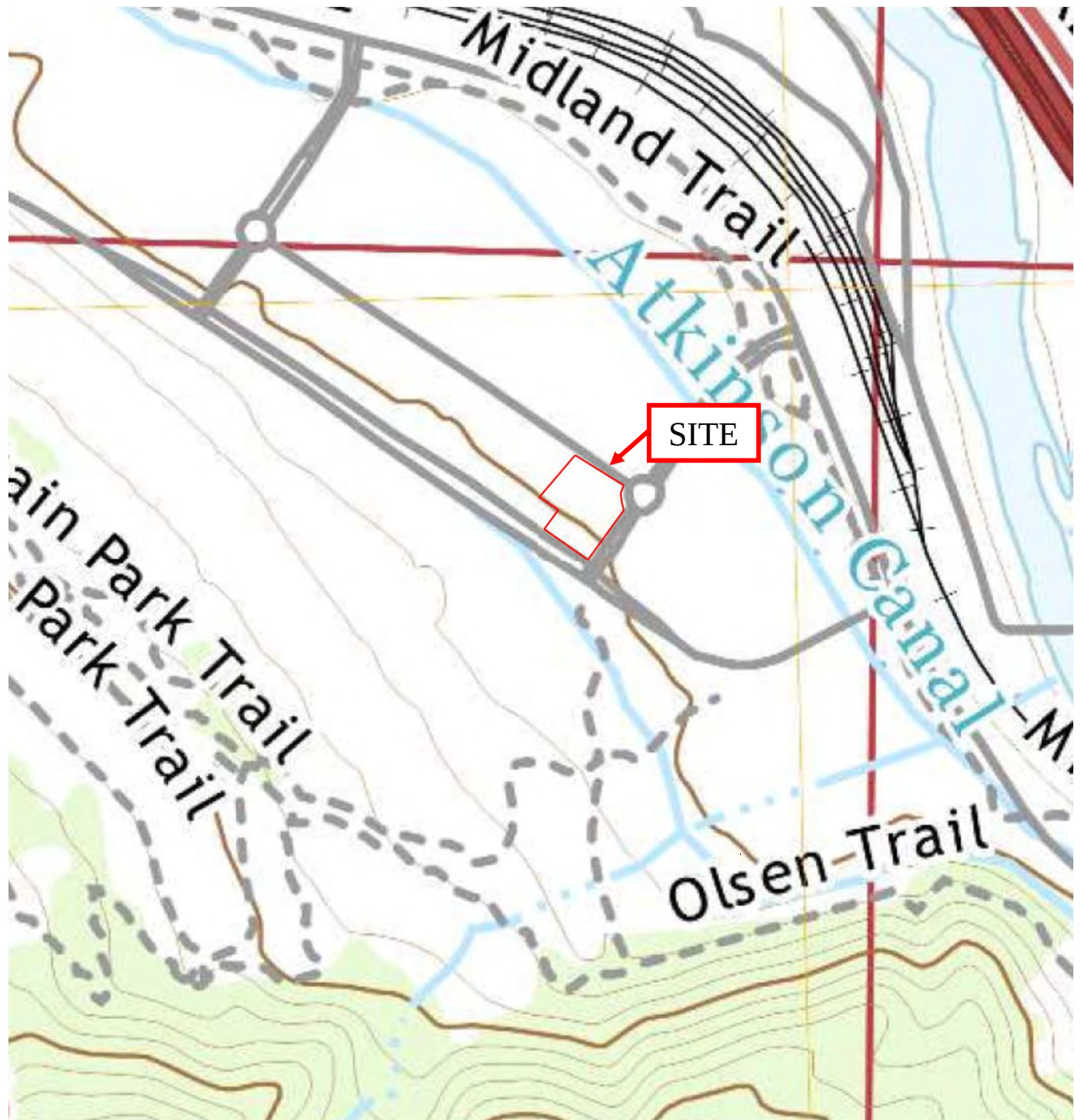
The symbol and colour used indicates 'elevation': the red inverted triangle will dictate 'ERIS Sites with Lower Elevation', the yellow triangle will dictate 'ERIS Sites with Higher Elevation' and the orange square will dictate 'ERIS Sites with Same Elevation.'

**Unplottables:** These are records that could not be mapped due to various reasons, including limited geographic information. These records may or may not be in your study area, and are included as reference.

## **12.5 Historical Research Documentation**

## **12.5.1 Historical Topographic Maps**





Source: United States Geological Survey Glenwood Springs, Colorado 7.5 Minute Quadrangle



6395 Gunpark Drive, Unit W  
Boulder, Colorado 80301  
Phone: 720-459-7251 • Fax: 720-459-7298

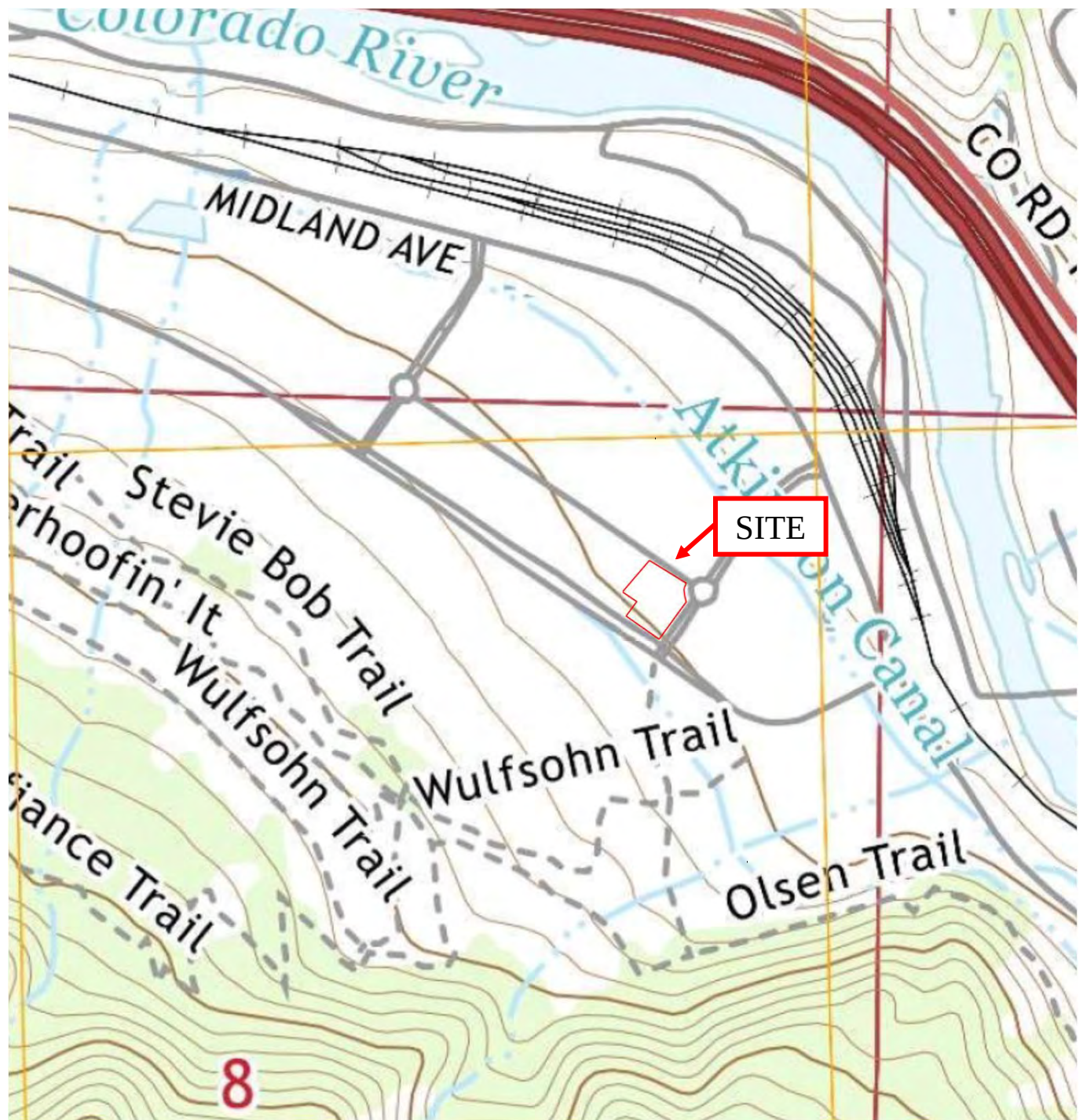
**2019 Topographic Map**  
Lot 8 Glenwood Meadows  
Glenwood Springs, Colorado 81601

Work Order No.:  
20-062C

Report Date:  
September 2020

Drawn By:  
MLT





Source: United States Geological Survey Glenwood Springs, Colorado 7.5 Minute Quadrangle



6395 Gunpark Drive, Unit W  
Boulder, Colorado 80301  
Phone: 720-459-7251 • Fax: 720-459-7298

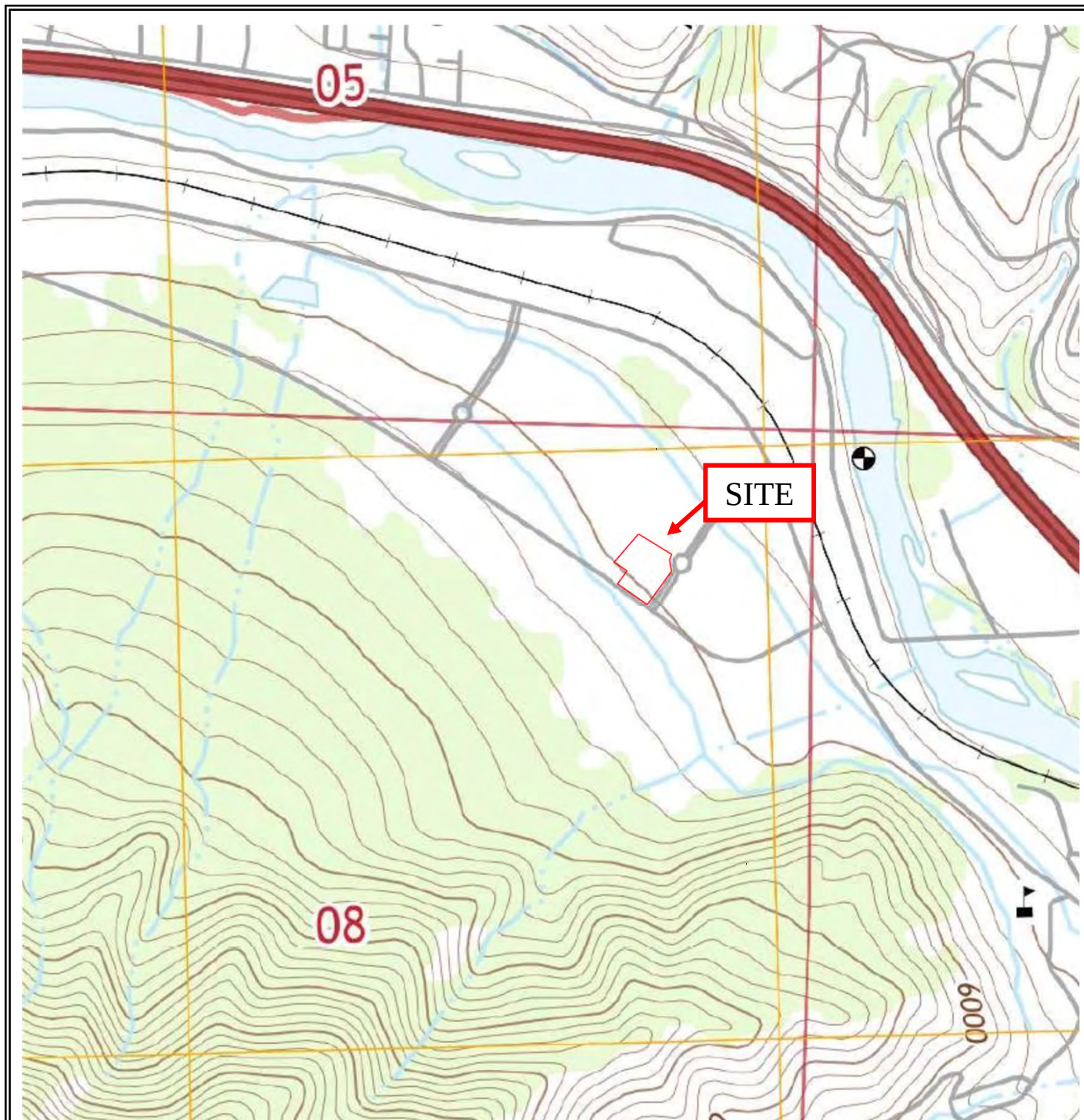
**2016 Topographic Map**  
Lot 8 Glenwood Meadows  
Glenwood Springs, Colorado 81601

Work Order No.:  
20-062C

Report Date:  
September 2020

Drawn By:  
MLT





Source: United States Geological Survey Glenwood Springs, Colorado 7.5 Minute Quadrangle



6395 Gunpark Drive, Unit W  
Boulder, Colorado 80301  
Phone: 720-459-7251 • Fax: 720-459-7298

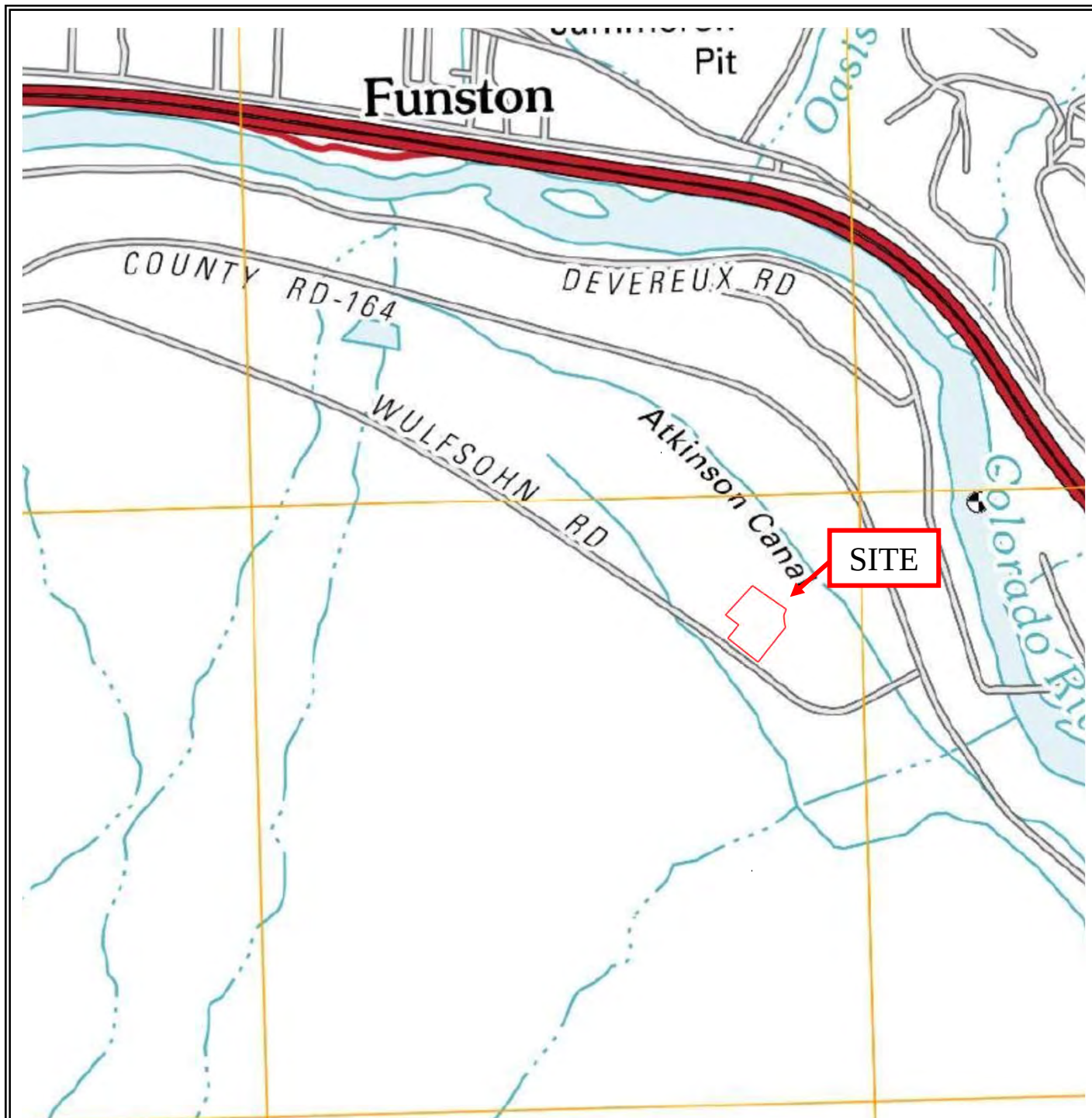
**2013 Topographic Map**  
Lot 8 Glenwood Meadows  
Glenwood Springs, Colorado 81601

Work Order No.:  
20-062C

Report Date:  
September 2020

Drawn By:  
MLT





Source: United States Geological Survey Glenwood Springs, Colorado 7.5 Minute Quadrangle



6395 Gunpark Drive, Unit W  
Boulder, Colorado 80301  
Phone: 720-459-7251 • Fax: 720-459-7298

**2011 Topographic Map**  
Lot 8 Glenwood Meadows  
Glenwood Springs, Colorado 81601

Work Order No.:  
20-062C

Report Date:  
September 2020

Drawn By:  
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Source: United States Geological Survey Glenwood Springs, Colorado 7.5 Minute Quadrangle



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Boulder, Colorado 80301  
Phone: 720-459-7251 • Fax: 720-459-7298

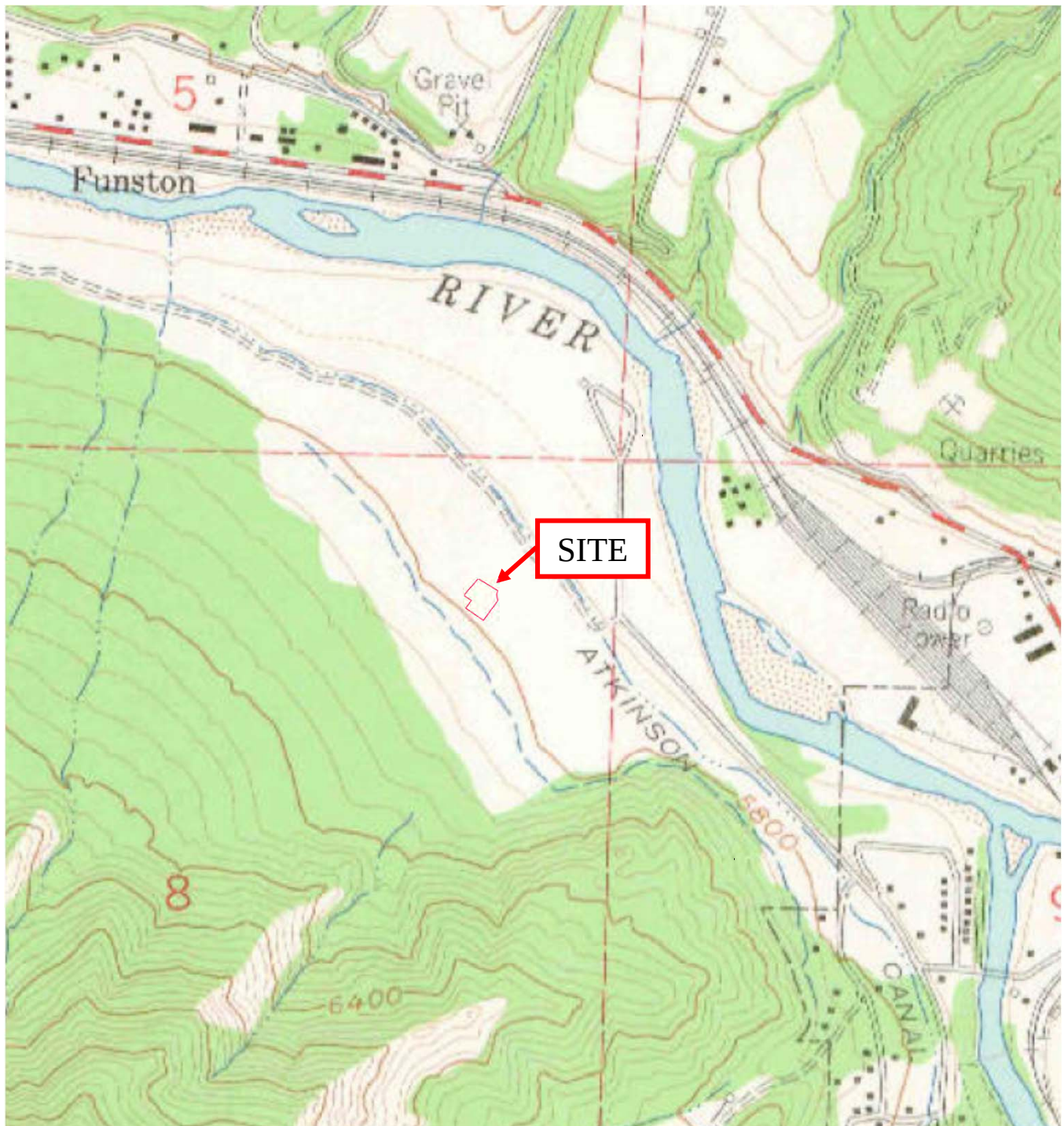
**1981 Topographic Map**  
Lot 8 Glenwood Meadows  
Glenwood Springs, Colorado 81601

Work Order No.:  
20-062C

Report Date:  
September 2020

Drawn By:  
MLT





Source: United States Geological Survey Glenwood Springs, Colorado 7.5 Minute Quadrangle



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Boulder, Colorado 80301  
Phone: 720-459-7251 • Fax: 720-459-7298

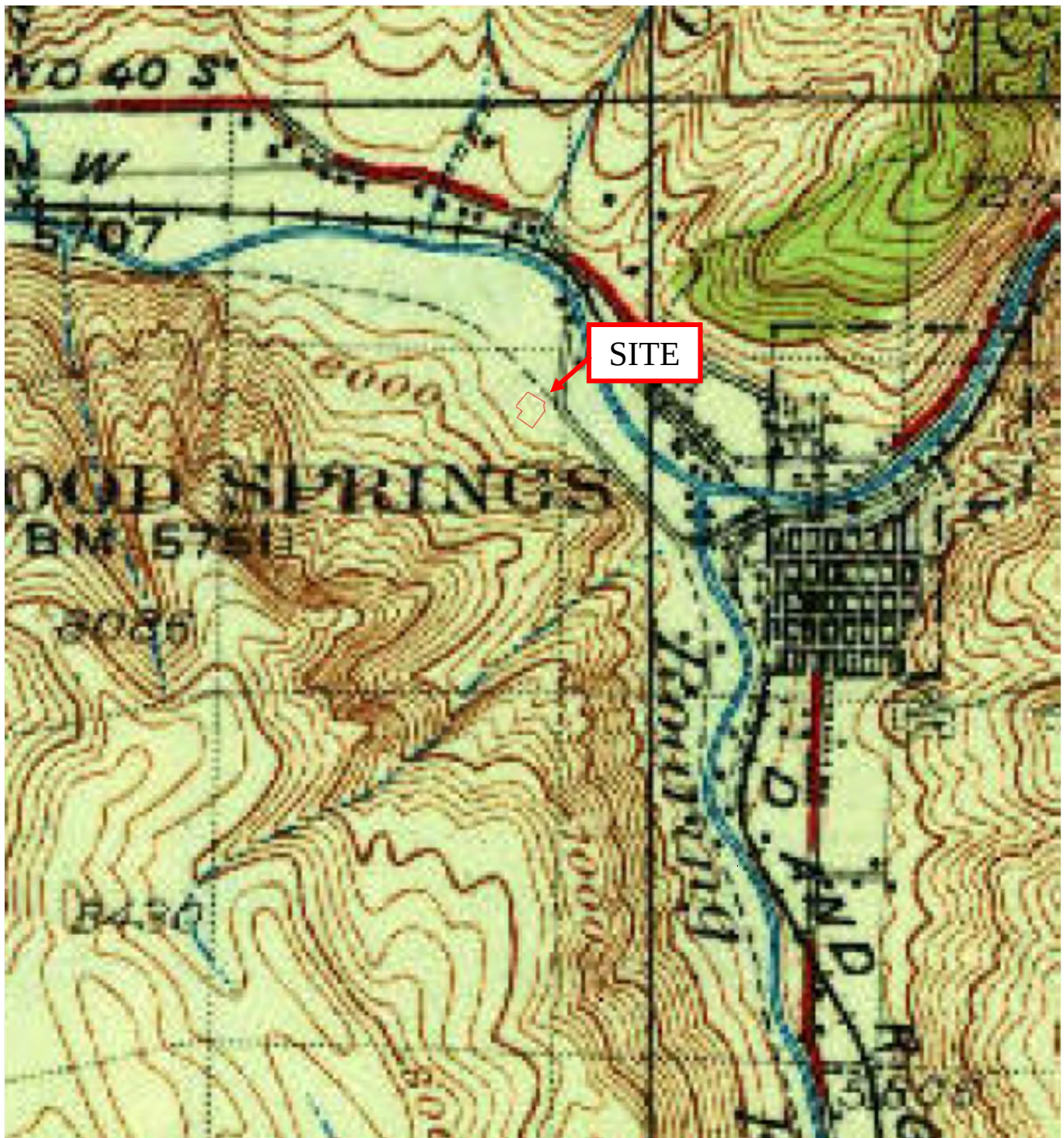
**1961 Topographic Map**  
Lot 8 Glenwood Meadows  
Glenwood Springs, Colorado 81601

Work Order No.:  
20-062C

Report Date:  
September 2020

Drawn By:  
MLT





Source: United States Geological Survey Glenwood Springs, Colorado 7.5 Minute Quadrangle



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Boulder, Colorado 80301  
Phone: 720-459-7251 • Fax: 720-459-7298

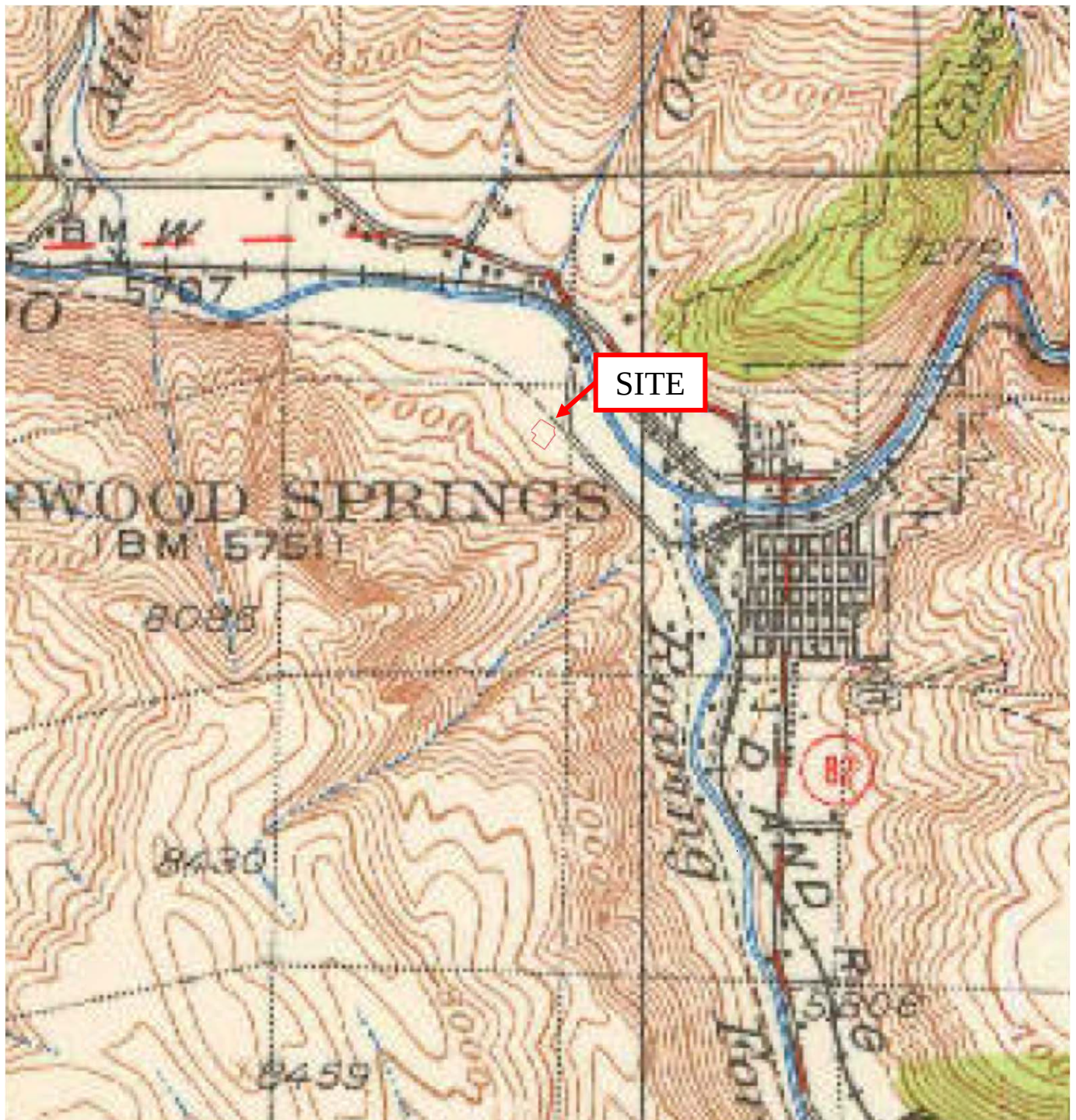
**1930 Topographic Map**  
Lot 8 Glenwood Meadows  
Glenwood Springs, Colorado 81601

Work Order No.:  
20-062C

Report Date:  
September 2020

Drawn By:  
MLT





Source: United States Geological Survey Glenwood Springs, Colorado 7.5 Minute Quadrangle



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Boulder, Colorado 80301  
Phone: 720-459-7251 • Fax: 720-459-7298

**1927 Topographic Map**  
Lot 8 Glenwood Meadows  
Glenwood Springs, Colorado 81601

Work Order No.:  
20-062C

Report Date:  
September 2020

Drawn By:  
MLT

## **12.5.2 Fire Insurance Maps (NOT USED)**

### **12.5.3     Aerial Photographs**





6395 Gunpark Drive, Unit W  
 Boulder, Colorado 80301  
 Phone: 720-459-7251 • Website: [www.aec-env.com](http://www.aec-env.com)

**2017 Aerial Photograph**  
 Lot 8 Glenwood Meadows  
 Glenwood Springs, Colorado 81601

Work Order No.:  
 20-062C

Report Date:  
 September 2020

Drawn By:  
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Boulder, Colorado 80301  
Phone: 720-459-7251 • Website: [www.aec-env.com](http://www.aec-env.com)

**2015 Aerial Photograph**  
Lot 8 Glenwood Meadows  
Glenwood Springs, Colorado 81601

Work Order No.:  
20-062C

Report Date:  
September 2020

Drawn By:  
MLT





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 Boulder, Colorado 80301  
 Phone: 720-459-7251 • Website: [www.aec-env.com](http://www.aec-env.com)

**2011 Aerial Photograph**  
 Lot 8 Glenwood Meadows  
 Glenwood Springs, Colorado 81601

Work Order No.:  
 20-062C

Report Date:  
 September 2020

Drawn By:  
 MLT





6395 Gunpark Drive, Unit W  
Boulder, Colorado 80301

Phone: 720-459-7251 • Website: [www.aec-env.com](http://www.aec-env.com)

**2005 Aerial Photograph**  
Lot 8 Glenwood Meadows  
Glenwood Springs, Colorado 81601

Work Order No.:  
20-062C

Report Date:  
September 2020

Drawn By:  
MLT



6395 Gunpark Drive, Unit W  
 Boulder, Colorado 80301  
 Phone: 720-459-7251 • Website: [www.aec-env.com](http://www.aec-env.com)

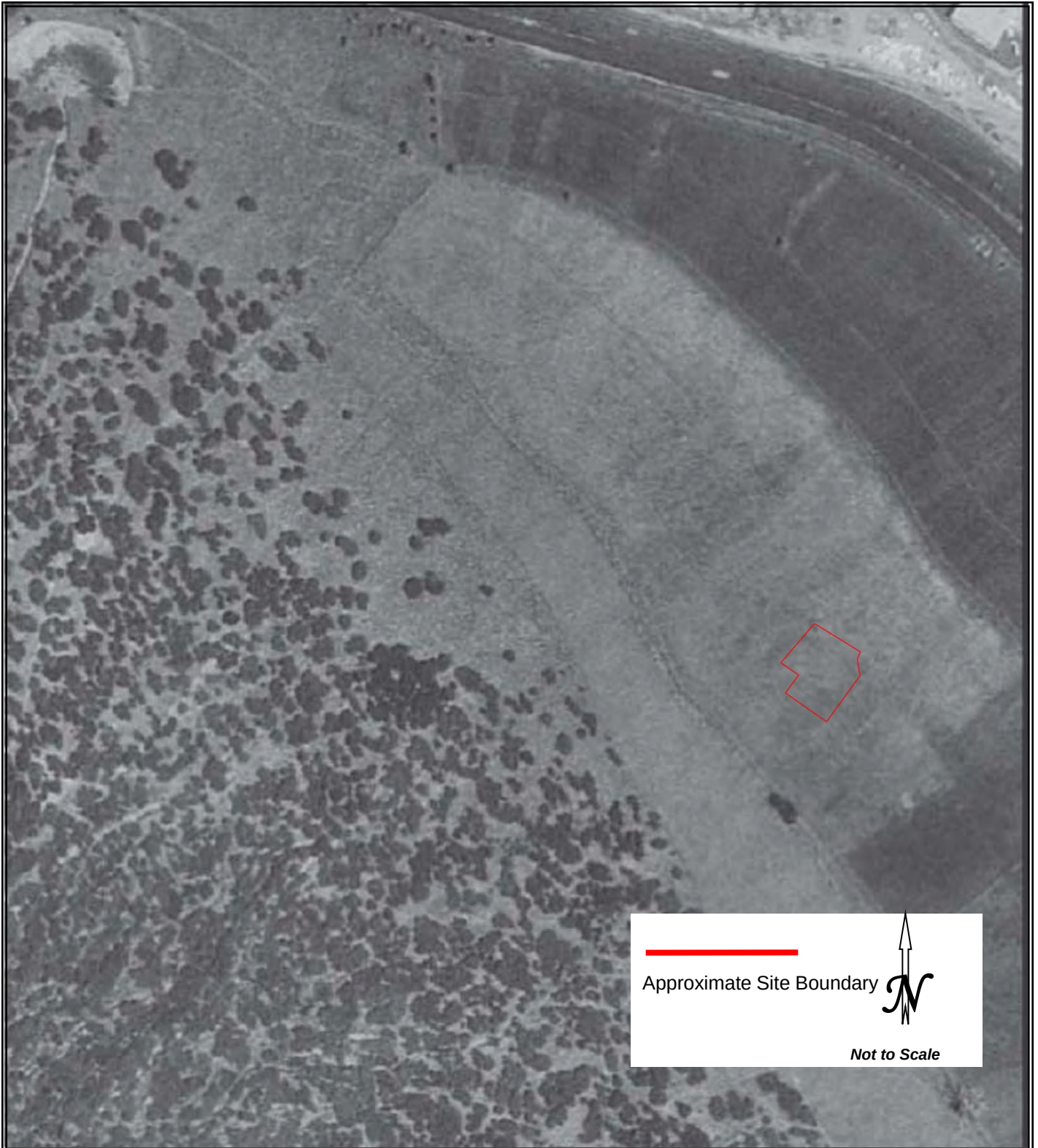
**2002 Aerial Photograph**  
 Lot 8 Glenwood Meadows  
 Glenwood Springs, Colorado 81601

Work Order No.:  
 20-062C

Report Date:  
 September 2020

Drawn By:  
 MLT





6395 Gunpark Drive, Unit W  
 Boulder, Colorado 80301  
 Phone: 720-459-7251 • Website: [www.aec-env.com](http://www.aec-env.com)

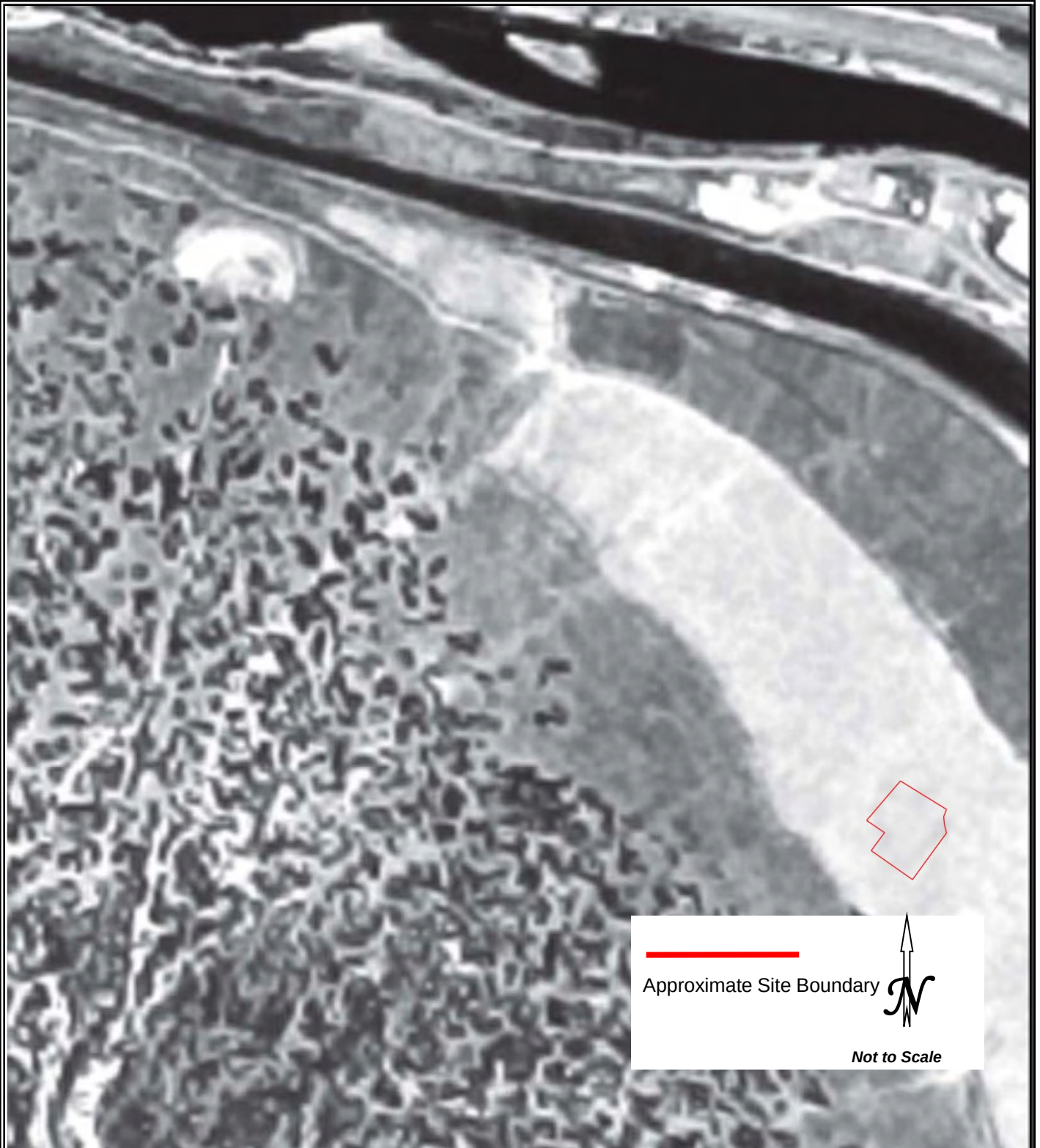
**1993 Aerial Photograph**  
 Lot 8 Glenwood Meadows  
 Glenwood Springs, Colorado 81601

Work Order No.:  
 20-062C

Report Date:  
 September 2020

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 Phone: 720-459-7251 • Website: [www.aec-env.com](http://www.aec-env.com)

**1989 Aerial Photograph**  
 Lot 8 Glenwood Meadows  
 Glenwood Springs, Colorado 81601

Work Order No.:  
 20-062C

Report Date:  
 September 2020

Drawn By:  
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Approximate Site Boundary

*Not to Scale*



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 Phone: 720-459-7251 • Website: [www.aec-env.com](http://www.aec-env.com)

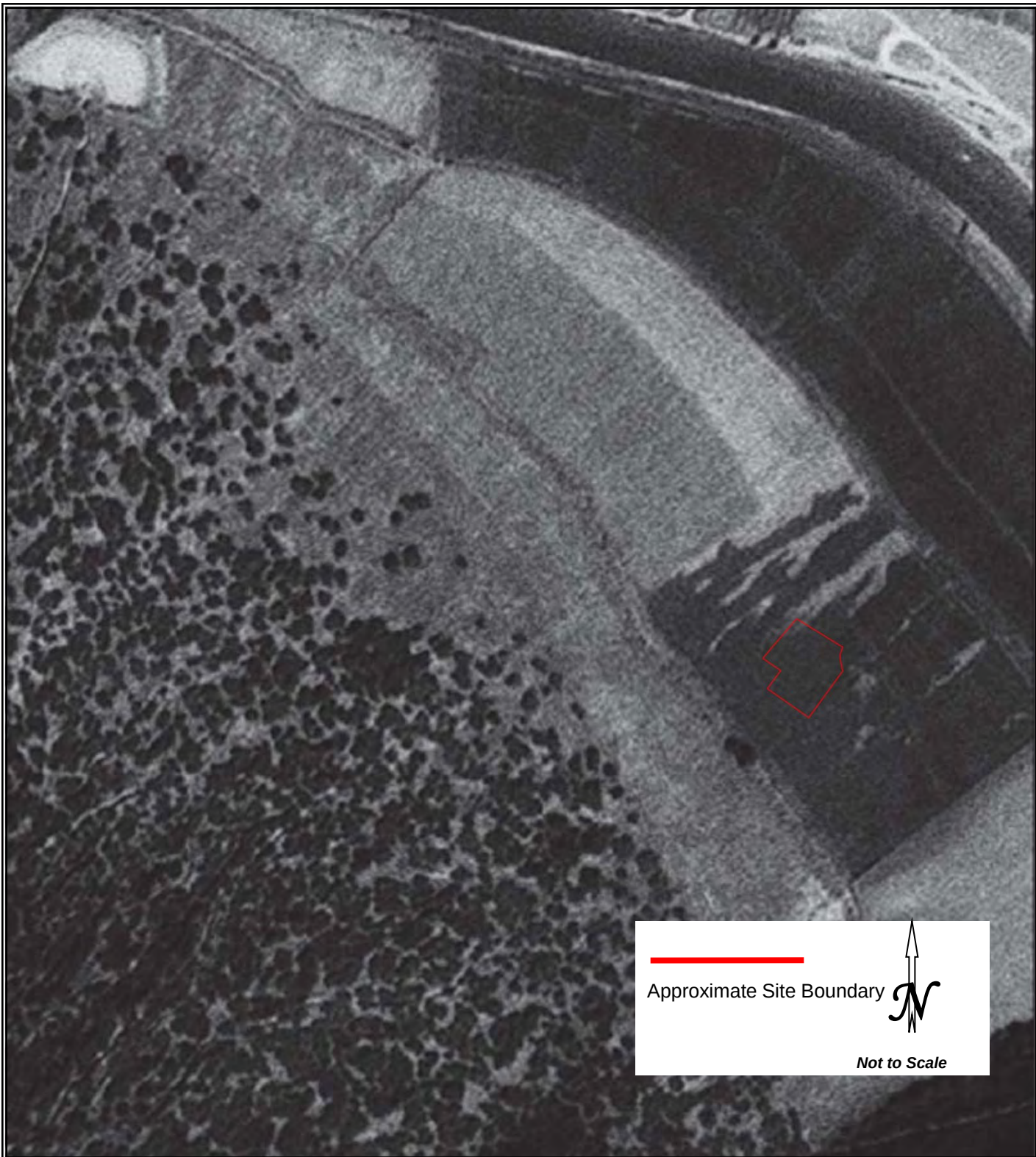
**1983 Aerial Photograph**  
 Lot 8 Glenwood Meadows  
 Glenwood Springs, Colorado 81601

Work Order No.:  
 20-062C

Report Date:  
 September 2020

Drawn By:  
 MLT







Approximate Site Boundary



Not to Scale



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**1979 Aerial Photograph**  
 Lot 8 Glenwood Meadows  
 Glenwood Springs, Colorado 81601

|                            |                                |                  |
|----------------------------|--------------------------------|------------------|
| Work Order No.:<br>20-062C | Report Date:<br>September 2020 | Drawn By:<br>MLT |
|----------------------------|--------------------------------|------------------|





6395 Gunpark Drive, Unit W  
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 Phone: 720-459-7251 • Website: [www.aec-env.com](http://www.aec-env.com)

**1960 Aerial Photograph**  
 Lot 8 Glenwood Meadows  
 Glenwood Springs, Colorado 81601

Work Order No.:  
 20-062C

Report Date:  
 September 2020

Drawn By:  
 MLT








Approximate Site Boundary

*Not to Scale*



6395 Gunpark Drive, Unit W  
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**1955 Aerial Photograph**  
 Lot 8 Glenwood Meadows  
 Glenwood Springs, Colorado 81601

Work Order No.:  
 20-062C

Report Date:  
 September 2020

Drawn By:  
 MLT



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**1945 Aerial Photograph**  
 Lot 8 Glenwood Meadows  
 Glenwood Springs, Colorado 81601

Work Order No.:  
 20-062C

Report Date:  
 September 2020

Drawn By:  
 MLT

#### **12.5.4 City Directories (NOT USED)**

## **12.6 Interviews/Telecommunications/FOIA Responses**



# **Advantage Environmental Consultants, LLC**

ENVIRONMENTAL DUE DILIGENCE SPECIALISTS

## **Phase I ESA Due Diligence Environmental Questionnaire – Owner Representative**

**Subject Property: Lot 8, Glenwood Meadows, Glenwood Springs, CO**

Completed by: \_\_\_Anthony Rodriguez\_\_\_\_\_

Company/Title: \_\_\_Stoneleigh Companies, Analyst\_\_\_\_\_

Date: \_\_\_9/14/2020\_\_\_\_\_

1.) How long have you owned the property and can you give a quick explanation of its uses during this period? [Under contract to purchase the referenced subject property](#)

2.) Are you aware of any current or historic petroleum underground storage tanks (USTs) or above ground storage tanks (ASTs) on the subject property? [No](#)

3.) Are you aware of any environmental cleanup liens that are filed or recorded against the subject property? [No](#)

4.) Are you aware of any activity and land use limitations that are in place on the property that have been filed or recorded in a registry? [No](#)

5.) Are you aware of any specialized knowledge or experience related to the property or nearby properties that is pertinent to potential adverse environmental conditions? [No](#)

6.) Are you aware of commonly known or reasonably obtainable information that would help us to identify conditions indicative of releases or threatened releases of hazardous wastes/materials at the property? Such information includes knowledge of specific chemicals that are present or were once present on the property, spills or other chemicals releases that may have occurred, or environmental cleanups that have been conducted on the subject property. [No](#)

7.) Based on your knowledge and experience related to the property, are there any obvious indicators that point to the presence or likely presence of contamination at the subject property?  
[No](#)



8.) Do you have knowledge what occupied the property prior to your ownership? [Vacant land](#)

9.) Are there any prior environmental reports (Phase I ESAs, Phase II ESAs) available for review?  
[Yes](#)

Thanks for taking the time to complete this questionnaire. Please email document to [mtorstenson@aec-env.com](mailto:mtorstenson@aec-env.com)

 **Advantage Environmental Consultants, LLC**

6395 Gunpark Drive, Unit W | Boulder, CO | 80301

Office: 720-459-7251

Cell: 410-320-0804

[mtorstenson@aec-env.com](mailto:mtorstenson@aec-env.com) | [www.aec-env.com](http://www.aec-env.com)





## **12.7 Supporting Documentation/Prior Reports**

6-8-06 15

## **Phase I Environmental Site Assessment**

Glenwood Meadows Shopping Center  
Midland Avenue  
Glenwood Springs, CO

*Prepared For*

**Miller Weingarten Realty**

**and**

**Goldman Sachs Commercial  
Mortgage Capital, L.P.**

Project BL-06-01019A  
June 8, 2006

Braun Intertec Corporation

June 8, 2006

Project BL-06-01019A

Mr. Art Belz  
Miller Weingarten Realty  
850 Englewood Parkway  
Englewood, CO 80110

Re: Phase I Environmental Site Assessment Update  
Glenwood Meadows Shopping Center  
Midland Avenue  
Glenwood Springs, CO

Dear Mr. Belz:

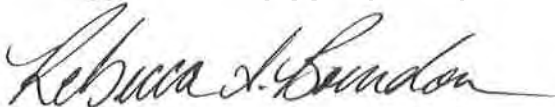
In accordance with your written authorization, we conducted a Phase I environmental site assessment (ESA Update) of the above-referenced property. The objective of the Phase I ESA Update was to evaluate the property for indications of recognized environmental conditions. As provided in the March 23, 2006 Phase I ESA of the Site, this Phase I ESA Update was conducted in accordance with the ASTM Practice E 1527-00 standard and in general accordance with the Goldman Sachs Commercial Mortgage Capital, L.P. Phase I ESA Scope of Services dated May 6, 1998.

Please refer to the attached report for the scope, methods and conclusions of our assessment.

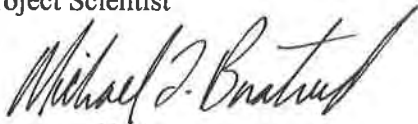
We appreciate the opportunity to provide our professional services to you for this project. If you have any questions regarding this letter or the attached report, please call Rebecca Bourdon at 952.995.2488 or Dan Holte at 952.995.2460.

Sincerely,

BRAUN INTERTEC CORPORATION



Rebecca A. Bourdon, PG  
Project Scientist



For: Daniel R. Holte, PG  
Principal Scientist

Attachment:  
Phase I Environmental Site Assessment Update Report

PH I ESA Update - Glenwood Meadows

## Table of Contents

|                                                                            |    |
|----------------------------------------------------------------------------|----|
| Executive Summary .....                                                    | A  |
| A. Introduction.....                                                       | 1  |
| A.1. Purpose.....                                                          | 1  |
| A.2. Scope of Services.....                                                | 2  |
| A.3. Assessment Limitations .....                                          | 2  |
| B. Site Description.....                                                   | 3  |
| B.1. Site Location.....                                                    | 3  |
| B.2. Site and Vicinity Characteristics.....                                | 4  |
| B.3. Environmental Liens and Additional Information .....                  | 5  |
| C. Records Review .....                                                    | 5  |
| C.1. Physical Setting Information.....                                     | 5  |
| C.2. Regulatory Information.....                                           | 6  |
| C.2.a. Federal Database Records.....                                       | 6  |
| C.2.b. State Database Records.....                                         | 8  |
| C.3. City of Glenwood Springs .....                                        | 9  |
| C.4. Historical-Use Information .....                                      | 10 |
| C.4.a. Fire Insurance Maps.....                                            | 10 |
| C.4.b. City Directory Information .....                                    | 10 |
| C.4.c. Aerial Photographs .....                                            | 10 |
| C.5. Previous Environmental Investigations .....                           | 11 |
| D. Information from Site Reconnaissance and Interviews .....               | 12 |
| D.1. Known Current and Past Uses of the Site and Adjoining Properties..... | 12 |
| D.2. Site Layout.....                                                      | 13 |
| D.3. Hazardous Substances and Petroleum Products.....                      | 13 |
| D.4. Storage Tanks .....                                                   | 14 |
| D.5. Potential PCB-Containing Equipment .....                              | 14 |
| D.6. Indications of Solid Waste Disposal .....                             | 15 |
| D.7. Potable Water Sources and Sanitary/Wastewater Discharges .....        | 15 |
| D.8. Other Utilities .....                                                 | 16 |
| D.9. Wetlands Information .....                                            | 16 |
| D.10. NEPA Information.....                                                | 16 |
| D.11. Radon Gas.....                                                       | 16 |
| D.12. Asbestos.....                                                        | 17 |
| D.13. Lead-Based Paint .....                                               | 17 |
| D.14. Moisture Intrusion/Mold.....                                         | 17 |
| E. Findings .....                                                          | 17 |
| F. Opinions.....                                                           | 18 |
| F.1 Recognized Environmental Conditions .....                              | 18 |
| F.2 Historical Recognized Environmental Conditions.....                    | 18 |
| F.3 De Minimis Conditions.....                                             | 18 |
| G. Conclusions.....                                                        | 19 |
| H. Recommendations.....                                                    | 19 |
| I. Qualifications of Environmental Professionals.....                      | 19 |
| I. References.....                                                         | 19 |

## **Appendices**

- A: Site Location Map
- B: Site Sketch
- C: Environmental Data Resources (EDR) Report
- D: Site Photographs
- E: Previous Environmental Investigations

## **Executive Summary**

Braun Intertec performed a Phase I environmental site assessment update (Phase I ESA Update) of Glenwood Meadows Shopping Center No. 11 located on Midland Avenue in Glenwood Springs, Colorado (Site) in general conformance with the scope and limitations of ASTM Practice E 1527-00 and in general accordance with the Goldman Sachs Commercial Mortgage Capital, L.P. Phase I ESA Scope of Services dated May 6, 1998.

At the time of this assessment, the Site consisted of an approximately 250-acre developed lot. A total of 17 retail buildings (some of them multi-tenant) were either existing on the Site or under construction. Sixteen of the tenant spaces were occupied at the time of the Site reconnaissance and consisted of the following retailers:

- Lowe's (unattached)
- Vitamin Cottage and Marble Slab restaurant (attached to Target)
- Pier 1, Gart Sports, Bed Bath and Beyond (BBB), and Petco (Gart Sports complex - attached)
- Chili's Grill & Bar (unattached)
- Regis Salon, Great Clips, Magoo's Italian Bar & Grill, Moe's Southwest Grill, Quizno's, Smoothie King, Red Mountain Wine and Spirits (located in multi-tenant market buildings)

Please note that Target is an anchor-owned development, and not included as part of the defined "Site" throughout this report.

Our research has revealed that the Site and surrounding area have been rural in nature. According to our research, the Site and surrounding area were historically utilized as a ranch for livestock grazing. The Site was occupied by Glenwood Meadows Shopping Center at the time of this assessment.

This assessment has revealed no indications of recognized environmental conditions in connection with the Site.

## **A. Introduction**

### **A.1. Purpose**

Braun Intertec received authorization from Mr. Art Belz of Miller Weingarten Realty (User) to conduct a Phase I environmental site assessment (ESA Update) of Glenwood Meadows Shopping Center located on Midland Avenue in Glenwood Springs, Colorado (Site). Please note that Target is an anchor-owned development, and not included as part of the defined "Site" throughout this report. Although the Target space was accessed as part of this Phase I ESA, the Target building and portion of the land on which the Target building sits is not part of the Site.

This report is for the use and benefit of, and may be relied upon by Goldman Sachs Commercial Mortgage Capital, L.P.; Goldman Sachs & Co.; Goldman Sachs Mortgage Company or any of its affiliates and the agents and advisors, initial and subsequent holders from time to time of any debt and/or debt securities secured, directly and indirectly, by any participation interest in any such debt, and indenture trustee, servicer or other agent acting on behalf of such holders of such debt and/or debt securities; any rating agencies; and the institutional provider(s) from time to time of any liquidity facility or credit support for such financings, and their respective successors and assigns. Our work was directed by a contract with Miller Weingarten Realty and in accordance with our Scope of Services and Braun Intertec General Conditions, which are a part of that contract. Please note that our contract with Miller Weingarten Realty contains a limitation of our total liability. Such limitation also applies to all those receiving this permission.

In addition, this report or a reference to this report, may be included or quoted in any offering circular, registration statement, prospectus or sales brochure (in either electronic or hard copy format) in connection with a securitization or transaction involving such debt and or debt securities.

According to the User, this Phase I ESA Update has been prepared in association with the addition of a new tenant to the property.

The purpose of this Phase I ESA Update was to evaluate the Site for indications of "recognized environmental conditions," as defined by ASTM Practice E 1527-00 as: "The presence or likely presence of any hazardous substances or petroleum products on a property under conditions that indicate an existing release, a past release or a material threat of a release of any hazardous substances or petroleum products into structures on the property or into the ground, groundwater or surface water of the property. The term includes hazardous substances or petroleum products even under conditions of storage and use in compliance with local and state regulations. The term is not intended to include *de minimis* conditions that generally do not present a material risk of harm to public health or the environment and that generally would not be the subject of an enforcement action if brought to the attention of regulatory governmental agencies."

## **A.2. Scope of Services**

The services provided for this project consisted of the following:

- A description of the Site location, current use and improvements and surrounding area
- A general description of the topography, soils, geology and groundwater flow direction at the Site
- A review of reasonably ascertainable and practically reviewable regulatory information published by state and federal agencies, health, and/or environmental agencies
- A review of the history of the Site, including aerial photographs, fire insurance maps, directories, and other readily available Site development data
- A reconnaissance and environmental review of the Site, including an assessment of the Site for indications of hazardous materials, petroleum products, polychlorinated biphenyls (PCBs), wells, storage tanks, solid waste disposal, pits and sumps, and utilities
- An area reconnaissance, including a brief review of adjacent property uses and any pertinent environmental information noted in the Site vicinity
- Interviews with current owners and/or occupants of the property
- Interviews with local government officials or agencies having jurisdiction over hazardous waste disposal or other environmental matters in the area of the Site
- Preparing a written report of our methods and conclusions

Additionally, as provided in the March 2006 Phase I ESA of the Site, this Phase I ESA Update also was conducted in general accordance with the Goldman Sachs Commercial Mortgage Capital, L.P. Phase I ESA Scope of Services dated May 6, 1998.

## **A.3. Assessment Limitations**

The findings and conclusions presented in this report are based on the procedures described in the ASTM Practice E 1527-00, informal discussions with various agencies, available literature cited in this report, conditions noted at the time of our Phase I ESA Update, and our interpretation of the information obtained as part of this Phase I ESA Update. Our findings and conclusions are limited to the specific project and properties described in this report and by the accuracy and completeness of the information provided by others.

An environmental site assessment cannot wholly eliminate uncertainty regarding the potential for recognized environmental conditions in connection with a property. Performance of this practice is intended to reduce, but not eliminate, uncertainty regarding the potential for recognized environmental conditions in connection with a property within reasonable limits of time and cost.



In performing its services, Braun Intertec used that degree of care and skill ordinarily exercised under similar circumstances by reputable members of its profession practicing in the same locality. No other warranty is made or intended.

No intentional deviations from the ASTM Practice E 1527-00 were made in the completion of this Phase I ESA Update for the Site.

The Scope of Services for this project did not include the completion of soil borings, the installation of groundwater monitoring wells, or the collection of soil or groundwater samples. Also, the Scope of Services for this project did not include collecting or analyzing samples from the Site for the presence of asbestos, PCBs, lead-based paint, lead in drinking water, radon or urea formaldehyde.

Braun Intertec did not review property tax files, recorded land-title records or zoning land-use records to document the first developed use of the Site. Past experience has indicated that these historical sources are not sufficiently useful.

## **B. Site Description**

### **B.1. Site Location**

The Site addresses include the following:

- Lowe's, 215 West Meadows Drive
- Vitamin Cottage, Unit B, 100 West Meadows Drive
- Petco #1466, 105 East Meadows Drive
- Gart Sports #122, 125 East Meadows Drive
- Bed Bath & Beyond, 115 East Meadows Drive
- Pier 1 Imports #1539, 135 East Meadows Drive
- Marble Slab #438, 150 West Meadows Drive
- Chili's Grill & Bar #1136, 400 West Meadows Drive
- Regis Salon, Unit E, 10 Market Street
- Great Clips, Unit D, 20 Market Street,
- Magoo's Italian Bar & Grill, Unit A, 30 Market Street
- Moe's Southwest Grill, Unit A, 35 Market Street
- Quizno's, Unit B, 40 Market Street
- Smoothie King, Unit A, 45 Market Street
- Red Mountain Wine and Spirits, Unit D, 45 Market Street

The Site is generally bound by Midland Avenue to the north, Wulfsohn Avenue to the south, with the newly constructed East and West Meadows Drives traversing the property from north to south and within Section 5, Township 6 North, Range 89 West, in the city of Glenwood Springs, Garfield County, Colorado. A Site location map and Site sketch are attached in Appendices A and B, respectively.

## **B.2. Site and Vicinity Characteristics**

At the time of this assessment, the Site consisted of an approximately 250-acre developed lot. A total of 17 retail buildings (some of them multi-tenant) were either existing on the Site or under construction. Sixteen of the tenant spaces were occupied at the time of the Site reconnaissance and consisted of the following retailers:

- Lowe's (unattached)
- Vitamin Cottage and Marble Slab restaurant (attached to Target)
- Pier 1, Gart Sports, Bed Bath and Beyond (BBB), and Petco (Gart Sports complex - attached)
- Chili's Grill & Bar (unattached)
- Regis Salon, Great Clips, Magoo's Italian Bar & Grill, Moe's Southwest Grill, Quizno's, Smoothie King, Red Mountain Wine and Spirits (located in multi-tenant market buildings)

Please note that Target is an anchor-owned development, and not included as part of the defined "Site" throughout this report. Although the Target space was accessed as part of this Phase I ESA, the Target building and portion of the land on which the Target building sits is not part of the Site.

The Lowe's facility was a 1-level, approximately 130,000-square-foot, slab-on-grade building and the Target facility was a 1-level, approximately 125,000-square-foot, slab-on-grade building. The Gart Sports complex retail facility consisted of a single-story, approximate 85,000-square-foot, slab-on-grade building. The nine remaining unattached facilities consisted of single-story, slab-on-grade buildings ranging in size from approximately 1,200 square feet to 6,900 square feet. Paved parking and landscaped areas were located across the Glenwood Meadows shopping complex. The Lowe's building was located on the west portion of the Site and the Target and Gart Sports complex buildings were located on the north portion of the Site, and the remaining buildings were located in the central portion of the Site. The easternmost planned buildings were not present at the time of the Site reconnaissance, however, the easternmost portion of the Site was graded and prepared for development. The construction materials noted stored on that portion of the Site during the March 2006 Phase I ESA were not noted at the time of this Phase I ESA Update Site reconnaissance.

The Site was bordered on the north by Midland Avenue with railroad tracks, Coors Distributing, Midwest Drywall Company, Inc./Electrical Outfitters, Big John Ace Hardware, a power substation and Envirotech located beyond; on the south by undeveloped pasture land with mountains beyond; on the

east by the City of Glenwood Springs Community Center with undeveloped property beyond; and on the west by vacant, graded, parcels with a Park-and-Ride parking lot and Roaring Fork Transportation Center/City Municipal property beyond. The Site is located in an industrial and commercial area within the city of Glenwood Springs.

### **B.3. Environmental Liens and Additional Information**

No information regarding chain-of-title ownership history, environmental liens recorded against the Site (if any), or specialized environmental knowledge or experience that may reveal indications of recognized environmental conditions associated with the Site, was provided to us by the User.

## **C. Records Review**

### **C.1. Physical Setting Information**

According to the United States Geological Survey (U.S.G.S) 7.5-minute topographic map series, Glenwood Springs, Colorado quadrangle, the Site is located at an average elevation of 5,740 feet above mean sea level. The Site lies in the Colorado River valley immediately west of Glenwood Springs downtown region. The majority of the Site is slightly to moderately sloped to the north with landscaped retaining walls in areas of grade change.

The Site lies within the western flank of the Southern Rocky Mountains physiographic province located within the Rocky Mountain System. The majority of the Site is underlain by Quaternary alluvium. This alluvium was deposited over the past 2 million years by the nearby Colorado River. Rocks comprising the surrounding cliffs include Mississippian Leadville Limestone (massive gray rock); contorted gypsum-bearing Pennsylvanian shales, Triassic redbeds; and the Maroon Formation (USGS, 1979). The predominant soil types at the Site include Jerry-Lamphier Cochetopa, which is described as deep, well-drained, moderately sloping to steep soils on mountains and fans; and Morvel-Villa Grove, which is described as deep, well-drained, moderately sloping to moderately steep soils on mesas, mountainsides, and alluvial fans (Soil Conservation Service).

In western Colorado, groundwater is extracted from the following aquifers: Valley fill alluvial deposits, Green River Formation, Mesa Verde group, Dakota sandstone, Entrada sandstone, Glen Canyon group, Wingate sandstone, Leadville limestone, pre-Mississippian-age rocks, and Precambrian crystalline rocks. With the exception of Valley fill deposits, the ability to produce water from any of the aforementioned aquifers is dependent on several geological factors, the most critical being structure. Throughout much of western Colorado, the rocks have been subjected to complex deformation processes that directly affect the hydrogeologic conditions. Therefore, it is quite possible for groundwater to occur under artesian or flowing artesian conditions locally within the same aquifer. Surficial groundwater, if present, likely flows northeast toward the Colorado River (Colorado Geological Survey).

The Site-specific groundwater flow direction was not determined through direct measurement during this Phase I ESA Update. Additional field investigation, beyond the Scope of Services of this Phase I ESA Update, would be required to determine this information.

## **C.2. Regulatory Information**

We obtained regulatory information pertaining to the Site and surrounding area from Environmental Data Resources, Inc. (EDR). The EDR regulatory information report is a compilation and summary of current federal and state regulatory lists and databases and is attached in Appendix C.

The objective of the regulatory information review is to evaluate whether the Site or nearby properties are listed as having a past or present record of actual or potential environmental hazards that are under investigation or may have an adverse impact on the Site.

### **C.2.a. Federal Database Records**

The EDR report included a compilation of the following United States Environmental Protection Agency (USEPA) databases and lists of verified and potential hazardous-waste problem facilities located at, adjacent to, or within ASTM Standard Search Distances from the Site:

- USEPA National Priorities List (NPL). The NPL is the USEPA's national listing of uncontrolled or abandoned hazardous waste facilities identified for priority remedial actions under the Superfund Program.
- USEPA Comprehensive Environmental Response, Compensation, and Liability Information System (CERCLIS). The CERCLIS is the USEPA's national listing of actual and potential hazardous waste facilities.
- USEPA CERCLIS-No Further Remedial Action Planned (CERC-NFRAP). Database of archived designated Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) facilities, that to the best of the USEPA's knowledge, has had an assessment completed and a determination has been made that no further steps will be taken to list a facility on the NPL.
- USEPA Corrective Action Report (CORRACTS). CORRACTS identifies hazardous waste handlers with RCRA corrective action activity.
- USEPA Resource Conservation and Recovery Information System Treatment, Storage, and Disposal Facilities (RCRIS-TSD). The RCRIS-TSD is a listing of facilities that are required to register their hazardous waste activity under the Resource Conservation and Recovery Act (RCRA).

- USEPA Resource Conservation and Recovery Information System Large- and Small-Quantity Generators of hazardous waste (RCRA-GEN).
- USEPA Emergency Response Notification System (ERNS). The ERNS is the USEPA's national listing of releases of oil and hazardous substances reported to the USEPA, U.S. Coast Guard, the National Response Center and the Department of Transportation.

We also reviewed the EDR Orphan Sites, which is a compilation of facilities from the above federal databases that could not be specifically located due to a lack of suitable information. Please note that information provided by EDR is limited for these facilities. Therefore, the potential impact to the Site from facilities listed on the EDR Orphan Sites cannot always be determined based on the available information.

Table 1 contains a summary of the findings.

**Table 1. Federal Database Records**

| Database   | Site | Search Distance (Miles)       | < 1/8 | 1/8-1/4 | 1/4-1/2 | 1/2-1 | Total Listed |
|------------|------|-------------------------------|-------|---------|---------|-------|--------------|
| NPL        | 0    | 1                             | 0     | 0       | 0       | 0     | 0            |
| CERCLIS    | 0    | 1/2                           | 0     | 0       | 0       |       | 0            |
| CERC-NFRAP | 0    | 1/4                           | 0     | 0       |         |       | 0            |
| CORRACTS   | 0    | 1                             | 0     | 0       | 1       | 0     | 1            |
| RCRIS-TSD  | 0    | 1/2                           | 0     | 0       | 0       |       | 0            |
| RCRA-GEN   | 0    | Site and adjoining properties | 0     |         |         |       | 0            |
| ERNS       | 0    | Site                          |       |         |         |       | 0            |

According to the EDR report, the Site was not listed on any of the ASTM or EDR Supplemental federal databases.

According to the EDR report, the following CORRACTS facility was listed within 1/2 mile of the Site:

- Eimco Coal Machinery at 2222 Devereux Road, is located approximately 1/2 mile east-southeast of the Site and across the Colorado River from the Site. The most recent activity at this facility was May of 2000 and information provided in the database listing indicates that the Corrective Action process was terminated, remedial activities were completed, and a Certification of Remedy Completion or Construction Completion was issued. Based on the location of this facility relative to the Site, it is unlikely that groundwater contamination associated with this facility (if groundwater contamination exists) would have an adverse impact on the groundwater beneath the Site.

According to the EDR report, no additional facilities were listed on any of the ASTM federal databases within the ASTM specified search distances.

**C.2.b. State Database Records**

The State Database Records report summarized the State of Colorado databases and lists. EDR evaluated the following State Database Records for current listings of verified and potential problem facilities located on, adjacent to, or within ASTM Standard search distances from the Site:

- Solid Waste Facilities/Landfill Sites (SWLF). The MPCA's database listing of permitted solid waste disposal facilities.
- Voluntary Cleanup Program (VCP). The VCP list is the Colorado Department of Public Health and Environment's (CDPHE) registry of properties at which a voluntary cleanup program has been or is being conducted. The CDPHE staff provides permitting and assistance in review of the investigation and any necessary remedial activities. A number of these properties have been investigated and cleaned up or found not to require any cleanup work.
- Leaking Underground Storage Tank Incident Reports (LUST). LUST records contain an inventory of reported leaking underground storage tank incidents.
- Registered Underground Storage Tanks (UST). USTs are regulated under Subtitle I of the RCRA and must be registered with the state department responsible for administering the UST program.
- Colorado Emergency Response Notification System (CO ERNS). Database listing of spills reported to the CDHPE. The data includes information regarding initial cause, initial source, material spilled, and quantity.

We also reviewed the EDR Orphan Sites, which is a compilation of facilities from the above state databases that could not be specifically located due to a lack of suitable information. Please note that information provided by EDR is limited for these facilities. Therefore, the potential impact to the Site from facilities listed on the EDR Orphan Sites cannot always be determined based on the available information.

Table 2 contains a summary of the findings.

**Table 2. State Database Records**

| Database         | Site | Search Distance (Miles)       | <1/8 | 1/8-1/4 | 1/4-1/2 | 1/2-1 | Total Listed |
|------------------|------|-------------------------------|------|---------|---------|-------|--------------|
| SWLF             | 0    | 1/2                           | 0    | 0       | 0       |       | 0            |
| VCP              | 0    | 1/2                           | 0    | 0       | 0       |       | 0            |
| LUST             | 0    | 1/2                           | 0    | 0       | 3       |       | 3            |
| UST              | 0    | Site and adjoining properties | 0    |         |         |       | 0            |
| CO ERNS (Spills) | 0    | Site                          |      |         |         |       | 0            |

According to the EDR report, the Site was not listed on any of the ASTM or EDR Supplemental state databases.

According to the EDR report, the following LUST facilities were located within 1/2 mile of the Site:

- Glenwood Springs Section (CDPHE Event ID #6363), at Devereux Road and Devereux Lane; located approximately 1/4 mile southeast of the Site. According to the database listing, the LUST incident status is closed for this event.
- CDOT Glenwood Springs, (CDPHE Event ID #784), at 202 Centennial Street, located approximately 1/2 mile east-southeast of the Site. According to the database listing, the LUST incident status is closed for this event. Additionally, four closed USTs were listed at this facility.
- Eimco Coal Machinery/Glenwood Industrial, LLC Site at 2222 Devereux Road, is located approximately 1/2 mile east-southeast of the Site and across the Colorado River from the Site. According to the database listing, the LUST incident status is closed for this event.

Based on the location of the three “closed” LUST facilities relative to the Site in the anticipated down-gradient direction, it is unlikely that groundwater impacts associated with these facilities (if any remain) would have an adverse impact on the Site.

According to the EDR report, no additional facilities were listed on any of the ASTM state databases within the ASTM specified search distances.

### **C.3. City of Glenwood Springs**

We contacted Mr. Ron Biggers, Glenwood Springs Fire Marshall, for information regarding the Site. According to Mr. Biggers, no new information was available pertaining to the Site since the time of the March 2006 Phase I ESA. As stated in the March 2006 Phase I ESA, no records of USTs, emergency

responses, fires, or other environmental issues are on record for the Site with the exception of the "Coal Seam Fire" of 2002, which burned across the Site, prior to the existing development. The Coal Seam Fire did not originate on the Site, but traversed it and the surrounding region.

#### **C.4. Historical-Use Information**

The objective of the historical-use information review is to develop a history of the previous uses of the Site and surrounding area, in order to help identify the likelihood of past uses having led to recognized environmental conditions in connection with the property. We consulted only those historical sources that were readily available and practically reviewable and were likely to be useful to develop a history of the previous uses of the Site and surrounding area within the time and cost constraints of this Phase I ESA Update.

##### **C.4.a. Fire Insurance Maps**

Fire insurance maps are produced by private fire insurance map companies and indicate uses of property at specified dates. The information noted on the maps includes uses of individual structures, locations of fuel and/or chemical storage tanks, and storage of other potentially toxic substances.

According to EDR and our research, no historic fire insurance map coverage is available for the Site.

##### **C.4.b. City Directory Information**

We retained EDR to obtain city directory information pertaining to the Site and surrounding area. Because the Site addresses (on Market Street and Meadows Drive) did not exist until recently, no city directories were available for review.

##### **C.4.c. Aerial Photographs**

We obtained aerial photographs of the Site dated 1960, 1983, 1993, and 1999 from HIG. Copies of aerial photographs are attached in Appendix E of the previous Phase I ESA prepared by Braun Intertec in December 2003.

##### **1960**

The Site was depicted as undeveloped agricultural land. A farm access road was depicted traversing northwest-southeast on the Site. Surrounding properties are depicted as agricultural land in each direction from the Site.

##### **1983**

No significant changes were noted at the Site or surrounding area, with the exception of the railroad and industrial properties depicted adjacent to the north of the Site.



**1993**

No significant changes were noted at the Site or surrounding area, with the exception of additional development of the railroad and industrial properties depicted adjacent to the north of the Site.

**1999**

No significant changes were noted at the Site or surrounding area.

No land uses such as dumping or landfilling were apparent on or adjacent to the Site on the aerial photographs reviewed.

**C.5 Previous Environmental Investigations**

The following previous environmental investigations were reviewed as part of the December 2003 Phase I ESA and are provided in Appendix F:

- *Phase I Environmental Site Assessment; Glenwood Meadows; Glenwood Springs, Colorado;* Braun Intertec; dated March 23, 2006.
- *Phase I Environmental Site Assessment; Proposed Target; Midland Avenue; Glenwood Springs, Colorado;* Braun Intertec; dated December 3, 2003.
- *Geotechnical Analysis Summary;* conducted by High Country Engineering; dated September 17, 2001.
- *Glenwood Meadows Development Project Wildlife Species and Habitat Assessment;* conducted by J.F. Sato and Associates in February 2000.
- *Geologic and Preliminary Geotechnical Investigation Glenwood Meadows;* conducted by CTL/Thompson, Inc. in February 2000.
- *Phase I Environmental Site Assessment; Wulfsohn Ranch; Glenwood Springs, Colorado;* Western Technologies, Inc.; dated June 5, 1996.
- *Wetland Investigation;* Professional Wetlands Consulting, Inc.; July 8, 1996.

No recognized environmental conditions were identified in connection with the Site in the review of the aforementioned documents.

## **D. Information from Site Reconnaissance and Interviews**

A Site reconnaissance was conducted by a Braun Intertec environmental scientist (Rebecca Bourdon) on May 22, 2006. We obtained information regarding the Site from the each respective manager on-duty or store representative for the Site tenants.

### **D.1. Known Current and Past Uses of the Site and Adjoining Properties**

At the time of this assessment, the Site consisted of an approximately 250-acre developed lot. A total of 17 retail buildings (some of them multi-tenant) were either existing on the Site or under construction. Sixteen of the tenant spaces were occupied at the time of the Site reconnaissance and consisted of the following retailers:

- Lowe's (unattached)
- Vitamin Cottage and Marble Slab restaurant (attached to Target)
- Pier 1, Gart Sports, Bed Bath and Beyond (BBB), and Petco (Gart Sports complex - attached)
- Chili's Grill & Bar (unattached)
- Regis Salon, Great Clips, Magoo's Italian Bar & Grill, Moe's Southwest Grill, Quizno's, Smoothie King, Red Mountain Wine and Spirits (located in multi-tenant market buildings)

The Lowe's facility was a 1-level, approximately 130,000-square-foot, slab-on-grade building and the Target facility was a 1-level, approximately 125,000-square-foot, slab-on-grade building. The Gart Sports complex retail facility consisted of a single-story, approximate 85,000-square-foot, slab-on-grade building. The nine remaining unattached facilities consisted of single-story, slab-on-grade buildings ranging in size from approximately 1,200 square feet to 6,900 square feet. Paved parking and landscaped areas were located across the Glenwood Meadows shopping complex. The Lowe's building was located on the west portion of the Site and the Target and Gart Sports complex buildings were located on the north portion of the Site, and the remaining buildings were located in the central portion of the Site. The easternmost planned buildings were not present at the time of the Site reconnaissance, however, the easternmost portion of the Site was graded and prepared for development. The construction materials noted stored on that portion of the Site during the March 2006 Phase I ESA were not noted at the time of this Phase I ESA Update Site reconnaissance.

The Site was bordered on the north by Midland Avenue with railroad tracks, Coors Distributing, Midwest Drywall Company, Inc./Electrical Outfitters, Big John Ace Hardware, a power substation, and Envirotech located beyond; on the south by undeveloped pasture land with mountains beyond; on the east by the City of Glenwood Springs Community Center with undeveloped property beyond; and on the west by vacant, graded, parcels with a Park-and-Ride parking lot and Roaring Fork Transportation Center/City Municipal property beyond. The Site is located in an industrial and commercial area within the city of Glenwood Springs.

Our research has revealed that the Site and surrounding area have been rural in nature. According to our research, the Site and surrounding area were historically utilized as a ranch for livestock grazing and cultivated agricultural land. The Site was occupied by Glenwood Meadows Shopping Center at the time of this assessment. According to the existing tenant representatives, the structures they occupied were significantly completed in May 2005 and each took possession of their respective spaces between early October and late November 2005, with the exception of Great Clips, who took possession in February 2006. A Site sketch and Site photographs are included as Appendix B and D, respectively.

## **D.2. Site Layout**

During the reconnaissance, the Site topography appeared to be gently sloping to the north, toward the Colorado River. Recently completed grading work was noted on the eastern-most edge of the Glenwood Meadows retail area during this Phase I ESA Update Site visit.

Drainage on the Site appeared to be toward storm water catch basins located in the paved parking areas and in the adjacent streets. Paved parking/driveway surfaces were located throughout the Glenwood Meadows Shopping Center.

## **D.3. Hazardous Substances and Petroleum Products**

No indications of spills or leaks of hazardous substances or petroleum products were noted on the Site at the time of our reconnaissance with the exception of minor staining on concrete surfaces that were not compromised. Retail displays of household-sized cleaners, petroleum-based products, pesticides, herbicides, and fertilizers were noted in the Lowe's and Target facilities. Spill kits were located in multiple locations within these tenant spaces in the event of spills or leaks of these products. According to the tenant representatives, corporate-established training programs for small hazardous materials spill response were in-place and this training was provided to their employees. Additionally, storage of household sized, up to 5-gallon-sized, cleaners were noted in the janitor's closet of each tenant space.

Drums noted on the Lowe's property at the time of the Site reconnaissance were located within the secured hazardous materials storage area located on the west exterior side of the building, with the exception of two polyethylene drums labeled Euco Diamond Hard (liquid densifier) located near the loading dock that were of unknown origin to the manager on duty. According to the previous Phase I ESA manager interview, the drums are filled with fluids and waste materials brought onto the Site by customers (i.e., returned equipment containing fluids requiring disposal). No staining or cracked flooring was noted in the vicinity of the hazardous materials storage area on the Lowe's property.

Three 55-gallon metal drums containing used cooking grease/oil were noted on the north exterior of the Chili's property, within the garbage enclosure. Staining was noted in the vicinity of the drums; however, the used grease is cooking grade and did not appear to present an environmental issue. According to the manager on duty, the grease drums are disposed of approximately every three months, or as needed, by a vendor contracted by Chili's.

According to the Site tenant representatives, Material Safety Data Sheets (MSDSs) were maintained in various locations within each tenant space, where applicable. Additionally, MSDSs were noted in various locations within the tenant spaces during the Site reconnaissance.

Cargo lifts noted in the loading docks of various tenant spaces were either operated by electric-powered air bags or were spring loaded. Forklifts noted throughout the tenant spaces used hydraulics, but were electrically powered. No leakage or staining was noted on any of the forklifts at the time of the Site reconnaissance. Numerous cardboard and trash compactors were noted on the Site; however, no oil staining was noted in the vicinity of the compactors at the time of the Site reconnaissance.

#### **D.4. Storage Tanks**

No underground or aboveground storage tanks were noted or reported on the Site by the interviewees at the time of the Site reconnaissance, with the exception of one 1,100-gallon diesel aboveground storage tank (AST), noted on the west side of the Lowe's building, within a generator/transformer enclosure. The diesel AST labels indicated a secondary containment unit was built into the unit as a whole. No staining, leaking, or cracked pavement was noted in the vicinity of the AST.

Pressurized tanks were noted on the west exterior of the Lowe's building, within a caged unit, secured to the paved surface below. One carbon dioxide pressurized tank was noted in the restaurant portion of the Target building. Additionally, air compressors noted in the buildings did not appear to have recently leaked as no new indications of staining or leakage were noted at the time of this Site reconnaissance.

#### **D.5. Potential PCB-Containing Equipment**

Numerous transformers were noted throughout the Site; a total of 13 utility-owned (City of Glenwood Springs) pad-mounted transformers were noted on the common areas (i.e., parking lots, landscaped areas). The remaining transformers were floor mounted and noted in each of the tenant spaces, with the exception of the Petco, Pier 1, and Great Clips facilities. A "non-PCB" label was adhered to each of the exterior transformers. No staining or signs of leaks were noted in the vicinity of the transformers on the Site and each appeared to be in good condition.

#### **D.6. Indications of Solid Waste Disposal**

No indications of the uncontrolled disposal of solid waste or dumping were noted on the Site. Solid wastes generated at the Site are disposed in dumpsters serviced by local waste haulers contracted separately by each of the tenants (e.g., Discovery cardboard recycling, Waste Management, and Rocky Mountain Disposal).

Solid wastes typical of a construction project were noted on the areas of the Site undergoing building construction at the time of the Site reconnaissance. None of these wastes appeared to represent an environmental concern and the contractors on the Site appeared to be diligent in removing excess construction debris.

#### **D.7. Potable Water Sources and Sanitary/Wastewater Discharges**

The Site is connected to municipal water and sewer utilities. No disposal/discharge pits, surface impoundments or lagoons were noted at the Site. Retention ponds were noted along the north property boundary, receiving discharge runoff water from the Site. No sheen was noted on the retention pond water.

Floor drains were noted throughout each tenant space at the time of the Site reconnaissance in the restrooms and in kitchen areas. According to each tenant representative, the floor drains all discharge to the sanitary sewer and no oil/water separators, sand traps, or flame traps were noted on the Site. However, one sub-grade grease trap was noted in the restaurant area of the Target building. The grease trap was not accessible for visual inspection at the time of the Site reconnaissance; however, the manager on duty was instructed to contact the Braun Intertec representative upon their access of it. At the time of this report, a response has not been received. The grease trap appeared to be only partially filled and was reportedly pumped out and cleaned once every six months.

According to the tenants interviewed at the time of the Site reconnaissance, no water wells exist on the Site. Additionally, no indications of monitoring or drinking water wells above grade were noted on the Site.

According to the City of Glenwood Springs Red Mountain Water Treatment Plant representative, the concentration of lead in the municipal drinking water supply is below the State of Colorado-established drinking water standard of 0.015 milligrams per Liter (mg/L) dissolved lead.

#### **D.8. Other Utilities**

Each building on the Site is heated by a rooftop-mounted natural gas-fired, forced-air furnace and cooled by a rooftop-mounted electric air-conditioning unit. The utility providers varied by tenant, but were generally provided by the City of Glenwood Springs, Xcel Energy, and/or Kinder Morgan, or a combination thereof.

#### **D.9. Wetlands Information**

In general accordance with the Goldman Sachs Commercial Mortgage Capital, L.P. Phase I ESA Scope of Services, dated May 6, 1998, Section 2.2, paragraph (f), wetlands information for the Site was provided in the EDR report. According to the EDR report, the Site is located within a designated Federal Wetlands area. For specific information pertaining to the wetland issues on this Site, please refer to the Wetland Delineation report dated, June 1996, which was prepared by Professional Wetlands Consulting, Inc. (the Site is referred to as Wulfsohn Ranch in this report, which is included in Appendix E). It should be noted that the EDR report and NEPA report obtained for the 2003 Phase I ESA did not identify wetlands on the Site.

#### **D.10. NEPA Information**

A National Environmental Policy Act (NEPA) report, providing information pertaining to endangered species and archaeological sites, was provided in the Phase I ESA Update performed by Braun Intertec in December 2003. Additionally, a Wildlife Species and Habitat Assessment was performed for the Glenwood Meadows Development Project in February 2000 and was reviewed as part of the December 2003 Phase I ESA of the Site. The 2003 Phase I ESA found no sites of archeological significance were located on the Site and no threatened or endangered plant or animal species would be significantly adversely affected by the development of the Site. These reports are attached in Appendix E - Previous Environmental Investigations for further information.

#### **D.11. Radon Gas**

Radon is a naturally occurring radioactive gas found in soils and rocks as a result of the natural decay or breakdown of native uranium and radium. Radon is a colorless and odorless gas that can accumulate once inside an enclosed space, such as a basement. Based on information from the Colorado Geological Survey provided in the previous 2003 Phase I ESA prepared by Braun Intertec, radon gas levels are considered low to moderate for structures tested in the area of the Site.

Additionally, according to the EPA's Radon informational website, Garfield county is located within a Zone 1 designation for radon, which is defined as follows, "Zone 1 counties have a predicted average indoor radon screening level greater than 4 pCi/L (pico curies per liter) (red zones)." However, due to the lack of basements or other sub-grade levels in the buildings located on the Site, radon is not anticipated to adversely affect the Site buildings.

#### **D.12. Asbestos**

A visual assessment for damaged, potentially asbestos-containing material (ACM) was performed as part of this Phase I ESA Update. Construction of the buildings on the Site began in May 2005 and continued through the time of this Phase I ESA Update Site reconnaissance. The buildings were constructed of pre-cast concrete and concrete block exterior walls, with metal framing, typical retail interior finishes, and metal roofing support systems, all of which appeared to be in good condition at the time of the Site reconnaissance. Due to the age of the structures and the building materials' condition, no damaged potential ACM was noted during the Site reconnaissance. In our opinion, assessment of these materials would be recommended in the event of future renovation or demolition.

#### **D.13. Lead-Based Paint**

Based on the commercial use of the Site, a visual assessment for potential areas of lead-based paint was not performed as part of this Phase I ESA Update.

#### **D.14. Moisture Intrusion/Mold**

A visual assessment for moisture intrusion/mold was performed as part of this Phase I ESA Update. No areas of moisture intrusion or evidence of suspect fungal growth was noted in the buildings on the Site at the time of the Site reconnaissance. It should be noted that building and other Site improvement construction was on-going at the time of the Site visit and therefore, not all future tenant-occupied spaces were accessed.

### **E. Findings**

The following environmental conditions regarding the Site were noted:

- Information regarding the Site was available back to 1960. The information indicates that the Site was developed at that time as ranch land.

- Based on regulatory information, the Site is located in an area of known petroleum and non-petroleum groundwater impacts from facilities located in the down-gradient direction relative to the Site and each facility has been issued closure by the CDPHE.
- The Site was substantially developed with a new shopping center complex at the time of this assessment. Construction was underway on the remaining portions of the Site.
- Minor areas of oil/water condensate staining were noted in the vicinity of an air compressor in the Target building during the Site reconnaissance, however, no new staining was noted since the time of the March 2006 Phase I ESA.

## **F. Opinions**

### **F.1 Recognized Environmental Conditions**

A “recognized environmental condition,” as defined by ASTM Practice E 1527-00 is “The presence or likely presence of any hazardous substances or petroleum products on a property under conditions that indicate an existing release, a past release or a material threat of a release of any hazardous substances or petroleum products into structures on the property or into the ground, groundwater or surface water of the property. The term includes hazardous substances or petroleum products even under conditions of storage and use in compliance with local and state regulations.”

This assessment identified no recognized environmental conditions in connection with the Site.

### **F.2 Historical Recognized Environmental Conditions**

Historical Recognized Environmental Conditions are conditions that were or would have been considered to be Recognized Environmental Conditions in the past but because of further information or a change of conditions are no longer considered Recognized Environmental Conditions. This assessment identified no historical recognized environmental conditions in connection with the Site.

### **F.3 De Minimis Conditions**

A *de minimis* condition is a condition that generally does not present a material risk of harm to public health or the environment and that generally would not be the subject of an enforcement action if brought to the attention of regulatory governmental agencies.



The past uses of the Site for cultivated farmland/pastureland and the current use as a retail center, in our opinion, appear to represent a *de minimis* condition at the Site.

The government database records identified several facilities in the surrounding area. Based on factors that include the regulatory status, the distances of the facilities from the Site, and the locations of the facilities relative to the estimated direction of groundwater flow, the database listings in the surrounding area appear to represent *de minimis* conditions.

The oil/water condensate staining noted in the vicinity of the air compressor in the Target space appeared to represent a *de minimis* condition, due to the lack of compromised concrete flooring below it.

## **G. Conclusions**

We have performed this Phase I ESA Update of the Site in general conformance with the scope and limitations of ASTM Practice E 1527-00. Any exceptions to, or deletions from, this practice are described in Section A.3. of this report.

This assessment has revealed no indications of recognized environmental conditions in connection with the Site.

## **H. Recommendations**

Based on the current use of the property, we do not recommend additional environmental investigation regarding the Site.

## **I. Qualifications of Environmental Professionals**

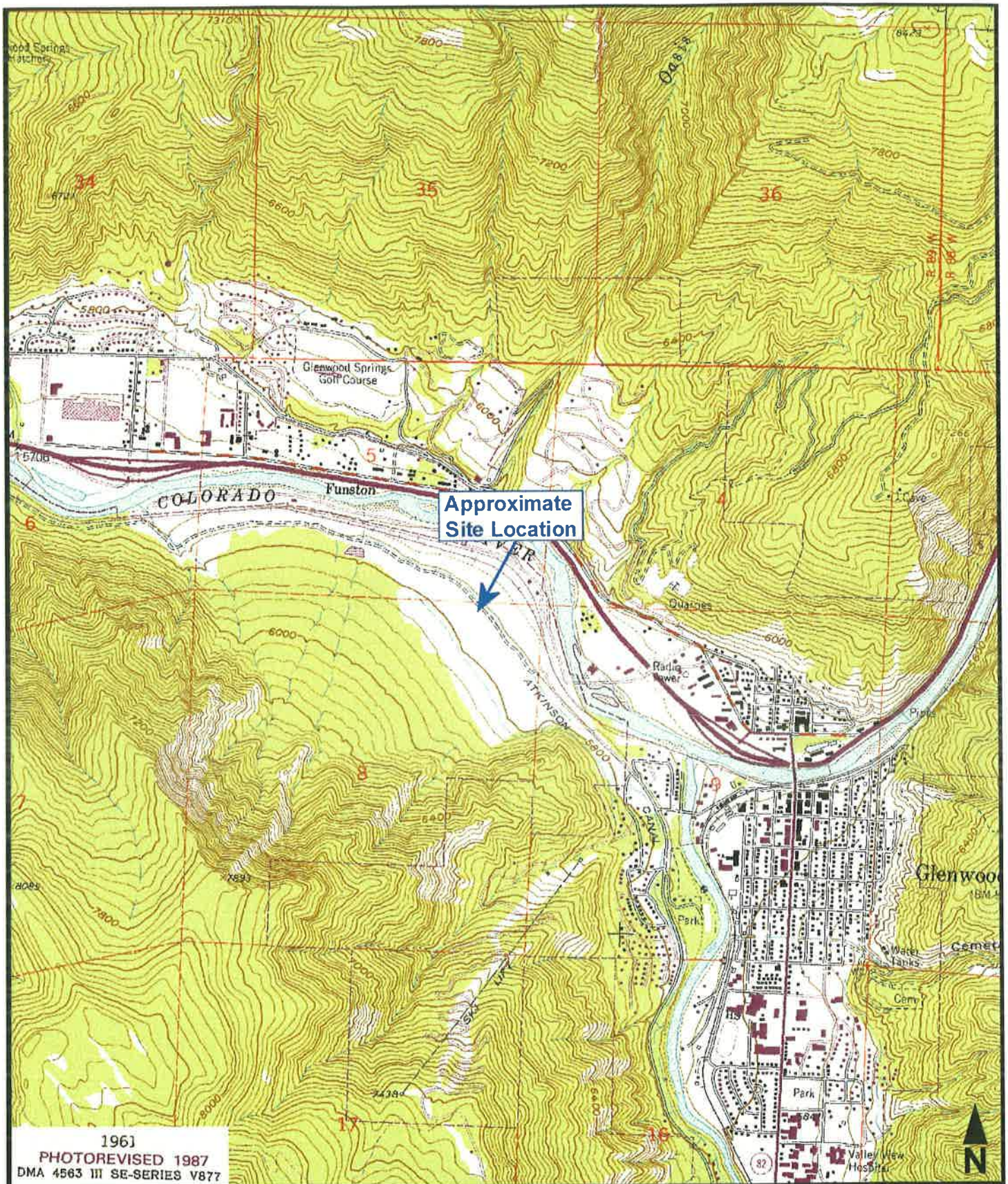
A Braun Intertec Statement of Qualifications for this Phase I ESA Update project will be provided to the User upon request.

## **I. References**

Standard Practice for Environmental Site Assessments: Phase I Environmental Site Assessment Process, 2000, Annual Book of ASTM Standards, Vol. 11.04, E 1527-00.

**Appendix A**  
**Site Location Map**





**BRAUN**  
INTERTEC

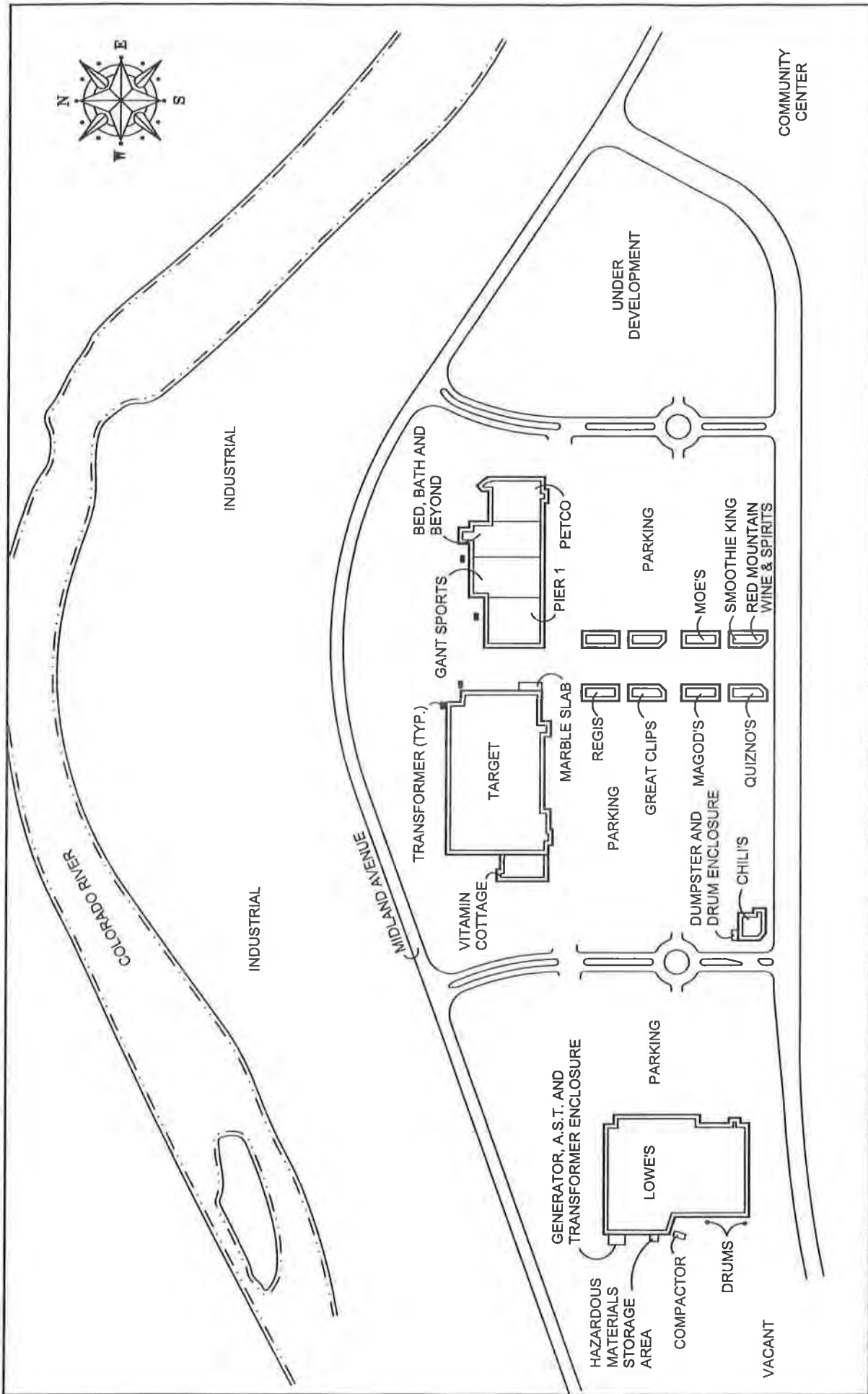
Site Location Map  
Phase I Environmental Site Assessment  
Glenwood Meadows Shopping Center  
Midland Avenue  
Glenwood Springs, Colorado

| USGS TOPOGRAPHIC MAP |             |
|----------------------|-------------|
| Glenwood Springs, CO |             |
| DATE:                | 3/8/2006    |
| JOB NO:              | BL-06-01019 |
| SCALE:               | 1 : 24,000  |
| DRAWN BY:            | DRS         |
| FIGURE NO:           | 1           |



## **Appendix B**

### **Site Sketch**



**BRAUN**  
**INTERTEC**

SITE SKETCH  
PHASE I ENVIRONMENTAL SITE ASSESSMENT UPDATE  
GLENWOOD MEADOWS SHOPPING CENTER  
MIDLAND AVENUE - GLENWOOD SPRINGS, COLORADO

| FIGURE NO. |  | INT                | DATE       |
|------------|--|--------------------|------------|
| 2          |  | DRAWN BY: JAG      | 3-21-06    |
|            |  | APP'D BY: RB       | 6-9-06     |
|            |  | JOB NO. BL0601019A |            |
|            |  | DWG. NO. BL0601019 | SHEET OF 1 |
|            |  | SCALE NONE         | 1          |

**Appendix C**

**Environmental Data Resources (EDR) Report**



**EDR®** Environmental  
Data Resources Inc

## **The EDR Radius Map™ Report**

**Glen Meadows Shopping Center  
Midland Avenue  
Glenwood Springs, CO 81601**

**Inquiry Number: 1678030.1s**

**May 17, 2006**

## **The Standard in Environmental Risk Management Information**

**440 Wheelers Farms Road  
Milford, Connecticut 06461**

### **Nationwide Customer Service**

**Telephone: 1-800-352-0050  
Fax: 1-800-231-6802  
Internet: [www.edrnet.com](http://www.edrnet.com)**

FORM NULL-CAR

## TABLE OF CONTENTS

| <u>SECTION</u>                                           | <u>PAGE</u> |
|----------------------------------------------------------|-------------|
| Executive Summary .....                                  | ES1         |
| Overview Map .....                                       | 2           |
| Detail Map .....                                         | 3           |
| Map Findings Summary .....                               | 4           |
| Map Findings .....                                       | 6           |
| Orphan Summary .....                                     | 12          |
| Government Records Searched/Data Currency Tracking ..... | GR-1        |

### GEOCHECK ADDENDUM

GeoCheck - Not Requested

*Thank you for your business.*  
Please contact EDR at 1-800-352-0050  
with any questions or comments.

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## EXECUTIVE SUMMARY

A search of available environmental records was conducted by Environmental Data Resources, Inc (EDR). The report was designed to assist parties seeking to meet the search requirements of EPA's Standards and Practices for All Appropriate Inquiries (40 CFR Part 312), the ASTM Standard Practice for Environmental Site Assessments (E 1527-05) or custom requirements developed for the evaluation of environmental risk associated with a parcel of real estate.

### TARGET PROPERTY INFORMATION

#### ADDRESS

MIDLAND AVENUE  
GLENWOOD SPRINGS, CO 81601

#### COORDINATES

|                                |                             |
|--------------------------------|-----------------------------|
| Latitude (North):              | 39.555300 - 39° 33' 19.1"   |
| Longitude (West):              | 107.342300 - 107° 20' 32.3" |
| Universal Transverse Mercator: | Zone 13                     |
| UTM X (Meters):                | 298755.1                    |
| UTM Y (Meters):                | 4380813.0                   |
| Elevation:                     | 5768 ft. above sea level    |

### USGS TOPOGRAPHIC MAP ASSOCIATED WITH TARGET PROPERTY

|                       |                               |
|-----------------------|-------------------------------|
| Target Property Map:  | 39107-E3 GLENWOOD SPRINGS, CO |
| Most Recent Revision: | 1987                          |

### TARGET PROPERTY SEARCH RESULTS

The target property was not listed in any of the databases searched by EDR.

### DATABASES WITH NO MAPPED SITES

No mapped sites were found in EDR's search of available ("reasonably ascertainable ") government records either on the target property or within the search radius around the target property for the following databases:

#### FEDERAL RECORDS

|                   |                                                                                      |
|-------------------|--------------------------------------------------------------------------------------|
| NPL.....          | National Priority List                                                               |
| Proposed NPL..... | Proposed National Priority List Sites                                                |
| Delisted NPL..... | National Priority List Deletions                                                     |
| NPL RECOVERY..... | Federal Superfund Liens                                                              |
| CERCLIS.....      | Comprehensive Environmental Response, Compensation, and Liability Information System |
| CERC-NFRAP.....   | CERCLIS No Further Remedial Action Planned                                           |
| RCRA-TSDF.....    | Resource Conservation and Recovery Act Information                                   |
| RCRA-LQG.....     | Resource Conservation and Recovery Act Information                                   |
| RCRA-SQG.....     | Resource Conservation and Recovery Act Information                                   |

## EXECUTIVE SUMMARY

|                      |                                                                                                                             |
|----------------------|-----------------------------------------------------------------------------------------------------------------------------|
| ERNS.....            | Emergency Response Notification System                                                                                      |
| HMIRS.....           | Hazardous Materials Information Reporting System                                                                            |
| US ENG CONTROLS..... | Engineering Controls Sites List                                                                                             |
| US INST CONTROL..... | Sites with Institutional Controls                                                                                           |
| DOD.....             | Department of Defense Sites                                                                                                 |
| FUDS.....            | Formerly Used Defense Sites                                                                                                 |
| US BROWNFIELDS.....  | A Listing of Brownfields Sites                                                                                              |
| CONSENT.....         | Superfund (CERCLA) Consent Decrees                                                                                          |
| ROD.....             | Records Of Decision                                                                                                         |
| UMTRA.....           | Uranium Mill Tailings Sites                                                                                                 |
| ODI.....             | Open Dump Inventory                                                                                                         |
| TRIS.....            | Toxic Chemical Release Inventory System                                                                                     |
| TSCA.....            | Toxic Substances Control Act                                                                                                |
| FTTS.....            | FIFRA/ TSCA Tracking System - FIFRA (Federal Insecticide, Fungicide, & Rodenticide Act)/TSCA (Toxic Substances Control Act) |
| SSTS.....            | Section 7 Tracking Systems                                                                                                  |
| ICIS.....            | Integrated Compliance Information System                                                                                    |
| PADS.....            | PCB Activity Database System                                                                                                |
| MLTS.....            | Material Licensing Tracking System                                                                                          |
| MINES.....           | Mines Master Index File                                                                                                     |
| FINDS.....           | Facility Index System/Facility Registry System                                                                              |
| RAATS.....           | RCRA Administrative Action Tracking System                                                                                  |

### STATE AND LOCAL RECORDS

|                            |                                                                                              |
|----------------------------|----------------------------------------------------------------------------------------------|
| SHWS.....                  | This state does not maintain a SHWS list. See the Federal CERCLIS list and Federal NPL list. |
| METHANE SITE.....          | Methane Site Investigations - Jefferson County 1980                                          |
| SWF/LF.....                | Solid Waste Sites & Facilities                                                               |
| Methane Investigation..... | Methane Gas & Swamp Findings                                                                 |
| HISTORICAL LANDFILL.....   | Historical Landfill List                                                                     |
| CO TRUST.....              | Lust Trust Sites                                                                             |
| UST.....                   | Underground Storage Tank Database                                                            |
| AST.....                   | Aboveground Tank List                                                                        |
| CO ERNS.....               | Spills Database                                                                              |
| AUL.....                   | Environmental Real Covenants List                                                            |
| VCP.....                   | Voluntary Cleanup & Redevelopment Act Application Tracking Report                            |
| DRYCLEANERS.....           | Drycleaner Facilities                                                                        |
| CDL.....                   | Meth Lab Locations                                                                           |
| UMTRA.....                 | Uranium Mill Tailings Sites                                                                  |

### TRIBAL RECORDS

|                    |                                                  |
|--------------------|--------------------------------------------------|
| INDIAN RESERV..... | Indian Reservations                              |
| INDIAN LUST.....   | Leaking Underground Storage Tanks on Indian Land |
| INDIAN UST.....    | Underground Storage Tanks on Indian Land         |

### EDR PROPRIETARY RECORDS

**Manufactured Gas Plants...** EDR Proprietary Manufactured Gas Plants

### SURROUNDING SITES: SEARCH RESULTS

Surrounding sites were identified.

## EXECUTIVE SUMMARY

Elevations have been determined from the USGS Digital Elevation Model and should be evaluated on a relative (not an absolute) basis. Relative elevation information between sites of close proximity should be field verified. Sites with an elevation equal to or higher than the target property have been differentiated below from sites with an elevation lower than the target property. Page numbers and map identification numbers refer to the EDR Radius Map report where detailed data on individual sites can be reviewed.

Sites listed in ***bold italics*** are in multiple databases.

Unmappable (orphan) sites are not considered in the foregoing analysis.

### FEDERAL RECORDS

**CORRACTS:** CORRACTS is a list of handlers with RCRA Corrective Action Activity. This report shows which nationally-defined corrective action core events have occurred for every handler that has had corrective action activity.

A review of the CORRACTS list, as provided by EDR, and dated 03/15/2006 has revealed that there is 1 CORRACTS site within approximately 1 mile of the target property.

| <u>Lower Elevation</u>             | <u>Address</u>                   | <u>Dist / Dir</u>          | <u>Map ID</u>    | <u>Page</u>     |
|------------------------------------|----------------------------------|----------------------------|------------------|-----------------|
| <b><i>EIMCO COAL MACHINERY</i></b> | <b><i>2222 DEVERUEX ROAD</i></b> | <b><i>1/4 - 1/2ESE</i></b> | <b><i>A3</i></b> | <b><i>7</i></b> |

### STATE AND LOCAL RECORDS

**LUST:** The Leaking Underground Storage Tank Incident Reports contain an inventory of reported leaking underground storage tank incidents. The data come from the Department of Health's Leaking Underground Storage Tank List.

A review of the LUST list, as provided by EDR, and dated 04/04/2006 has revealed that there are 3 LUST sites within approximately 0.5 miles of the target property.

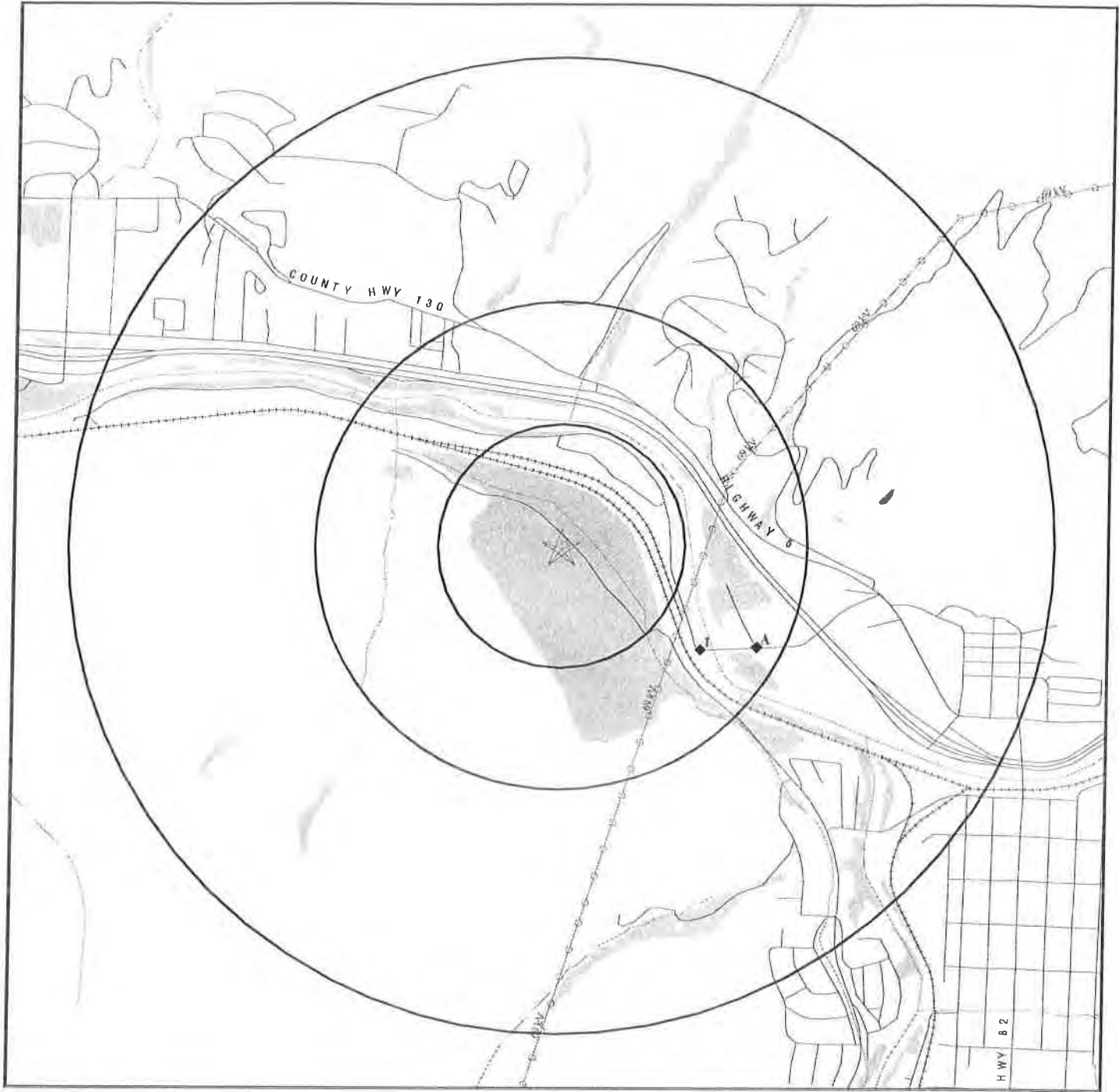
| <u>Lower Elevation</u>                                                | <u>Address</u>                  | <u>Dist / Dir</u>          | <u>Map ID</u>    | <u>Page</u>     |
|-----------------------------------------------------------------------|---------------------------------|----------------------------|------------------|-----------------|
| GLENWOOD SPRINGS SECTION<br>Status: Closed                            | DEVEREUX RD / DEVEREU           | 1/4 - 1/2 SE               | 1                | 6               |
| <b><i>CDOT GLENWOOD SPRINGS</i></b><br>Status: Closed<br>Status: Open | <b><i>202 CENTENNIAL ST</i></b> | <b><i>1/4 - 1/2ESE</i></b> | <b><i>A2</i></b> | <b><i>6</i></b> |
| EIMCO / GLENWOOD INDUSTRIAL LL<br>Status: Closed                      | 2222 DEVERUEX RD                | 1/4 - 1/2ESE               | A4               | 11              |

## EXECUTIVE SUMMARY

Due to poor or inadequate address information, the following sites were not mapped:

| <u>Site Name</u>                      | <u>Database(s)</u>       |
|---------------------------------------|--------------------------|
| CACALOCO COMPOST FACILITY             | SWF/LF                   |
| CANYON CLNRS                          | DRYCLEANERS              |
| BFI INGELHART BUILDING                | LUST                     |
| REY MOTORS INC                        | LUST, UST                |
| TOMAHAWK TRUCK STOP                   | LUST, UST, AST, CO TRUST |
| SECURITY LEASING INC PROPERTY         | LUST, CO TRUST           |
| HOLY CROSS ELECTRIC ASSOC INC         | LUST                     |
| ORRISON DISTRIBUTING                  | LUST, UST                |
| THUNDER RIVER MARKET                  | LUST, UST                |
| 1172 AIRPORT CENTER                   | LUST, CO ERNS            |
| BROWNING-FERRIS INDUSTRIES            | UST                      |
| UPS GLENWOOD SPRINGS CENTER           | UST                      |
| THE DRY DOCK                          | AST                      |
| RENT-X                                | AST                      |
| GARCO GLENWOOD SHOP                   | AST                      |
| AMERIGAS                              | AST                      |
| ROBO CAR WASH                         | AST                      |
| WILLIAMS ENERGY PLANT                 | AST                      |
| BIG JOHNS BUILDING AND HOME CENTER    | AST                      |
| JIMS DOXOL GAS & APPLIANCES           | AST                      |
| MUNICIPAL OPERATIONS CENTER           | AST                      |
| KN ENERGY INC-ROCKY MTN NATURAL GAS D | RCRA-SQG, FINDS          |
| NELSON'S AUTO BODY INC                | RCRA-SQG, FINDS          |

# OVERVIEW MAP - 1678030.1s



- \* Target Property
- ▲ Sites at elevations higher than or equal to the target property
- ◆ Sites at elevations lower than the target property
- ▲ Manufactured Gas Plants
- National Priority List Sites
- Landfill Sites
- Dept. Defense Sites

- Indian Reservations BIA
- ~ Power transmission lines
- ~ Oil & Gas pipelines
- National Wetland Inventory
- State Wetlands

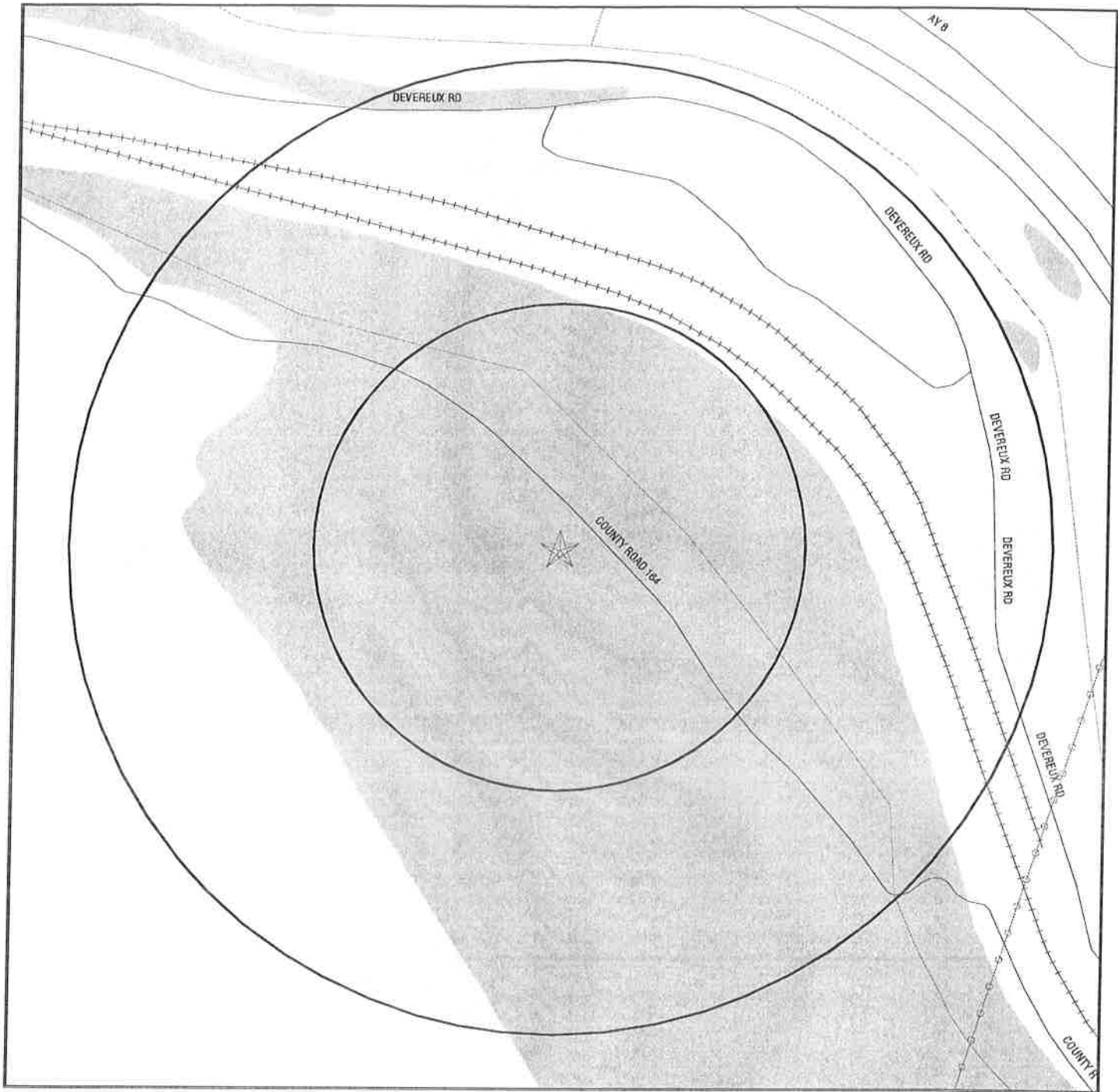
0 1/4 1/2 1 Miles

SITE NAME: Glen Meadows Shopping Center  
 ADDRESS: Midland Avenue  
 Glenwood Springs CO 81601  
 LAT/LONG: 39.5553 / 107.3423

CLIENT: Braun Intertec Corporation  
 CONTACT: Rebecca Bourdon  
 INQUIRY #: 1678030.1s  
 DATE: May 17, 2006

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# DETAIL MAP - 1678030.1s



- ★ Target Property
- ▲ Sites at elevations higher than or equal to the target property
- ◆ Sites at elevations lower than the target property
- ▲ Manufactured Gas Plants
- ✱ Sensitive Receptors
- National Priority List Sites
- Landfill Sites
- Dept. Defense Sites
- Indian Reservations BIA
- ~ Power transmission lines
- ~ Oil & Gas pipelines
- National Wetland Inventory
- State Wetlands

SITE NAME: Glen Meadows Shopping Center  
 ADDRESS: Midland Avenue  
 Glenwood Springs CO 81601  
 LAT/LONG: 39.5553 / 107.3423

CLIENT: Braun Intertec Corporation  
 CONTACT: Rebecca Bourdon  
 INQUIRY #: 1678030.1s  
 DATE: May 17, 2006

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## MAP FINDINGS SUMMARY

| Database                              | Target<br>Property | Search<br>Distance<br>(Miles) | < 1/8 | 1/8 - 1/4 | 1/4 - 1/2 | 1/2 - 1 | > 1 | Total<br>Plotted |
|---------------------------------------|--------------------|-------------------------------|-------|-----------|-----------|---------|-----|------------------|
| <b><u>FEDERAL RECORDS</u></b>         |                    |                               |       |           |           |         |     |                  |
| NPL                                   |                    | 1.000                         | 0     | 0         | 0         | 0       | NR  | 0                |
| Proposed NPL                          |                    | 1.000                         | 0     | 0         | 0         | 0       | NR  | 0                |
| Delisted NPL                          |                    | 1.000                         | 0     | 0         | 0         | 0       | NR  | 0                |
| NPL RECOVERY                          | TP                 |                               | NR    | NR        | NR        | NR      | NR  | 0                |
| CERCLIS                               |                    | 0.500                         | 0     | 0         | 0         | NR      | NR  | 0                |
| CERC-NFRAP                            |                    | 0.500                         | 0     | 0         | 0         | NR      | NR  | 0                |
| CORRACTS                              |                    | 1.000                         | 0     | 0         | 1         | 0       | NR  | 1                |
| RCRA TSD                              |                    | 0.500                         | 0     | 0         | 0         | NR      | NR  | 0                |
| RCRA Lg. Quan. Gen.                   |                    | 0.250                         | 0     | 0         | NR        | NR      | NR  | 0                |
| RCRA Sm. Quan. Gen.                   |                    | 0.250                         | 0     | 0         | NR        | NR      | NR  | 0                |
| ERNS                                  | TP                 |                               | NR    | NR        | NR        | NR      | NR  | 0                |
| HMIRS                                 | TP                 |                               | NR    | NR        | NR        | NR      | NR  | 0                |
| US ENG CONTROLS                       |                    | 0.500                         | 0     | 0         | 0         | NR      | NR  | 0                |
| US INST CONTROL                       |                    | 0.500                         | 0     | 0         | 0         | NR      | NR  | 0                |
| DOD                                   |                    | 1.000                         | 0     | 0         | 0         | 0       | NR  | 0                |
| FUDS                                  |                    | 1.000                         | 0     | 0         | 0         | 0       | NR  | 0                |
| US BROWNFIELDS                        |                    | 0.500                         | 0     | 0         | 0         | NR      | NR  | 0                |
| CONSENT                               |                    | 1.000                         | 0     | 0         | 0         | 0       | NR  | 0                |
| ROD                                   |                    | 1.000                         | 0     | 0         | 0         | 0       | NR  | 0                |
| UMTRA                                 |                    | 0.500                         | 0     | 0         | 0         | NR      | NR  | 0                |
| ODI                                   |                    | 0.500                         | 0     | 0         | 0         | NR      | NR  | 0                |
| TRIS                                  | TP                 |                               | NR    | NR        | NR        | NR      | NR  | 0                |
| TSCA                                  | TP                 |                               | NR    | NR        | NR        | NR      | NR  | 0                |
| FTTS                                  | TP                 |                               | NR    | NR        | NR        | NR      | NR  | 0                |
| SSTS                                  | TP                 |                               | NR    | NR        | NR        | NR      | NR  | 0                |
| ICIS                                  | TP                 |                               | NR    | NR        | NR        | NR      | NR  | 0                |
| PADS                                  | TP                 |                               | NR    | NR        | NR        | NR      | NR  | 0                |
| MLTS                                  | TP                 |                               | NR    | NR        | NR        | NR      | NR  | 0                |
| MINES                                 |                    | 0.250                         | 0     | 0         | NR        | NR      | NR  | 0                |
| FINDS                                 | TP                 |                               | NR    | NR        | NR        | NR      | NR  | 0                |
| RAATS                                 | TP                 |                               | NR    | NR        | NR        | NR      | NR  | 0                |
| <b><u>STATE AND LOCAL RECORDS</u></b> |                    |                               |       |           |           |         |     |                  |
| State Haz. Waste                      |                    | N/A                           | N/A   | N/A       | N/A       | N/A     | N/A | N/A              |
| Methane Site                          | TP                 |                               | NR    | NR        | NR        | NR      | NR  | 0                |
| State Landfill                        |                    | 0.500                         | 0     | 0         | 0         | NR      | NR  | 0                |
| Methane Investigation                 | TP                 |                               | NR    | NR        | NR        | NR      | NR  | 0                |
| Historical Landfill                   |                    | 0.500                         | 0     | 0         | 0         | NR      | NR  | 0                |
| LUST                                  |                    | 0.500                         | 0     | 0         | 3         | NR      | NR  | 3                |
| CO TRUST                              |                    | 0.500                         | 0     | 0         | 0         | NR      | NR  | 0                |
| UST                                   |                    | 0.250                         | 0     | 0         | NR        | NR      | NR  | 0                |
| AST                                   |                    | 0.250                         | 0     | 0         | NR        | NR      | NR  | 0                |
| CO ERNS                               | TP                 |                               | NR    | NR        | NR        | NR      | NR  | 0                |
| AUL                                   |                    | 0.500                         | 0     | 0         | 0         | NR      | NR  | 0                |
| VCP                                   |                    | 0.500                         | 0     | 0         | 0         | NR      | NR  | 0                |
| DRYCLEANERS                           |                    | 0.250                         | 0     | 0         | NR        | NR      | NR  | 0                |
| CDL                                   | TP                 |                               | NR    | NR        | NR        | NR      | NR  | 0                |

## MAP FINDINGS SUMMARY

| Database                              | Target<br>Property | Search<br>Distance<br>(Miles) | < 1/8 | 1/8 - 1/4 | 1/4 - 1/2 | 1/2 - 1 | > 1 | Total<br>Plotted |
|---------------------------------------|--------------------|-------------------------------|-------|-----------|-----------|---------|-----|------------------|
| UMTRA                                 |                    | 0.500                         | 0     | 0         | 0         | NR      | NR  | 0                |
| <b><u>TRIBAL RECORDS</u></b>          |                    |                               |       |           |           |         |     |                  |
| INDIAN RESERV                         |                    | 1.000                         | 0     | 0         | 0         | 0       | NR  | 0                |
| INDIAN LUST                           |                    | 0.500                         | 0     | 0         | 0         | NR      | NR  | 0                |
| INDIAN UST                            |                    | 0.250                         | 0     | 0         | NR        | NR      | NR  | 0                |
| <b><u>EDR PROPRIETARY RECORDS</u></b> |                    |                               |       |           |           |         |     |                  |
| Manufactured Gas Plants               |                    | 1.000                         | 0     | 0         | 0         | 0       | NR  | 0                |

### NOTES:

TP = Target Property

NR = Not Requested at this Search Distance

Sites may be listed in more than one database

N/A = This State does not maintain a SHWS list. See the Federal CERCLIS list.



Map ID  
Direction  
Distance  
Distance (ft.)  
Elevation

MAP FINDINGS

Site

Database(s)

EDR ID Number  
EPA ID Number

**1**  
**SE**  
**1/4-1/2**  
**1873 ft.**

**GLENWOOD SPRINGS SECTION**  
**DEVEREUX RD / DEVEREUX LN**  
**GLENWOOD SPRINGS, CO 81601**

**LUST** **S105567815**  
**N/A**

**Relative:**  
**Lower**

**LUST:**

Log Date: 02/26/98  
Event ID: 6363

**Actual:**  
**5723 ft.**

Facility Addr 2: RAILROAD GLENWOOD SPRINGS CO 81601  
Status: Closed

**A2**  
**ESE**  
**1/4-1/2**  
**2372 ft.**

**CDOT GLENWOOD SPRINGS**  
**202 CENTENNIAL ST**  
**GLENWOOD SPRINGS, CO 81601**

**LUST** **U003806853**  
**UST** **N/A**

**Relative:**  
**Lower**

**Site 1 of 3 in cluster A**

**LUST:**

Log Date: 08/17/92  
Event ID: 784

**Actual:**  
**5727 ft.**

Facility Addr 2: 202 CENTENNIAL ST GLENWOOD SPRINGS CO 81601  
Status: Closed

Log Date: 06/10/05  
Event ID: 9806

Facility Addr 2: 202 CENTENNIAL ST GLENWOOD SPRINGS CO 81601  
Status: Open

**UST:**

Facility ID: 7564  
Owner Name: CDOT  
Owner Address: 606 S 9TH ST  
GRAND JUNCTION, CO 81501

Owner ID: 1047  
Tank ID: 19911  
Tank Count: 23026  
Tank Tag: '7564-1  
Tank Type: UST  
Facility Status: CLOSED  
Tank Owner: Not reported  
Tank Capacity: 10000  
Tank Chemical: 4 - Diesel

Facility ID: 7564  
Owner Name: CDOT  
Owner Address: 606 S 9TH ST  
GRAND JUNCTION, CO 81501

Owner ID: 1047  
Tank ID: 19912  
Tank Count: 23026  
Tank Tag: '7564-2  
Tank Type: UST  
Facility Status: CLOSED  
Tank Owner: Not reported  
Tank Capacity: 10000  
Tank Chemical: Gasoline

Map ID  
Direction  
Distance  
Distance (ft.)  
Elevation

MAP FINDINGS

CDOT GLENWOOD SPRINGS (Continued)

EDR ID Number  
EPA ID Number

Database(s)

U003806853

Facility ID: 7564  
Owner Name: CDOT  
Owner Address: 606 S 9TH ST  
GRAND JUNCTION, CO 81501  
Owner ID: 1047  
Tank ID: 19913  
Tank Count: 23026  
Tank Tag: '7564-3  
Tank Type: UST  
Facility Status: CLOSED  
Tank Owner: Not reported  
Tank Capacity: 6000  
Tank Chemical: Gasoline

Facility ID: 7564  
Owner Name: CDOT  
Owner Address: 606 S 9TH ST  
GRAND JUNCTION, CO 81501  
Owner ID: 1047  
Tank ID: 19914  
Tank Count: 23026  
Tank Tag: '7564-4  
Tank Type: UST  
Facility Status: CLOSED  
Tank Owner: Not reported  
Tank Capacity: 1000  
Tank Chemical: 6 - Used Oil (Waste Oil)

A3  
ESE  
1/4-1/2  
2454 ft.  
EIMCO COAL MACHINERY  
2222 DEVERUEX ROAD  
GLENWOOD SPRINGS, CO 81601

RCRA-SQG 1000210929  
FINDS COD981544786  
CORRACTS

Relative:  
Lower

Site 2 of 3 in cluster A

CORRACTS Data:

Actual:  
5730 ft.

EPA Id: COD981544786  
Region: 08  
Area Name: SITE:GROUNDWATER  
Actual Date: 04/21/2000  
Corrective Action: CA550 - Certification Of Remedy Completion Or Construction Completion  
2002 NAICS Title: Not reported

EPA Id: COD981544786  
Region: 08  
Area Name: ENTIRE FACILITY  
Actual Date: 05/01/2000  
Corrective Action: CA725YE - Current Human Exposures Under Control, Yes, Current Human Exposures Under Control has been verified  
2002 NAICS Title: Not reported

EPA Id: COD981544786  
Region: 08  
Area Name: SITE:GROUNDWATER  
Actual Date: 05/01/2000  
Corrective Action: CA725YE - Current Human Exposures Under Control, Yes, Current Human Exposures Under Control has been verified  
2002 NAICS Title: Not reported

Map ID  
Direction  
Distance  
Distance (ft.)  
Elevation    Site

MAP FINDINGS

Database(s)    EDR ID Number  
EPA ID Number

EIMCO COAL MACHINERY (Continued)

1000210929

EPA Id: COD981544786  
Region: 08  
Area Name: ENTIRE FACILITY  
Actual Date: 05/01/2000  
Corrective Action: CA725YE - Current Human Exposures Under Control, Yes, Current Human Exposures Under Control has been verified  
2002 NAICS Title: Not reported

EPA Id: COD981544786  
Region: 08  
Area Name: ENTIRE FACILITY  
Actual Date: 05/01/2000  
Corrective Action: CA999RM - Corrective Action Process Terminated, Remedial Activities Completed  
2002 NAICS Title: Not reported

[Click this hyperlink](#) while viewing on your computer to access  
35 additional CORRACTS record(s) in the EDR Site Report.

RCRAInfo Corrective Action Summary:

Event: Current Human Exposures under Control, Yes, Current Human Exposures Under Control has been verified. Based on a review of information contained in the EI determination, current human exposures are expected to be under control at the facility under current and reasonably expected conditions. This determination will be re-evaluated when the Agency/State becomes aware of significant changes at the facility.

Event Date: 05/01/2000

Event: Current Human Exposures under Control, Yes, Current Human Exposures Under Control has been verified. Based on a review of information contained in the EI determination, current human exposures are expected to be under control at the facility under current and reasonably expected conditions. This determination will be re-evaluated when the Agency/State becomes aware of significant changes at the facility.

Event Date: 05/01/2000

Event: Igration of Contaminated Groundwater under Control, Yes, Migration of Contaminated Groundwater Under Control has been verified. Based on a review of information contained in the EI determination, it has been determined that migration of contaminated groundwater is under control at the facility. Specifically, this determination indicates that the migration of contaminated groundwater is under control, and that monitoring will be conducted to confirm that contaminated groundwater remains within the existing area of contaminated groundwater. This determination will be re-evaluated when the Agency becomes aware of significant changes at the facility.

Event Date: 05/01/2000

Event: Igration of Contaminated Groundwater under Control, Yes, Migration of Contaminated Groundwater Under Control has been verified. Based on a review of information contained in the EI determination, it has been determined that migration of contaminated groundwater is under control at the facility. Specifically, this determination indicates that the migration of contaminated groundwater is under control, and that monitoring will be conducted to confirm that contaminated groundwater remains within the existing area of contaminated groundwater. This determination will be re-evaluated when the Agency becomes aware of significant changes at the facility.

Event Date: 05/01/2000

Map ID  
Direction  
Distance  
Distance (ft.)  
Elevation

MAP FINDINGS

**EIMCO COAL MACHINERY (Continued)**

EDR ID Number  
EPA ID Number

Database(s)

1000210929

Event: Corrective Action Process Terminated, Remedial Activities Completed  
Event Date: 05/01/2000

Event: Corrective Action Process Terminated, Remedial Activities Completed  
Event Date: 05/01/2000

Event: Certification Of Remedy Completion Or Construction Completion  
Event Date: 04/21/2000

Event: CMS Workplan Approved  
Event Date: 05/20/1999

Event: Date For Remedy Selection (CM Imposed)  
Event Date: 05/20/1999

Event: CMI Workplan Approved  
Event Date: 05/20/1999

Event: Corrective Measures Design Approved  
Event Date: 05/20/1999

Event: CA Prioritization, Facility or area was assigned a low corrective action priority.  
Event Date: 08/11/1995

Event: Stabilization Measures Evaluation, This facility is amenable to stabilization activity based on the status of corrective action work at the facility, technical factors, the degree of risk, timing considerations and administrative considerations.  
Event Date: 08/01/1995

Event: Current Human Exposures under Control, Yes, Current Human Exposures Under Control has been verified. Based on a review of information contained in the EI determination, current human exposures are expected to be under control at the facility under current and reasonably expected conditions. This determination will be re-evaluated when the Agency/State becomes aware of significant changes at the facility.  
Event Date: 08/01/1995

Event: Igration of Contaminated Groundwater under Control, Yes, Migration of Contaminated Groundwater Under Control has been verified. Based on a review of information contained in the EI determination, it has been determined that migration of contaminated groundwater is under control at the facility. Specifically, this determination indicates that the migration of contaminated groundwater is under control, and that monitoring will be conducted to confirm that contaminated groundwater remains within the existing area of contaminated groundwater. This determination will be re-evaluated when the Agency becomes aware of significant changes at the facility.  
Event Date: 08/01/1995

Event: Stabilization Measures Implemented, Primary measure is source removal and/or treatment (e.g., soil or waste excavation, in-situ soil treatment, off-site treatment).  
Event Date: 11/07/1993

Map ID  
Direction  
Distance  
Distance (ft.)  
Elevation

MAP FINDINGS

**EIMCO COAL MACHINERY (Continued)**

EDR ID Number  
EPA ID Number

Database(s)

**1000210929**

Event: RFI Approved  
Event Date: 06/10/1993  
  
Event: CMS Workplan Approved  
Event Date: 06/10/1993  
  
Event: CMI Workplan Approved  
Event Date: 06/10/1993  
  
Event: Corrective Measures Design Approved  
Event Date: 06/10/1993  
  
Event: RFI Workplan Approved  
Event Date: 11/24/1992  
  
Event: Notice of Contamination  
Event Date: 05/26/1992  
  
Event: RFI Imposition  
Event Date: 07/24/1991  
  
Event: CA006AC  
Event Date: 09/07/1990  
  
Event: RFA Completed  
Event Date: 09/07/1990

**RCRAInfo:**

Owner: BAKER INTERNATIONAL  
(999) 999-9999  
EPA ID: COD981544786  
Contact: Not reported

Classification: Small Quantity Generator  
TSDF Activities: Not reported

Violation Status: Violations exist

Regulation Violated: Not reported  
Area of Violation: GENERATOR-OTHER REQUIREMENTS  
Date Violation Determined: 03/28/1992  
Actual Date Achieved Compliance: 05/08/1992

Enforcement Action: FINAL 3008(A) COMPLIANCE ORDER  
Enforcement Action Date: 04/15/1992  
Penalty Type: Proposed Monetary Penalty

Regulation Violated: Not reported  
Area of Violation: GENERATOR-ALL REQUIREMENTS (OVERSIGHT)  
Date Violation Determined: 09/07/1990  
Actual Date Achieved Compliance: 04/15/1992

Enforcement Action: FINAL 3008(A) COMPLIANCE ORDER  
Enforcement Action Date: 09/04/1991  
Penalty Type: Not reported

Enforcement Action: INITIAL 3008(A) COMPLIANCE ORDER  
Enforcement Action Date: 03/26/1991  
Penalty Type: Not reported

Regulation Violated: Not reported  
Area of Violation: GENERATOR-ALL REQUIREMENTS (OVERSIGHT)  
Date Violation Determined: 05/06/1988  
Actual Date Achieved Compliance: 06/05/1988

Map ID  
Direction  
Distance  
Distance (ft.)  
Elevation

MAP FINDINGS

**EIMCO COAL MACHINERY (Continued)**

EDR ID Number  
EPA ID Number

Database(s)

**1000210929**

Enforcement Action: WRITTEN INFORMAL  
Enforcement Action Date: 05/20/1988  
Penalty Type: Not reported

**Penalty Summary:**

| <u>Penalty Description</u> | <u>Penalty Date</u> | <u>Penalty Amount</u> | <u>Lead Agency</u> |
|----------------------------|---------------------|-----------------------|--------------------|
| Final Monetary Penalty     | 4/15/1992           | 17100                 | STATE              |
| Proposed Monetary Penalty  | 4/15/1992           | 17100                 | STATE              |

There are 3 violation record(s) reported at this site:

| <u>Evaluation</u>                | <u>Area of Violation</u>               | <u>Date of Compliance</u> |
|----------------------------------|----------------------------------------|---------------------------|
| Compliance Evaluation Inspection | GENERATOR-ALL REQUIREMENTS (OVERSIGHT) | 19920415                  |
|                                  | GENERATOR-OTHER REQUIREMENTS           | 19920508                  |
| Other Evaluation                 | GENERATOR-OTHER REQUIREMENTS           | 19920508                  |
| Non-Financial Record Review      | GENERATOR-ALL REQUIREMENTS (OVERSIGHT) | 19880605                  |

**FINDS:**

Other Pertinent Environmental Activity Identified at Site:  
ECOREGION MAP  
RESOURCE CONSERVATION AND RECOVERY ACT INFORMATION SYSTEM

**A4  
ESE  
1/4-1/2  
2454 ft.**

**EIMCO / GLENWOOD INDUSTRIAL LLC SITE  
2222 DEVERUEX RD  
GLENWOOD SPRINGS, CO 81601**

**LUST S105567102  
N/A**

**Site 3 of 3 in cluster A**

**Relative:  
Lower**

**Actual:  
5730 ft.**

**LUST:**  
Log Date: 06/07/00  
Event ID: 8234  
Facility Addr 2: 2222 DEVEREAUX RD GLENWOOD SPRINGS CO 81601  
Status: **Closed**

## ORPHAN SUMMARY

| City             | EDR ID     | Site Name                             | Site Address                                | Zip   | Database(s)              |
|------------------|------------|---------------------------------------|---------------------------------------------|-------|--------------------------|
| DELTA            | 1004679605 | KN ENERGY INC-ROCKY MTN NATURAL GAS D | 580 HWY 92                                  | 81601 | RCRA-SQG, FINDS          |
| GARFIELD         | S106913318 | CANYON CLNRS                          | 3772 HWY 82                                 | 81601 | DRYCLEANERS              |
| GLENWOOD SPRINGS | A100288739 | THE DRY DOCK                          | 44761 HWY 6                                 | 81601 | AST                      |
| GLENWOOD SPRINGS | A100288840 | RENT-X                                | 51537 HWY 6 & 24                            | 81601 | AST                      |
| GLENWOOD SPRINGS | S107554854 | BFI INGELHART BUILDING                | 50633 HWY 6 / 24                            | 81601 | LUST                     |
| GLENWOOD SPRINGS | U003241279 | REY MOTORS INC                        | 51457 HWY 6 & 24                            | 81601 | LUST, UST                |
| GLENWOOD SPRINGS | U003241456 | TOMAHAWK TRUCK STOP                   | 51171 HWY 6 & 24                            | 81601 | LUST, UST, AST, CO TRUST |
| GLENWOOD SPRINGS | U003400929 | BROWNING-FERRIS INDUSTRIES            | 50633 HWY 6 & 24                            | 81601 | UST                      |
| GLENWOOD SPRINGS | 1004679157 | NELSON'S AUTO BODY INC                | 6776 HWY 82                                 | 81601 | RCRA-SQG, FINDS          |
| GLENWOOD SPRINGS | A100268695 | GARCO GLENWOOD SHOP                   | 7300 HWY 82                                 | 81601 | AST                      |
| GLENWOOD SPRINGS | A100289060 | AMERIGAS                              | 7833 HWY 82                                 | 81601 | AST                      |
| GLENWOOD SPRINGS | A100289256 | ROBO CAR WASH                         | HWY 82                                      | 81601 | AST                      |
| GLENWOOD SPRINGS | A100289257 | WILLIAMS ENERGY PLANT                 | HWY 82                                      | 81601 | AST                      |
| GLENWOOD SPRINGS | S102720211 | SECURITY LEASING INC PROPERTY         | 3766 HWY 82                                 | 81601 | LUST, CO TRUST           |
| GLENWOOD SPRINGS | S104318348 | HOLY CROSS ELECTRIC ASSOC INC         | 3799 HWY 82                                 | 81601 | LUST                     |
| GLENWOOD SPRINGS | U003241162 | ORRISON DISTRIBUTING                  | 4919 HWY 82                                 | 81601 | LUST, UST                |
| GLENWOOD SPRINGS | U003241449 | THUNDER RIVER MARKET                  | 6818 HWY 82                                 | 81601 | LUST, UST                |
| GLENWOOD SPRINGS | S104300590 | CACALOCO COMPOST FACILITY             | 1172 AIRPORT CENTER                         | 81601 | LUST, CO ERNS            |
| GLENWOOD SPRINGS | S103485585 | BIG JOHNS BUILDING AND HOME CENTER    | 1250 COUNTY ROAD 134 @SOUTH CANYON LANDFILL | 81601 | SWF/LF                   |
| GLENWOOD SPRINGS | A100288103 | JIMS DOXOL GAS & APPLIANCES           | 1210 DEVEREUX RD                            | 81601 | AST                      |
| GLENWOOD SPRINGS | A100288199 | UPS GLENWOOD SPRINGS CENTER           | 1504 E HWY 40                               | 81601 | AST                      |
| GLENWOOD SPRINGS | U003120152 | MUNICIPAL OPERATIONS CENTER           | 0771 MORAND DR                              | 81601 | UST                      |
| GLENWOOD SPRINGS | A100209180 |                                       | 2301 WULFSOHN RD                            | 81601 | AST                      |

## GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

To maintain currency of the following federal and state databases, EDR contacts the appropriate governmental agency on a monthly or quarterly basis, as required.

**Number of Days to Update:** Provides confirmation that EDR is reporting records that have been updated within 90 days from the date the government agency made the information available to the public.

### FEDERAL RECORDS

#### **NPL:** National Priority List

National Priorities List (Superfund). The NPL is a subset of CERCLIS and identifies over 1,200 sites for priority cleanup under the Superfund Program. NPL sites may encompass relatively large areas. As such, EDR provides polygon coverage for over 1,000 NPL site boundaries produced by EPA's Environmental Photographic Interpretation Center (EPIC) and regional EPA offices.

|                                         |                                        |
|-----------------------------------------|----------------------------------------|
| Date of Government Version: 02/24/2006  | Source: EPA                            |
| Date Data Arrived at EDR: 03/01/2006    | Telephone: N/A                         |
| Date Made Active in Reports: 03/31/2006 | Last EDR Contact: 05/05/2006           |
| Number of Days to Update: 30            | Next Scheduled EDR Contact: 07/31/2006 |
|                                         | Data Release Frequency: Quarterly      |

#### **NPL Site Boundaries**

##### Sources:

EPA's Environmental Photographic Interpretation Center (EPIC)  
Telephone: 202-564-7333

EPA Region 1  
Telephone 617-918-1143

EPA Region 6  
Telephone: 214-655-6659

EPA Region 3  
Telephone 215-814-5418

EPA Region 8  
Telephone: 303-312-6774

EPA Region 4  
Telephone 404-562-8033

#### **Proposed NPL:** Proposed National Priority List Sites

|                                         |                                        |
|-----------------------------------------|----------------------------------------|
| Date of Government Version: 02/24/2006  | Source: EPA                            |
| Date Data Arrived at EDR: 03/01/2006    | Telephone: N/A                         |
| Date Made Active in Reports: 03/31/2006 | Last EDR Contact: 05/05/2006           |
| Number of Days to Update: 30            | Next Scheduled EDR Contact: 07/31/2006 |
|                                         | Data Release Frequency: Quarterly      |

#### **DELISTED NPL:** National Priority List Deletions

The National Oil and Hazardous Substances Pollution Contingency Plan (NCP) establishes the criteria that the EPA uses to delete sites from the NPL. In accordance with 40 CFR 300.425.(e), sites may be deleted from the NPL where no further response is appropriate.

|                                         |                                        |
|-----------------------------------------|----------------------------------------|
| Date of Government Version: 02/24/2006  | Source: EPA                            |
| Date Data Arrived at EDR: 03/01/2006    | Telephone: N/A                         |
| Date Made Active in Reports: 03/31/2006 | Last EDR Contact: 05/05/2006           |
| Number of Days to Update: 30            | Next Scheduled EDR Contact: 07/31/2006 |
|                                         | Data Release Frequency: Quarterly      |

#### **NPL RECOVERY:** Federal Superfund Liens

Federal Superfund Liens. Under the authority granted the USEPA by CERCLA of 1980, the USEPA has the authority to file liens against real property in order to recover remedial action expenditures or when the property owner received notification of potential liability. USEPA compiles a listing of filed notices of Superfund Liens.

|                                         |                                           |
|-----------------------------------------|-------------------------------------------|
| Date of Government Version: 10/15/1991  | Source: EPA                               |
| Date Data Arrived at EDR: 02/02/1994    | Telephone: 202-564-4267                   |
| Date Made Active in Reports: 03/30/1994 | Last EDR Contact: 03/06/2006              |
| Number of Days to Update: 56            | Next Scheduled EDR Contact: 05/22/2006    |
|                                         | Data Release Frequency: No Update Planned |



## GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

### **CERCLIS:** Comprehensive Environmental Response, Compensation, and Liability Information System

CERCLIS contains data on potentially hazardous waste sites that have been reported to the USEPA by states, municipalities, private companies and private persons, pursuant to Section 103 of the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA). CERCLIS contains sites which are either proposed to or on the National Priorities List (NPL) and sites which are in the screening and assessment phase for possible inclusion on the NPL.

|                                         |                                        |
|-----------------------------------------|----------------------------------------|
| Date of Government Version: 02/01/2006  | Source: EPA                            |
| Date Data Arrived at EDR: 03/21/2006    | Telephone: 703-413-0223                |
| Date Made Active in Reports: 04/13/2006 | Last EDR Contact: 03/21/2006           |
| Number of Days to Update: 23            | Next Scheduled EDR Contact: 06/19/2006 |
|                                         | Data Release Frequency: Quarterly      |

### **CERCLIS-NFRAP:** CERCLIS No Further Remedial Action Planned

Archived sites are sites that have been removed and archived from the inventory of CERCLIS sites. Archived status indicates that, to the best of EPA's knowledge, assessment at a site has been completed and that EPA has determined no further steps will be taken to list this site on the National Priorities List (NPL), unless information indicates this decision was not appropriate or other considerations require a recommendation for listing at a later time. This decision does not necessarily mean that there is no hazard associated with a given site; it only means that, based upon available information, the location is not judged to be a potential NPL site.

|                                         |                                        |
|-----------------------------------------|----------------------------------------|
| Date of Government Version: 02/01/2006  | Source: EPA                            |
| Date Data Arrived at EDR: 03/21/2006    | Telephone: 703-413-0223                |
| Date Made Active in Reports: 04/13/2006 | Last EDR Contact: 03/21/2006           |
| Number of Days to Update: 23            | Next Scheduled EDR Contact: 06/19/2006 |
|                                         | Data Release Frequency: Quarterly      |

### **CORRACTS:** Corrective Action Report

CORRACTS identifies hazardous waste handlers with RCRA corrective action activity.

|                                         |                                        |
|-----------------------------------------|----------------------------------------|
| Date of Government Version: 03/15/2006  | Source: EPA                            |
| Date Data Arrived at EDR: 03/17/2006    | Telephone: 800-424-9346                |
| Date Made Active in Reports: 04/13/2006 | Last EDR Contact: 03/06/2006           |
| Number of Days to Update: 27            | Next Scheduled EDR Contact: 06/05/2006 |
|                                         | Data Release Frequency: Quarterly      |

### **RCRA:** Resource Conservation and Recovery Act Information

RCRAInfo is EPA's comprehensive information system, providing access to data supporting the Resource Conservation and Recovery Act (RCRA) of 1976 and the Hazardous and Solid Waste Amendments (HSWA) of 1984. RCRAInfo replaces the data recording and reporting abilities of the Resource Conservation and Recovery Information System (RCRIS). The database includes selective information on sites which generate, transport, store, treat and/or dispose of hazardous waste as defined by the Resource Conservation and Recovery Act (RCRA). Conditionally exempt small quantity generators (CESQGs) generate less than 100 kg of hazardous waste, or less than 1 kg of acutely hazardous waste per month. Small quantity generators (SQGs) generate between 100 kg and 1,000 kg of hazardous waste per month. Large quantity generators (LQGs) generate over 1,000 kilograms (kg) of hazardous waste, or over 1 kg of acutely hazardous waste per month. Transporters are individuals or entities that move hazardous waste from the generator off-site to a facility that can recycle, treat, store, or dispose of the waste. TSDFs treat, store, or dispose of the waste.

|                                         |                                        |
|-----------------------------------------|----------------------------------------|
| Date of Government Version: 02/21/2006  | Source: EPA                            |
| Date Data Arrived at EDR: 03/01/2006    | Telephone: 800-424-9346                |
| Date Made Active in Reports: 03/31/2006 | Last EDR Contact: 04/27/2006           |
| Number of Days to Update: 30            | Next Scheduled EDR Contact: 06/26/2006 |
|                                         | Data Release Frequency: Quarterly      |

### **ERNS:** Emergency Response Notification System

Emergency Response Notification System. ERNS records and stores information on reported releases of oil and hazardous substances.

|                                         |                                                             |
|-----------------------------------------|-------------------------------------------------------------|
| Date of Government Version: 12/31/2005  | Source: National Response Center, United States Coast Guard |
| Date Data Arrived at EDR: 01/12/2006    | Telephone: 202-260-2342                                     |
| Date Made Active in Reports: 02/21/2006 | Last EDR Contact: 04/26/2006                                |
| Number of Days to Update: 40            | Next Scheduled EDR Contact: 07/24/2006                      |
|                                         | Data Release Frequency: Annually                            |

## GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

### **HMIRS:** Hazardous Materials Information Reporting System

Hazardous Materials Incident Report System. HMIRS contains hazardous material spill incidents reported to DOT.

|                                         |                                           |
|-----------------------------------------|-------------------------------------------|
| Date of Government Version: 12/31/2005  | Source: U.S. Department of Transportation |
| Date Data Arrived at EDR: 01/16/2006    | Telephone: 202-366-4555                   |
| Date Made Active in Reports: 02/21/2006 | Last EDR Contact: 04/14/2006              |
| Number of Days to Update: 36            | Next Scheduled EDR Contact: 07/17/2006    |
|                                         | Data Release Frequency: Annually          |

### **US ENG CONTROLS:** Engineering Controls Sites List

A listing of sites with engineering controls in place. Engineering controls include various forms of caps, building foundations, liners, and treatment methods to create pathway elimination for regulated substances to enter environmental media or effect human health.

|                                         |                                         |
|-----------------------------------------|-----------------------------------------|
| Date of Government Version: 08/02/2005  | Source: Environmental Protection Agency |
| Date Data Arrived at EDR: 08/12/2005    | Telephone: 703-603-8905                 |
| Date Made Active in Reports: 10/06/2005 | Last EDR Contact: 03/03/2006            |
| Number of Days to Update: 55            | Next Scheduled EDR Contact: 07/03/2006  |
|                                         | Data Release Frequency: Varies          |

### **US INST CONTROL:** Sites with Institutional Controls

A listing of sites with institutional controls in place. Institutional controls include administrative measures, such as groundwater use restrictions, construction restrictions, property use restrictions, and post remediation care requirements intended to prevent exposure to contaminants remaining on site. Deed restrictions are generally required as part of the institutional controls.

|                                         |                                         |
|-----------------------------------------|-----------------------------------------|
| Date of Government Version: 01/10/2005  | Source: Environmental Protection Agency |
| Date Data Arrived at EDR: 02/11/2005    | Telephone: 703-603-8905                 |
| Date Made Active in Reports: 04/06/2005 | Last EDR Contact: 03/03/2006            |
| Number of Days to Update: 54            | Next Scheduled EDR Contact: 07/03/2006  |
|                                         | Data Release Frequency: Varies          |

### **DOD:** Department of Defense Sites

This data set consists of federally owned or administered lands, administered by the Department of Defense, that have any area equal to or greater than 640 acres of the United States, Puerto Rico, and the U.S. Virgin Islands.

|                                         |                                        |
|-----------------------------------------|----------------------------------------|
| Date of Government Version: 12/31/2004  | Source: USGS                           |
| Date Data Arrived at EDR: 02/08/2005    | Telephone: 703-692-8801                |
| Date Made Active in Reports: 08/04/2005 | Last EDR Contact: 05/12/2006           |
| Number of Days to Update: 177           | Next Scheduled EDR Contact: 08/07/2006 |
|                                         | Data Release Frequency: Semi-Annually  |

### **FUDS:** Formerly Used Defense Sites

The listing includes locations of Formerly Used Defense Sites properties where the US Army Corps of Engineers is actively working or will take necessary cleanup actions.

|                                         |                                        |
|-----------------------------------------|----------------------------------------|
| Date of Government Version: 12/05/2005  | Source: U.S. Army Corps of Engineers   |
| Date Data Arrived at EDR: 01/19/2006    | Telephone: 202-528-4285                |
| Date Made Active in Reports: 02/21/2006 | Last EDR Contact: 04/03/2006           |
| Number of Days to Update: 33            | Next Scheduled EDR Contact: 07/03/2006 |
|                                         | Data Release Frequency: Varies         |

### **US BROWNFIELDS:** A Listing of Brownfields Sites

## GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

Included in the listing are brownfields properties addresses by Cooperative Agreement Recipients and brownfields properties addressed by Targeted Brownfields Assessments. Targeted Brownfields Assessments-EPA's Targeted Brownfields Assessments (TBA) program is designed to help states, tribes, and municipalities--especially those without EPA Brownfields Assessment Demonstration Pilots--minimize the uncertainties of contamination often associated with brownfields. Under the TBA program, EPA provides funding and/or technical assistance for environmental assessments at brownfields sites throughout the country. Targeted Brownfields Assessments supplement and work with other efforts under EPA's Brownfields Initiative to promote cleanup and redevelopment of brownfields. Cooperative Agreement Recipients-States, political subdivisions, territories, and Indian tribes become Brownfields Cleanup Revolving Loan Fund (BCRLF) cooperative agreement recipients when they enter into BCRLF cooperative agreements with the U.S. EPA. EPA selects BCRLF cooperative agreement recipients based on a proposal and application process. BCRLF cooperative agreement recipients must use EPA funds provided through BCRLF cooperative agreement for specified brownfields-related cleanup activities.

Date of Government Version: 11/29/2005  
Date Data Arrived at EDR: 12/05/2005  
Date Made Active in Reports: 01/30/2006  
Number of Days to Update: 56

Source: Environmental Protection Agency  
Telephone: 202-566-2777  
Last EDR Contact: 03/13/2006  
Next Scheduled EDR Contact: 06/12/2006  
Data Release Frequency: Semi-Annually

### **CONSENT:** Superfund (CERCLA) Consent Decrees

Major legal settlements that establish responsibility and standards for cleanup at NPL (Superfund) sites. Released periodically by United States District Courts after settlement by parties to litigation matters.

Date of Government Version: 12/14/2004  
Date Data Arrived at EDR: 02/15/2005  
Date Made Active in Reports: 04/25/2005  
Number of Days to Update: 69

Source: Department of Justice, Consent Decree Library  
Telephone: Varies  
Last EDR Contact: 03/13/2006  
Next Scheduled EDR Contact: 07/24/2006  
Data Release Frequency: Varies

### **ROD:** Records Of Decision

Record of Decision. ROD documents mandate a permanent remedy at an NPL (Superfund) site containing technical and health information to aid in the cleanup.

Date of Government Version: 12/07/2005  
Date Data Arrived at EDR: 01/06/2006  
Date Made Active in Reports: 02/21/2006  
Number of Days to Update: 46

Source: EPA  
Telephone: 703-416-0223  
Last EDR Contact: 04/05/2006  
Next Scheduled EDR Contact: 07/03/2006  
Data Release Frequency: Annually

### **UMTRA:** Uranium Mill Tailings Sites

Uranium ore was mined by private companies for federal government use in national defense programs. When the mills shut down, large piles of the sand-like material (mill tailings) remain after uranium has been extracted from the ore. Levels of human exposure to radioactive materials from the piles are low; however, in some cases tailings were used as construction materials before the potential health hazards of the tailings were recognized.

Date of Government Version: 11/04/2005  
Date Data Arrived at EDR: 11/28/2005  
Date Made Active in Reports: 01/30/2006  
Number of Days to Update: 63

Source: Department of Energy  
Telephone: 505-845-0011  
Last EDR Contact: 03/20/2006  
Next Scheduled EDR Contact: 06/19/2006  
Data Release Frequency: Varies

### **ODI:** Open Dump Inventory

An open dump is defined as a disposal facility that does not comply with one or more of the Part 257 or Part 258 Subtitle D Criteria.

Date of Government Version: 06/30/1985  
Date Data Arrived at EDR: 08/09/2004  
Date Made Active in Reports: 09/17/2004  
Number of Days to Update: 39

Source: Environmental Protection Agency  
Telephone: 800-424-9346  
Last EDR Contact: 06/09/2004  
Next Scheduled EDR Contact: N/A  
Data Release Frequency: No Update Planned

## GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

### **TRIS:** Toxic Chemical Release Inventory System

Toxic Release Inventory System. TRIS identifies facilities which release toxic chemicals to the air, water and land in reportable quantities under SARA Title III Section 313.

Date of Government Version: 12/31/2003

Date Data Arrived at EDR: 07/13/2005

Date Made Active in Reports: 08/17/2005

Number of Days to Update: 35

Source: EPA

Telephone: 202-566-0250

Last EDR Contact: 03/21/2006

Next Scheduled EDR Contact: 06/19/2006

Data Release Frequency: Annually

### **TSCA:** Toxic Substances Control Act

Toxic Substances Control Act. TSCA identifies manufacturers and importers of chemical substances included on the TSCA Chemical Substance Inventory list. It includes data on the production volume of these substances by plant site.

Date of Government Version: 12/31/2002

Date Data Arrived at EDR: 04/27/2004

Date Made Active in Reports: 05/21/2004

Number of Days to Update: 24

Source: EPA

Telephone: 202-260-5521

Last EDR Contact: 04/12/2006

Next Scheduled EDR Contact: 07/17/2006

Data Release Frequency: Every 4 Years

### **FTTS:** FIFRA/ TSCA Tracking System - FIFRA (Federal Insecticide, Fungicide, & Rodenticide Act)/TSCA (Toxic Substances Control Act)

FTTS tracks administrative cases and pesticide enforcement actions and compliance activities related to FIFRA, TSCA and EPCRA (Emergency Planning and Community Right-to-Know Act). To maintain currency, EDR contacts the Agency on a quarterly basis.

Date of Government Version: 01/17/2006

Date Data Arrived at EDR: 01/24/2006

Date Made Active in Reports: 02/27/2006

Number of Days to Update: 34

Source: EPA/Office of Prevention, Pesticides and Toxic Substances

Telephone: 202-566-1667

Last EDR Contact: 03/20/2006

Next Scheduled EDR Contact: 06/19/2006

Data Release Frequency: Quarterly

### **FTTS INSP:** FIFRA/ TSCA Tracking System - FIFRA (Federal Insecticide, Fungicide, & Rodenticide Act)/TSCA (Toxic Substances Control Act)

Date of Government Version: 01/17/2006

Date Data Arrived at EDR: 01/24/2006

Date Made Active in Reports: 02/27/2006

Number of Days to Update: 34

Source: EPA

Telephone: 202-566-1667

Last EDR Contact: 03/20/2006

Next Scheduled EDR Contact: 06/19/2006

Data Release Frequency: Quarterly

### **SSTS:** Section 7 Tracking Systems

Section 7 of the Federal Insecticide, Fungicide and Rodenticide Act, as amended (92 Stat. 829) requires all registered pesticide-producing establishments to submit a report to the Environmental Protection Agency by March 1st each year. Each establishment must report the types and amounts of pesticides, active ingredients and devices being produced, and those having been produced and sold or distributed in the past year.

Date of Government Version: 12/31/2003

Date Data Arrived at EDR: 01/03/2005

Date Made Active in Reports: 01/25/2005

Number of Days to Update: 22

Source: EPA

Telephone: 202-564-4203

Last EDR Contact: 03/06/2006

Next Scheduled EDR Contact: 07/17/2006

Data Release Frequency: Annually

### **ICIS:** Integrated Compliance Information System

The Integrated Compliance Information System (ICIS) supports the information needs of the national enforcement and compliance program as well as the unique needs of the National Pollutant Discharge Elimination System (NPDES) program.

Date of Government Version: 02/13/2006

Date Data Arrived at EDR: 04/21/2006

Date Made Active in Reports: 05/11/2006

Number of Days to Update: 20

Source: Environmental Protection Agency

Telephone: 202-564-5088

Last EDR Contact: 04/11/2006

Next Scheduled EDR Contact: 07/17/2006

Data Release Frequency: Quarterly

## GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

### **PADS:** PCB Activity Database System

PCB Activity Database. PADS Identifies generators, transporters, commercial storers and/or brokers and disposers of PCB's who are required to notify the EPA of such activities.

|                                         |                                        |
|-----------------------------------------|----------------------------------------|
| Date of Government Version: 12/27/2005  | Source: EPA                            |
| Date Data Arrived at EDR: 02/08/2006    | Telephone: 202-566-0500                |
| Date Made Active in Reports: 02/27/2006 | Last EDR Contact: 05/08/2006           |
| Number of Days to Update: 19            | Next Scheduled EDR Contact: 08/07/2006 |
|                                         | Data Release Frequency: Annually       |

### **MLTS:** Material Licensing Tracking System

MLTS is maintained by the Nuclear Regulatory Commission and contains a list of approximately 8,100 sites which possess or use radioactive materials and which are subject to NRC licensing requirements. To maintain currency, EDR contacts the Agency on a quarterly basis.

|                                         |                                        |
|-----------------------------------------|----------------------------------------|
| Date of Government Version: 02/10/2006  | Source: Nuclear Regulatory Commission  |
| Date Data Arrived at EDR: 02/16/2006    | Telephone: 301-415-7169                |
| Date Made Active in Reports: 03/31/2006 | Last EDR Contact: 04/03/2006           |
| Number of Days to Update: 43            | Next Scheduled EDR Contact: 07/03/2006 |
|                                         | Data Release Frequency: Quarterly      |

### **MINES:** Mines Master Index File

Contains all mine identification numbers issued for mines active or opened since 1971. The data also includes violation information.

|                                         |                                                                    |
|-----------------------------------------|--------------------------------------------------------------------|
| Date of Government Version: 11/08/2005  | Source: Department of Labor, Mine Safety and Health Administration |
| Date Data Arrived at EDR: 12/27/2005    | Telephone: 303-231-5959                                            |
| Date Made Active in Reports: 01/30/2006 | Last EDR Contact: 03/29/2006                                       |
| Number of Days to Update: 34            | Next Scheduled EDR Contact: 06/26/2006                             |
|                                         | Data Release Frequency: Semi-Annually                              |

### **FINDS:** Facility Index System/Facility Registry System

Facility Index System. FINDS contains both facility information and 'pointers' to other sources that contain more detail. EDR includes the following FINDS databases in this report: PCS (Permit Compliance System), AIRS (Aerometric Information Retrieval System), DOCKET (Enforcement Docket used to manage and track information on civil judicial enforcement cases for all environmental statutes), FURS (Federal Underground Injection Control), C-DOCKET (Criminal Docket System used to track criminal enforcement actions for all environmental statutes), FFIS (Federal Facilities Information System), STATE (State Environmental Laws and Statutes), and PADS (PCB Activity Data System).

|                                         |                                        |
|-----------------------------------------|----------------------------------------|
| Date of Government Version: 01/09/2006  | Source: EPA                            |
| Date Data Arrived at EDR: 01/16/2006    | Telephone: N/A                         |
| Date Made Active in Reports: 02/21/2006 | Last EDR Contact: 04/03/2006           |
| Number of Days to Update: 36            | Next Scheduled EDR Contact: 07/03/2006 |
|                                         | Data Release Frequency: Quarterly      |

### **RAATS:** RCRA Administrative Action Tracking System

RCRA Administration Action Tracking System. RAATS contains records based on enforcement actions issued under RCRA pertaining to major violators and includes administrative and civil actions brought by the EPA. For administration actions after September 30, 1995, data entry in the RAATS database was discontinued. EPA will retain a copy of the database for historical records. It was necessary to terminate RAATS because a decrease in agency resources made it impossible to continue to update the information contained in the database.

|                                         |                                           |
|-----------------------------------------|-------------------------------------------|
| Date of Government Version: 04/17/1995  | Source: EPA                               |
| Date Data Arrived at EDR: 07/03/1995    | Telephone: 202-564-4104                   |
| Date Made Active in Reports: 08/07/1995 | Last EDR Contact: 03/06/2006              |
| Number of Days to Update: 35            | Next Scheduled EDR Contact: 06/05/2006    |
|                                         | Data Release Frequency: No Update Planned |

### **BRS:** Biennial Reporting System

The Biennial Reporting System is a national system administered by the EPA that collects data on the generation and management of hazardous waste. BRS captures detailed data from two groups: Large Quantity Generators (LQG) and Treatment, Storage, and Disposal Facilities.

## GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

Date of Government Version: 12/31/2003  
Date Data Arrived at EDR: 06/17/2005  
Date Made Active in Reports: 08/04/2005  
Number of Days to Update: 48

Source: EPA/NTIS  
Telephone: 800-424-9346  
Last EDR Contact: 03/17/2006  
Next Scheduled EDR Contact: 06/12/2006  
Data Release Frequency: Biennially

### STATE AND LOCAL RECORDS

**SHWS:** This state does not maintain a SHWS list. See the Federal CERCLIS list and Federal NPL list.

State Hazardous Waste Sites. State hazardous waste site records are the states' equivalent to CERCLIS. These sites may or may not already be listed on the federal CERCLIS list. Priority sites planned for cleanup using state funds (state equivalent of Superfund) are identified along with sites where cleanup will be paid for by potentially responsible parties. Available information varies by state.

Date of Government Version: N/A  
Date Data Arrived at EDR: N/A  
Date Made Active in Reports: N/A  
Number of Days to Update: N/A

Source: Department of Public Health & Environment  
Telephone: 303-692-3300  
Last EDR Contact: 03/20/2006  
Next Scheduled EDR Contact: 06/19/2006  
Data Release Frequency: N/A

**METHANE SITE:** Methane Site Investigations - Jefferson County 1980

The objectives of the study are to define as closely as possible the boundaries of methane producing solid waste landfills.

Date of Government Version: 12/31/1980  
Date Data Arrived at EDR: 02/13/1995  
Date Made Active in Reports: 04/04/1995  
Number of Days to Update: 50

Source: Jefferson County Health Department  
Telephone: 303-239-7175  
Last EDR Contact: 01/27/1995  
Next Scheduled EDR Contact: N/A  
Data Release Frequency: No Update Planned

**SWF/LF:** Solid Waste Sites & Facilities

Solid Waste Facilities/Landfill Sites. SWF/LF type records typically contain an inventory of solid waste disposal facilities or landfills in a particular state. Depending on the state, these may be active or inactive facilities or open dumps that failed to meet RCRA Subtitle D Section 4004 criteria for solid waste landfills or disposal sites.

Date of Government Version: 09/13/2005  
Date Data Arrived at EDR: 12/21/2005  
Date Made Active in Reports: 01/16/2006  
Number of Days to Update: 26

Source: Department of Public Health & Environment  
Telephone: 303-692-3300  
Last EDR Contact: 04/05/2006  
Next Scheduled EDR Contact: 06/05/2006  
Data Release Frequency: Annually

**METHANE INVESTIGATION:** Methane Gas & Swamp Findings

The primary objective of this study was to assess methane gas related hazards at selected landfill sites in Colorado. These sites were selected by the Colorado Department of Health following evaluation of responses received from County and Municipal agencies about completed and existing landfills within their jurisdiction.

Date of Government Version: 03/15/1979  
Date Data Arrived at EDR: 02/13/1995  
Date Made Active in Reports: 04/04/1995  
Number of Days to Update: 50

Source: Department of Health  
Telephone: 303-640-3335  
Last EDR Contact: 01/27/1995  
Next Scheduled EDR Contact: N/A  
Data Release Frequency: No Update Planned

**HISTORICAL LANDFILL:** Historical Landfill List  
Abandoned/Inactive Landfills.

Date of Government Version: 01/31/1993  
Date Data Arrived at EDR: 04/24/1994  
Date Made Active in Reports: 05/30/1994  
Number of Days to Update: 36

Source: Department of Public Health & Environment  
Telephone: 303-692-3300  
Last EDR Contact: 09/05/1996  
Next Scheduled EDR Contact: N/A  
Data Release Frequency: No Update Planned

## GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

### **LUST:** Leaking Underground Storage Tank List

Leaking Underground Storage Tank Incident Reports. LUST records contain an inventory of reported leaking underground storage tank incidents. Not all states maintain these records, and the information stored varies by state.

Date of Government Version: 04/04/2006  
Date Data Arrived at EDR: 04/05/2006  
Date Made Active in Reports: 04/24/2006  
Number of Days to Update: 19

Source: Department of Labor and Employment, Oil Inspection Section  
Telephone: 303-318-8521  
Last EDR Contact: 04/05/2006  
Next Scheduled EDR Contact: 07/03/2006  
Data Release Frequency: Quarterly

### **TRUST:** Lust Trust Sites

The listing tracks the reimbursement of costs approved and paid to eligible applicants.

Date of Government Version: 01/23/2006  
Date Data Arrived at EDR: 01/24/2006  
Date Made Active in Reports: 02/28/2006  
Number of Days to Update: 35

Source: Department of Labor and Employment, Oil Inspection Section  
Telephone: 303-318-8521  
Last EDR Contact: 04/27/2006  
Next Scheduled EDR Contact: 07/24/2006  
Data Release Frequency: Varies

### **UST:** Underground Storage Tank Database

Registered Underground Storage Tanks. UST's are regulated under Subtitle I of the Resource Conservation and Recovery Act (RCRA) and must be registered with the state department responsible for administering the UST program. Available information varies by state program.

Date of Government Version: 04/04/2006  
Date Data Arrived at EDR: 04/05/2006  
Date Made Active in Reports: 05/05/2006  
Number of Days to Update: 30

Source: Department of Labor and Employment, Oil Inspection Section  
Telephone: 303-318-8521  
Last EDR Contact: 04/05/2006  
Next Scheduled EDR Contact: 07/03/2006  
Data Release Frequency: Quarterly

### **AST:** Aboveground Tank List

Aboveground storage tank locations.

Date of Government Version: 04/04/2006  
Date Data Arrived at EDR: 04/05/2006  
Date Made Active in Reports: 05/05/2006  
Number of Days to Update: 30

Source: Department of Labor and Employment, Oil Inspection Section  
Telephone: 303-318-8521  
Last EDR Contact: 04/05/2006  
Next Scheduled EDR Contact: 07/03/2006  
Data Release Frequency: Semi-Annually

### **CO ERNS:** Spills Database

State reported spills.

Date of Government Version: 02/14/2006  
Date Data Arrived at EDR: 02/15/2006  
Date Made Active in Reports: 02/28/2006  
Number of Days to Update: 13

Source: Department of Public Health and Environmental  
Telephone: 303-692-2000  
Last EDR Contact: 05/01/2006  
Next Scheduled EDR Contact: 07/31/2006  
Data Release Frequency: Quarterly

### **AUL:** Environmental Real Covenants List

Activity and use limitations include both engineering controls and institutional controls. The Colorado Department of Public Health and Environment to approve requests to restrict the future use of a property using an enforceable agreement called an environmental real covenant. When a contaminated site is not cleaned up completely, land use restrictions may be used to ensure that the selected cleanup remedy is adequately protective of human health and the environment.

Date of Government Version: 02/28/2006  
Date Data Arrived at EDR: 02/28/2006  
Date Made Active in Reports: 03/24/2006  
Number of Days to Update: 24

Source: Department of Public Health & Environment  
Telephone: 303-692-3331  
Last EDR Contact: 02/27/2006  
Next Scheduled EDR Contact: 05/29/2006  
Data Release Frequency: Varies

## GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

### **VCP:** Voluntary Cleanup & Redevelopment Act Application Tracking Report

The Voluntary Cleanup and Redevelopment Act is intended to permit and encourage voluntary cleanups by providing a method to determine clean-up responsibilities in planning the reuse of property. The VCRA was intended for sites which were not covered by existing regulatory programs.

Date of Government Version: 01/09/2006  
Date Data Arrived at EDR: 02/07/2006  
Date Made Active in Reports: 02/28/2006  
Number of Days to Update: 21

Source: Department of Public Health and Environmental  
Telephone: 303-692-3331  
Last EDR Contact: 04/28/2006  
Next Scheduled EDR Contact: 06/19/2006  
Data Release Frequency: Semi-Annually

### **DRYCLEANERS:** Drycleaner Facilities

A listing of drycleaning facilities.

Date of Government Version: 04/14/2006  
Date Data Arrived at EDR: 04/14/2006  
Date Made Active in Reports: 04/24/2006  
Number of Days to Update: 10

Source: Department of Public Health & Environment  
Telephone: 303-692-3213  
Last EDR Contact: 04/11/2006  
Next Scheduled EDR Contact: 07/17/2006  
Data Release Frequency: Varies

### **CDL:** Meth Lab Locations

Meth lab locations that were reported to the Department of Public Health & Environment.

Date of Government Version: 02/14/2006  
Date Data Arrived at EDR: 02/15/2006  
Date Made Active in Reports: 02/28/2006  
Number of Days to Update: 13

Source: Department of Public Health and Environment  
Telephone: 303-692-3023  
Last EDR Contact: 05/01/2006  
Next Scheduled EDR Contact: 07/31/2006  
Data Release Frequency: Quarterly

### **UMTRA:** Uranium Mill Tailings Sites

There were nine uranium mill tailings sites in Colorado designated for cleanup under the federal Uranium Mill Tailings Radiation Control Act. These nine sites, known commonly as UMTRA sites, were remediated jointly by the State of Colorado and the U.S. Department of Energy during the late 1980's and early 1990's. Mill tailings were removed from 8 of the mill sites and relocated in engineered disposal cells. A disposal cell is designed to encapsulate the material, reduce radon emanation, and prevent the movement of water through the material. At one site, Maybell, CO, the tailings were stabilized in-place at the mill site. After remediation of the tailings was completed, the State and DOE began to investigate the residual impacts to groundwater at the mill sites. The groundwater phase of the UMTRA program is on-going.

Date of Government Version: 06/30/2003  
Date Data Arrived at EDR: 05/26/2004  
Date Made Active in Reports: 06/24/2004  
Number of Days to Update: 29

Source: Department of Public Health & Environment  
Telephone: 970-248-7164  
Last EDR Contact: 03/24/2006  
Next Scheduled EDR Contact: 06/19/2006  
Data Release Frequency: Varies

### **TRIBAL RECORDS**

#### **INDIAN RESERV:** Indian Reservations

This map layer portrays Indian administered lands of the United States that have any area equal to or greater than 640 acres.

Date of Government Version: 12/31/2004  
Date Data Arrived at EDR: 02/08/2005  
Date Made Active in Reports: 08/04/2005  
Number of Days to Update: 177

Source: USGS  
Telephone: 202-208-3710  
Last EDR Contact: 05/12/2006  
Next Scheduled EDR Contact: 08/07/2006  
Data Release Frequency: Semi-Annually

#### **INDIAN LUST:** Leaking Underground Storage Tanks on Indian Land

LUSTs on Indian land in Colorado, Montana, North Dakota, South Dakota, Utah and Wyoming.



## GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

Date of Government Version: 02/23/2006  
Date Data Arrived at EDR: 02/27/2006  
Date Made Active in Reports: 03/24/2006  
Number of Days to Update: 25

Source: EPA Region 8  
Telephone: 303-312-6271  
Last EDR Contact: 02/20/2006  
Next Scheduled EDR Contact: 05/22/2006  
Data Release Frequency: Varies

### **INDIAN UST:** Underground Storage Tanks on Indian Land Underground storage tank locations on Indian land.

Date of Government Version: 02/23/2006  
Date Data Arrived at EDR: 02/24/2006  
Date Made Active in Reports: 03/24/2006  
Number of Days to Update: 28

Source: EPA Region 8  
Telephone: 303-312-6137  
Last EDR Contact: 02/20/2006  
Next Scheduled EDR Contact: 05/22/2006  
Data Release Frequency: Varies

### **EDR PROPRIETARY RECORDS**

#### **Manufactured Gas Plants:** EDR Proprietary Manufactured Gas Plants

The EDR Proprietary Manufactured Gas Plant Database includes records of coal gas plants (manufactured gas plants) compiled by EDR's researchers. Manufactured gas sites were used in the United States from the 1800's to 1950's to produce a gas that could be distributed and used as fuel. These plants used whale oil, rosin, coal, or a mixture of coal, oil, and water that also produced a significant amount of waste. Many of the byproducts of the gas production, such as coal tar (oily waste containing volatile and non-volatile chemicals), sludges, oils and other compounds are potentially hazardous to human health and the environment. The byproduct from this process was frequently disposed of directly at the plant site and can remain or spread slowly, serving as a continuous source of soil and groundwater contamination.

Date of Government Version: N/A  
Date Data Arrived at EDR: N/A  
Date Made Active in Reports: N/A  
Number of Days to Update: N/A

Source: EDR, Inc.  
Telephone: N/A  
Last EDR Contact: N/A  
Next Scheduled EDR Contact: N/A  
Data Release Frequency: No Update Planned

### **COUNTY RECORDS**

#### **ADAMS COUNTY:**

##### **Summary Report on Methane Gas Hazards and Surveys Conducted on Domestic and Demolition Landfills in Adams County**

As of May 8, 1978, all known landfills or dumping sites in the Adams County area have been surveyed

Date of Government Version: 05/08/1978  
Date Data Arrived at EDR: 02/16/1995  
Date Made Active in Reports: 04/04/1995  
Number of Days to Update: 47

Source: Tri-County Health Department  
Telephone: 303-761-1340  
Last EDR Contact: 01/27/1995  
Next Scheduled EDR Contact: N/A  
Data Release Frequency: No Update Planned

#### **ARAPAHOE COUNTY:**

##### **A Survey of Landfills in Arapahoe County**

A survey of Arapahoe County was conducted from August through November, 1977, of all open and closed landfills and dumpsites in the county. Each of the sites found was classified as domestic or demolition.

Date of Government Version: 12/31/1978  
Date Data Arrived at EDR: 02/16/1995  
Date Made Active in Reports: 04/04/1995  
Number of Days to Update: 47

Source: Tri-County Health Department  
Telephone: 303-761-1340  
Last EDR Contact: 01/27/1995  
Next Scheduled EDR Contact: N/A  
Data Release Frequency: No Update Planned

#### **BOULDER COUNTY:**

## GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

### Old Landfill Sites

Date of Government Version: 05/01/1986  
Date Data Arrived at EDR: 11/14/1995  
Date Made Active in Reports: 12/07/1995  
Number of Days to Update: 23

Source: Boulder County Health Department  
Telephone: 303-441-1182  
Last EDR Contact: 01/30/1998  
Next Scheduled EDR Contact: N/A  
Data Release Frequency: No Update Planned

### DENVER COUNTY:

#### Landfills in Denver County

Date of Government Version: 12/01/1994  
Date Data Arrived at EDR: 12/28/1994  
Date Made Active in Reports: 01/31/1995  
Number of Days to Update: 34

Source: City and County of Denver  
Telephone: 303-436-7300  
Last EDR Contact: 12/18/1994  
Next Scheduled EDR Contact: N/A  
Data Release Frequency: No Update Planned

### DOUGLAS COUNTY:

#### Douglas County Landfill Key

Date of Government Version: 06/12/1991  
Date Data Arrived at EDR: 02/16/1995  
Date Made Active in Reports: 04/04/1995  
Number of Days to Update: 47

Source: Tri-County Health Department  
Telephone: 303-761-1340  
Last EDR Contact: 01/27/1995  
Next Scheduled EDR Contact: N/A  
Data Release Frequency: No Update Planned

### PUEBLO COUNTY:

#### Designated Disposal & Landfill Sites

Only inert materials. Asphalt, cement, dirt & rock unless otherwise specified. These sites are no longer active.

Date of Government Version: 04/30/1990  
Date Data Arrived at EDR: 11/16/1995  
Date Made Active in Reports: 12/07/1995  
Number of Days to Update: 21

Source: Pueblo City-County Health Department  
Telephone: 719-583-4300  
Last EDR Contact: 11/13/1995  
Next Scheduled EDR Contact: N/A  
Data Release Frequency: No Update Planned

### TRI COUNTY:

#### Tri-County Area Solid Waste Facilities List (Adams, Arapahoe and Douglas Counties)

Closed Domestic Landfills in Adams County, Closed Domestic Landfills in Arapahoe County, Closed Demolition Landfills in Arapahoe County, Closed Domestic Landfills in Douglas County.

Date of Government Version: 10/15/1983  
Date Data Arrived at EDR: 02/16/1995  
Date Made Active in Reports: 04/04/1995  
Number of Days to Update: 47

Source: Tri-County Health Department  
Telephone: 303-761-1340  
Last EDR Contact: 01/27/1995  
Next Scheduled EDR Contact: N/A  
Data Release Frequency: No Update Planned

### WELD COUNTY:

#### Solid Waste Facilities in Weld County

## GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

Date of Government Version: 03/01/2006  
Date Data Arrived at EDR: 03/27/2006  
Date Made Active in Reports: 04/24/2006  
Number of Days to Update: 28

Source: Weld County Department of Public Health  
Telephone: 970-304-6415  
Last EDR Contact: 03/08/2006  
Next Scheduled EDR Contact: 06/05/2006  
Data Release Frequency: No Update Planned

### OTHER DATABASE(S)

Depending on the geographic area covered by this report, the data provided in these specialty databases may or may not be complete. For example, the existence of wetlands information data in a specific report does not mean that all wetlands in the area covered by the report are included. Moreover, the absence of any reported wetlands information does not necessarily mean that wetlands do not exist in the area covered by the report.

#### **CT MANIFEST:** Hazardous Waste Manifest Data

Facility and manifest data. Manifest is a document that lists and tracks hazardous waste from the generator through transporters to a tsd facility.

Date of Government Version: 12/31/2004  
Date Data Arrived at EDR: 02/17/2006  
Date Made Active in Reports: 04/07/2006  
Number of Days to Update: 49

Source: Department of Environmental Protection  
Telephone: 860-424-3375  
Last EDR Contact: 03/13/2006  
Next Scheduled EDR Contact: 06/12/2006  
Data Release Frequency: Annually

#### **NY MANIFEST:** Facility and Manifest Data

Manifest is a document that lists and tracks hazardous waste from the generator through transporters to a TSD facility.

Date of Government Version: 12/31/2005  
Date Data Arrived at EDR: 03/01/2006  
Date Made Active in Reports: 04/20/2006  
Number of Days to Update: 50

Source: Department of Environmental Conservation  
Telephone: 518-402-8651  
Last EDR Contact: 03/01/2006  
Next Scheduled EDR Contact: 05/29/2006  
Data Release Frequency: Annually

#### **WI MANIFEST:** Manifest Information

Hazardous waste manifest information.

Date of Government Version: 12/31/2005  
Date Data Arrived at EDR: 03/17/2006  
Date Made Active in Reports: 05/02/2006  
Number of Days to Update: 46

Source: Department of Natural Resources  
Telephone: N/A  
Last EDR Contact: 03/17/2006  
Next Scheduled EDR Contact: 07/10/2006  
Data Release Frequency: Annually

**Oil/Gas Pipelines:** This data was obtained by EDR from the USGS in 1994. It is referred to by USGS as GeoData Digital Line Graphs from 1:100,000-Scale Maps. It was extracted from the transportation category including some oil, but primarily gas pipelines.

#### **Electric Power Transmission Line Data**

Source: PennWell Corporation  
Telephone: (800) 823-6277

This map includes information copyrighted by PennWell Corporation. This information is provided on a best effort basis and PennWell Corporation does not guarantee its accuracy nor warrant its fitness for any particular purpose. Such information has been reprinted with the permission of PennWell.

**Sensitive Receptors:** There are individuals deemed sensitive receptors due to their fragile immune systems and special sensitivity to environmental discharges. These sensitive receptors typically include the elderly, the sick, and children. While the location of all sensitive receptors cannot be determined, EDR indicates those buildings and facilities - schools, daycares, hospitals, medical centers, and nursing homes - where individuals who are sensitive receptors are likely to be located.

#### **AHA Hospitals:**

Source: American Hospital Association, Inc.  
Telephone: 312-280-5991

The database includes a listing of hospitals based on the American Hospital Association's annual survey of hospitals.

## GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

### **Medical Centers: Provider of Services Listing**

Source: Centers for Medicare & Medicaid Services

Telephone: 410-786-3000

A listing of hospitals with Medicare provider number, produced by Centers of Medicare & Medicaid Services, a federal agency within the U.S. Department of Health and Human Services.

### **Nursing Homes**

Source: National Institutes of Health

Telephone: 301-594-6248

Information on Medicare and Medicaid certified nursing homes in the United States.

### **Public Schools**

Source: National Center for Education Statistics

Telephone: 202-502-7300

The National Center for Education Statistics' primary database on elementary and secondary public education in the United States. It is a comprehensive, annual, national statistical database of all public elementary and secondary schools and school districts, which contains data that are comparable across all states.

### **Private Schools**

Source: National Center for Education Statistics

Telephone: 202-502-7300

The National Center for Education Statistics' primary database on private school locations in the United States.

### **Daycare Centers: Daycare Listing**

Source: Department of Human Services

Telephone: 303-866-5958

**Flood Zone Data:** This data, available in select counties across the country, was obtained by EDR in 1999 from the Federal Emergency Management Agency (FEMA). Data depicts 100-year and 500-year flood zones as defined by FEMA.

**NWI:** National Wetlands Inventory. This data, available in select counties across the country, was obtained by EDR in 2002 from the U.S. Fish and Wildlife Service.

### **State Wetlands Data: Riparian Vegetation Data**

Source: Division of Wildlife

Telephone: 970-416-3360

### **STREET AND ADDRESS INFORMATION**

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**Appendix D**  
**Site Photographs**



Photograph #: 1  
 Date: May 22, 2006  
 Direction: Facing east southeast  
 Subject: View of the Site.

BL-06-01019A

**BRAUN**  
INTERTEC



Photograph #: 2  
 Date: May 22, 2006  
 Direction: Facing south  
 Subject: View of the parking lot and site buildings.

BL-06-01019A

**BRAUN**  
INTERTEC





Photograph #: 3  
 Date: May 22, 2006  
 Direction: Facing west  
 Subject: View of the Lowe's building and parking area.

BL-06-01019A

**BRAUN**  
INTERTEC



Photograph #: 4  
 Date: May 22, 2006  
 Direction: Facing northwest  
 Subject: View of the multi-tenant buildings.

BL-06-01019A

**BRAUN**  
INTERTEC



Photograph #: 5  
 Date: May 22, 2006  
 Direction: Facing southeast  
 Subject: View of the multi-tenant buildings.

BL-06-01019A

**BRAUN**  
INTERTEC



Photograph #: 6  
 Date: May 22, 2006  
 Direction: Facing southwest  
 Subject: View of the multi-tenant buildings.

BL-06-01019A

**BRAUN**  
INTERTEC

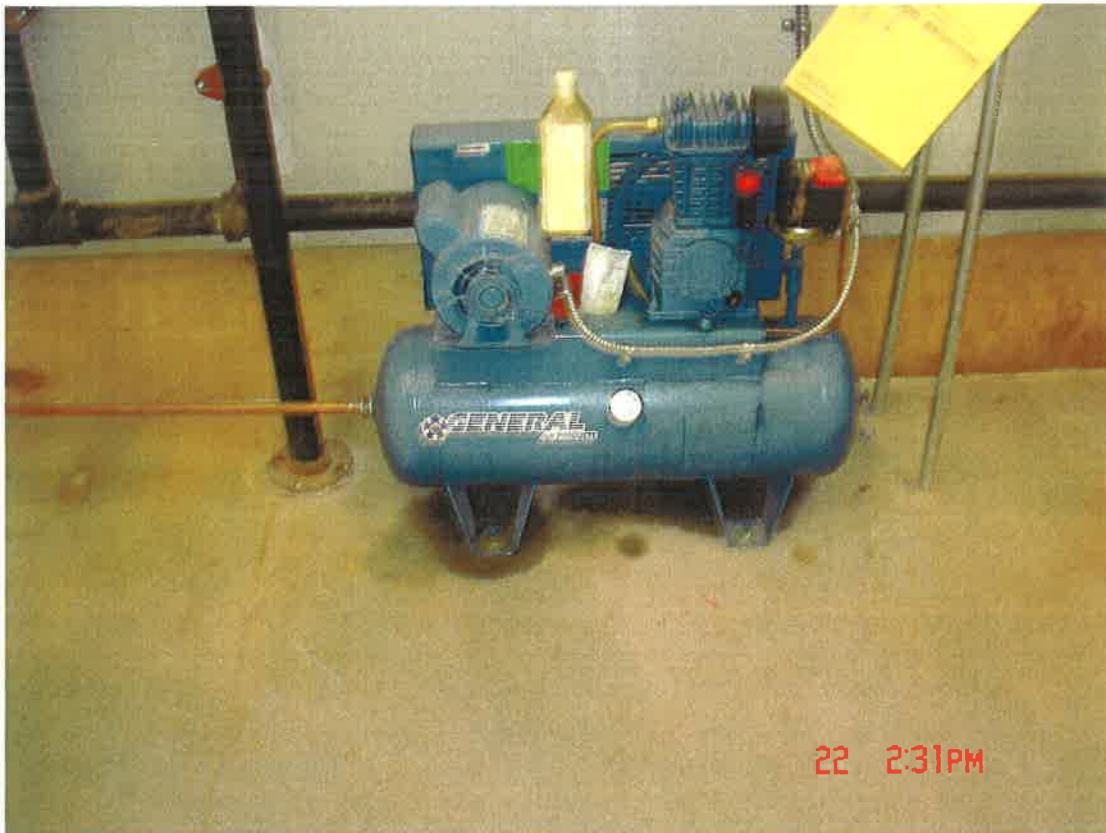




Photograph #: 7  
 Date: May 22, 2006  
 Direction: Facing east  
 Subject: View of the remaining construction debris.

BL-06-01019A

**BRAUN**  
INTERTEC



Photograph #: 8  
 Date: May 22, 2006  
 Direction: N/A  
 Subject: View of the air compressor in the Target building with minor staining.

BL-06-01019A

**BRAUN**  
INTERTEC



Photograph #: 9  
 Date: May 22, 2006  
 Direction: N/A  
 Subject: View of the Chili's grease drums.

BL-06-01019A

**BRAUN**  
INTERTEC



Photograph #: 9  
 Date: May 22, 2006  
 Direction: Facing east  
 Subject: View of the area under development on the east portion of the Site.

BL-06-01019A

**BRAUN**  
INTERTEC

**Appendix E**  
**Previous Environmental**

## **Phase I Environmental Site Assessment**

Glenwood Meadows Shopping Center  
Midland Avenue  
Glenwood Springs, CO

*Prepared For*

**Miller Weingarten Realty**

**and**

**Goldman Sachs Commercial  
Mortgage Capital, L.P.**

Project BL-06-01019  
March 23, 2006

Braun Intertec Corporation

March 23, 2006

Project BL-06-01019

Mr. Scott Goldammer  
Miller Weingarten Realty  
850 Englewood Parkway  
Englewood, CO 80110

Re: Phase I Environmental Site Assessment  
Glenwood Meadows Shopping Center  
Midland Avenue  
Glenwood Springs, CO

Dear Mr. Goldammer:

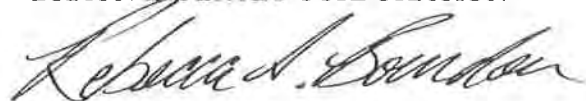
In accordance with your written authorization, we conducted a Phase I environmental site assessment (ESA) of the above-referenced property. The objective of the Phase I ESA was to evaluate the property for indications of recognized environmental conditions. As discussed in a phone conversation with Ms. Debbie Daniel of ATC Associates and Mr. Parker Bailey of Goldman Sachs Commercial Mortgage Capital on March 2, 2006, the Phase I ESA was conducted in accordance with the ASTM Practice E 1527-00 standard and in general accordance with the Goldman Sachs Commercial Mortgage Capital, L.P. Phase I ESA Scope of Services dated May 6, 1998.

Please refer to the attached report for the scope, methods and conclusions of our assessment.

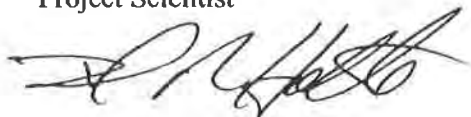
We appreciate the opportunity to provide our professional services to you for this project. If you have any questions regarding this letter or the attached report, please call Rebecca Bourdon at 952.995.2488 or Dan Holte at 952.995.2460.

Sincerely,

BRAUN INTERTEC CORPORATION



Rebecca A. Bourdon, GIT  
Project Scientist



Daniel R. Holte, PG  
Principal Scientist

Attachment:  
Phase I Environmental Site Assessment Report

PH I ESA - Glenwood Meadows



## Table of Contents

|                                                                            |    |
|----------------------------------------------------------------------------|----|
| Executive Summary .....                                                    | A  |
| A. Introduction.....                                                       | 1  |
| A.1. Purpose.....                                                          | 1  |
| A.2. Scope of Services.....                                                | 2  |
| A.3. Assessment Limitations .....                                          | 2  |
| B. Site Description.....                                                   | 3  |
| B.1. Site Location.....                                                    | 3  |
| B.2. Site and Vicinity Characteristics.....                                | 4  |
| B.3. Environmental Liens and Additional Information.....                   | 4  |
| C. Records Review .....                                                    | 5  |
| C.1. Physical Setting Information.....                                     | 5  |
| C.2. Regulatory Information.....                                           | 5  |
| C.2.a. Federal Database Records.....                                       | 6  |
| C.2.b. State Database Records.....                                         | 7  |
| C.3. City of Glenwood Springs .....                                        | 9  |
| C.4. Historical-Use Information .....                                      | 9  |
| C.4.a. Fire Insurance Maps.....                                            | 10 |
| C.4.b. City Directory Information .....                                    | 10 |
| C.4.c. Aerial Photographs .....                                            | 10 |
| C.5. Previous Environmental Investigations .....                           | 11 |
| D. Information from Site Reconnaissance and Interviews .....               | 11 |
| D.1. Known Current and Past Uses of the Site and Adjoining Properties..... | 12 |
| D.2. Site Layout.....                                                      | 13 |
| D.3. Hazardous Substances and Petroleum Products.....                      | 13 |
| D.4. Storage Tanks .....                                                   | 14 |
| D.5. Potential PCB-Containing Equipment .....                              | 14 |
| D.6. Indications of Solid Waste Disposal .....                             | 14 |
| D.7. Potable Water Sources and Sanitary/Wastewater Discharges .....        | 15 |
| D.8. Other Utilities .....                                                 | 15 |
| D.9. Wetlands Information .....                                            | 16 |
| D.10. NEPA Information.....                                                | 16 |
| D.11. Radon Gas.....                                                       | 16 |
| E. Findings .....                                                          | 17 |
| F. Opinions.....                                                           | 18 |
| F.1 Recognized Environmental Conditions .....                              | 18 |
| F.2 Historical Recognized Environmental Conditions.....                    | 18 |
| F.3 De Minimis Conditions.....                                             | 18 |
| G. Conclusions.....                                                        | 19 |
| H. Qualifications of Environmental Professionals.....                      | 19 |
| I. References.....                                                         | 19 |

## **Appendices**

- A:     Site Location Map**
- B:     Site Sketch**
- C:     Environmental Data Resources (EDR) Report**
- D:     Site Photographs**
- E:     Previous Environmental Investigations**

## Executive Summary

Braun Intertec performed a Phase I environmental site assessment of Glenwood Meadows Shopping Center No. 11 located on Midland Avenue in Glenwood Springs, Colorado (Site) in general conformance with the scope and limitations of ASTM Practice E 1527-00 and in general accordance with the Goldman Sachs Commercial Mortgage Capital, L.P. Phase I ESA Scope of Services dated May 6, 1998.

At the time of this assessment, the Site consisted of an approximately 250-acre developed lot. A total of 17 retail buildings were either existing on the Site or under construction. Eight of the tenant spaces were occupied at the time of the Site reconnaissance and consisted of the following retailers:

- Lowe's (unattached)
- Target (attached to future grocery store and Marble Slab restaurant)
- Pier 1, Gart Sports, Bed Bath and Beyond (BBB), and Petco (Gart Sports complex - attached)
- Great Clips (unattached)
- Chili's (unattached)

The Lowe's facility was a 1-level, approximately 130,000-square-foot, slab-on-grade building and the Target facility was a 1-level, approximately 125,000-square-foot, slab-on-grade building. The Gart Sports complex retail facility consisted of a single-story, approximate 85,000-square-foot, slab-on-grade building. The remaining facilities consisted of single-story, slab-on-grade buildings ranging in size from approximately 1,200 square feet to 6,900 square feet. Paved parking and landscaped areas were located across the Glenwood Meadows shopping complex. The Lowe's building was located on the west portion of the Site and the Target and Gart Sports complex buildings were located on the north portion of the Site, and the remaining buildings were located in the central portion of the Site. The easternmost planned buildings were not present at the time of the Site reconnaissance, however, the easternmost portion of the Site was graded and prepared for development with construction staging materials stored on it.

Our research has revealed that the Site and surrounding area have been rural in nature. According to our research, the Site and surrounding area were historically utilized as a ranch for livestock grazing. The Site was occupied by Glenwood Meadows Shopping Center at the time of this assessment.

This assessment has revealed no indications of recognized environmental conditions in connection with the Site.



## **A. Introduction**

### **A.1. Purpose**

Braun Intertec received authorization from Mr. Scott Goldammer of Miller Weingarten Realty (User) to conduct a Phase I environmental site assessment (ESA) of Glenwood Meadows Shopping Center located on Midland Avenue in Glenwood Springs, Colorado (Site).

This report is for the use and benefit of, and may be relied upon by Goldman Sachs Commercial Mortgage Capital, L.P.; Goldman Sachs & Co.; Goldman Sachs Mortgage Company or any of its affiliates and the agents and advisors, initial and subsequent holders from time to time of any debt and/or debt securities secured, directly and indirectly, by any participation interest in any such debt, and indenture trustee, servicer or other agent acting on behalf of such holders of such debt and/or debt securities; any rating agencies; and the institutional provider(s) from time to time of any liquidity facility or credit support for such financings, and their respective successors and assigns. Our work was directed by a contract with Miller Weingarten Realty and in accordance with our Scope of Services and Braun Intertec General Conditions, which are a part of that contract. Please note that our contract with Miller Weingarten Realty contains a limitation of our total liability. Such limitation also applies to all those receiving this permission.

In addition, this report or a reference to this report, may be included or quoted in any offering circular, registration statement, prospectus or sales brochure (in either electronic or hard copy format) in connection with a securitization or transaction involving such debt and or debt securities.

According to the User, this Phase I ESA has been prepared in association with the refinance of the property.

The purpose of this Phase I ESA was to evaluate the Site for indications of “recognized environmental conditions,” as defined by ASTM Practice E 1527-00 as: “The presence or likely presence of any hazardous substances or petroleum products on a property under conditions that indicate an existing release, a past release or a material threat of a release of any hazardous substances or petroleum products into structures on the property or into the ground, groundwater or surface water of the property. The term includes hazardous substances or petroleum products even under conditions of storage and use in compliance with local and state regulations. The term is not intended to include *de minimis* conditions that generally do not present a material risk of harm to public health or the environment and that generally would not be the subject of an enforcement action if brought to the attention of regulatory governmental agencies.”

## **A.2. Scope of Services**

The services provided for this project consisted of the following:

- A description of the Site location, current use and improvements and surrounding area
- A general description of the topography, soils, geology and groundwater flow direction at the Site
- A review of reasonably ascertainable and practically reviewable regulatory information published by state and federal agencies, health, and/or environmental agencies
- A review of the history of the Site, including aerial photographs, fire insurance maps, directories, and other readily available Site development data
- A reconnaissance and environmental review of the Site, including an assessment of the Site for indications of hazardous materials, petroleum products, polychlorinated biphenyls (PCBs), wells, storage tanks, solid waste disposal, pits and sumps, and utilities
- An area reconnaissance, including a brief review of adjacent property uses and any pertinent environmental information noted in the Site vicinity
- Interviews with current owners and/or occupants of the property
- Interviews with local government officials or agencies having jurisdiction over hazardous waste disposal or other environmental matters in the area of the Site
- Preparing a written report of our methods and conclusions

Additionally, as discussed in a phone conversation with Ms. Debbie Daniel of ATC Associates and Mr. Parker Bailey of Goldman Sachs Commercial Mortgage Capital on March 2, 2006, the Phase I ESA was conducted in general accordance with the Goldman Sachs Commercial Mortgage Capital, L.P. Phase I ESA Scope of Services dated May 6, 1998.

## **A.3. Assessment Limitations**

The findings and conclusions presented in this report are based on the procedures described in the ASTM Practice E 1527-00, informal discussions with various agencies, available literature cited in this report, conditions noted at the time of our Phase I ESA, and our interpretation of the information obtained as part of this Phase I ESA. Our findings and conclusions are limited to the specific project and properties described in this report and by the accuracy and completeness of the information provided by others.

An environmental site assessment cannot wholly eliminate uncertainty regarding the potential for recognized environmental conditions in connection with a property. Performance of this practice is intended to reduce, but not eliminate, uncertainty regarding the potential for recognized environmental conditions in connection with a property within reasonable limits of time and cost.

In performing its services, Braun Intertec used that degree of care and skill ordinarily exercised under similar circumstances by reputable members of its profession practicing in the same locality. No other warranty is made or intended.

No intentional deviations from the ASTM Practice E 1527-00 were made in the completion of this Phase I ESA for the Site. Snow cover on the Site at the time of the Site walkthrough impeded visual evaluation of the ground surface.

The Scope of Services for this project did not include the completion of soil borings, the installation of groundwater monitoring wells, or the collection of soil or groundwater samples. Also, the Scope of Services for this project did not include collecting or analyzing samples from the Site for the presence of asbestos, PCBs, lead-based paint, lead in drinking water, radon or urea formaldehyde.

Braun Intertec did not review property tax files, recorded land-title records or zoning land-use records to document the first developed use of the Site. Past experience has indicated that these historical sources are not sufficiently useful.

## **B. Site Description**

### **B.1. Site Location**

The Site addresses include the following:

- Lowe's, 215 West Meadows Drive
- Target, 110 West Meadows Drive
- Petco #1466, 105 East Meadows Drive
- Gart Sports #122, 125 East Meadows Drive
- Bed Bath & Beyond, 115 East Meadows Drive
- Pier 1 Imports #1539, 135 East Meadows Drive
- Chili's Grill & Bar #1136, 400 West Meadows Drive
- Great Clips, 20 Market Street, Unit D
- Marble Slab #438, 150 West Meadows Drive

The site is generally bound by Midland Avenue to the north, Wulfsohn Avenue to the south, with the newly constructed East and West Meadows Drives traversing the property from north to south and within Section 5, Township 6 North, Range 89 West, in the city of Glenwood Springs, Garfield County, Colorado. A Site location map and Site sketch are attached in Appendices A and B, respectively.

## **B.2. Site and Vicinity Characteristics**

At the time of this assessment, the Site consisted of an approximately 250-acre developed lot. A total of 17 retail buildings were either existing on the Site or under construction. Eight of the tenant spaces were occupied at the time of the Site reconnaissance and consisted of the following retailers:

- Lowe's (unattached)
- Target (attached to future grocery store and Marble Slab restaurant)
- Pier 1, Gart Sports, Bed Bath and Beyond (BBB), and Petco (Gart Sports complex - attached)
- Great Clips (unattached)
- Chili's (unattached)

The Lowe's facility was a 1-level, approximately 130,000-square-foot, slab-on-grade building and the Target facility was a 1-level, approximately 125,000-square-foot, slab-on-grade building. The Gart Sports complex retail facility consisted of a single-story, approximate 85,000-square-foot, slab-on-grade building. The remaining facilities consisted of single-story, slab-on-grade buildings ranging in size from approximately 1,200 square feet to 6,900 square feet. Paved parking and landscaped areas were located across the Glenwood Meadows shopping complex. The Lowe's building was located on the west portion of the Site and the Target and Gart Sports complex buildings were located on the north portion of the Site, and the remaining buildings were located in the central portion of the Site. The easternmost planned buildings were not present at the time of the Site reconnaissance, however, the easternmost portion of the Site was graded and prepared for development with construction staging materials stored on it.

The Site was bordered on the north by Midland Avenue with railroad tracks, Coors Distributing, Midwest Drywall Company, Inc./Electrical Outfitters, Big John Ace Hardware, a power substation and Envirotech located beyond; on the south by undeveloped pasture land with mountains beyond; on the east by the City of Glenwood Springs Community Center with undeveloped property beyond; and on the west by vacant, graded, parcels with a Park-and-Ride parking lot and Roaring Fork Transportation Center/City Municipal property beyond. The Site is located in an industrial and commercial area within the city of Glenwood Springs.

## **B.3. Environmental Liens and Additional Information**

No information regarding chain-of-title ownership history, environmental liens recorded against the Site (if any), or specialized environmental knowledge or experience that may reveal indications of recognized environmental conditions associated with the Site, was provided to us by the User.

## **C. Records Review**

### **C.1. Physical Setting Information**

According to the United States Geological Survey (U.S.G.S) 7.5-minute topographic map series, Glenwood Springs, Colorado quadrangle, the Site is located at an average elevation of 5,740 feet above mean sea level. The Site lies in the Colorado River valley immediately west of Glenwood Springs downtown region. The majority of the Site is slightly to moderately sloped to the north with landscaped retaining walls in areas of grade change.

The Site lies within the western flank of the Southern Rocky Mountains physiographic province located within the Rocky Mountain System. The majority of the Site is underlain by Quaternary alluvium. This alluvium was deposited over the past 2 million years by the nearby Colorado River. Rocks comprising the surrounding cliffs include Mississippian Leadville Limestone (massive gray rock); contorted gypsum-bearing Pennsylvanian shales, Triassic redbeds; and the Maroon Formation (USGS, 1979). The predominant soil types at the Site include Jerry-Lamphier Cochetopa, which is described as deep, well-drained, moderately sloping to steep soils on mountains and fans; and Morvel-Villa Grove, which is described as deep, well-drained, moderately sloping to moderately steep soils on mesas, mountainsides, and alluvial fans (Soil Conservation Service).

In western Colorado, groundwater is extracted from the following aquifers: Valley fill alluvial deposits, Green River Formation, Mesa Verde group, Dakota sandstone, Entrada sandstone, Glen Canyon group, Wingate sandstone, Leadville limestone, pre-Mississippian-age rocks, Precambrian crystalline rocks. With the exception of Valley fill deposits, the ability to produce water from any of the aforementioned aquifers is dependent on several geological factors, the most critical being structure. Throughout much of western Colorado, the rocks have been subjected to complex deformation processes that directly affect the hydrogeologic conditions. Therefore, it is quite possible for groundwater to occur under artesian or flowing artesian conditions locally within the same aquifer. Surficial groundwater, if present, likely flows northeast toward the Colorado River (Colorado Geological Survey).

The Site-specific groundwater flow direction was not determined through direct measurement during this Phase I ESA. Additional field investigation, beyond the Scope of Services of this Phase I ESA, would be required to determine this information.

### **C.2. Regulatory Information**

We obtained regulatory information pertaining to the Site and surrounding area from Environmental Data Resources, Inc. (EDR). The EDR regulatory information report is a compilation and summary of current federal and state regulatory lists and databases and is attached in Appendix C.

The objective of the regulatory information review is to evaluate whether the Site or nearby properties are listed as having a past or present record of actual or potential environmental hazards that are under investigation or may have an adverse impact on the Site.

#### **C.2.a. Federal Database Records**

The EDR report included a compilation of the following United States Environmental Protection Agency (USEPA) databases and lists of verified and potential hazardous-waste problem facilities located at, adjacent to, or within ASTM Standard Search Distances from the Site:

- USEPA National Priorities List (NPL). The NPL is the USEPA's national listing of uncontrolled or abandoned hazardous waste facilities identified for priority remedial actions under the Superfund Program.
- USEPA Comprehensive Environmental Response, Compensation, and Liability Information System (CERCLIS). The CERCLIS is the USEPA's national listing of actual and potential hazardous waste facilities.
- USEPA CERCLIS-No Further Remedial Action Planned (CERC-NFRAP). Database of archived designated Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) facilities, that to the best of the USEPA's knowledge, has had an assessment completed and a determination has been made that no further steps will be taken to list a facility on the NPL.
- USEPA Corrective Action Report (CORRACTS). CORRACTS identifies hazardous waste handlers with RCRA corrective action activity.
- USEPA Resource Conservation and Recovery Information System Treatment, Storage, and Disposal Facilities (RCRIS-TSD). The RCRIS-TSD is a listing of facilities that are required to register their hazardous waste activity under the Resource Conservation and Recovery Act (RCRA).
- USEPA Resource Conservation and Recovery Information System Large- and Small-Quantity Generators of hazardous waste (RCRA-GEN).
- USEPA Emergency Response Notification System (ERNS). The ERNS is the USEPA's national listing of releases of oil and hazardous substances reported to the USEPA, U.S. Coast Guard, the National Response Center and the Department of Transportation.

We also reviewed the EDR Orphan Sites, which is a compilation of facilities from the above federal databases that could not be specifically located due to a lack of suitable information. Please note that

information provided by EDR is limited for these facilities. Therefore, the potential impact to the Site from facilities listed on the EDR Orphan Sites cannot always be determined based on the available information.

Table 1 contains a summary of the findings.

**Table 1. Federal Database Records**

| Database   | Site | Search Distance (Miles)       | < 1/8 | 1/8-1/4 | 1/4-1/2 | 1/2-1 | Total Listed |
|------------|------|-------------------------------|-------|---------|---------|-------|--------------|
| NPL        | 0    | 1                             | 0     | 0       | 0       | 0     | 0            |
| CERCLIS    | 0    | 1/2                           | 0     | 0       | 0       |       | 0            |
| CERC-NFRAP | 0    | 1/4                           | 0     | 0       |         |       | 0            |
| CORRACTS   | 0    | 1                             | 0     | 0       | 1       | 0     | 1            |
| RCRIS-TSD  | 0    | 1/2                           | 0     | 0       | 0       |       | 0            |
| RCRA-GEN   | 0    | Site and adjoining properties | 0     |         |         |       | 0            |
| ERNS       | 0    | Site                          |       |         |         |       | 0            |

According to the EDR report, the Site was not listed on any of the ASTM or EDR Supplemental federal databases.

According to the EDR report, the following CORRACTS facility was listed within 1/2 mile of the Site:

- Eimco Coal Machinery at 2222 Devereux Road, is located approximately 1/2 mile east-southeast of the Site and across the Colorado River from the Site. The most recent activity at this facility was May of 2000 and information provided in the database listing indicates that the Corrective Action process was terminated, remedial activities were completed, and a Certification of Remedy Completion or Construction Completion was issued. Based on the location of this facility relative to the Site, it is unlikely that groundwater contamination associated with this facility (if groundwater contamination exists) would have an adverse impact on the groundwater beneath the Site.

According to the EDR report, no additional facilities were listed on any of the ASTM federal databases within the ASTM specified search distances.

#### **C.2.b. State Database Records**

The State Database Records report summarized the State of Colorado databases and lists. EDR evaluated the following State Database Records for current listings of verified and potential problem facilities located on, adjacent to, or within ASTM Standard search distances from the Site:

- Solid Waste Facilities/Landfill Sites (SWLF). The MPCA's database listing of permitted solid waste disposal facilities.

- **Voluntary Cleanup Program (VCP).** The VCP list is the Colorado Department of Public Health and Environment's (CDPHE) registry of properties at which a voluntary cleanup program has been or is being conducted. The CDPHE staff provides permitting and assistance in review of the investigation and any necessary remedial activities. A number of these properties have been investigated and cleaned up or found not to require any cleanup work.
- **Leaking Underground Storage Tank Incident Reports (LUST).** LUST records contain an inventory of reported leaking underground storage tank incidents.
- **Registered Underground Storage Tanks (UST).** USTs are regulated under Subtitle I of the RCRA and must be registered with the state department responsible for administering the UST program.
- **Colorado Emergency Response Notification System (CO ERNS).** Database listing of spills reported to the CDHPE. The data includes information regarding initial cause, initial source, material spilled, and quantity.

We also reviewed the EDR Orphan Sites, which is a compilation of facilities from the above state databases that could not be specifically located due to a lack of suitable information. Please note that information provided by EDR is limited for these facilities. Therefore, the potential impact to the Site from facilities listed on the EDR Orphan Sites cannot always be determined based on the available information.

Table 2 contains a summary of the findings.

**Table 2. State Database Records**

| Database         | Site | Search Distance (Miles)       | <1/8 | 1/8-1/4 | 1/4-1/2 | 1/2-1 | Total Listed |
|------------------|------|-------------------------------|------|---------|---------|-------|--------------|
| SWLF             | 0    | 1/2                           | 0    | 0       | 0       |       | 0            |
| VCP              | 0    | 1/2                           | 0    | 0       | 0       |       | 0            |
| LUST             | 0    | 1/2                           | 0    | 0       | 3       |       | 3            |
| UST              | 0    | Site and adjoining properties | 0    |         |         |       | 0            |
| CO ERNS (Spills) | 0    | Site                          |      |         |         |       | 0            |

According to the EDR report, the Site was not listed on any of the ASTM or EDR Supplemental state databases.



According to the EDR report, the following LUST facilities were located within 1/2 mile of the Site:

- Glenwood Springs Section (CDPHE Event ID #6363), at Devereux Road and Devereux Lane; located approximately 1/4 mile southeast of the Site. According to the database listing, the LUST incident status is closed for this event.
- CDOT Glenwood Springs, (CDPHE Event ID #784), at 202 Centennial Street, located approximately 1/2 mile east-southeast of the Site. According to the database listing, the LUST incident status is closed for this event. Additionally, four closed USTs were listed at this facility.
- Eimco Coal Machinery/Glenwood Industrial, LLC Site at 2222 Devereux Road, is located approximately 1/2 mile east-southeast of the Site and across the Colorado River from the Site. According to the database listing, the LUST incident status is closed for this event.

Based on the location of the three “closed” LUST facilities relative to the Site in the anticipated down-gradient direction, it is unlikely that groundwater impacts associated with these facilities (if any remain) would have an adverse impact on the Site.

According to the EDR report, no additional facilities were listed on any of the ASTM state databases within the ASTM specified search distances.

### **C.3. City of Glenwood Springs**

We contacted Mr. Ron Biggers, Glenwood Springs fire marshal, for information regarding the Site. According to Mr. Biggers, no records of USTs, emergency responses, fires, or other environmental issues are on record for the Site with the exception of the “Coal Seam Fire” of 2002, which burned across the Site, prior to the existing development. The Coal Seam Fire did not originate on the Site, but traversed it and the surrounding region.

### **C.4. Historical-Use Information**

The objective of the historical-use information review is to develop a history of the previous uses of the Site and surrounding area, in order to help identify the likelihood of past uses having led to recognized environmental conditions in connection with the property. We consulted only those historical sources that were readily available and practically reviewable and were likely to be useful to develop a history of the previous uses of the Site and surrounding area within the time and cost constraints of this Phase I ESA.

#### **C.4.a. Fire Insurance Maps**

Fire insurance maps are produced by private fire insurance map companies and indicate uses of property at specified dates. The information noted on the maps includes uses of individual structures, locations of fuel and/or chemical storage tanks, and storage of other potentially toxic substances.

According to EDR and our research, no historic fire insurance map coverage is available for the Site.

#### **C.4.b. City Directory Information**

We retained EDR to obtain city directory information pertaining to the Site and surrounding area. Because the Site addresses (on Market Street and Meadows Drive) did not exist until recently, no city directories were available for review.

#### **C.4.c. Aerial Photographs**

We obtained aerial photographs of the Site dated 1960, 1983, 1993, and 1999 from HIG. Copies of aerial photographs are attached in Appendix E of the previous Phase I ESA prepared by Braun Intertec in December 2003.

##### **1960**

The Site was depicted as undeveloped agricultural land. A farm access road was depicted traversing northwest-southeast on the Site. Surrounding properties are depicted as agricultural land in each direction from the Site.

##### **1983**

No significant changes were noted at the Site or surrounding area, with the exception of the railroad and industrial properties depicted adjacent to the north of the Site.

##### **1993**

No significant changes were noted at the Site or surrounding area, with the exception of additional development of the railroad and industrial properties depicted adjacent to the north of the Site.

##### **1999**

No significant changes were noted at the Site or surrounding area.

No land uses such as dumping or landfilling were apparent on or adjacent to the Site on the aerial photographs reviewed.

### **C.5 Previous Environmental Investigations**

The following previous environmental investigations were reviewed as part of the December 2003 Phase I ESA and are provided in Appendix E:

- *Phase I Environmental Site Assessment, Proposed Target, Midland Avenue, Glenwood Springs, Colorado*; Braun Intertec, dated December 3, 2003.
- *Geotechnical Analysis Summary*, conducted by High Country Engineering, dated September 17, 2001.
- *Glenwood Meadows Development Project Wildlife Species and Habitat Assessment*, conducted by J.F. Sato and Associates in February 2000.
- *Geologic and Preliminary Geotechnical Investigation Glenwood Meadows*, conducted by CTL/Thompson, Inc. in February 2000.
- *Phase I Environmental Site Assessment, Wulfsohn Ranch, Glenwood Springs, Colorado*; Western Technologies, Inc., dated June 5, 1996.
- *Wetland Investigation*, Professional Wetlands Consulting, Inc. July 8, 1996.

No recognized environmental conditions were identified in connection with the Site in the review of the aforementioned documents.

### **D. Information from Site Reconnaissance and Interviews**

A Site reconnaissance was conducted by a Braun Intertec environmental scientist (Rebecca Bourdon) on March 21, 2006. We obtained information regarding the Site from the following individuals:

- Mr. Terry Dorchak, Miller Weingarten Realty (Site property manager)
- Mr. Mike Van Orden (Lowe's)
- Mr. Mike Newton (Target)
- Ms. Evie Hamilton (Pier 1)
- Mr. Tobie McMurdie (Gart Sports)
- Ms. Chelsie Osterberg (BBB)
- Ms. Jess Shaw (Petco)

#### **D.1. Known Current and Past Uses of the Site and Adjoining Properties**

At the time of this assessment, the Site consisted of an approximately 250-acre developed lot. A total of 17 retail buildings were either located on the Site. Eight of the tenant spaces were occupied at the time of the Site reconnaissance and consisted of the following retailers:

- Lowe's (unattached)
- Target (attached to future grocery store and Marble Slab restaurant)
- Pier 1, Gart Sports, Bed Bath and Beyond (BBB), and Petco (Gart Sports complex - attached)
- Great Clips (unattached)
- Chili's (unattached)

The Lowe's facility was a 1-level, approximately 130,000-square-foot, slab-on-grade building and the Target facility was a 1-level, approximately 125,000-square-foot, slab-on-grade building. The Gart Sports complex retail facility consisted of a single-story, approximate 85,000-square-foot, slab-on-grade building. The nine remaining unattached facilities consisted of single-story, slab-on-grade buildings ranging in size from approximately 1,200 square feet to 6,900 square feet. Paved parking and landscaped areas were located across the Glenwood Meadows shopping complex. The Lowe's building was located on the west portion of the Site and the Target and Gart Sports complex buildings were located on the north portion of the Site, and the remaining buildings were located in the central portion of the Site. The easternmost planned buildings were not present at the time of the Site reconnaissance, however, the easternmost portion of the Site was graded and prepared for development with construction staging materials stored on it.

The Site was bordered on the north by Midland Avenue with railroad tracks, Coors Distributing, Midwest Drywall Company, Inc./Electrical Outfitters, Big John Ace Hardware, a power substation, and Envirotech located beyond; on the south by undeveloped pasture land with mountains beyond; on the east by the City of Glenwood Springs Community Center with undeveloped property beyond; and on the west by vacant, graded, parcels with a Park-and-Ride parking lot and Roaring Fork Transportation Center/City Municipal property beyond. The Site is located in an industrial and commercial area within the city of Glenwood Springs.

Our research has revealed that the Site and surrounding area have been rural in nature. According to our research, the Site and surrounding area were historically utilized as a ranch for livestock grazing and cultivated agricultural land. The Site was occupied by Glenwood Meadows Shopping Center at the time of this assessment. According to the existing tenant representatives, the structures they occupied were significantly completed in May 2005 and each took possession of their respective spaces between early October and late November 2005, with the exception of Great Clips, who took possession in February 2006. A Site sketch and Site photographs are included as Appendix B and D, respectively.

## **D.2. Site Layout**

During the reconnaissance, the Site topography appeared to be gently sloping to the north, toward the Colorado River. Drainage on the Site appeared to be toward storm water catch basins located in the paved parking areas and in the adjacent streets. Paved parking/driveway surfaces were located throughout the Glenwood Meadows Shopping Center.

## **D.3. Hazardous Substances and Petroleum Products**

No indications of spills or leaks of hazardous substances or petroleum products were noted on the Site at the time of our reconnaissance with the exception of minor staining on concrete surfaces that were not compromised. Retail displays of household-sized cleaners, petroleum-based products, pesticides, herbicides, and fertilizers were noted in the Lowe's and Target facilities. Spill kits were located in multiple locations within these tenant spaces in the event of spills or leaks of these products. According to the tenant representatives, corporate-established training programs for small hazardous materials spill response were in-place and this training was provided to their employees. Additionally, storage of household sized up to 5-gallon-sized cleaners were noted in the janitor's closet of each tenant space.

A total of 13 drums were noted on the Lowe's property at the time of the Site reconnaissance. All drums were located within the secured hazardous materials storage area located on the west exterior side of the building, with the exception of two polyethylene drums labeled Euco Diamond Hard (liquid densifier) located near the loading dock that were of unknown origin to the manager on duty. According to the manager on duty, these drums had been recently left there as he had not been aware of them prior to the Site reconnaissance performed for this Phase I ESA, but he indicated he would have them moved to the hazardous materials storage area and disposed off-site at an authorized facility. All of the drums located within the hazardous materials storage area were empty with the exception of one waste materials metal 55-gallon drum. According to the manager, the drums are filled with fluids and waste materials brought onto the Site by customers (i.e., returned equipment containing fluids requiring disposal). No staining or cracked flooring was noted in the vicinity of the hazardous materials storage area on the Lowe's property.

Three 55-gallon metal drums containing used cooking grease/oil were noted on the north exterior of the Chili's property, within the garbage enclosure. Staining was noted in the vicinity of the drums; however, the used grease is cooking grade and did not appear to present an environmental issue. According to the manager on duty, the grease drums are disposed of approximately every three months, or as needed, by a vendor contracted by Chili's.

According to the Site tenant representatives, Material Safety Data Sheets (MSDSs) were maintained in various locations within each tenant space, where applicable. Additionally, MSDSs were noted in various locations within the tenant spaces during the Site reconnaissance.

Cargo lifts noted in the loading docks of various tenant spaces were either operated by electric-powered air bags or were spring loaded. Forklifts noted throughout the tenant spaces used hydraulics, but were electrically powered. No leakage or staining was noted on any of the forklifts at the time of the Site reconnaissance. Numerous cardboard and trash compactors were noted on the Site; however, no oil staining was noted in the vicinity of the compactors at the time of the Site reconnaissance.

#### **D.4. Storage Tanks**

No underground or aboveground storage tanks were noted or reported on the Site by the interviewees at the time of the Site reconnaissance, with the exception of one 1,100-gallon diesel aboveground storage tank (AST), noted on the west side of the Lowe's building, within a generator/transformer enclosure. The diesel AST labels indicated a secondary containment unit was built into the unit as a whole. No staining, leaking, or cracked pavement was noted in the vicinity of the AST.

A total of 18 propane pressurized tanks were noted on the west exterior of the Lowe's building, within a caged unit, secured to the paved surface below. One carbon dioxide pressurized tank was noted in the restaurant portion of the Target building. Additionally, one air compressor was noted in each of the Lowe's, Target, and Chili's buildings. Minor oil/water staining was noted in the vicinity of the air compressor in the Target building, however, the staining was located on concrete that did not appear to have been cracked, pitted, or otherwise compromised.

#### **D.5. Potential PCB-Containing Equipment**

Numerous transformers were noted throughout the Site; a total of 13 utility-owned (City of Glenwood Springs) pad-mounted transformers were noted on the common areas (i.e., parking lots, landscaped areas). The remaining transformers were floor mounted and noted in each of the tenant spaces, with the exception of the Petco, Pier 1, and Great Clips facilities. A "non-PCB" label was adhered to each of the exterior transformers. No staining or signs of leaks were noted in the vicinity of the transformers on the Site and each appeared to be in good condition.

#### **D.6. Indications of Solid Waste Disposal**

No indications of the uncontrolled disposal of solid waste or dumping were noted on the Site. Solid wastes generated at the Site are disposed in dumpsters serviced by local waste haulers contracted separately by each of the tenants (e.g., Discovery cardboard recycling, Waste Management, and Rocky Mountain Disposal).

Solid wastes typical of a construction project were noted on the areas of the Site undergoing building construction at the time of the Site reconnaissance. None of these wastes appeared to represent an environmental concern and the contractors on the Site appeared to be diligent in removing excess construction debris.

#### **D.7. Potable Water Sources and Sanitary/Wastewater Discharges**

The Site is connected to municipal water and sewer utilities. No disposal/discharge pits, surface impoundments or lagoons were noted at the Site. Retention ponds were noted along the north property boundary, receiving discharge runoff water from the Site. No sheen was noted on the retention pond water; however, the water appeared sediment-laden due to a recent precipitation event. No vegetation had been planted around the ponds at the time of the Site reconnaissance.

Floor drains were noted throughout each tenant space at the time of the Site reconnaissance in the restrooms and in kitchen areas. According to each tenant representative, the floor drains all discharge to the sanitary sewer and no oil/water separators, sand traps, or flame traps were noted on the Site. However, one sub-grade grease trap was noted in the restaurant area of the Target building. The grease trap was visually inspected and generally appeared to be in good, new, condition. The grease trap appeared to be only partially filled and was reportedly pumped out and cleaned once every six months.

According to the tenants interviewed at the time of the Site reconnaissance, no water wells exist on the Site. Additionally, no indications of monitoring or drinking water wells above grade were noted on the Site.

According to the City of Glenwood Springs Red Mountain Water Treatment Plant representative, the concentration of lead in the municipal drinking water supply is below the State of Colorado-established drinking water standard of 0.015 milligrams per Liter (mg/L) dissolved lead.

#### **D.8. Other Utilities**

Each building on the Site is heated by a rooftop-mounted natural gas-fired, forced-air furnace and cooled by a rooftop-mounted electric air-conditioning unit. The utility providers varied by tenant, but were generally provided by the City of Glenwood Springs, Xcel Energy, and/or Kinder Morgan, or a combination thereof.

#### **D.9. Wetlands Information**

In general accordance with the Goldman Sachs Commercial Mortgage Capital, L.P. Phase I ESA Scope of Services, dated May 6, 1998, Section 2.2, paragraph (f), wetlands information for the Site was provided in the EDR report. According to the EDR report, the Site is located within a designated Federal Wetlands area. For specific information pertaining to the wetland issues on this Site, please refer to the Wetland Delineation report dated, June 1996, which was prepared by Professional Wetlands Consulting, Inc. (the Site is referred to as Wulfsohn Ranch in this report, which is included in Appendix E). It should be noted that the EDR report and NEPA report obtained for the 2003 Phase I ESA did not identify wetlands on the Site.

#### **D.10. NEPA Information**

A National Environmental Policy Act (NEPA) report, providing information pertaining to endangered species and archaeological sites, was provided in the Phase I ESA performed by Braun Intertec in December 2003. Additionally, a Wildlife Species and Habitat Assessment was performed for the Glenwood Meadows Development Project in February 2000 and was reviewed as part of the December 2003 Phase I ESA of the Site. The 2003 Phase I ESA found no sites of archeological significance were located on the Site and no threatened or endangered plant or animal species would be significantly adversely affected by the development of the Site. These reports are attached in Appendix E - Previous Environmental Investigations for further information.

#### **D.11. Radon Gas**

Radon is a naturally occurring radioactive gas found in soils and rocks as a result of the natural decay or breakdown of native uranium and radium. Radon is a colorless and odorless gas that can accumulate once inside an enclosed space, such as a basement. Based on information from the Colorado Geological Survey provided in the previous 2003 Phase I ESA prepared by Braun Intertec, radon gas levels are considered low to moderate for structures tested in the area of the Site.

Additionally, according to the EPA's Radon informational website, Garfield county is located within a Zone 1 designation for radon, which is defined as follows, "Zone 1 counties have a predicted average indoor radon screening level greater than 4 pCi/L (pico curies per liter) (red zones)." However, due to the lack of basements or other sub-grade levels in the buildings located on the Site, radon is not anticipated to adversely affect the Site buildings.



#### **D.12. Asbestos**

A visual assessment for damaged, potentially asbestos-containing material (ACM) was performed as part of this Phase I ESA. Construction of the buildings on the Site began in May 2005 and continued through the time of the Site reconnaissance. The buildings were constructed of pre-cast concrete and concrete block exterior walls, with metal framing, typical retail interior finishes, and metal roofing support systems, all of which appeared to be in good condition at the time of the Site reconnaissance. Due to the age of the structures and the building materials' condition, no damaged potential ACM was noted during the Site reconnaissance. In our opinion, assessment of these materials would be recommended in the event of future renovation or demolition.

#### **D.13. Lead-Based Paint**

Based on the commercial use of the Site, a visual assessment for potential areas of lead-based paint was not performed as part of this Phase I ESA.

#### **D.14. Moisture Intrusion/Mold**

A visual assessment for moisture intrusion/mold was performed as part of this Phase I ESA. No areas of moisture intrusion or evidence of suspect fungal growth was noted in the buildings on the Site at the time of the Site reconnaissance. It should be noted that building and other Site improvement construction was on-going at the time of the Site visit and therefore, not all future tenant-occupied spaces were accessed.

### **E. Findings**

The following environmental conditions regarding the Site were noted:

- Information regarding the Site was available back to 1930. The information indicates that the Site was developed at that time as ranch land.
- Based on regulatory information, the Site is located in an area of known petroleum and non-petroleum groundwater impacts from facilities located in the down-gradient direction relative to the Site and each facility has been issued closure by the CDPHE.
- The Site was substantially developed with a new shopping center complex at the time of this assessment. Construction was underway on the remaining portions of the Site.
- Minor areas of oil/water condensate staining were noted in the vicinity of an air compressor in the Target building during the Site reconnaissance.

## **E. Opinions**

### **F.1 Recognized Environmental Conditions**

A “recognized environmental condition,” as defined by ASTM Practice E 1527-00 is “The presence or likely presence of any hazardous substances or petroleum products on a property under conditions that indicate an existing release, a past release or a material threat of a release of any hazardous substances or petroleum products into structures on the property or into the ground, groundwater or surface water of the property. The term includes hazardous substances or petroleum products even under conditions of storage and use in compliance with local and state regulations.”

This assessment identified no recognized environmental conditions in connection with the Site.

### **F.2 Historical Recognized Environmental Conditions**

Historical Recognized Environmental Conditions are conditions that were or would have been considered to be Recognized Environmental Conditions in the past but because of further information or a change of conditions are no longer considered Recognized Environmental Conditions. This assessment identified no historical recognized environmental conditions in connection with the Site.

### **F.3 De Minimis Conditions**

A *de minimis* condition is a condition that generally does not present a material risk of harm to public health or the environment and that generally would not be the subject of an enforcement action if brought to the attention of regulatory governmental agencies.

The past uses of the Site for cultivated farmland/pastureland and the current use as a retail center, in our opinion, appear to represent a *de minimis* condition at the Site.

The government database records identified several facilities in the surrounding area. Based on factors that include the regulatory status, the distances of the facilities from the Site, and the locations of the facilities relative to the estimated direction of groundwater flow, the database listings in the surrounding area appear to represent *de minimis* conditions.

The oil/water condensate staining noted in the vicinity of the air compressor in the Target space appeared to represent a *de minimis* condition, due to the lack of compromised concrete flooring below it.

## **G. Conclusions**

We have performed this Phase I ESA of the Site in general conformance with the scope and limitations of ASTM Practice E 1527-00. Any exceptions to, or deletions from, this practice are described in Section A.3. of this report.

This assessment has revealed no indications of recognized environmental conditions in connection with the Site.

## **H. Recommendations**

Based on the current use of the property, we do not recommend additional environmental investigation regarding the Site at this time with the exception that:

- Property management representatives should request that the Target building tenant collect the condensate from the air compressor, provide secondary containment to the air compressor, and/or monitor the air compressor for additional oil/water staining and maintaining good housekeeping practices in the vicinity.

## **I. Qualifications of Environmental Professionals**

A Braun Intertec Statement of Qualifications for this Phase I ESA project will be provided to the User upon request.

## **I. References**

Standard Practice for Environmental Site Assessments: Phase I Environmental Site Assessment Process, 2000, Annual Book of ASTM Standards, Vol. 11.04, E 1527-00.

**Appendix A**  
**Site Location Map**



**PHASE I  
ENVIRONMENTAL SITE ASSESSMENT**

**WULFSOHN RANCH PROPERTY  
GARFIELD COUNTY, COLORADO**

***WT REF. NO. 3186JC077***



**Prepared For:**

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Unocal Corporation  
4289 County Road 215  
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**Western  
Technologies  
Inc.**

**The Quality People  
Since 1955**

**PHASE I  
ENVIRONMENTAL SITE ASSESSMENT  
WULFSOHN RANCH PROPERTY  
GARFIELD COUNTY, COLORADO**

**PROJECT NO. 3186JC077  
DATE: JUNE 5, 1996**

**PREPARED FOR:**

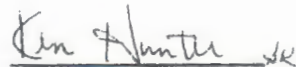
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## TABLE OF CONTENTS

|                                                                       | <u>PAGE</u> |
|-----------------------------------------------------------------------|-------------|
| <b>1.0 INTRODUCTION</b> . . . . .                                     | <b>1</b>    |
| 1.1 PROJECT AUTHORIZATION . . . . .                                   | 1           |
| 1.2 PROJECT OBJECTIVE AND SCOPE OF SERVICES . . . . .                 | 1           |
| 1.3 METHODOLOGY AND LIMITING CONDITIONS . . . . .                     | 2           |
| <b>2.0 ENVIRONMENTAL SETTING</b> . . . . .                            | <b>2</b>    |
| 2.1 SITE LOCATION . . . . .                                           | 2           |
| 2.2 TOPOGRAPHY/DRAINAGE . . . . .                                     | 3           |
| 2.3 REGIONAL GEOLOGY . . . . .                                        | 4           |
| 2.4 REGIONAL HYDROGEOLOGY . . . . .                                   | 5           |
| <b>3.0 SITE CONDITIONS</b> . . . . .                                  | <b>6</b>    |
| 3.1 CURRENT LAND USE . . . . .                                        | 6           |
| 3.2 BUILDINGS . . . . .                                               | 6           |
| 3.3 UTILITIES . . . . .                                               | 6           |
| 3.4 ELECTRICAL TRANSFORMERS AND OTHER POTENTIAL PCB SOURCES . . . . . | 6           |
| 3.5 ABOVEGROUND STORAGE TANKS . . . . .                               | 7           |
| 3.6 UNDERGROUND STORAGE TANKS . . . . .                               | 7           |
| 3.7 HAZARDOUS MATERIAL STORAGE AREAS . . . . .                        | 7           |
| 3.8 WASTE INDICATORS . . . . .                                        | 7           |
| 3.9 WASTEWATER/EFFLUENT DISCHARGES . . . . .                          | 8           |
| 3.10 RADON GAS . . . . .                                              | 8           |
| <b>4.0 OFF-SITE RECONNAISSANCE</b> . . . . .                          | <b>9</b>    |
| <b>5.0 REGULATORY RECORDS REVIEW</b> . . . . .                        | <b>10</b>   |
| 5.1 FEDERAL . . . . .                                                 | 10          |
| 5.1.1 CERCLIS Database . . . . .                                      | 10          |
| 5.1.2 FINDS Database . . . . .                                        | 10          |
| 5.1.3 NPL Database . . . . .                                          | 11          |
| 5.1.4 RCRA Database . . . . .                                         | 11          |
| 5.1.5 ERNS Database . . . . .                                         | 11          |
| 5.2 STATE OF COLORADO . . . . .                                       | 11          |
| 5.2.1 Registered and Leaking UST Database . . . . .                   | 11          |
| 5.2.2 Storage Tank Remedial Section Database . . . . .                | 12          |
| 5.2.3 Solid Waste Facility Database . . . . .                         | 12          |





|             |                                                      |           |
|-------------|------------------------------------------------------|-----------|
| <b>6.0</b>  | <b>OWNERSHIP/USE HISTORY</b>                         | <b>12</b> |
| 6.1         | INTERVIEWS                                           | 12        |
| 6.2         | TOPOGRAPHIC MAPS                                     | 13        |
| 6.3         | HISTORICAL AERIAL PHOTOGRAPHS                        | 13        |
| 6.4         | TITLE HISTORY                                        | 14        |
| <b>7.0</b>  | <b>SUMMARY OF FINDINGS</b>                           | <b>15</b> |
| <b>8.0</b>  | <b>CONCLUSIONS AND RECOMMENDATIONS</b>               | <b>17</b> |
| <b>9.0</b>  | <b>LIMITATIONS</b>                                   | <b>17</b> |
| 9.1         | GENERAL                                              | 17        |
| 9.2         | EXCEPTIONS TO AND DELETIONS FROM ASTM PRACTICE E1527 | 18        |
| <b>10.0</b> | <b>REFERENCES</b>                                    | <b>19</b> |
| 10.1        | AGENCIES AND OFFICES                                 | 19        |
| 10.2        | REPORTS AND PUBLICATIONS                             | 19        |

#### **TABLES**

|                |                            |
|----------------|----------------------------|
| <b>TABLE 1</b> | <b>SOIL DESCRIPTION</b>    |
| <b>TABLE 2</b> | <b>RADON STUDY RESULTS</b> |

#### **FIGURES**

|                |                     |
|----------------|---------------------|
| <b>PLATE 1</b> | <b>VICINITY MAP</b> |
| <b>PLATE 2</b> | <b>SITE PLAN</b>    |

#### **APPENDICES**

|                   |                              |
|-------------------|------------------------------|
| <b>APPENDIX A</b> | <b>PHOTOGRAPHIC LOG</b>      |
| <b>APPENDIX B</b> | <b>FEDERAL/STATE REPORT</b>  |
| <b>APPENDIX C</b> | <b>CHAIN-OF-TITLE REPORT</b> |





## EXECUTIVE SUMMARY

Western Technologies Inc. (WT) conducted a Phase I Environmental Site Assessment (ESA) at the 436-acre Unocal Wulfsohn Ranch property, located in Garfield County, Colorado. The ESA is based on a site visit to the property, interviews with persons knowledgeable about the property, a historical aerial photograph review, a regulatory records review, and a review of site ownership/use history.

WT concludes that no recognized environmental conditions have been identified for the subject property and no further environmental studies related to this scope of work are necessary at this time.



**PHASE I  
ENVIRONMENTAL SITE ASSESSMENT  
WULFSOHN RANCH PROPERTY  
GARFIELD COUNTY, COLORADO**

**1.0 INTRODUCTION**

**1.1 PROJECT AUTHORIZATION:** This report presents the results of a Phase I ESA conducted for Unocal. The subject property is the 436-acre Wulfsohn Ranch property, located in Garfield County, Colorado (please refer to Plate 1, Vicinity Map). WT was retained by Mr. Gary Parks, Senior Property Supervisor, Unocal, to conduct the assessment. This report of findings completes the scope of services.

**1.2 PROJECT OBJECTIVE AND SCOPE OF SERVICES:** The objective of this ESA was to observe current site conditions, and evaluate the potential for hazardous or toxic substance contamination. The ESA focused on past and present uses of the subject property and sites within the American Society for Testing Materials (ASTM) specified distances from the property. The report discusses the presence of materials which could contribute to potential environmental liability due to past and current activities on or adjacent to the subject property, and the presence of any hazardous materials on the property.

The scope of work for the project included the following activities:

- Review of VISTA Site Assessment Report of regulatory agency databases covering the areas occupied by the property and sites within search distances specified by ASTM Standard Practice E 1527;
- Evaluation of the physical setting of the property and study area;
- Description of current and past uses of the property;
- Reconnaissance of the property during a site visit;
- Reconnaissance of adjoining sites within ASTM-specified distances, during a site visit;
- Review of a 50-year Chain-of-Title report provided by Land Title Guarantee Company;
- Interviews with persons knowledgeable of the site history and usage;
- Evaluation of the information developed through the assessment tasks; and,
- Presentation of this report.



**1.3 METHODOLOGY AND LIMITING CONDITIONS:** In general, and to the extent described elsewhere in this report, WT initiated this ESA through systematic review and observation of current conditions at the subject property and adjoining sites. As part of this approach, WT personnel conducted visual and physical reviews of the property and made observations regarding its condition and uses. WT observed accesses onto the property, such as roads, utility easements, railroads, pathways or other discernable access points leading into the property from it's periphery. WT also reviewed the areas adjoining the subject property to the extent that these areas were visible from the property or from public thoroughfares. The observations made during the WT review of the property and adjoining areas included the following features:

- Geologic, hydrogeologic, hydrologic, and topographic features;
- Site drainage characteristics including washes, canals, basins, culverts, and dry wells;
- Physical improvements including buildings, roads, and parking lots;
- Septic systems;
- Aboveground storage tanks (ASTs);
- Evidence of underground storage tanks (USTs) including fuel pumps, pump islands, vent pipes, and inspection ports;
- Electrical or hydraulic equipment;
- Groundwater wells;
- Material and waste storage areas including storage containers;
- Environmental indicators such as odors, stressed vegetation, staining or corrosion on soil or paved areas;
- Oil sheens, films, or coatings on standing water;
- Solid wastes on the ground surface, in solid waste containers, or within open excavations;
- Non-natural filling or surface grading including mounding and depressions; and,
- Ponds, pits, lagoons, sumps and drains, and excavations.

No conditions limiting the site investigation procedure were encountered during the site visit.

## 2.0 ENVIRONMENTAL SETTING

**2.1 SITE LOCATION:** The subject property is an undeveloped parcel of land consisting of 436.27 acres, more or less, located within portions of sections 5, 6, 8, 9, Township 6 South, Range 89 West; Garfield County, Colorado (please refer to Plate 1, Vicinity Map). The property is located approximately 1 mile northwest of downtown Glenwood Springs, Colorado.



The subject property is located immediately west of the city limits of Glenwood Springs. Two parcels of the property were separated from the main body of the ranch during recent construction of the extension of Midland Avenue. The "West Parcel" consists of 5.75 acres of land and the "East Parcel" consists of 4.20 acres. Both parcels are located on the north side of the Midland Avenue extension. The property is bounded to the north by private lands (Denver & Rio Grande Railroad); to the east by the City of Glenwood Springs (City; Yampah Mountain H.S., residential); and to the south and west by private land and public lands administered by the Bureau of Land Management (BLM).

The only potential for environmental concern indicated by the setting was the fact that the subject property is virtually unpatrolled and not entirely "secure". The subject property can currently be accessed from the southeast via a locked gate. Future access will be from the new extension of Midland Avenue (under construction). In addition, a direct access from the Midland Avenue extension to the "West Parcel" will be provided. Access to the "East Parcel" from Midland Avenue is provided by an existing private road which is part of the property (Plate 2).

**2.2 TOPOGRAPHY/DRAINAGE:** The property is located in west-central Colorado. The elevation of the property ranges from a high of approximately 6,760 feet above mean sea level (msl) in the southern edge of the western property line, to a low of approximately 5,710 feet msl in the northern edge of the "Western Parcel" of the property, according to the Glenwood Springs, Colorado, 1961 (photorevised 1987) U.S. Geological Survey 7.5-minute topographic sheet. The subject property lies in the Colorado River valley immediately west of Glenwood Springs. The northeast 1/3 of the property is relatively flat and grass-covered. The middle section and majority of the property is slightly to moderately sloped and grass/sagebrush/tree - covered. The southern boundary of the property is steeply sloped and either barren or covered with sagebrush and/or trees (please refer to site photographs; Appendix A).

Several natural drainages exist on the property trending generally north-northeast toward the Colorado River. The local surface drainage is also north-northeast toward the Colorado River. The regional gradient is generally west along the Colorado River. Two retention ponds were observed on the subject property for the watering of livestock. The first pond was only damp and was located .4 mile from the southeast access point. The second pond (main retention pond) contained water and was located immediately south of center of the northern property line. Several irrigation ditches (including the Atkinson Canal) trending generally NW-SE were observed, but none contained water.



The Garfield County (County) Municipal Building located in Glenwood Springs, Colorado, maintains a variety of databases of environmental significance. The National Flood Insurance Program's Flood Insurance Rate Map (FIRM) of the County dated January 3, 1986 indicated that the "West Parcel" was in "Zone C" (area of minimal flooding), and the remainder of the property was located in "Zone D" (area of undetermined, but possible flood hazards). Mr. Mark Bean, County Building and Planning Department Director, stated that the subject property was in an area zoned for Agricultural/Residential/Rural Density (A/R/RD) with a minimum 2-acre lot size. Mr. Gary Parks, Unocal Senior Property Supervisor stated in his report titled, "Unocal Roaring Fork Ranches - Colorado", dated February 9, 1996, that the "West Parcel" has been annexed to the City and is zoned C-1 Limited Commercial.

**2.3 REGIONAL GEOLOGY:** The subject property lies within the western flank of the Southern Rocky Mountains geomorphic province located within the Rocky Mountain System. The Southern Rocky Mountains Province terminates just west of the property at the Grand Hogback, where the Colorado Plateaus Province commences. The Glenwood Springs Hot Springs, for which the City is famous, flow 123 degree fahrenheit water at the rate of 2,500 gallons per minute from Pennsylvanian shales. The hot water rises rapidly from considerable depth through broken and shattered rocks along a fault zone near the Colorado River.

The majority of the property (low-lying) is underlain by modern (Quaternary) alluvium. This alluvium was deposited over the past 2 million years by the nearby Colorado River. Rocks comprising the surrounding cliffs include: Mississippian Leadville Limestone (massive gray rock); contorted gypsum-bearing Pennsylvanian shales, Triassic redbeds (lower slopes on the southern boundary); and the Maroon Formation, which comprises "Red Mountain", on the southern boundary of the property.

Because of the large areal extent of the subject property, two different series of soils have been identified. The soils types are summarized below in Table 1.





**Table 1. Soil Description**

| SOIL TYPE                                                                           | DESCRIPTION                                                                                                  | SHRINK/SWELL<br>POTENTIAL | CORROSION RISK |          |
|-------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------|---------------------------|----------------|----------|
|                                                                                     |                                                                                                              |                           | Uncoated Steel | Concrete |
| Jerry-Lamphier-Cochetopa.<br>12 to 50% slopes - 15 to 50% slopes - 9 to 50% slopes. | Deep, well-drained, moderately sloping to steep soils on mountains and fans.                                 | low-high                  | high           | low      |
| Morval-Villa Grove.<br>3 to 12% slopes - 15 to 30% slopes.                          | Deep, well-drained, moderately sloping to moderately steep soils on mesas, mountainsides, and alluvial fans. | low-moderate              | high-moderate  | low      |

**2.4 REGIONAL HYDROGEOLOGY:** In western Colorado, groundwater is extracted from the following aquifers: Valley fill alluvial deposits, Green River Formation, Mesa Verde group, Dakota sandstone, Entrada sandstone, Glen Canyon group, Wingate sandstone, Leadville limestone, pre-Mississippian age rocks, Precambrian crystalline rocks. With the exception of Valley fill deposits, the ability to produce water from any of the aforementioned aquifers is dependent on several geological factors, the most critical being structure. Throughout much of western Colorado, the rocks have been subjected to complex deformation processes that directly affect the hydrogeologic conditions. Therefore, it is quite possible for groundwater to occur under artesian or flowing artesian conditions locally within the same aquifer.

An example of how local geologic conditions effect water quality of the surface waters in the Colorado River Basin is evident in the Piceance Creek structural basin where the Green River Formation is exposed. Large quantities of water exist in varying degrees of quality. Groundwater produced from the upper member is typically of high quality while water produced from the lower member is typically of poor quality with total dissolved solids (TDS) content as high as 63,000 milligrams per liter (mg/l). Groundwater discharge has a deleterious effect on surface water quality in the Piceance Creek Basin. Near the headwaters of Piceance Creek, the water is a predominantly calcium, magnesium, bicarbonate type. However, at the mouth of the creek, the water is a sodium bicarbonate type and the TDS showed an increase from 600 mg/l to 2,000 mg/l.



However, the single geologic factor having the most impact on water quality in western Colorado are the many mineral springs found throughout the area. These springs add over 528,000 tons of dissolved minerals annually to the western Colorado rivers. The waters produced by these springs are generally a sodium chloride type, but some are sodium bicarbonate or sulfur in type. Depth to groundwater beneath the subject property is unknown.

### 3.0 SITE CONDITIONS

Information in this section is based solely on: a site visit to the property on April 23, 1996; interviews with persons knowledgeable of the subject property; and any specific references included in the following subsections. A Site Plan is provided as Plate 2. Photodocumentation of site conditions at the time of WT's site visit is provided as Appendix A.

**3.1 CURRENT LAND USE:** The subject property was rural and undeveloped, and was utilized exclusively for agricultural purposes (primarily cattle pasture and raising hay). Site improvements included fencing, two catch basins, an irrigation system of ditches/canals, and roads. Much of the property consisted of rugged terrain which was not easily accessible (please refer to Plate 2 for areas visited by car and on foot). No staining of soils or stressed vegetation were observed during the site visit.

**3.2 BUILDINGS:** No buildings were observed on the subject property.

**3.3 UTILITIES:** The City of Glenwood Springs maintains underground electrical utilities which are located in the corral area of the property and service an irrigation pump. In addition, two pole-mounted transformers were located along the north property line fence near the southeast corner of the property. However, the transformers are scheduled to be removed in a month and replaced by new pad-mounted transformers as part of the Midland Avenue extension. No other utilities were observed on the subject property, however, several downed utility poles were noted.

**3.4 ELECTRICAL TRANSFORMERS AND OTHER POTENTIAL PCB SOURCES:** Some older transformers, capacitors, generators, fluorescent light ballasts, and other electrical equipment may contain polychlorinated biphenyls (PCBs) in the dielectric fluid. PCBs are suspected carcinogens and were banned from manufacture by the 1976 Toxic Substance Control Act. Transformer oils are classified in one of three categories:

- Non-PCB - containing less than 50 parts per million (ppm) of PCBs.





- PCB-contaminated - containing between 50 and 500 ppm of PCBs. Transformers which have not been tested are assumed by federal regulations to be PCB-contaminated.
- PCB transformer - containing more than 500 ppm of PCBs. All PCB transformers were to have been removed from the public domain by October 1990.

The property was surveyed for the presence of potential PCB sources and two pole-mounted transformers were observed 3-feet north of the of the north property line fence near the southeast corner of the property. Mr. Ken George of the City was contacted on May 23, 1996 regarding the condition of the two transformers. Mr. George responded to WT that the transformers have never been tested for PCBs. However, the transformers are scheduled to be removed in a month and replaced by new pad-mounted transformers as part of the Midland Avenue extension. The existing transformers showed no indications of leakage.

**3.5 ABOVEGROUND STORAGE TANKS:** AST registration is not generally required unless the tank contains hazardous waste/materials or requires a flammable contents permit from the local fire department.

No ASTs or surface indications of former ASTs were noted on the subject property during the site visit. The Assistant Fire Chief noted that the City does not require local ranches and farms to register ASTs, and he was not aware that any ASTs were ever located on the subject property.

**3.6 UNDERGROUND STORAGE TANKS:** Underground storage tanks (USTs) are tanks that store regulated substances and have at least 10 percent of their volume (including contents of associated pipe systems), underground. Surface evidence of former UST locations would include pump islands, cut-off pipes, vent pipes, and asphalt patches. No surface evidence of existing or former USTs was noted on the subject property.

**3.7 HAZARDOUS MATERIAL STORAGE AREAS:** Hazardous materials, if present, should be stored in such a manner as to contain any potential leaks, spills or other discharges. Proper storage would also include container integrity, secondary containment capacity of 110 percent of the total volume or the largest container, whichever is greater, and storage of volatile chemicals in properly vented fireproof room or cabinet. All containers of hazardous materials should be properly labelled and Material Safety Data Sheets should be present at the facility for all hazardous materials. Records of waste disposal should be maintained at the facility. All ignitable and reactive wastes should be stored at least 50 feet inside the property boundary.



No hazardous materials were observed on the subject property during the site reconnaissance.

**3.8 WASTE INDICATORS:** Waste indicators would include: stressed vegetation; spillage/leakage of hazardous substances; staining of soil or other permeable surfaces; leachate or waste seeps; waste materials; disposal areas; construction/demolition debris; drums, barrels or containers which presently or could have formerly contained hazardous substances; unusual odors; and surface water discoloration, odor, sheen or free floating product. No waste indicators were observed on the subject property.

**3.9 WASTEWATER/EFFLUENT DISCHARGES:** Wastewater/effluent discharge would include: existing or former oil/water separators, sumps, dry wells, catch basins, injection wells, groundwater/wastewater treatment systems, septic tanks, leach fields, floor drains, compressor blowdown and exterior pipe discharges.

Two catch basins were observed on the subject property located adjacent to the access road. The catch basins had no indication of surface water discoloration, odor, sheen or free floating product.

**3.10 RADON GAS:** Radon is a naturally occurring radioactive gas. It is odorless, tasteless and invisible. Several years of research, based on the medical records of uranium mine workers, have shown a correlation between exposure to elevated radon concentrations and subsequent irradiation of lung tissues which can result in lung cancer. Because radon occurs as a gas, the pathway for exposure is via inhalation. Radon, itself, is an inert gas and does not interact with the body. It is the radioactive decay products of radon ("radon daughters") which are retained as solids and actually irradiate the lungs.

Radon is one of several materials produced through the natural decay of uranium to stable lead. As a gas, radon escapes from the soil and becomes airborne. Thus, the potential exists for radon to accumulate to concentrations above the remedial action level of 4.0 picocuries per liter (pCi/l) in structures throughout the United States.

Geologic materials that contain above average levels of uranium are potential sources of radon gas that can seep into homes and buildings and accumulate in elevated concentrations. Radon can be found in high concentrations in soils and rocks containing uranium, such as granite, shale, phosphate and pitchblende. Locations of these materials are highly unpredictable. Elevated levels of radon may also be found in soils contaminated with certain types of industrial wastes, such as the by-products from uranium or phosphate mining.



According to a publication from the Colorado Geological Survey, Department of Natural Resources, entitled "Results of the 1987-88 EPA Supported Radon Study in Colorado", radon gas levels are considered low to moderate for structures tested in the area of the subject property according to the following categories: Geological Area, County, and Zip Code. In all three categories the average reading was below the state average of 5.60 pCi/l. However, two of the three categories were above the remedial action level of 4.0 pCi/l.

**Table 2. Radon Study Results**

| CATEGORY                                     | # OF SAMPLES | AVG. PCI/L | ≥0<4                     | ≥4<10 | ≥10<20 | ≥20  |
|----------------------------------------------|--------------|------------|--------------------------|-------|--------|------|
|                                              |              |            | PERCENTAGE IN EACH RANGE |       |        |      |
| Geological Area<br>(Older Complex Sediments) | 109          | 3.60       | 60.55                    | 35.78 | 3.67   | 0.00 |
| County<br>(Garfield)                         | 64           | 4.12       | 59.38                    | 35.94 | 3.13   | 1.56 |
| Zip Code<br>(81601)                          | 16           | 5.04       | 56.25                    | 37.50 | 0.00   | 6.25 |

#### 4.0 OFF-SITE RECONNAISSANCE

An off-site reconnaissance was performed by WT on April 24, 1996. The reconnaissance consisted of a survey of adjoining properties, and nearby land uses which could have an adverse environmental impact on the Site. The Site is bordered by the following streets, properties, and/or land uses.

The Site is located adjacent to the I-70 corridor of Glenwood Springs, Colorado. The developed portion of the Site is currently utilized exclusively for agricultural purposes, i.e. cattle pasture and raising hay.

- The Site is bounded on the north by private lands (Denver & Rio Grande Railroad).
- The Site is bounded on the east by the City of Glenwood Springs (Yampah Mountain H.S./residential)
- The Site is bounded on the south and west by private land (ski area), and public lands administered by the BLM.





Immediately north of the Midland Avenue extension and railroad tracks exists an industrial area. The industrial area consists of: a state highway department facility, a storage area for the railroad, a hardware store/lumber yard, a "Coca Cola" facility, a "Coors" facility, an electrical substation, an auto repair facility, and a building materials facility. Several ASTs were noted in the adjoining industrial area. The Assistant City Fire Chief explained to WT on April 23, 1996 that the ASTs contained magnesium chloride and were utilized by the state highway department for "ice melt". In addition, WT observed an apparent fuel AST at the same facility. Due to access problems, the off-site ASTs could not be closely inspected for integrity or spillage/leakage.

## 5.0 REGULATORY RECORDS REVIEW

This section is based solely on information provided by VISTA Information Solutions, Inc. (Vista) of San Diego, California. Because of the large areal extent and rural location of the subject property, the most practical, cost effective, computerized records search was based on the postal zip code (81601) of the nearest town, Glenwood Springs, Colorado. Sources of information may include: commercially available and proprietary regulatory databases, regulatory agency files, personal interviews, and telephone interviews. In some of the following subsections, the words up-gradient, cross-gradient and down-gradient refer to the presumed groundwater flow direction in relation to the subject property. These determinations are based subjectively on regional hydrogeologic information, topographic maps and local site conditions. A copy of the Federal/State regulatory agency records search report provided by Vista is included as Appendix B. This records search exceeded ASTM standards.

**5.1 FEDERAL:** The following subsections detail Vista's findings based on a review of various federal databases.

**5.1.1 CERCLIS Database:** Comprehensive Environmental Response, Compensation and Liability Information System (CERCLIS) sites are potential hazardous waste sites which have been evaluated by the EPA for a release or threatened release of hazardous substances into the environment.

According to the December, 1995 database, one site was identified within the zip code area. However, CERCLIS facilities were within a one-half mile radius of the property.

**5.1.2 FINDS Database:** The Facility Index System (FINDS) is a compilation of any site which the EPA has investigated, reviewed, or been notified of in connection with its various regulatory programs.

According to the December, 1995 database, 83 sites were identified within the zip code in the FINDS records search. No further information is available from FINDS.

**5.1.3 NPL Database:** The National Priorities List (NPL) is the EPA's database of uncontrolled or abandoned hazardous waste sites that have been identified for priority remedial action.

According to the September, 1995 database, no NPL sites were identified within the zip code area.

**5.1.4 RCRA Database:** The Resource Conservation and Recovery Act (RCRA) database lists facilities that have notified the EPA of hazardous waste activity. The notifiers may engage in the generation of hazardous wastes. Generators are listed as either large, small or conditionally exempt generators. Large quantity (Code 1) generators produce at least 1000 kg/month of non-acutely hazardous waste or 1 kg/month of acutely hazardous waste. Small quantity (Code 2) generators produce 100-1000 kg/month of non-acutely hazardous waste. Conditionally exempt generators (Code 3) are those which generate less than 100 kg/month of non-acutely hazardous waste. "Non-regulated" indicates that the facility filed a notification and/or a permit application, but claims not to generate, transport, treat, store or dispose of hazardous waste; or the facility falls into other specified categories of non-regulated under RCRA. The EPA also maintains a list of facilities on which treatment, storage, and/or disposal (TSD) takes place, as defined and regulated by RCRA.

According to the February, 1996 RCRA database, 33 sites were identified within the zip code area. The search of the RCRA database did not list the subject property. No adjoining properties were listed as RCRA-regulated facilities. No RCRA regulated treatment, storage or disposal (TSD) facilities were listed within a distance of one mile from the property.

**5.1.5 ERNS Database:** The Emergency Response Notification System (ERNS) is a listing compiled by the EPA of reported releases to the air, soil and/or water of hazardous and/or unidentified substances. This listing provides a limited amount of information on the type of material involved, the cause of the release, and damages or injuries associated with the release. The ERNS database also lists the agencies notified, the responsible party, and the reporter of the release.

A review of Vista's ERNS database dated September, 1993 identified 5 sites within the zip code area, but did not list the property.

**5.2 STATE OF COLORADO:** The following subsection details WT's findings based on a review of Vista's various Colorado State Government (Colorado) databases.

**5.2.1 Registered UST Database:** Under Subtitle of the 1984 RCRA Amendments, owners of underground storage tanks that contain regulated substances were required to notify (register with) the designated state agency of the existence of the tank(s) by May 8, 1986. The Colorado Division of Labor, Oil Inspection Section maintains a database of registered USTs with hazardous contents, for the State of Colorado. The minimum ASTM search distance for state registered UST sites includes the subject property and adjoining properties.





The search of the registered UST database (dated December, 1995) did not list the subject property, but did list 49 sites within the zip code area. Two sites were listed adjacent to the subject property:

- Coca Cola Bottling Company; 1220 Devereux Road; cross-gradient
- R.M. Natural Gas Operations; 1320 Devereux Road; cross-gradient

**5.2.2 Storage Tank Remedial Section Databases:** The CDPH&E Storage Tank Remedial Section maintains two databases of leaking underground storage tanks (LUST): LUST "Trust Funds" (dated August, 1995); and Location of Reported LUSTs (dated December, 1995). The first database lists LUST sites which completed cleanup activities. These sites may still have contamination present, however, the CDPH&E has granted "closure" for the site. The second database lists sites which are presently undergoing remediation, are in the process of determining the extent of contamination, or which have just been identified as having a release. The minimum ASTM search distance for LUST sites is one-half mile.

The subject property was not listed as a LUST site. Ten sites were listed within the zip code area, however based on the report provided by VISTA, none of the sites appeared to be within a one-half mile radius from the subject property.

**5.2.3 Solid Waste Facility Database:** The CDPH&E maintains listings of solid waste facilities, and transfer stations located within the State.

The Solid Waste Database (dated February, 1995) did not list any landfill, solid waste facilities or transfer stations within a one-half mile radius of the property.

## 6.0 OWNERSHIP/USE HISTORY

**6.1 INTERVIEWS:** Mr. Norm Chandler who resides at 5960 County Road 109, Carbondale, Colorado, was interviewed on April 24, 1996. Mr. Chandler stated that he has been harvesting hay and grazing livestock at the subject property for approximately the last two years, and to the best of his knowledge, the current land use is consistent with the past use of the property. The only herbicides and/or pesticides used on the property that he is aware of was herbicide "24D" for weed control in the irrigation ditches. There are no utilities at the property, because there are no buildings. Mr. Chandler was not aware of any hazardous material storage/dumping that took place at the property. There are presently no ASTs or USTs located on the subject property and there never has been to the best of Mr. Chandler's knowledge. Mr. Chandler stated that no incidents of environmental significance are known to have impacted the subject property.

Mr. Guy Meyer is the Community Service Coordinator for Garfield County and is the County environmental representative. Mr. Meyer was contacted on May 23, 1996 regarding the environmental condition of the subject property. Mr. Meyer stated that the County has really only been keeping environmental records since the early 1990's, and he knows of no incidents of environmental significance to have impacted the subject property.

**6.2 TOPOGRAPHIC MAPS:** The Glenwood Springs, Colorado, 1961 (photorevised 1987) U.S. Geological Survey 7.5-minute topographic sheet was reviewed. This topographic map provided a limited amount of site-specific information for the subject property. The topographic map did not identify any structures on the subject property. The railroad right-of-way is located immediately north of the property, and the City airport is located approximately 3 miles southeast and upgradient of the property. The map did not identify any other facilities of potential environmental concern at or around the property.

**6.3 HISTORICAL AERIAL PHOTOGRAPHS:** Aerial photographs dated 1968, 1978, 1982, and 1988 were reviewed at the U.S. Department of Agriculture, Soil Conservation Service office in Glenwood Springs, Colorado, on April 22, 1996. The purpose of the review was to determine and assess the nature of previous activities on the subject property and adjacent properties. A brief summary of the aerial photograph review is as follows:

The earliest available photograph depicting the subject property (1968; Scale: 1" = 660') shows the entire property as a vacant lot. The upper 2/3 of the property (SW portion) is undeveloped and vegetated by a juniper cover. The lower 1/3 of the property (NE portion) is developed for agricultural use; i.e. the vegetation appears non-native. A catch basin is visible in the central portion of the property, just south of the northern property line. A second catch basin, possibly dry, is also visible. The railroad is visible just north of the property. A development is visible just southeast of the property. The City of Glenwood Springs is visible to the east of the property.

The photograph dated 1978 (Scale: 1" = 660') shows the entire subject property. Changes since the previous photograph include the addition of a building, AST, and an access road leading up a ski area which borders the property to the southeast. Interstate Highway 70 (I-70) is located immediately north of the Colorado River (and the property) and appears to be complete. There is increased residential development north of the property (across I-70).

The photograph dated 1982 (Scale: 1" = 1,000') shows the entire subject property. The property boundaries have been marked on the photograph. Development in the area surrounding the property has increased since the previous photograph.





The most recent available photograph dated 1988 (Scale: 1" = 660') shows the entire subject property. Structures are visible immediately south of the railroad tracks. Two irrigation ditches are visible on the northern (developed) portion of the property running parallel to the Colorado River. Development in the area surrounding the property has increased since the previous photograph.

The review of aerial photographs provided no visual surface evidence of gross environmental concern on the subject property or adjoining properties.

**6.4 TITLE HISTORY:** A 50-year (plus) Chain-of-Title search was performed by Land Title Guarantee Company, Glenwood Springs, Colorado for the subject property. The research covered all title changes including: Land Contracts, Leases, Deed Restrictions, Easements, Fee Ownerships, Leases and other encumbrances. A review of the Chain-of-Title indicated the following past ownership of the property.

Julius Wulfsohn conveyed the property to The Wulfsohn Mercantile Company in the form of a Warranty Deed on September 26, 1923.

The Wulfsohn Mercantile Company conveyed the property in a Warranty Deed to Mollie and Sophie Wulfsohn on December 30, 1940.

Mollie and Sophie Wulfsohn conveyed the property in a Warranty Deed as Joint Tenants to Mollie and Sophie Wulfsohn on July 28, 1949.

The Wulfsons conveyed to J.V. Rose and J.F. Gregory a Quit Claim Deed dated October 27, 1949, and a Warranty Deed dated August 2, 1949.

J.V. Rose and J.F. Gregory conveyed the property in a Warranty Deed dated April 6, 1953 to Brinkley B. Brown.

Brinkley B. Brown conveyed the property in a Warranty Deed dated July 30, 1955 to the Glenwood Hot Springs Company.

The Glenwood Hot Springs Company conveyed the property in a Warranty Deed dated January 4, 1957 to Union Oil Company of California.



Exceptions included: a tract of land previously conveyed to the Colorado Department of Highways in deed recorded September 22, 1967; and, a tract of land conveyed to the City in deed recorded October 7, 1994.

A review of the title history revealed no previous property ownerships which would indicate any potential for contamination of the property. The property has undergone several historical changes of ownership since it was first developed in 1923. Please refer to Appendix C for the Chain-of-Title Report.

## 7.0 SUMMARY OF FINDINGS

Based on the site visit, the off-site reconnaissance, interviews, the regulatory records review, and a review of ownership/use history, WT reiterates the following:

- The subject property is not identified as a CERCLIS, NPL, RCRA notifier/TSD, NMED UST/LUST, or ERNS site. Two UST sites were listed adjacent to the subject property.
- No surface indications of USTs were observed or reported on the subject property. No LUST sites were reported within one-half mile of the subject property.
- The property was surveyed for the presence of potential PCB sources. The pole-mounted transformers noted on the property line are scheduled to be removed in a month showed no indications of leakage.
- According to the Vista Solid Waste Facility database, no current or former landfills or illegal open dumps are located on or within one-half mile of the subject property.
- Depth to groundwater beneath the subject property is unknown. The local surface drainage is NNE toward the Colorado River. The regional gradient is generally west along the Colorado River.
- Insufficient data exists to adequately characterize groundwater quality beneath the subject property.





- No aboveground storage tanks (ASTs) or surface indications of former ASTs were noted on the subject property. ASTs were observed on adjacent lands. A fuel AST and several magnesium chloride ASTS were located at the state highway department facility.
- No hazardous materials were noted on the subject property during the site visit.
- The subject property was generally well maintained and had a clean appearance. No unusual odors were noted on the subject property during the site visit. No other waste indicators were observed.
- No surface evidence of any of the wastewater/effluent discharges was noted on the subject property during the site visit.
- Radon gas levels are considered low to moderate for structures tested in the area of the subject property according to the following categories: Geological Area, County, and Zip Code. In all three categories the average reading was below the state average of 5.60 pCi/l. However, two of the three categories were above the remedial action level of 4.0 pCi/l.
- No RCRA TSD or NPL sites were identified on or within a distance of one mile from the subject property.
- No CERCLIS sites were identified on or within a distance of one-half mile from the subject property.
- A review of the EPA ERNS database of records did not identify any release incidents on or within a distance of one-eighth mile from the subject property.
- The FIRM map for the County dated January 3, 1986 indicated that the "West Parcel" was in "Zone C" (area of minimal flooding), and the remainder of the property was located in "Zone D" (area of undetermined, but possible flood hazards). The subject property was in an area zoned for A/R/RD.



## 8.0 CONCLUSIONS AND RECOMMENDATIONS

Western Technologies, Inc., has performed a Phase I Environmental Site Assessment of the subject property in an effort to conform with the scope and limitations of ASTM Practice E1527.

This assessment has not revealed evidence of any recognized environmental conditions in connection with the subject property.

No further assessment activities are indicated at this time.

## 9.0 LIMITATIONS

**9.1 GENERAL:** The scope of this Phase I Environmental Site Assessment is limited to: observations made during the site visit; observations made during the off-site reconnaissance; interviews with knowledgeable persons, with public agency personnel; reviews of readily available published and unpublished reports, literature, and aerial photographs. As a result, these conclusions are based on information supplied by others, and interpretations made by qualified personnel. Any conclusions and/or recommendations made in this report are subject to modification if subsequent information is obtained by WT.

The focus of this Environmental Site Assessment was to assess the potential for hazardous or toxic substance contamination resulting from previous and current uses of the subject and adjacent properties. As a result, this assessment does not address the presence of the following conditions unless they were the express concerns of contacted personnel, report and literature authors, or the work scope.

- Naturally occurring toxic or hazardous substances in the subsurface soils, rocks, and water.
- Toxicity of substances common in current habitable environments, such as stored household products, building materials, and consumables.
- Contaminants or contaminant concentrations that are not currently regulated but may be regulated under future standards.



It is impossible to predict events that may occur after the site visit, such as illegal disposal, accidental spillage, or the inaccuracy of the published or unpublished reports, literature, or documents referenced herein. There is not assessment thorough enough to completely exclude the presence of hazardous substances at any site. Therefore, if none are identified as part of a limited scope of work, such a conclusion should not be construed as a guaranteed absence of such materials. It is merely the result of the assessment.

Project services have been completed in agreement with our understanding with Unocal Corporation. This document and the information contained herein have been prepared for the use of Unocal Corporation and their assigned parties.

This Phase I Environmental Site Assessment was completed by an environmental specialist under a limited scope of work in accordance with the work agreement. This report provides opinions of WT concerning recognized environmental conditions at the subject property. It is possible, despite the use of reasonable care and interpretation, that WT may have failed to identify regulatory violations or the presence of hazardous substances, underground storage tanks, or other obscured or subsurface areas of potential environmental concern. WT assumes no responsibility for conditions that were not specifically evaluated or conditions that were not generally recognized as environmentally unacceptable at the time this report was prepared.

## **9.2 EXCEPTIONS TO AND DELETIONS FROM ASTM PRACTICE E1527:**

- Report format is different and adapted to individual locale.
- Credentials of the environmental assessors (resumes) and of the company (Statement of Qualifications) have not been included with the report but are available upon request.



## **12.8 Qualifications of the Environmental Professionals**





*ENVIRONMENTAL AND ENGINEERING DUE DILIGENCE SPECIALISTS*

**David F. Svrjcek**  
**Branch Manager**  
**Denver, Colorado Regional Office**

**EDUCATION**

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- ⊕ B.S. Marketing, University of Maryland – College Park, 1992

**PROFESSIONAL  
REGISTRATIONS, LICENSES, AND CERTIFICATIONS**

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- ⊕ Environmental Professional as defined in 40 CFR 312.10
- ⊕ EPA AHERA Asbestos Building Inspector
- ⊕ 16-Hour Radon Measurement Operators Course, WRTC
- ⊕ 24-Hour Mold Inspector Training
- ⊕ Lead in Drinking Water Training

**PROFESSIONAL  
SUMMARY**

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Mr. Svrjcek is the Branch Manager of Advantage Environmental Consultants, LLC's Denver Regional Office in Boulder, Colorado and has been with AEC since June 2002. Mr. Svrjcek has 20 years of experience in the environmental consulting field. He has interacted with industry management, developers, banks, general contractors, legal counsel, and regulatory agencies on a diverse range of local, state, and federal regulatory and environmental issues. His experience in environmental consulting ranges from staff scientist to senior project manager and includes environmental regulatory issues for FCC Wireless Telecommunications Industry; Environmental Assessments for Housing and Urban Development and local Housing Authorities; Phase I Environmental Site Assessments (ESAs); Phase II subsurface investigations; groundwater monitoring well installations and sampling; mold surveys, and Industrial Hygiene services including asbestos surveys. As branch manager, Mr. Svrjcek is responsible for client/development/management, project management and technical-related tasks of projects.

***Phase I Environmental Site Assessments (ESAs)***

Meets the Phase I ESA Environmental Professional Standards as defined in 40 CFR 312. Twenty years of experience conducting, preparing, and reviewing over 600 environmental site inspections and technical reports of Phase I ESAs and Transaction Screens for state and county governments, various commercial lending institutions, insurance companies, REITS, property managers, telecommunication carriers, non-profit agencies, construction managers, and real estate developers. Mr. Svrjcek has conducted Phase I ESAs and

related environmental services in Colorado, New Mexico, Minnesota, Texas, Maryland, Virginia, West Virginia, the District of Columbia, Delaware, New Jersey, New York, and North Carolina.

### ***Comprehensive Hazardous Materials Demolition Surveys***

Experience conducting and preparing Asbestos-Containing Building Material (ACBM) Surveys and associated reports for facilities located in Colorado, New Mexico, Maryland, Virginia, and the District of Columbia. Experience managing large-scale projects involving initial asbestos surveys, assistance with abatement specifications/bid documents, turnkey abatement oversight, and implementation of Operations and Maintenance (O&M) Programs.

### ***National/Regional Account Management/ FCC Wireless Regulatory and NEPA Compliance***

Fifteen years of experience performing technical review of approximately 2,500 Federal Communication Commission NEPA assessments and screenings for wireless telecommunications carriers including T-Mobile, Verizon Wireless, and AT&T, as well as several regional tower builders. Experience includes account management, project coordination, technical review, and management oversight of all environmental engineering services and federal compliance (i.e., FCC NEPA compliance, Phase I ESAs, Asbestos and Lead-Based Paint testing, subsurface investigations, cultural resources, and geotechnical engineering). Maintained close client contact to ensure program implementation and client satisfaction. Implemented various internal programs to monitor quality and cost issues. Account management experience also includes managing large projects involving building owners, regulatory officials, subcontractors, and other professionals.

## **PROFESSIONAL EXPERIENCE**

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Managed numerous Phase I and Phase II due diligence studies and hazardous materials surveys of abandoned schools located in Washington, D.C. prior to redevelopment. The schools were being assessed to evaluate feasibility for conversion into charter schools and to establish budgetary abatement/remediation costs. Laboratory results from the hazardous materials surveys verified that significant quantities of asbestos and lead-based paint were present in the buildings. In addition, the Phase I ESA identified the presence of underground storage tanks on the property. Subsurface investigations using a Geoprobe were performed at both properties in the area adjacent to the suspected USTs.

Oversaw and managed all environmental services for a portfolio of seven District of Columbia recreational center facilities that were proposed for complete redevelopment and/or significant renovations. Scope of work performed typically included a Phase I ESA and a Hazardous Materials Survey. Properties generally included approximate 6,000 square-foot recreational centers, swimming pools, and adjacent playground areas. Most of the facilities were constructed from approximately 1928 to 1950. Since AEC was working for the construction management firm responsible for redevelopment, soil excavation, as well as identifying any lead and asbestos issues was of primary concern to the client. Based on AEC's historical review and site visit, AEC identified additional environmental concerns for one of the facilities due to leaking underground storage tanks on adjacent parcels.

Served as Project Manager for the assessment and evaluation of environmental liability as part of property refinancing of an approximate 10-acre shopping center in New Carrollton, Maryland. The site was impacted with chlorinated solvents and was taken through the MDE's Voluntary Cleanup Program (VCP). Performed pilot studies including soil vapor extraction studies prior to designing/implementing an on-site remediation system.

National program management of wireless telecommunications sites for T-Mobile Northeast, LLC. (or related turnkey consultants) for their expansion throughout D.C., Maryland, West Virginia, Pennsylvania, New York, and Virginia. The scope of work for these sites included the following services: Phase I ESAs, FCC NEPA Checklist reports, cultural resources, asbestos and lead-based paint testing (for building collocation sites), and photo simulations. Working with various district, state and Federal agencies including the State Historic Preservation Office, National Park Service, and the United States Fish and Wildlife Service to comply with all applicable federal requirements. Mr. Svrjcek has managed approximately 2,000 sites for T-Mobile since 2000.

Managed the environmental review process for approximately 200 proposed telecommunication installation sites for AT&T Wireless Services, Inc. through a contract with Bechtel Telecommunications. The telecommunications expansion included the states of Maryland, Virginia, District of Columbia, Pennsylvania, and West Virginia. The scope of work for these sites typically included the following services: Phase I ESAs, FCC NEPA Checklist reports, asbestos and lead-based paint testing (for building collocation sites), photo simulations, and when necessary, Environmental Assessments. Worked with various local, state, and Federal agencies including the State Historic Preservation Office, National Park Service, the United States Fish and Wildlife Service, and numerous county wildlife and planning agencies to comply with all applicable federal NEPA requirements.

Client manager for a large-scale HOPE VI revitalization project that included the demolition of 1,107 existing public housing units and the construction of 555 residential units. This project involved coordination with numerous private and public agencies including: Housing and Urban Development, the District of Columbia Housing and Community Development, the District of Columbia Housing Authority, the District of Columbia Department of Consumer and Regulatory Affairs, Historic Preservation Division, as well as various private contractors. The scope of work included the completion of Environmental Assessments (as required by the National Environmental Protection Act), Phase I ESAs, hazardous material surveys, underground storage tank removals, preparation of abatement specifications, and the completion of a Comprehensive Site Assessment (CSA) and Corrective Action Plan (CAP) for a former gasoline filling station parcel.

Assisted a private investor with the acquisition of an abandoned 5.6-acre automobile dealership property located in New Jersey. The assessment was used to assist the client with a purchase price for the property and to work out an indemnification agreement with the current owner. Work included a Phase I ESA, subsurface soil and groundwater investigation, and magnetic remote sensing for USTs and groundwater monitoring well installations. The preliminary field investigation discovered two suspected abandoned USTs on the site, which were confirmed during the magnetic sensing activities. Environmental impact was determined to exist on the property associated with the former USTs and the former operation of hydraulic lifts. Additional activities included performance of a Comprehensive Site Characterization using Geoprobe soil and groundwater sampling coupled with the installation of groundwater monitoring wells and the development of a Remedial Action Plan. Based on the preliminary sampling results, the client was able to negotiate a significantly reduced purchase price.

**Engineering  
Department  
Jessica Bowser,  
Asst. City Engineer**

**Date:** June 4, 2021

**To:** Community Development

**Re:** Lofts Phase IV Development Permit

Please see the following engineering comments for the Lofts Phase IV Development. These comments are not inclusive of comments from other departments, including Public Works, Building, etc. It is up to the applicant to verify that the appropriate reviews have been completed by these departments. City of Glenwood Springs Engineering reserves the right to make additional comments throughout the application process, especially if significant modifications are made. It is in the applicant's best interest to address all comments holistically to reduce the number of reviews necessary for approvals.

**Engineering will not review a revised submittal until the applicant provides a written response to these comments.**

**Traffic Study:**

1. The Traffic Study proposes the retail space to be a fast-casual restaurant. This development is proposing a parking reduction for the residential (reduction of 6 space) with 30 retail spaces (OK per code).
  - a. Is there a loading space for deliveries to the restaurant? It seems that whether this is retail, office space, or a restaurant, there will be a need for delivery space. Access is limited in the parking area and it would be preferable that this be outside of a drive aisle.
2. Consider a 4-way stop at East Meadows Drive/Wulfsohn Road? Wide intersection – many people fun the stop on East Meadows Drive and other intersections (W Meadows and the retail street, which is not a City street) have 4-way.

**Development Application Comments:**

1. Fire has brought up some concerns responding to a rescue call on a balcony or upper floor at Lofts III that was not considered in the prior application. Please work with the fire department to provide an AutoTurn analysis for a response to Phase IV and III. It may be necessary to alter a landscape island to accommodate safe movements.
2. Note only – no response necessary: The proposed retail pad is over an existing storm manhole and new Storm is proposed within this pad as well. This will limit the buildable area for this pad.
3. Sheet A.1 conflicts with the other site plans.

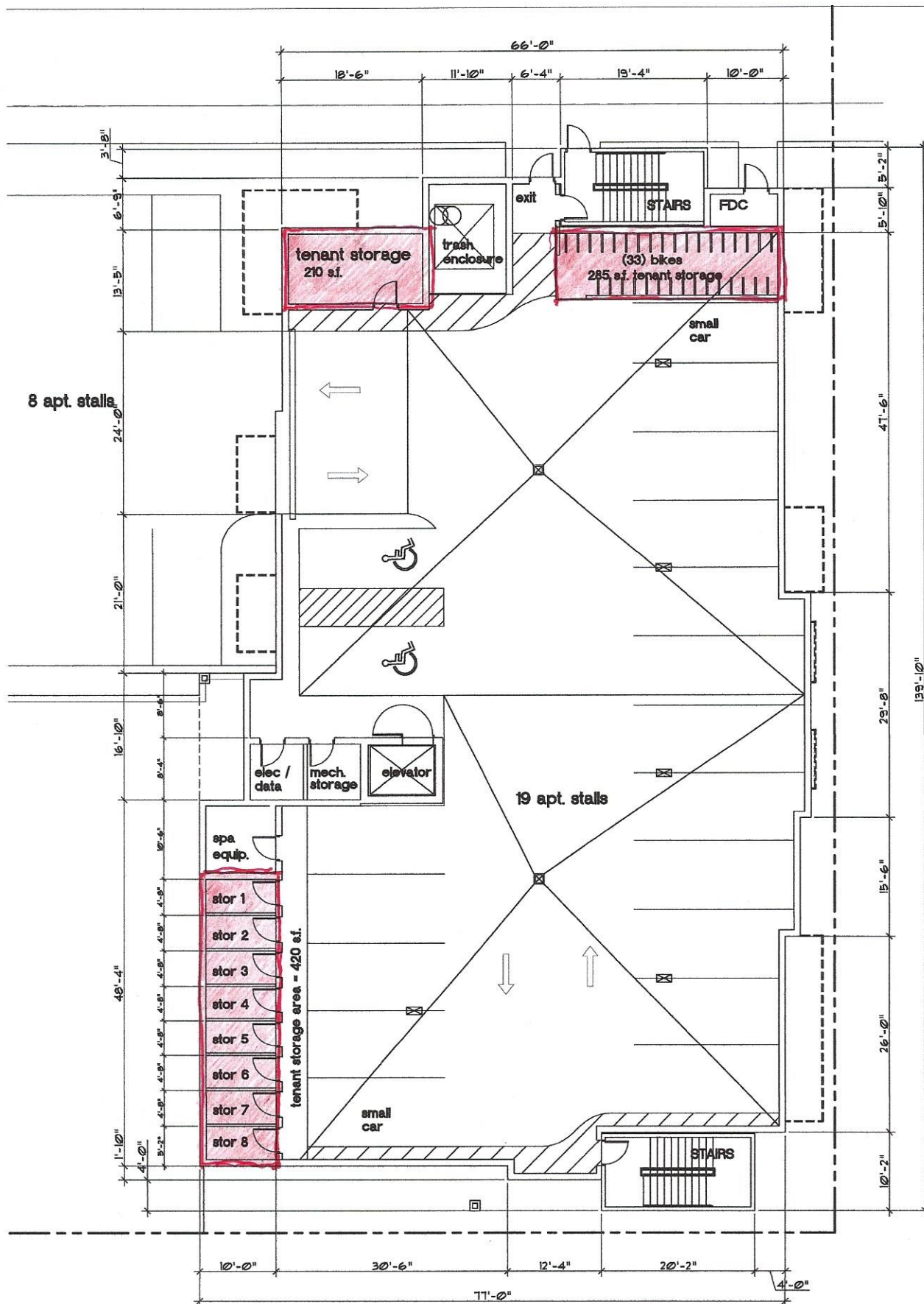


#### **Comments to be addressed prior to Grading Permit Approval:**

4. A [Grading Permit](#) shall be submitted along with the following documentation:
  - a. No work for this project will be allowed to commence until **all** work easements (temporary or permanent), on or off site, are in place for the development of property.
  - b. Final Stamped Reports (Geotechnical, Drainage, Traffic Geologic Hazards, etc).
    - i. A letter should be provided that shows Kumar & Associates has reviewed the final grading plan and supports the final design.
  - c. Final Stamped Construction Documents.
  - d. The Stormwater Management Plan, along with any applicable approved state permits, including a [Construction Stormwater Discharges Permit](#) or [Dewatering Permit](#).
5. Any additional permitting necessary for the project should be submitted, including Building and/or Right of Way Permits.
  - a. Cuts into the roundabout on East Meadows will need to be coordinated with the City so appropriate noticing for any closures can be coordinated with the public.

#### **Comments to be addressed prior to Certificate of Occupancy:**

6. The City will require a maintenance plan and agreement with the development for the detention and debris system/s. If the system/s are not being maintained properly and having a negative effect on downstream facilities, the City will need access to perform the maintenance and back charge the facility owner. See Community Development for further information.
7. All drainage, retaining walls, and/or other site improvements require a stamped certification letter from the engineer of record that verifies that all improvements were constructed per plan.
8. Record drawings (As-Builts) will be required to be submitted to the City along with electronic drawings (CAD) as described in the Engineering Standards.
  - a. Any approved Licenses to Encroach may require amending if the as-built conditions vary from the approved licensing locations.
  - b. Utility Easements shall be recorded for any City of Glenwood Springs main lines, Hydrants, or Transformers not in the City right of way.

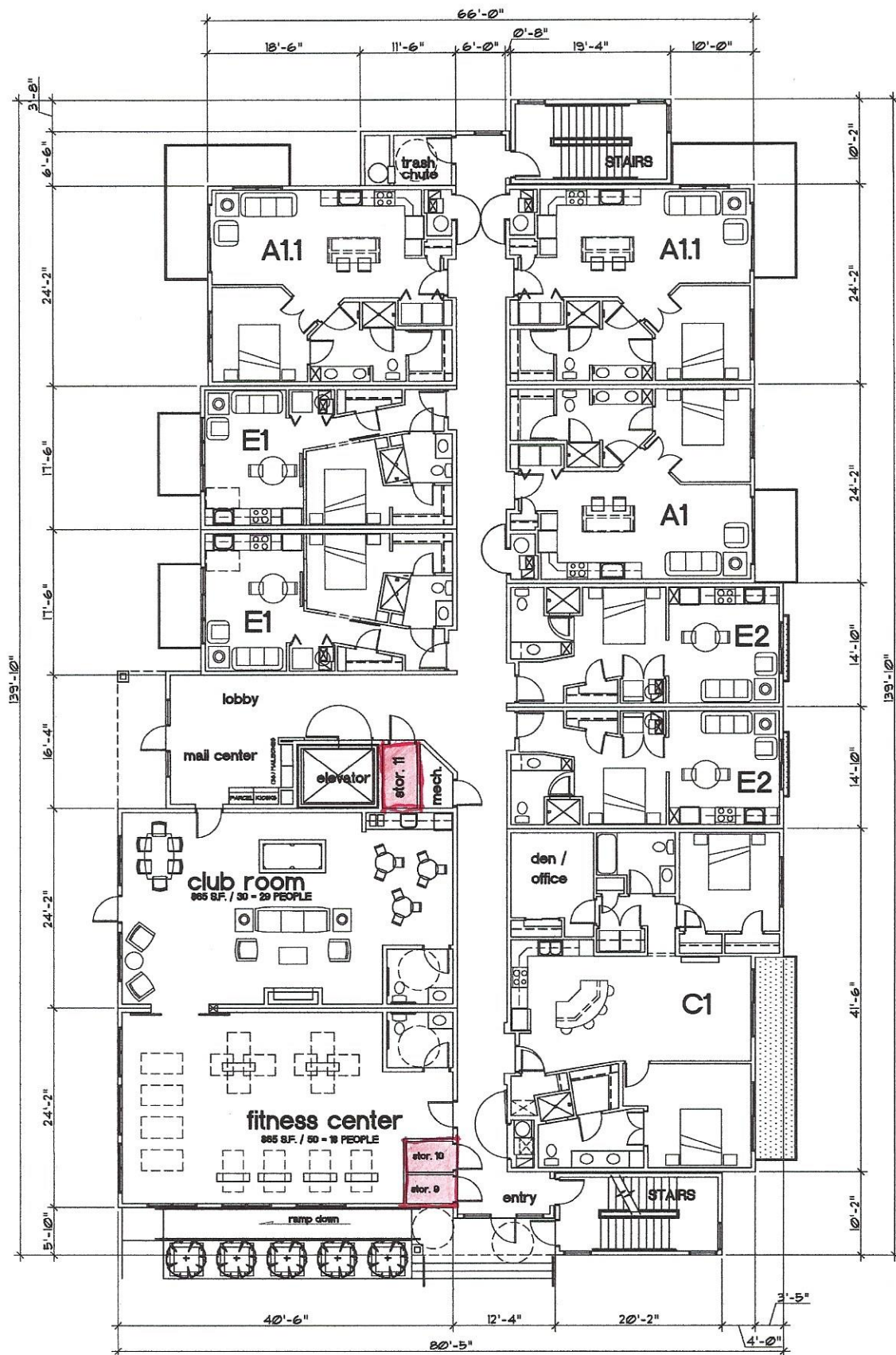


STORAGE THIS FLOOR:  
915 S.F.

TOTAL TENANT  
STORAGE: 1,315 S.F.

## FLOOR PLAN - PARKING LEVEL

SCALE: 1/8" = 1'-0"

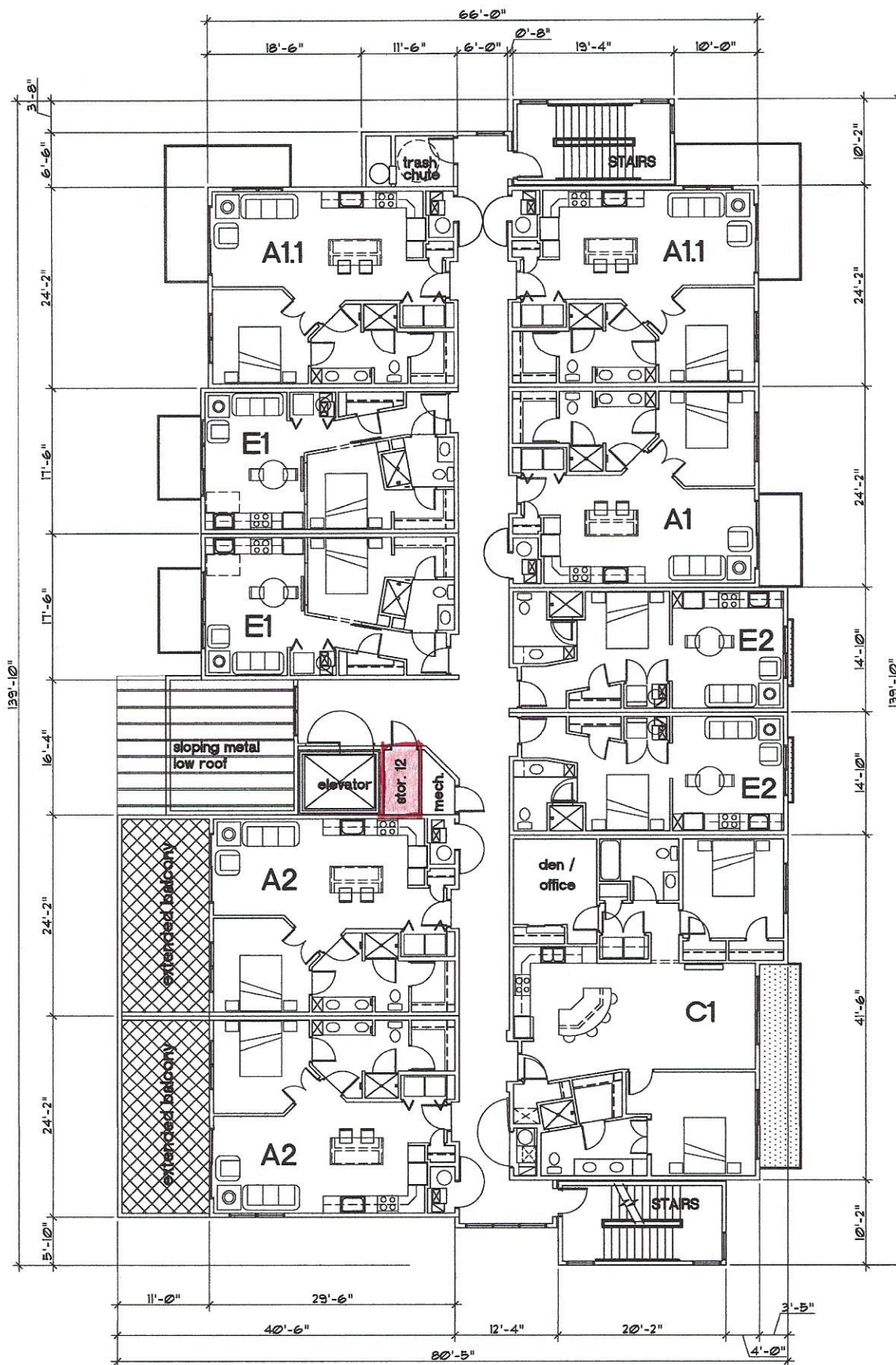


| UNIT MIX THIS FLOOR:       |                |
|----------------------------|----------------|
| A1                         | 1 UNIT         |
| A1.1                       | 2 UNITS        |
| E1                         | 2 UNITS        |
| E2                         | 2 UNITS        |
| C1                         | 1 UNIT         |
| <b>TOTAL:</b>              | <b>8 UNITS</b> |
| <b>STORAGE THIS FLOOR:</b> |                |
| <b>105 S.F.</b>            |                |

## FLOOR PLAN - MAIN LEVEL (STREET LEVEL)

SCALE: 1/8" = 1'-0"

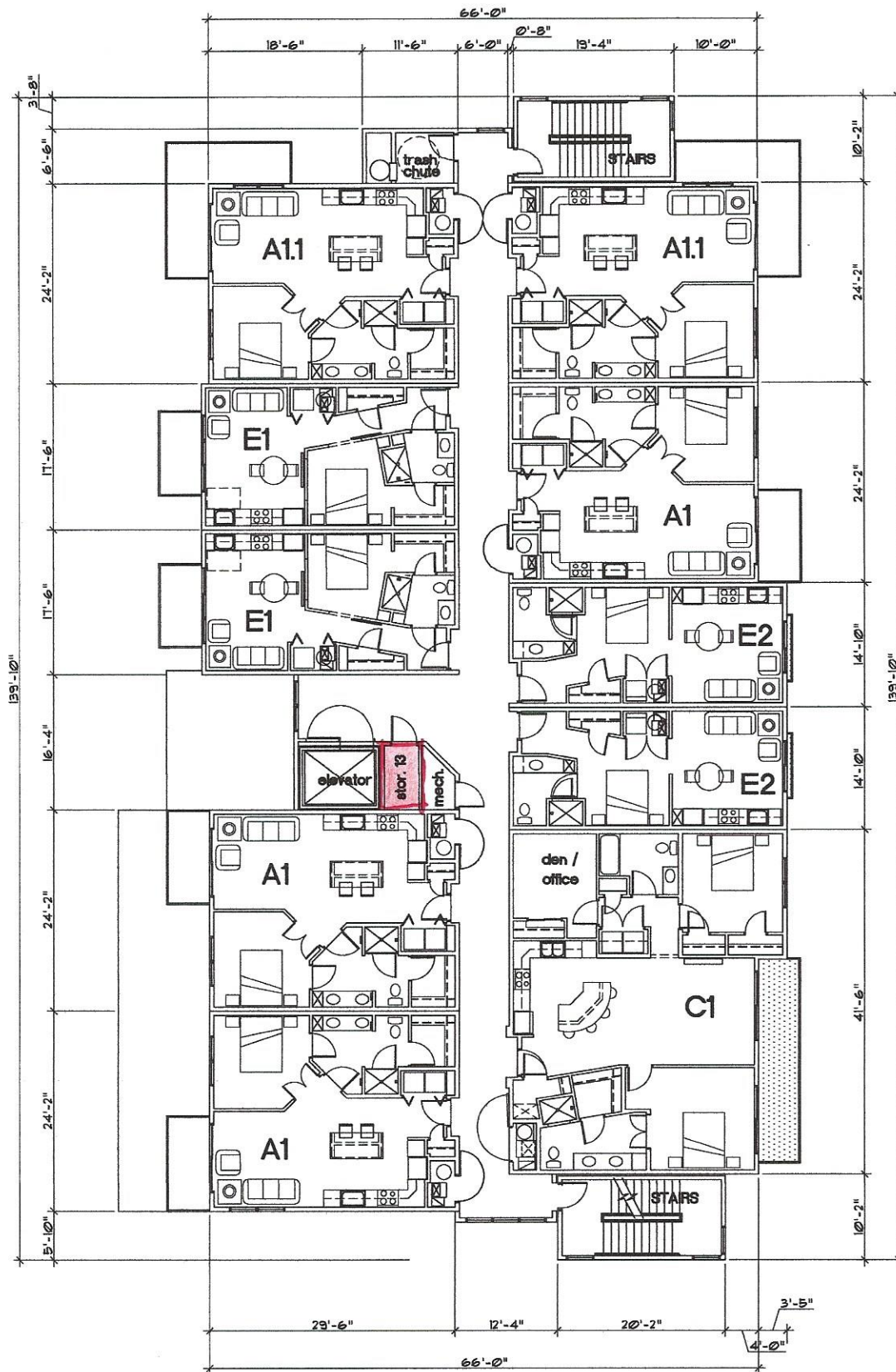




| UNIT MIX THIS FLOOR: |          |
|----------------------|----------|
| A1                   | 1 UNIT   |
| A1.1                 | 2 UNITS  |
| A2                   | 2 UNITS  |
| E1                   | 2 UNITS  |
| E2                   | 2 UNITS  |
| C1                   | 1 UNIT   |
| TOTAL:               | 10 UNITS |
| STORAGE THIS FLOOR:  |          |
| 45 SF.               |          |

## FLOOR PLAN - 2ND LEVEL

SCALE: 1/8" = 1'-0"

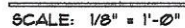


| UNIT MIX THIS FLOOR: |          |
|----------------------|----------|
| A1                   | 3 UNIT   |
| A1.1                 | 2 UNITS  |
| E1                   | 2 UNITS  |
| E2                   | 2 UNITS  |
| C1                   | 1 UNIT   |
| TOTAL:               | 10 UNITS |
| STORAGE THIS FLOOR:  |          |
| 45 S.F.              |          |

## FLOOR PLAN - 3RD LEVEL

SCALE: 1/8" = 1'-0"



Packet Page 984



## Planning and Zoning Commission Report

Date: June 22, 2021

To: Planning and Zoning Commission

From: Hannah Klausman, Senior Planner

Subject: #58-20- Major Site/Architectural Plan Review; Variance; Special Use Permit

|                              |                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
|------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>REQUEST</b>               | Consideration of a Major Site/Architectural Plan review for the construction of a 36-unit multifamily building in Glenwood Meadows. The project includes consideration of a variance from the Glenwood Meadows Zoning and Development Plan; and a Special Use Permit to exceed the 40-foot building height in the M2-Mixed Use Central Core zoning district. The project also includes consideration of an administratively reviewed Parking Alternative request. |
| <b>APPLICANT</b>             | Stoneleigh Companies, LLC                                                                                                                                                                                                                                                                                                                                                                                                                                         |
| <b>OWNER</b>                 | Weingarten Miller, LLC                                                                                                                                                                                                                                                                                                                                                                                                                                            |
| <b>ZONE</b>                  | M2-Mixed Use Central Core                                                                                                                                                                                                                                                                                                                                                                                                                                         |
| <b>LOCATION:</b>             | Lot 8, Glenwood Meadows No. 2<br>405 E Meadows Drive (PIN#218508138008)                                                                                                                                                                                                                                                                                                                                                                                           |
| <b>SURROUNDING LAND USES</b> | North: Offices/Commercial/Retail<br>South: Residential/Commercial<br>East: Hotel/Lodging<br>West: Residential/Commercial                                                                                                                                                                                                                                                                                                                                          |
| <b>LOT SIZE</b>              | 41,643 square feet, 0.95 acres                                                                                                                                                                                                                                                                                                                                                                                                                                    |

### ACTION ITEMS

#### **Action 1:**

Consideration of a Special Use Permit to allow for the construction of a 60-foot tall building in the M2-Mixed Use Central Core zoning district.

Staff recommends approval of the Special Use Permit with findings on page 13.

#### **Action 2:**

Consideration of a variance from section V.D.3.c of the Glenwood Meadows Zoning and Development Plan which limits maximum length of 125 feet for multifamily buildings, allowing for a maximum building length of up to 140 feet.

Staff recommends approval with suggested findings on page 13-14.

#### **Action 3:**

Consideration of a Major Site/Architectural Plan review for the construction of a 36-unit multifamily building in the M2-Mixed Use Central Core zoning district.

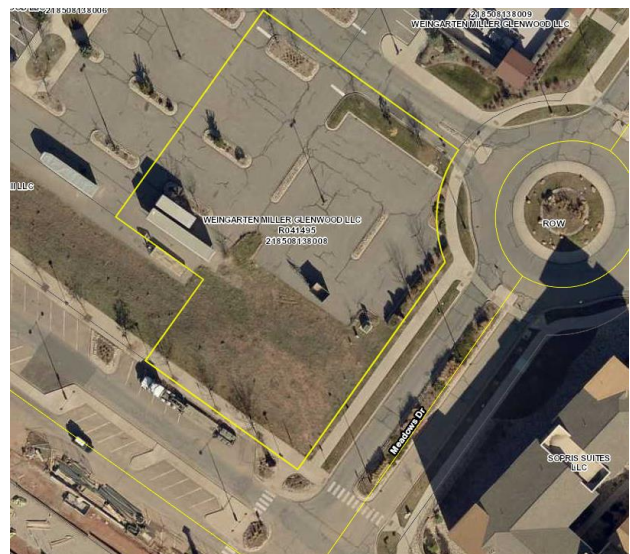
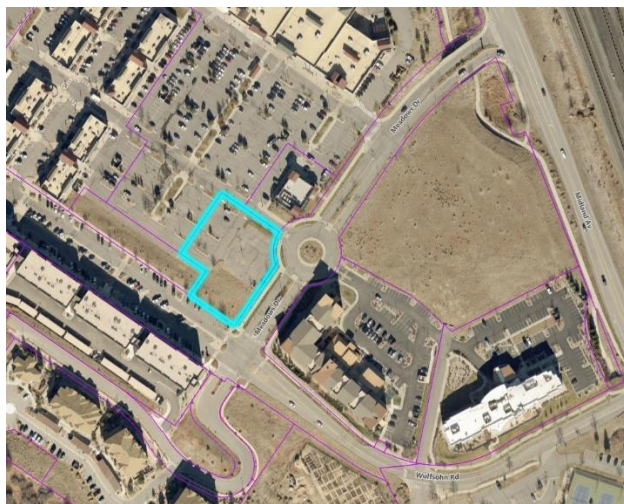
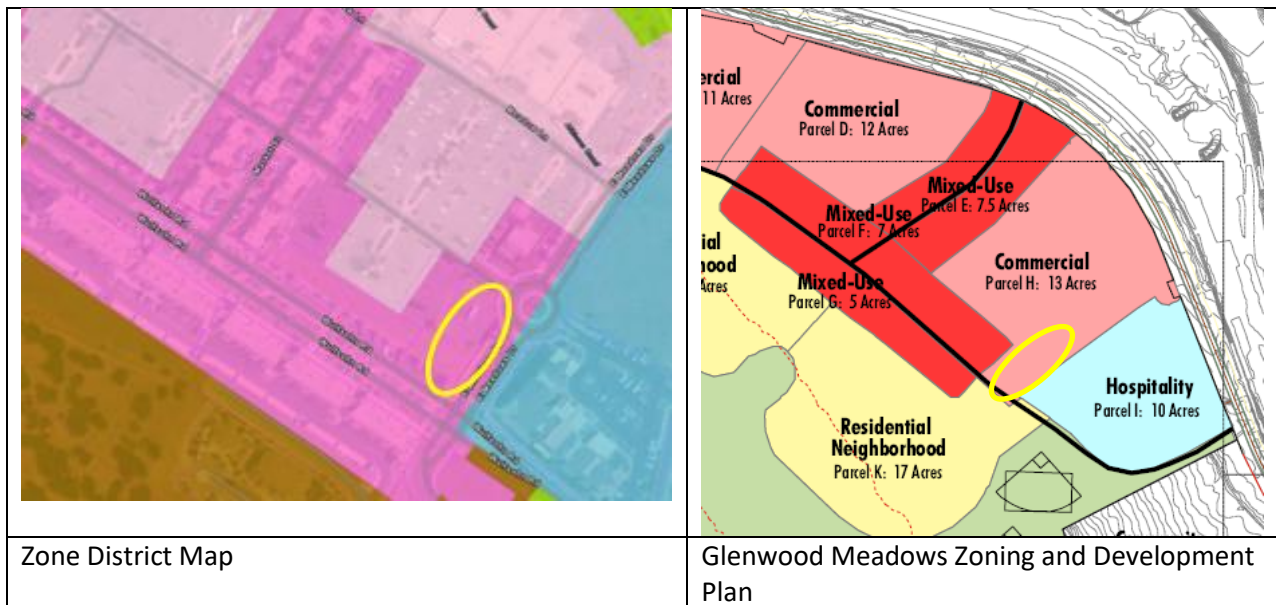


Staff recommends **approval** with suggested findings on page 14, and suggested conditions on page 14-15 of this report.

### Background & Project Description

In 2002, City Council approved the Glenwood Meadows annexation, rezoning, and development plan, which is memorialized in the Annexation and Development Agreement (ADA) and Zoning and Development Plan. The later document divides the 345-acre Glenwood Meadows property into 12 distinct parcels which represent 5 zoning districts. The Zoning and Development Plan includes general and parcel-specific development standards intended to provide an additional level of quality over and above the city's Municipal Code requirements.

Lot 8, the subject property, is located in Glenwood Meadows parcel H and is zoned M2-Mixed Use Central Core.





Between 2015 and 2019 Stoneleigh, LLC, the project applicant, in partnership with Realty Capital Management, LLC received approval to develop 6 multifamily buildings along Wulfsohn Road in Glenwood Meadows adjacent, and in proximity to the subject property. Five of the buildings (phase I and II, consisting of 185 units) are occupied and the sixth (phase III, consisting of 89 units) is currently under construction.

The current proposal, phase IV, calls for constructing a four story, 36-unit apartment building, and one level of underground parking. The footprint of the proposed building is 12,683 square feet, which includes a raised amenity deck, amounting to a lot coverage of 30.4%. The project includes setting aside a 6,000 square foot pad north of the proposed building for future commercial development.

#### **Review Process**

According to Municipal Code section 070.060.050(a), the construction of 36 multifamily units is classified as a Major Site/Architectural Plan review requiring a public hearing before both the Planning and Zoning Commission and City Council. The Planning and Zoning Commission is a recommending body to Council.

#### **PROJECT ANALYSIS**

Attached for the Commission's review is the owner's application which includes a project description, civil and architectural plans, and related reports.

#### **Development Standards**

Site layout, building design, parking, landscaping, and other specifics related to development within Glenwood Meadows are subject to the Glenwood Meadows Zoning and Development Plan (GMZDP). Sections therein provide General Development Standards (Chapter V., beginning on page 11) as well as standards specific to each area (Chapter VIII., beginning on page 31) within the development. Where not address by the GMZDP, Section 070.040 of the *Glenwood Spring Municipal Code* (Code) outlines the development standards for all land use applications. Staff provides an overview of the various applicable standards below.

#### **Parcel H Commercial (C-1 and C-2) Site Layout and Building Design**

Section VII of the GMZDP outlines design specifics for the Commercial parcels located in Glenwood Meadows related to building orientation, architectural elements, heights, and façade articulation.



For residential buildings, all sides visible by the public, shall display similar architectural interest. At least every 50 linear feet, wall planes shall contain offsets or setbacks with a differential in horizontal plane of at least 5 feet. All elevations shall contain windows, and a minimum 12-inch eave or overhang shall be provided on the perimeter of all residential buildings, except gable roof ends.

Phase IV mirrors previous building design in Phases I through III. Exterior colors and finishes are illustrated below.



#### Building height

The applicant is requesting a special review permit to allow Phase IV to exceed the current building height restriction of 40 ft, in the M2 zone district. The request is for the West wall of the building to reach 60 ft.

Special use review is required for building heights exceeding the general M2 zone district maximum of 40 up to 60 feet. The applicant proposes a maximum building height of 60 feet on the four-story north side of the building. Criteria for the review and approval of a special use are outlined in Section 070.060.050(e)(3)e.2 of the Code as outlined in bold italics below. Other language is provided by staff.

**i. The use will be compatible with the surrounding area;**

Similar multi-family residential developments and hotels of equal height and similar dimension are located in close proximity to the subject property. Some of these buildings received similar building heights special use approvals. Additionally the GMZDP identifies the need for greater heights along Wulfsohn Road to address existing grades.

**ii. The impacts of the use on surrounding areas have been adequately minimized;**

Potential impacts related to building heights, such as overwhelming mass/bulk, lack of solar exposure, etc., are mitigated by planned site layout of Glenwood Meadows large streets and pedestrian oriented sidewalk widths along Wulfsohn Road. The building also incorporates elements which soften height impacts such as windows, canopies, balconies, and changes in materials.

**iii. The use will be consistent with the general purpose and intent of this Code;**

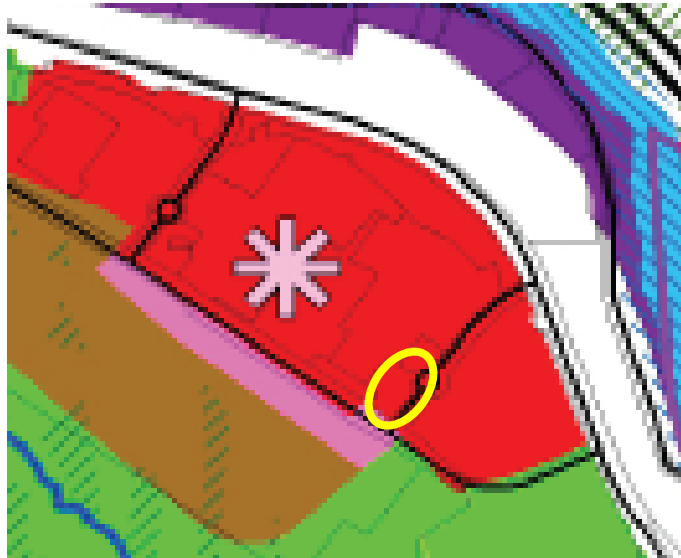
The proposal is consistent with the general purpose and intent of the Code as it relates to efficient development, compatible design, and addressing impacts.

**iv. The use will comply with all applicable standards of this Code;**

As outlined herein, the use complies with various standards of the Code and/or GMZDP, exclusive the of a building length variance request addressed below.

v. **The use is in conformance with the Comprehensive Plan and other City plans and policies; and**

As shown at right, *Map 2.1 Future Land Use – North Portion of the City of the Glenwood Springs* of the Comprehensive Plan (Comp Plan) identifies the area as “Commercial” in red and “Secondary Commercial Center” with a pink asterisk. According to the Comp Plan, the “Commercial” designation “...provides a wide range of general retail goods and services for both regional and local markets, in attached and freestanding structures.” A “Secondary Commercial Center” is an area where the “...Comprehensive Plan encourages mixed-use development” and sub-area plans to “...to determine the mix of uses and type of development that can be supported”.



Numerous community goals and related objectives and strategies are outlined in the Executive Summary and subsequent chapters of the Comp Plan which are summarized in the following table.

| <b><u>Comprehensive Plan Goal Supported</u></b>                                                                                                                                                                                                                      | <b><u>Objective and Strategies</u></b>                                                                                                                                                                                                                                                                                                                                                                                             |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Promote long-term, sustainable, diverse, economic development</b>                                                                                                                                                                                                 | <ul style="list-style-type: none"> <li>-Direct development into a compact form: infill and redevelopment (Chapter 3, Page 34)</li> <li>-Create sub-area plans for center development (Chapter 3, Page 45)</li> </ul>                                                                                                                                                                                                               |
| <b>Staff Comment:</b> The objectives/strategies outlined above are supported by the current application as it includes infill development guided by a sub-area plan.                                                                                                 |                                                                                                                                                                                                                                                                                                                                                                                                                                    |
| <b>Preserve small town character while maintaining the livability of Glenwood Springs and increasing the vibrancy and commercial success of the downtown</b>                                                                                                         | <ul style="list-style-type: none"> <li>-Develop according to the vision (Chapter 4, Page 34)</li> <li>-Direct development into a compact form: infill and redevelopment (Chapter 3, Page 34)</li> <li>-Enhance pedestrian-friendliness while facilitating traffic (Chapter 3, Page 36)</li> <li>-Create sub-area plans for center development (Chapter 3, Page 45)</li> <li>-Direct growth inward (Chapter 9, Page 102)</li> </ul> |
| <b>Staff Comment:</b> Infill, as proposed, makes improvements more cost effective. The design of the project is in character with those surrounding the site, aligns with the GMZDP, and maintains the pedestrian oriented design of the Mixed-Use area designation. |                                                                                                                                                                                                                                                                                                                                                                                                                                    |
| <b>Address transportation and provide multiple convenient travel choices</b>                                                                                                                                                                                         | <ul style="list-style-type: none"> <li>-Direct development into a compact form: infill and redevelopment (Chapter 3, Page 34)</li> <li>-Encourage reduction of single occupant vehicles and encourage alternate travel modes through land use planning and community design</li> </ul>                                                                                                                                             |

|                                                                                                                                                                                                                                                                                                                                  |                                                                                                                                                                                                                                                                                                                                                                                          |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|                                                                                                                                                                                                                                                                                                                                  | (Chapter 5, Page 66)                                                                                                                                                                                                                                                                                                                                                                     |
| <b>Staff Comment:</b> Dense infill in a mixed-use area, as proposed, is a land use strategy used to address transportation issues per the Comp Plan which also encourages the use of public transportation to reduce single occupancy vehicle use.                                                                               |                                                                                                                                                                                                                                                                                                                                                                                          |
| <b>Direct development to locations and building forms that are cost effective to serve</b>                                                                                                                                                                                                                                       | <ul style="list-style-type: none"> <li>-Direct development into a compact form: infill and redevelopment (Chapter 3, Page 34)</li> <li>-Create sub-area plans for center development (Chapter 3, Page 45)</li> <li>-Direct growth to areas where utilities and services can be provided efficiently (Chapter 7, Page 82)</li> <li>-Direct growth inward (Chapter 9, Page 102)</li> </ul> |
| <b>Staff Comment:</b> Infill/redevelopment, as proposed, makes improvements more cost effective. Therefore, the objectives/strategies associated with the project support the Comp Plan goal.                                                                                                                                    |                                                                                                                                                                                                                                                                                                                                                                                          |
| <b>Provide housing opportunities for the entire community</b>                                                                                                                                                                                                                                                                    | <ul style="list-style-type: none"> <li>-Direct development into a compact form: infill and redevelopment (Chapter 3, Page 34)</li> <li>-Create sub-area plans for center development (Chapter 3, Page 45)</li> <li>-Require good design for mixed-use and higher density project (Chapter 6, Page 78)</li> </ul>                                                                         |
| <b>Staff Comment:</b> Infill/redevelopment, as proposed and per a sub-area plan, makes improvements more cost effective while providing a nice aesthetic. Therefore, the objectives/strategies associated with the project support the Comp Plan goal.                                                                           |                                                                                                                                                                                                                                                                                                                                                                                          |
| <b>Support social diversity</b>                                                                                                                                                                                                                                                                                                  | <ul style="list-style-type: none"> <li>-Direct development into a compact form: infill and redevelopment (Chapter 3, Page 34)</li> <li>-Require good design for mixed-use and higher density projects (Chapter 6, Page 78)</li> <li>-Direct growth inward (Chapter 9, Page 102)</li> <li>-Direct growth inward (Chapter 9, Page 102)</li> </ul>                                          |
| <b>Staff Comment:</b> Dense infill in a mixed-use area, as proposed, is a land use strategy to address transportation issues per the Comp Plan which encourage the use of public transportation and reduce single occupancy vehicle use. Infill/development allows for easier access to goods/services for the entire community. |                                                                                                                                                                                                                                                                                                                                                                                          |

The current proposal is in compliance with the *Future Land Use* map designations and descriptions and goals and objectives outlined above. Additionally, as addressed in various sections of the staff report, the proposal is in compliance with the GMZDP (and amendments thereto) and the Mixed-Use C-2 standards addressed therein.

**vi. The use minimizes adverse impacts to the health, safety, and welfare of the inhabitants of the surrounding areas and the city.**

The request does not negatively impact the health, safety, and welfare of the inhabitants of the surrounding areas and the city.

#### Building Length

The proposal includes a single apartment building that measures approximately 75 feet wide by 140 feet in length. Section V.D.3.c of the GMZDP outlines a maximum building length of 125 feet for multi-family residential buildings. The applicant is requesting a variance to allow a building length of 140 linear feet.

#### Variance Approval Criteria

Variances requests must adhere to the approval criteria outlined in Section 070.060.070(a)(3)e.2 of the Code as outlined in ***bold italics*** below. Other language is provided by staff.

- i. The subject property has an exceptional shape, topography, building configuration or other exceptional site condition that is not a general condition throughout the zone district;**

The subject parcel has a grade difference of 14 feet between the Wulfsohn Road and the existing parking lot north of the site. Additionally, the Eagle Valley evaporite hydrocompactive soils at the site require heavily engineered deep pile foundations of up to 65 feet as opposed to foundation walls anchored by soil nails. Additionally, a continuous shoring system adjacent to and supporting Wulfsohn Road is required for the excavation of site.

- ii. The strict application of the Code standards for which a variance is sought would produce undue hardship;**

The exceptional shape, topography, and soil conditions outlined above create difficulty in developing the site. Area necessary to excavate, construct the foundation, and build the shoring wall is limited and places an undue hardship on potential developers. Stability of the foundation, lower level parking, and shoring wall are all increased by being interconnected.

- iii. The applicant did not create the hardship by his/her own actions;**

The shape, layout, topography, or existing soils are not hardships created by the applicant.

- iv. The variance requested does not harm the public and does not impair the intent or purposes of this Code, goals, and policies, including the specific regulation for which the variance is sought;**

The proposal is consistent with the general purpose and intent of the Code regarding guarding against natural hazards, efficient development, compatible design, and addressing impacts. Additionally, the subject maximum building length standard is located in the residential subsection of Section V General Development Standards of the GMZDP. Neither the non-residential subsection of Section V nor the Commercial development standards of Section VII contain the same regulation as they are intended to be dense commercial areas.

- v. The variance request demonstrates exceptional hardship not related to purposes of convenience or financial burden;**

As outlined above the exceptional hardship is not related to convenience nor financial burden and is

required to allow development of the site in the manner intended by the GMZDP.

**vi. The variance request will not violate building or fire code requirements; and**

The request does not create a building nor fire code violation.

**vii. The variance is the minimum variance that will afford relief of the subject standards of the Code.**

This variance request is the minimum required to allow for construction on the subject parcel as intended by the GMZDP.

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Common Open Space

Required open space/park land for the entire Glenwood Meadows development has been previously satisfied by various improvements or land transfers to the City including the creation of hiking/biking trails, pedestrian infrastructure such as Midland Trail, transfer of Community Center property, etc. However, the proposal includes approximately 2,400 square feet of open space which covers nearly 6 percent of the site. For its own residents (Phase 4), the applicant is providing roof terrace with fire pit and barbeque amenities, a club room and fitness center, and a street level raised amenity terrace with hot tub and pool. Bicycle/general storage areas are also located on the lower parking level. There are 18 bicycle spaces located on the parking level.

Landscaping

The GMZDP includes landscaping standards for the Commercial Zones that require 15% of the site be landscaped. The applicant is providing 11,225 square feet of landscaping or approximately 26% of the lot area. This includes a heavily landscaped strip between the building and existing sidewalk on East Meadows Street.

In commercial areas, the GMZDP requires a certain number of trees/shrubs to be planted within setbacks and along street frontages. Compliance with the GMZDP requires of 1 street tree per 35 linear feet of frontage along Wulfsohn Road. When Wulfsohn Road was developed, the owner at that time planted street trees roughly 35 feet apart. The 3 existing street trees in front of the Phase IV on Wulfsohn meet the plan's requirement. Additional street trees on East Meadows and the internal neighborhood street are in compliance as well. There are 3 existing trees, and one new tree proposed along East Meadows Street. Should any of the existing trees be damaged during construction, the Lofts will be required to replace them with a size & species acceptable to the Parks Department.

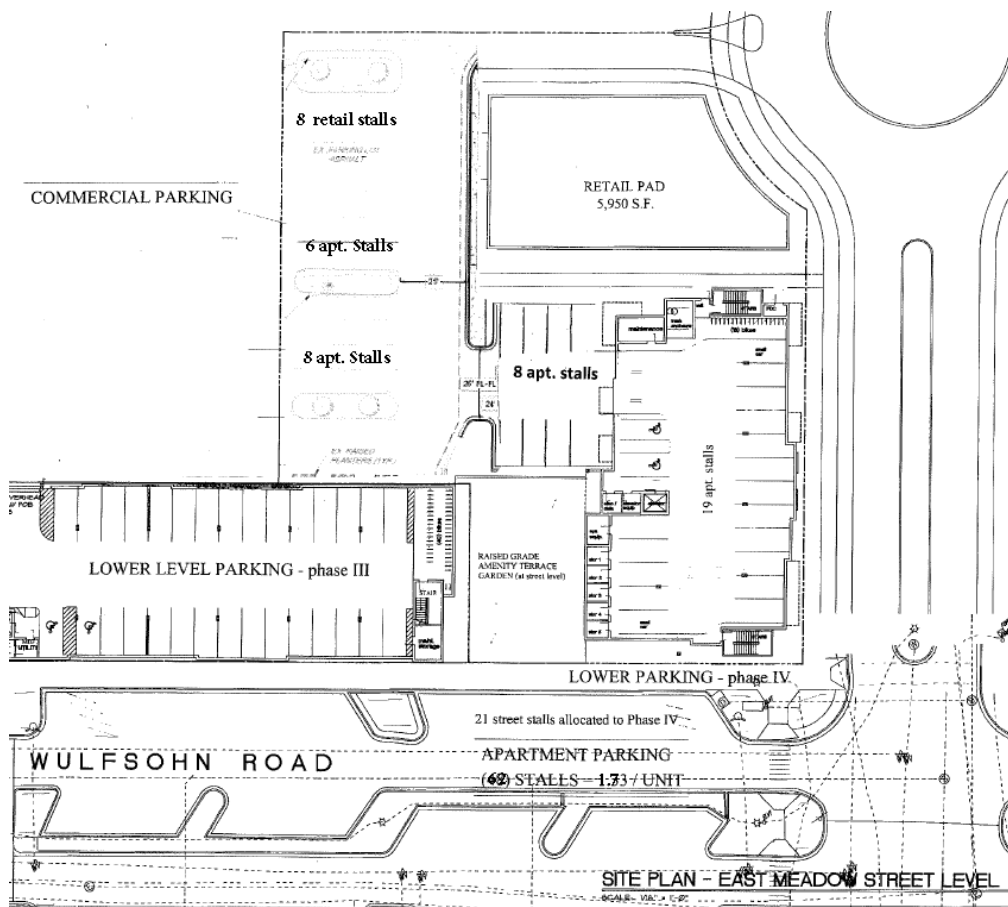
The geotechnical report does indicate that plantings and irrigation should be minimized and not include lawn within 10 feet of the building. The applicant shall review the landscaping plan to comply with the recommendations.

The future commercial pad site is indicated to remain as native seed landscaping. Irrigation shall be provided for the first year in order to establish the area.

Off Street Parking and Loading

Section 070.030.020(e)/Table 030.1 Table of Allowed Uses outlines 1.5 spaces per multi-family dwelling unit

and one guest space per five dwelling units requiring 62 total spaces for the current proposal, or 1.7 per unit.



19 spaces are proposed in the lower-level garage, 8 surface level spaces, 14 spaces from the existing parking lot in the northwest corner of the lot, and 21 of the existing on-street parking spaces within the Wulfsohn Road right-of-way allocated to Lot 8, amount to a total of 62 residential parking spaces.

There are currently 8 additional existing spaces that will be used to accommodate commercial parking for the future use. The future commercial pad site may necessitate a parking lot reconfiguration at that time and a look at shared parking feasibility and alternative parking reductions with the Residential use. The applicant could also consider revising the layout of the existing surface lot to include compact vehicle spaces which may increase the number of spaces provided. The Code allows for the compact spaces to account for 10 percent (generally 20 percent but only 10 percent when other parking alternatives are included as part of any proposal) of the required spaces.

#### Traffic Impact

The applicant has submitted a Traffic Impact Study for the proposal. The study included analysis for the 36 apartment units and assumed a fast-casual restaurant for the future commercial site for purposes of the traffic study. The traffic generation for these uses is included on the next page from the traffic study.



**Table 1 – Lofts at Red Mountain – Phase IV Traffic Generation**

| Land Use                                                 | Vehicle Trips |              |           |           |              |           |            |
|----------------------------------------------------------|---------------|--------------|-----------|-----------|--------------|-----------|------------|
|                                                          | Daily         | AM Peak Hour |           |           | PM Peak Hour |           |            |
|                                                          |               | In           | Out       | Total     | In           | Out       | Total      |
| Multifamily Housing (Mid-Rise) (221) – 36 Dwelling Units | 196           | 3            | 10        | 13        | 10           | 7         | 17         |
| Fast Casual Restaurant (930) – 5,950 Square Feet         | 1,876         | 8            | 4         | 12        | 46           | 38        | 84         |
| <b>Total Project Trips</b>                               | <b>2,072</b>  | <b>11</b>    | <b>14</b> | <b>25</b> | <b>56</b>    | <b>45</b> | <b>101</b> |

Based on the results of the analysis, the key intersection recommended improvements and control for the 2023 build are as follows:

1. At the Midland Avenue and E Meadows Drive intersection, a 150-foot plus 120-foot taper eastbound acceleration lane is recommended along Midland Avenue, so the northbound right turn operates with free turning movements. This will likely require reconstruction of the existing channelized median island in the E Meadows Drive throat of the intersection.



2. It is recommended that the existing free northbound right turn movement at the intersection of Midland Avenue and Wulfsohn Road be better designated to fully operate as a “FREE” lane. To accomplish this, it is recommended that improved channelized striping or a median be provided designating the left edge for the right turning vehicles.

The engineering department has recommended a 4-way stop at East Meadows Drive and Wulfsohn which is at the southeast corner of the proposal property. Planning staff supports that recommendation and has included it in the conditioned language.

An annual growth rate of 1.15 percent was used to calculate short term 2023 and long term 2040 background traffic projections for the key intersections and roadways in the study area. Recommendations are included if projected traffic volumes in the long-term horizon years are realized including the possible widening of Midland Avenue.

If future 2040 volumes are realized, Midland Avenue may need to be widened to four-lanes to accommodate the increase in traffic. The Memorandum of Understanding between the City and the Meadows outlines the obligations in regard to the expansion of Midland Avenue. The widening of Midland Avenue is listed to be constructed “*if and when the City deems it appropriate.*” Subsequent agreements

have identified the developer meeting the financial obligation for these improvements and the City cannot exact further compensation for this item.

#### Community Housing (070.045)

The requirement to provide deed restricted community housing was added to the Code on April 1, 2021. Any residential development proposing 10 or more new dwelling units is required to set aside 20% of the units as deed restricted resident-occupied community housing.

This application was filed March 30<sup>th</sup>, prior to the effective date of the inclusionary housing ordinance and therefore is not subject to the community housing requirements.

#### Drainage

The applicant submitted a Drainage compliance letter for Phase IV. The proposal is in conformance with the approved Final Drainage Report for Glenwood Meadows and the City of Glenwood Springs drainage criteria.

#### Site/Architectural Plan Review Approval Criteria

A Major Site/Architectural Plan Review application must adhere to the approval criteria outlined in Section 070.060.050(6) of the Code as outlined in ***bold italics*** below. Other language is provided by staff.

##### ***a. The site/architectural plan is consistent with the general purpose and intent of this Code;***

The general purpose of the Code is to protect the public health, safety, and welfare of the city and to implement policies, goals including those in the Comprehensive Plan. More specifically, the intent of the Development Code among other things, is to create the best built environment by promoting orderly, efficient development; to provide for a variety of housing and densities, including workforce housing; to regulate the development based on impacts; and to provide minimum standards for design and improvement of the land and buildings to ensure that each building site is capable of accommodating its intended use.

##### ***b. The site/architectural plan is consistent with the dimensional, design, development, and all other standards of this Code;***

As outlined above, staff found that the proposal is consistent with the dimensional, design, development, and all other standards of the GMZDP exclusive of the variance discussion included herein.

##### ***c. The site/architectural plan is consistent with any previously approved plat, PUD, or any other precedent land use approval; and***

As outlined above, staff found that the proposal is consistent with the dimensional, design, development, and all other standards of the GMZDP exclusive of the variance discussion included herein.

##### ***d. The site/architectural plan is consistent with the Comprehensive Plan and other adopted City policies and plans.***

As addressed in detail above, the current proposal is in compliance with the *Future Land Use* map designations and descriptions and goals and objectives of the Comp Plan and the GMZDP (and amendments thereto).

## COMMENTS

Staff distributed the application to the city's departments for review and comment. The Engineering Department submitted written comments addressing specific details of project construction including drainage, pavement patching, and permitting. Compliance with these comments/requirements have been added as conditions of project approval.

No public comments were received as of the writing of this report.

## ACTION ITEMS AND STAFF RECOMMENDATIONS

Section 070.060.030(g)(1)d outlines the review and decision procedures for applications being considered by the Planning and Zoning Commission and/or City Council. The Commission may approve, approve with conditions, or deny the application based on the applicable approval criteria listed in the application-specific procedures. The Commission may also continue the hearing to with a request for specific additional information.

**NOTE:** The Planning and Zoning Commission **will not** vote on this item at the June 22<sup>nd</sup> meeting. As has been the policy since meeting remotely, to accommodate public comment the Commission will continue this item to the July 27<sup>th</sup> meeting. The action and recommendations below are for information only.

---

### **Action 1:**

#### **Action 1:**

Consideration of a Special Use Permit to allow for the construction of a 60-foot-tall building in the M2-Mixed Use Central Core zoning district.

Staff recommends approval of the Special Use Permit with the following suggested findings:

#### **Recommended Findings:**

1. The use is compatible with the surrounding area;
2. The impacts of the use on surrounding areas have been adequately minimized;
3. The use is consistent with the general purpose and intent of this Code;
4. The use complies with all applicable standards of this Code;
5. The use is in conformance with the Comprehensive Plan and other City plans and policies; and
6. The use minimizes adverse impacts to the health, safety, and welfare of the inhabitants of the surrounding areas and the city.

### **Action 2:**

Consideration of a variance from section V.D.3.c of the Glenwood Meadows Zoning and Development Plan which limits maximum length of 125 feet for multifamily buildings, allowing for a maximum building length of up to 140 feet.

Staff recommends approval with the following suggested findings:

#### **Recommended Findings:**

1. The subject property has an exceptional shape, topography, and soil conditions that are not general conditions throughout the Mixed-Use (M2) Core zone district;

2. The strict application of the Code standards for which the variance is sought produce undue hardship;
3. The applicant did not create the hardship by his/her own actions;
4. The variance requested does not harm the public and does not impair the intent or purposes of this Code, goals, and policies, including the specific regulation for which the variance is sought;
5. The variance request demonstrates exceptional hardship not related to purposes of convenience or financial burden;
6. The variance request does not violate building or fire code requirements; and
7. The variance is the minimum variance that will afford relief of the subject standards of the Code.

**Action 3:**

Consideration of a Major Site/Architectural Plan review for the construction of a 36-unit multifamily building in the M2-Mixed Use Central Core zoning district.

Staff recommends **approval (with conditions)** of the Major Site/Architectural Plan Review with the following findings and conditions:

**Recommended Findings:**

1. The site/architectural plan is consistent with general purpose and intent of the Code;
2. The site/architectural plan is consistent with dimensional, design, development, and all other standards of this Code;
3. The site/architectural plan is not in conflict with precedent land use approvals; and
4. The site/architectural plan is consistent with goals and objectives of the Comprehensive Plan.

**Suggested Conditions:**

1. The development shall comply with the requirements of the Code. Any future physical changes or improvements to the property or buildings are subject to the review and approval of the Community Development Director for compliance with applicable requirements of the Glenwood Springs Municipal Code.
2. The owner shall comply with all verbal representations made in the public hearings, as outlined in all application materials, and/or as revised per conditions herein and approved by the Community Development Director.
3. Irrigation shall be provided for a minimum of one year for the native seed area of the future pad site in order to establish the landscaping.
4. Prior to submitting a building and/or grading permit application, the owner shall -
  - a. Submit a Final Plans application in accordance with Municipal Code section 070.060.050(c).
  - b. Provide plans for all 2023 recommended improvements as indicated in the Traffic Study.
  - c. Include design for a 4-way stop at the intersection of Wulfsohn and East Meadows.
  - d. Submit an Engineer's Estimate of all public improvements and provide security for completing said improvements per requirements of the Engineering Standards.
  - e. Enter into a Development Agreement that memorializes the development approvals.
5. At the time of Construction Plans review the owner shall submit all required civil and architectural plans and related reports that demonstrate compliance with Code requirements and the Engineering Standards, including applicable comments provided by the City's Engineering Department in a memo dated April 30, 2021.
6. Prior to issuance of the building permit, the owner shall pay all required system improvement fees including but not limited to water, sewer, parkland, school land, and Fire/EMS.

7. Developer shall pay a surcharge of \$814/EQR to offset the costs of necessary lift station upgrades to accommodate the development.
8. ~~Developer shall pay an equitable portion of intersection improvements on Midland Avenue not to exceed \$500/residential unit.~~
9. Prior to issuance of the Certificate of Occupancy, owner shall
  - a. Provide as-built plans and an Improvement Survey Plat per the Engineering Standards.

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### **Alternative Motion**

\*\*\*A member of City Council has requested that land use applications include suggested motions for both approval and denial. In most instances, staff has worked diligently with the applicant to address requirements outlined in the *Glenwood Springs Municipal Code* (Code) applicable to any given proposal. Therefore, we are usually in support of an application by the time it reaches the Planning and Zoning Commission and/or City Council. However, if the Planning and Zoning Commission does not believe the application meets the Code's minimum standards, your denial motion should be based on one or more of the same approval criteria applicable to the application. You should support your findings with information outlining the shortcomings of the request as shown in the example below:

#### **Action 1:**

Consideration of a Special Use Permit to allow for the construction of a 60 foot tall building in the M2-Mixed Use Central Core zoning district. I move to **DENY** finding that –

- i. The use will NOT be compatible with the surrounding area; **[insert reasoning]**
- ii. The impacts of the use on surrounding areas have NOT been adequately minimized; **[insert reasoning]**
- iii. The use will NOT be consistent with the general purpose and intent of this Code; **[insert reasoning]**
- iv. The use does NOT comply with all applicable standards of this Code; **[insert reasoning]**
- v. The use is NOT in conformance with the Comprehensive Plan and other City plans and policies; **[insert reasoning]**and
- vi. The use does NOT minimize adverse impacts to the health, safety, and welfare of the inhabitants of the surrounding areas and the City. **[insert reasoning]**

#### **Action 2:**

Consideration of a variance from section V.D.3.c of the Glenwood Meadows Zoning and Development Plan which limits maximum length of 125 feet for multifamily buildings, allowing for a maximum building length of up to 140 feet. I move to **DENY** finding that -

- i. The subject property does NOT have an exceptional shape, topography, building configuration or other exceptional site condition that is not a general condition throughout the zone district; **[insert reasoning]**
- ii. The strict application of the Code standards for which a variance is sought would NOT produce undue hardship; **[insert reasoning]**
- iii. The applicant DID create the hardship by his/her own actions; **[insert reasoning]**
- iv. The variance requested harms the public and impairs the intent or purposes of this Code, goals, and policies, including the specific regulation for which the variance is sought; **[insert reasoning]**
- v. The variance request does NOT demonstrate exceptional hardship not related to purposes of convenience or financial burden; **[insert reasoning]**
- vi. The variance request will violate building or fire code requirements; **[insert reasoning]**
- vii. The variance is NOT the minimum variance that will afford relief of the subject standards of the Code. **[insert reasoning]**

**Action 3:**

Consideration of a Major Site/Architectural Plan review for the construction of a 36-unit multifamily building in the M2-Mixed Use Central Core zoning district. I move to **DENY** finding that -

1. The site/architectural plan is not consistent with general purpose and intent of the Code because **[insert reasoning]**;
2. The site/architectural plan is not consistent with dimensional, design, development, and other standards of this Code **[insert where you find inconsistencies with Code requirements]**; and
3. The site/architectural plan is not in conformance with **[insert applicable Comp Plan or other City plan or policy sections here]** of the Comprehensive Plan and other City plans and policies.



**MINUTES**  
**City of Glenwood Springs**  
**Planning and Zoning Commission**  
**Regular Meeting**  
**June 22, 2021**  
**Zoom**  
**6:00PM**

**1. Roll Call**

Present at roll call were  
Commissioners:

Absent at roll call were Commissioners:

Also present were:

Marco Dehm, Amber Wissing, Joy White, Carolyn  
Cipperly, Sumner Schachter, Ben West

Pete Waller, George Shaver

Asst. City Manager Jenn Ooton, Asst.

Community/Economic Dev. Director Gretchen

Ricehill, Senior Planner Trent Hyatt, City Attorney

Karl Hanlon, Senior Planner Hannah Klausman,

Assistant City Engineer Jessica Bowser,

**5. New Items**

- a. Planning File 58-20: Consideration of a Major Site Architectural Plan review for the construction of a 36-unit multifamily building. The application includes Consideration of a Special Use Permit to allow a building height exceeding 40 feet and consideration of a Variance to exceed the maximum building length allowed by the Glenwood Meadows Annexation and Development Agreement and Zoning and Development Plan.

Senior Planner Hannah Klausman provided the Commission with a presentation on the application. Klausman indicated that staff recommend approval of Action Items 1 (Special Use Permit) and 2 (Variance) with findings on pages 13-14 of the staff report and pages 134-135 of the packet. Staff recommended approval to City Council of Action Item 3 (Major Site/Arch Plan Review) with findings and conditions on pages 14-15 of the staff report (pages 135-136 of the packet).

Commissioner White asked for more information on the Special Use Permits and variances for previous phases. Klausman provided more information on variances and Special Use Permits on previous phases. Applicant Richard Myers explained all previous phases had variances for length and height. White also asked about underground parking and Myers explained Phases III and IV would have underground parking and the Phases I and II had tuck under parking.

Commissioner Wissing asked for a definition of a fast casual restaurant.

Commissioner Schachter questioned the use of small town character as a criteria for approval of this project. Schachter asked if the applicant reduced units, if they could meet the length requirement. Klausman stated applicant could better ask that question.

Applicant Richard Myers, Realty Capital Management, provided the Commission with a presentation on the item. Applicant Myers explained that the building length was 15' over the limit and that previous buildings that had been approved were longer. Myers indicated that the extra 15' enabled the creation of a better and more efficient parking garage. Myers explained the number of units could be the same without the 15' but amenities would be reduced.

Commissioner Schachter asked if the report of existing Lofts residents broke down the employment location of residents. Applicant Myers stated the report included employment locations for all residents. Schachter asked if that report was available to the Commission. Myers indicated the report contained confidential information and was not public information. Schachter requested the applicant provide the percentage of tenants in the Lofts that were employed within the City of Glenwood Springs. Myers indicated they could provide that information. Schachter also asked if this application was submitted before the inclusionary housing ordinance was enacted, which was confirmed by Hannah Klausman.

Commissioner White asked if there was any plan to phase any units out as condominiums and if that was something that the applicant had done with other projects. Myers stated they had developed condos and for sale housing. Myers also stated that the applicant did not have immediate plans for converting the units to a condo style building.

Commissioner Cipperly had questions on the building heights and elevations. Cipperly expressed concerns on scale of the building compared to previous phases. Applicant Myers explained how the proposed project would compare to existing buildings. Cipperly also asked if there would be additional storage in the building. Applicant Myers explained there was some storage in the parking garage as well as additional storage on other floors and that the applicants were aware of need for storage especially bicycle parking. Cipperly asked if the project met storage requirements. Klausman confirmed that the proposed project met storage requirements.

Commissioner Dehm asked if there was any concerns about the condition of Wulfsohn Road. Klausman stated that no conditions had been included on Wulfsohn. Applicant Myers explained that the Phase III Development of the Lofts did include some requirements to redo sections of Wulfsohn, directly in front of the building.

Commissioner White asked about the potential restaurant space. Applicant Myers explained that it was the intent to develop a restaurant.

Assistant City Engineer Jessica Bowser provided additional information on the state of Wulfsohn Road. Bowser indicated that Engineering was aware of the road's current condition and that it would need reconstruction at some point. Dehm asked if it was a scheduled improvement.



City Attorney Karl Hanlon explained that several funding solutions were being pursued to help fund improvements to Wulfsohn Road.

Commissioner Schachter stated that the left hand turn from Market Street onto Wulfsohn was difficult and that sometimes people turn into oncoming Wulfsohn traffic. Schachter proposed that staff research potential safety improvements at that intersection.

Commissioner Dehm opened the item to public comment. No members of the public presented for comment. Commissioner Dehm closed the item to public comment. Dehm stated public input could be sent to staff and Senior Planner Hannah Klausman provided information on providing public comment.

Commissioner Cipperly made a motion to continue the item to the next regularly scheduled Planning & Zoning Commission meeting. Commissioner White seconded the motion. Commissioner Dehm called the item to question.

Motion passed unanimously.

#### **6. Commissioner Comments**

Commissioner Cipperly stated that the Planning & Zoning Commission should be involved in any discussions on potential planning projects related to South Canyon.

Commissioner Schachter wanted to provide a compliment for the City Broadband installation services. Schachter also discussed the City's Fire Prevention campaign and asked the Commission to help assist distributing signage.

All the Commissioners thanked Gretchen Ricehill for all her service to the City.

#### **7. Director Comments**

Jen Ooton provided the Commission with an update on upcoming items and meetings.

#### **8. Adjournment**

Meeting was adjourned at 8:13 PM.



**MINUTES**  
**City of Glenwood Springs**  
**Planning and Zoning Commission**  
**Regular Meeting**  
**July 27, 2021**  
**Zoom**  
**6:00PM**

**1. Roll Call**

Present at roll call were Commissioners: Marco Dehm, Amber Wissing, Carolyn Cipperly, Sumner Schachter, Ben West, Pete Waller, George Shaver

Absent at roll call were Commissioners: Joy White

Also present were: Asst. City Manager Jenn Ooton, Asst. Community/Economic Dev. Director Hannah Klausman, Senior Planner Trent Hyatt, City Attorney Karl Hanlon, Assistant City Engineer Jessica Bowser

**2. Seating of Alternate Commissioner**

Commissioner Shaver made a motion to seat Alternate Commissioner Waller. Commissioner Cipperly seconded the motion. Commissioner Dehm called the item to question.

Motion passed unanimously.

**5. Continued Items**

- a. Planning File 58-20: *Consideration of a Major Site Architectural Plan review for the construction of a 36-unit multifamily building. The application includes consideration of a Special Use Permit to allow a building height exceeding 40 feet and consideration of a Variance to exceed the maximum building length allowed by the Glenwood Meadows Annexation and Development Agreement and Zoning and Development Plan.*

Assistant Community Development Director Hannah Klausman provided the Commission with a summary of the application item which was continued from the June 22<sup>nd</sup> meeting.

Klausman explained there was a revision on Condition 8 on page 15 of the staff report for the major site architectural plan. Klausman explained that condition, which was for the developer to pay for Midland Avenue intersection improvements on a per-unit basis. Klausman explained this

condition would be removed and would be replaced with requirements on construction improvements as described in the submitted traffic plan. Klausman also confirmed that the project met code requirements for storage space for a residential multi-family development. Klausman also provided examples of how the height of this building compared to other buildings that were built in previous phases of this development. Klausman explained demographic data is not a criteria for reviewing the project.

Klausman indicated staff recommended approval of all three action items with the findings and conditions, including the revised condition on page 15, on pages 13-25 of the staff report.

Commissioner Schachter asked staff for more information on the height of the hotel to the east of the project. Staff was unable to immediately confirm. Schachter also asked if the heights of the buildings would have any affect on sunlight. Assistant City Engineer Jessica Bowser stated that issue had not been reviewed. Schachter also asked staff to confirm that the developer for this project would not be required to meet the inclusionary housing requirements and that the developer had not included any units that would be considered inclusionary housing. Klausman confirmed that this application was received before the Inclusionary Housing Code Amendment and that the developer was not including any units that would meet those requirements.

Commissioner Waller asked if the a larger allowable building length had been considered for this zoning district. Waller also asked for more information on the Midland Avenue traffic improvements, which Klausman described further in detail. Waller also asked if there had been any comments from Police or Fire Departments. Klausman indicated no comments had been received from Police Department or Fire Department. Waller also asked about parking for this development. Klausman explained that this development met all parking requirements.

Commissioner Dehm asked if any public comments had been received. Staff indicated no additional public comment had been received.

Applicant Richard Myers provided comments and responses to previous meeting. Myers explained that the amount of storage had been increased. Myers stated that stated that it was estimated 65% of tenants of existing phases were employed in Glenwood Springs. Myers also explained that this phase has dedicated parking and does not share with any of the other buildings. Myers also explained that the 15' variance requested for this project was less than the variances requested and granted for previous buildings. Myers provided additional descriptions of the project and how it compared to previous phases of this development.

Commissioner Shaver asked if the project included outdoor bicycle parking or storage for visitors. Applicant Myers explained that bicycle parking would be included in the plan although a final location had not been determined. Shaver also asked how parking would be met if residents did not want to pay for parking and Myers explained the price of parking would be determined by demand.

Commissioner Cipperly had questions about parking management and public access to amenities. Applicant Myers explained that there would be a fence. Myers also explained that the surface parking would be monitored by the building managers and possibility of utilizing a sticker system. Cipperly also asked if the amenity areas were wheelchair accessible, which was confirmed by the applicant.

Commissioner Schachter asked if all four phases were owned and operated by the same entity. Applicant Myers indicated that Phases I & II were owned by a different ownership group but

were managed by the same company. Schachter asked if the change in ownership resulted in a change in rent. Myers was unable to confirm. Schachter also asked for information on the rents, which Myers estimated being approximately \$1500 for a studio and \$2800 for a 2 bedroom. Schachter also asked Myers what would happen if the length variance was not granted and Myers explained that the building would likely lose the terrace area. Schachter asked if Phases I & II were at full occupancy which Myers confirmed. Schachter asked the applicant to explain why any community housing was not provided. Myers explained that the application was submitted prior to the Inclusionary Housing Amendment and not required to meet those requirements. Myers also stated that the previous phases house a wide variety of community members.

Commissioner Dehm asked if any member so the public were present. No members of the public presented for comment.

Hannah Klausman confirmed the hotel to the east was a four story building.

Commissioner Waller made a motion to approve Action Item #1 Consideration of a Special Use Permit to exceed building height of 40' with recommended findings and conditions on pages 13-15 of the staff report. Commissioner Shaver seconded the motion.

Commissioner Shaver stated the project was supported by the Comprehensive Plan's description of the area.

Commissioner Cipperly expressed no reservations on the ceiling heights and stated support for the project per the Comprehensive Plan.

Commissioner Dehm asked what the building heights were for previous phases of the building. Staff and applicant confirmed that previous phases also requested and were granted variances for building heights.

Commissioner Dehm called the item to question.

**Motion passed unanimously.**

Commissioner Cipperly made a motion to approve *Action Item #2* for a variance for building length for multifamily buildings with findings and conditions 13-14 of the staff report. Commissioner Waller seconded the motion.

Commissioner Schachter stated issue with finding #3 in the staff report and expressed belief that the applicant had created the hardship on their own accord via the design of the project. Schachter also stated issue with finding #5 for similar reasons.

Commissioner Dehm expressed similar opinions to Schachter on findings #3 and #5 of the staff report.

Commissioner Waller expressed support for approval while also expressing reservations on findings #3 and #5.

Commissioner Cipperly stated that the soil conditions of the site were a hardship the applicant did not create.

Commissioner Shaver expressed support for the variance citing the soil conditions and the practical standpoint of creating additional underground parking with the additional building length.

Commissioner Dehm called the item to question.

**Motion passed 4-3.**

Commissioners Wissing, Shaver, Cipperly, and Waller voted in favor of the motion. Commissioners Schachter, West, and Dehm voted against the motion.

Commissioner Waller made a motion to approve *Action Item #3 Consideration of a Major Site/Architectural Plan* citing findings and conditions on page 14 of the staff report, including the revision of item 8. Commissioner Cipperly seconded the motion.

Commissioner Schachter questioned if the project met the Comprehensive Plan goals, citing the lack of diversity in housing types with this proposed development.

Commissioner Shaver stated that the previous phases of the projects were fulfilling a community housing need.

Commissioner Wissing stated that the proposed project was compatible with the existing area.

Commissioner Waller commented that the project was compatible with the existing area.

Commissioner Cipperly stated that the project was infill housing and also stated that approval met the precedent of previous approval of previous phases, citing finding #3 of the staff report.

Commissioner Dehm stated agreement with Schachter's comments on lack of housing diversity in this development. Dehm also expressed reservations about the increased infrastructure demands in this area.

Commissioner Dehm called the item to question.

**Motion passed 5-2.**

Commissioners West, Shaver, Cipperly, Waller, Wissing voted to approve the item. Commissioners Dehm and Schachter voted to deny the item.



## CITY COUNCIL LIST OF MOTIONS

Date: August 19, 2021  
To: City Council  
From: Hannah Klausman,  
Assistant Director, Economic and Community Development  
Subject: #58-20- Major Site/Architectural Plan Review;

### ACTION ITEMS AND STAFF RECOMMENDATIONS

Section 070.060.030(g)(1)d outlines the review and decision procedures for applications being considered by the Commission and/or City Council stating, “the applicable review body shall approve, approve with conditions, or deny the application based on the applicable approval criteria listed in the application-specific procedures. The body may also continue the hearing...”

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#### **Action 1: Major Site/Architectural Plan**

Consideration of a Major Site/Architectural Plan review for the construction of a 36-unit multifamily building in the M2-Mixed Use Central Core zoning district.

Staff recommends **approval (with conditions)** of the Major Site/Architectural Plan Review with the following findings and conditions:

#### **Recommended Findings:**

1. The site/architectural plan is consistent with general purpose and intent of the Code;
2. The site/architectural plan is consistent with dimensional, design, development, and all other standards of this Code;
3. The site/architectural plan is not in conflict with precedent land use approvals; and
4. The site/architectural plan is consistent with goals and objectives of the Comprehensive Plan.

#### **Suggested Conditions:**

1. The development shall comply with the requirements of the Code. Any future physical changes or improvements to the property or buildings are subject to the review and approval of the Community Development Director for compliance with applicable requirements of the Glenwood Springs Municipal Code.
2. The owner shall comply with all verbal representations made in the public hearings, as outlined in all application materials, and/or as revised per conditions herein and approved by the Community Development Director.
3. Irrigation shall be provided for a minimum of one year for the native seed area of the future pad site in order to establish the landscaping.
4. Prior to submitting a building and/or grading permit application, the owner shall -
  - a. Submit a Final Plans application in accordance with Municipal Code section 070.060.050(c).
  - b. Provide plans for all 2023 recommended improvements as indicated in the Traffic Study.
  - c. Include design for a 4-way stop at the intersection of Wulfsohn and East Meadows.
  - d. Submit an Engineer’s Estimate of all public improvements and provide security for completing said improvements per requirements of the Engineering Standards.

- e. Enter into a Development Agreement that memorializes the development approvals.
5. At the time of Construction Plans review the owner shall submit all required civil and architectural plans and related reports that demonstrate compliance with Code requirements and the Engineering Standards, including applicable comments provided by the City's Engineering Department in a memo dated April 30, 2021.
6. Prior to issuance of the building permit, the owner shall pay all required system improvement fees including but not limited to water, sewer, parkland, school land, and Fire/EMS.
7. Developer shall pay a surcharge of \$814/EQR to offset the costs of necessary lift station upgrades to accommodate the development.
8. ~~Developer shall pay an equitable portion of intersection improvements on Midland Avenue not to exceed \$500/residential unit.~~
9. Prior to issuance of the Certificate of Occupancy, owner shall
  - a. Provide as-built plans and an Improvement Survey Plat per the Engineering Standards.

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### **Alternative Motion**

\*\*\*A member of City Council has requested that land use applications include suggested motions for both approval and denial. In most instances, staff has worked diligently with the applicant to address requirements outlined in the *Glenwood Springs Municipal Code* (Code) applicable to any given proposal. Therefore, we are usually in support of an application by the time it reaches the Planning and Zoning Commission and/or City Council. However, if the Planning and Zoning Commission does not believe the application meets the Code's minimum standards, your denial motion should be based on one or more of the same approval criteria applicable to the application. You should support your findings with information outlining the shortcomings of the request as shown in the example below:

### **MOTION TO DENY**

#### **Action 1:**

Consideration of a Major Site/Architectural Plan review for the construction of a 36-unit multifamily building in the M2-Mixed Use Central Core zoning district. I move to **DENY** finding that -

1. The site/architectural plan is not consistent with general purpose and intent of the Code because **[insert reasoning]**;
2. The site/architectural plan is not consistent with dimensional, design, development, and other standards of this Code **[insert where you find inconsistencies with Code requirements]**; and
3. The site/architectural plan is not in conformance with **[insert applicable Comp Plan or other City plan or policy sections here]** of the Comprehensive Plan and other City plans and policies.



# The Lofts Phase IV

## Major Site/Architectural Plan

### Planning File #58-20

City Council  
September 2, 2021





# Background

## 2002 Glenwood Meadows Zoning and Development Plan (GMZDP)

- Annexation
- Rezoning
- Development plan

## 2015 Lofts Phase I

- 88 apartments
- 5,808 sf commercial

## 2017 Lofts Phase II

- 97 apartments

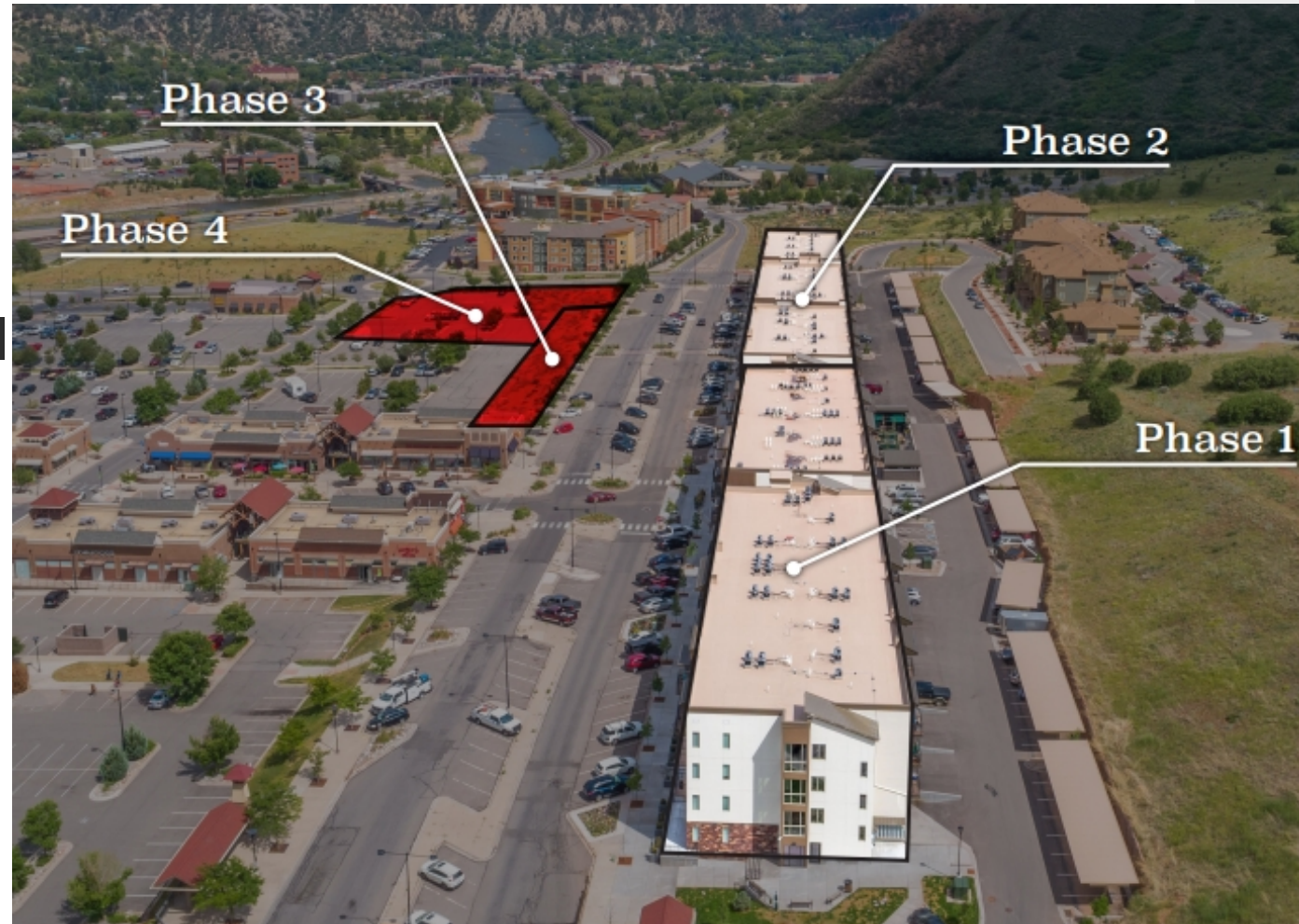
## 2019 Lofts Phase III

- 89 apartments

Current Proposal

## 2021 Lofts Phase IV

- 36 apartments



# Current Proposal

Four story with lower parking garage level

9,435 sf footprint

36 multi-family residential apartments

Private common areas including pool and spa, fitness and club room.

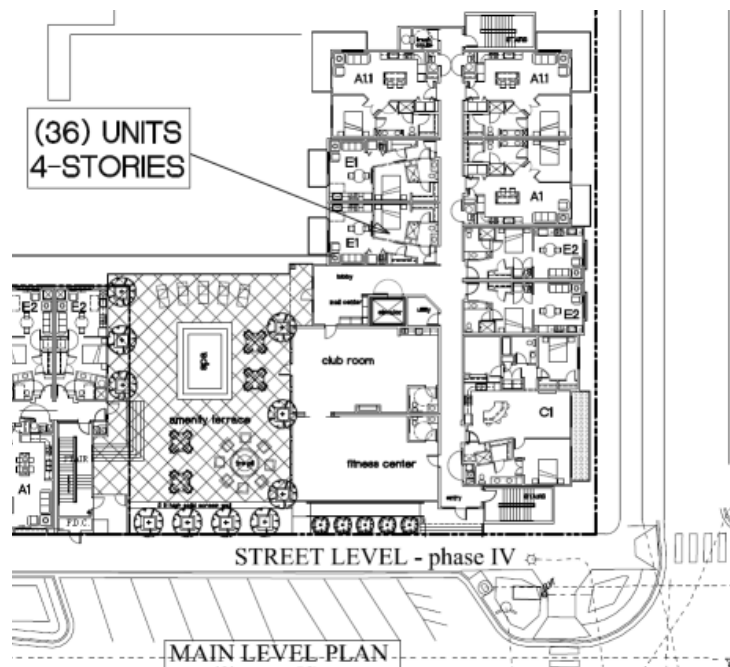
GMZDP Parcel H

Designated Commercial (C-1)

Zoned Mixed-Use Core (M2) District



Proposed Exterior Finishes







# Glenwood Meadows Development Standards

## ☞ Mix Use (C-2) Site Layout and Building Design (Section VIII)

☞ 1 or more architectural elements per 25 horizontal feet

☞ Changes

☞ Color

☞ Texture

☞ Wall plane

☞ Roof height

☞ Balconies

☞ Canopies



Proposed exterior finish to match Phase III image as shown



# Site/Architectural Plan Review Approval Criteria

## 070.060.050(6)

- a. The site/architectural plan is consistent with the general purpose and intent of this Code;
- b. The site/architectural plan is consistent with the dimensional, design, development, and all other standards of this Code;
- c. The site/architectural plan is consistent with any previously approved plat, PUD, or any other precedent land use approval; and
- d. The site/architectural plan is consistent with the Comprehensive Plan and other adopted City policies and plans.



# Referral Comments

## ☞ Reviewing Agency

### ☞ Engineering

- ☞ Consideration of a 4 way stop at Wulfsohn and E. Meadows
- ☞ Fire access comments
- ☞ Final report specifications

## ☞ Adjacent Property Owners/Public

- ☞ None received



# Action Items 1-3 and Staff Recommendation

## ☞ Section 070.060.030(g)(1)d

- ☞ Approve,
- ☞ Approve with conditions
- ☞ Deny
- ☞ Continue

## ☞ Staff recommends

- ☞ Approval of Action Items 1 Major Site/Architectural Plan for 36 multi-family apartment units.
- ☞ Planning and Zoning Recommended approval with conditions to City Council on Action Item 3 (Major Site/Arch Plan Review )
  - ☞ Findings and conditions on page 14-15 (Page 135-136 packet)





**City Council**  
**STAFF REPORT**  
**City of Glenwood Springs**  
**September 2, 2021**

|                              |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
|------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Agenda Item:</b>          | Ordinance 11, Series 2021 amending sections 090.040.070, 090.040.080 and 100.070.030 related to Snow Removal, Leaves in the Right of Way, and Snow Plowing and Street Sweeping                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
| <b>Action Requested:</b>     | Approval of Ordinance 11, Series 2021                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
| <b>Department:</b>           | Economic and Community Development                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
| <b>Presented By:</b>         | Jennifer Ooton, Assistant City Manager                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
| <b>Background Info:</b>      | <p>The attached ordinance makes changes to the Municipal Code as it relates to the depositing of snow, leaves and garbage within the City's rights-of-way. As proposed, the regulations would not allow snow and ice to be shoveled from a private property onto public streets, sidewalks and other public property, including from tri-plexes, duplexes/paired homes, and single family residences. This regulation is intended to keep the vehicular and pedestrian areas clear of ice and the build up of snow.</p> <p>Ordinance 11 would also create a similar prohibition on depositing leaves and other debris from private property onto a sidewalk, street or other public property. Keeping these items from the curb and gutter is important to street sweeping operations. Each fall, staff encounters leaves blown into the right-of-way, and this specific regulation would add to the already stated section which requires owners to keep sidewalks, curbs and gutters clean and maintained.</p> <p>This ordinance also clarifies that snow plowing and street sweeping is not considered construction noise. This is intended to exempt snow plowing and street sweeping operations from noise time restrictions thereby allowing plowing for private parking lots and public works operations to occur overnight and early in the morning.</p> |
| <b>Issues:</b>               | NA                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
| <b>Staff Recommendation:</b> | Approval of Ordinance 11, Series 2021.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |



## **ORDINANCE NO. 11**

Series of 2021

### **AN ORDINANCE OF THE CITY OF GLENWOOD SPRINGS, COLORADO, AMENDING SECTIONS 090.040.070, 090.040.080, AND 100.070.030 OF THE GLENWOOD SPRINGS MUNICIPAL CODE.**

**WHEREAS**, the City of Glenwood Springs (“Glenwood Springs” or the “City”) is a home-rule municipality organized under Article XX of the Colorado Constitution and with the authority of the Glenwood Springs Home Rule Charter; and

**WHEREAS**, Section 090.040.070 of the Municipal Code addresses the maintenance of sidewalks, curbs and gutters; and

**WHEREAS**, Section 090.040.080 of the Municipal Code addresses removal of snow; and

**WHEREAS**, Section 100.070.030 of the Municipal Code addresses noises prohibited; and

**WHEREAS**, the City Council finds and declares that the amendments to 090.040.070, 090.040.080, and 100.070.030 set forth in **Exhibit A**, hereto and incorporated herein by this reference, are in the best interest of the City.

### **NOW, THEREFORE, THE CITY COUNCIL OF THE CITY OF GLENWOOD SPRINGS, COLORADO, ORDAINS:**

**Section 1.** The foregoing recitals are incorporated herein as if set forth in full.

**Section 2.** Sections 090.040.070, 090.040.080, and 100.070.030 of the Glenwood Springs Municipal Code are hereby amended as set forth in **Exhibit A** attached hereto.

**Section 3.** Any ordinances or resolutions or parts thereof, which are in conflict with this ordinance, are hereby repealed to the extent of such conflict only.

**Section 4.** With the exception of the provisions of the Municipal Code of the City of Glenwood Springs which are modified as provided herein, all remaining provisions of the Municipal Code of the City of Glenwood Springs shall remain in full force and effect.

INTRODUCED, READ ON FIRST READING, PASSED AND ORDERED  
PUBLISHED BY TITLE ONLY THIS \_\_\_\_ DAY OF SEPTEMBER 2021.

CITY OF GLENWOOD SPRINGS, COLORADO

---

Jonathan Godes, Mayor

ATTEST:

---

Ryan Muse, City Clerk

INTRODUCED, READ ON SECOND READING, AND ORDERED PUBLISHED BY  
TITLE ONLY TO BE EFFECTIVE TEN DAYS FOLLOWING THE DATE OF SECOND  
PUBLICATION THIS \_\_\_\_ DAY OF \_\_\_\_\_ 2021.

CITY OF GLENWOOD SPRINGS, COLORADO

---

Jonathan Godes, Mayor

ATTEST:

---

Ryan Muse, City Clerk

## EXHIBIT A

The following sections of the Municipal Code are amended as follows with double underlined text added and ~~strike through text deleted~~.

### **090.040.070 Maintenance of sidewalks, curbs and gutters.**

- (a) *Duty.* In addition to any other obligations imposed upon owners pursuant to this article, it shall be an owner's duty to maintain the sidewalks, curbs and gutters along public rights-of-way abutting said owner's real property in a clean condition free of all debris, garbage, trash, leaves or any other substances which would impair or interfere in any way with the use of the sidewalks or curbs and gutters.
- (b) *Depositing items in right-of-way prohibited.* It shall be unlawful for any person to remove debris, garbage, trash or leaves from any private property and deposit it upon any public street, sidewalk, alley or other public property within the City.
- ~~(b)~~(c) *Notice.* In the event that the City determines that an owner has been negligent in performing the duty imposed by this section, the City shall provide written notice either by first class mail, postage prepaid, or by hand delivery to the owner, to perform the duties as set forth in this section. The owner shall have two (2) days from the date of the receipt of such notice to perform said duty. In the event the sidewalk or curb and gutter is in such condition as to constitute an immediate hazard to the health, safety or welfare of persons using said sidewalk or curb and gutter, the City may require the immediate performance of the owner's duty pursuant to this section. In the event that the owner fails to perform said duty, the City may, but need not, perform or have performed by an independent contractor all work necessary to ensure compliance with this section and shall charge the owner for the cost of such performance.
- ~~(c)~~(d) *Lien on owner's property.* In the event that the City performs such work or has such work performed, it shall have a lien upon the owner's real property for the cost of such performance until such cost is paid, which lien may be certified to the County Treasurer and/or Assessor and enforced in the same manner as is the collection of real property taxes. The City shall be entitled to recover, in the event that the cost of performance is not paid within thirty (30) days of the date of mailing or delivery of notice to the owner of the cost of such performance, its attorney fees incurred to collect such sums and interest at the rate of one (1) percent per month. Such attorney's fees and interest shall also constitute a lien against the owner's real property until paid.
- ~~(d)~~(e) *Violation.* In addition to the remedies set forth in this section, it shall be a misdemeanor for any person to fail to perform the duty required of him/her by this section and, upon conviction of the same, such person shall be punished in accordance with the provisions of Section 010.020.080.

### **090.040.080 Removal of snow.**

- (a) *Shoveling of public sidewalks required.* It shall be unlawful for any owner or occupant of any lot, block or parcel of ground within the City, or for any agent in charge of such property, to allow any snow or ice to accumulate or remain upon the entire width of any sidewalk in the public right-of-way abutting such property longer than twenty-four (24) hours from the time of the last accretion of such snow or ice.

- (b) *Depositing snow in right-of-way prohibited.* It shall be unlawful for any person to remove snow or ice from any private property and deposit such snow or ice upon any public street, sidewalk, alley or other public property within the City ~~under the following circumstances:~~
  - ~~(1) When the snow or ice is removed from any private nonresidential property.~~
  - ~~(2) When the snow or ice is removed from any private residential property containing in excess of four (4) dwelling units as defined in Title 070 of this Code.~~
- (c) *Obstructing and endangering public right-of-way prohibited.* It shall be unlawful for any person to plow, shovel, blow or otherwise move snow or ice in or upon any public street, sidewalk, alley or other public property within the City in a manner which:
  - (1) Obstructs vehicular or pedestrian traffic upon the right-of-way.
  - (2) Increases hazards to vehicles and pedestrians traveling upon the right-of-way.
  - (3) Interferes with the maintenance of the public right-of-way by the City.
- (d) *Exception for public crews.* Nothing contained in this section shall be construed to prohibit or regulate the manner in which persons working for or on behalf of the City clear or remove snow or ice from the public streets or other public places within the City.
- (e) *Penalties.* Upon first violation of this section, occupant may be assessed a fine of fifty dollars (\$50.00). Upon second violation of this section, occupant may be assessed a fine of seventy-five dollars (\$75.00). Upon third violation of this section, property owner and occupant may be cited with a misdemeanor punishable in accordance with Section 010.020.080 of this Code.

\*\*\*\*

#### **100.070.030 Noises prohibited.**

The following noises are declared a nuisance and are in violation of this section:

- (1) *Construction work.* Any noise created by operating or causing to be operated any equipment (mechanical or nonmechanical, self-propelled or manually manipulated) used in construction, repair, alteration or demolition work on buildings, structures, streets, alleys or appurtenances at any time other than between the hours of 7:00 a.m. and 8:00 p.m. on Monday through Friday, and 8:00 a.m. and 6:00 p.m. on Saturday and Sunday. Snow plowing and Street Sweeping activities are not considered "construction work" under this section. The City Manager is hereby authorized to issue a construction work noise permit allowing construction work noise to occur at a time other than the time set forth herein based on circumstances which necessitate such construction work. In the event the City Manager issues such a permit, the City Council shall be advised of such issuance at the next regular City Council meeting.
- (2) *Radios, tape players, record players, television sets, musical instruments and similar devices.* It shall be unlawful to use, operate or permit the operation of any radio receiving set, phonograph, tape player, television set, musical instrument or other machine or device for the production of sound in such a manner as to be plainly audible at twenty-five (25) feet from such device when operated in the City. In addition to the foregoing within all commercial zone districts, businesses shall make reasonable efforts to contain any noise produced by the business within the confines of the business' premises.
- (3) *Engine braking device.* Any noise created from the operation of any motor vehicle with an engine brake engaged.

#### Social Media Post-

"My husband and I are two of the helicopter pilots flying the Classic Air Medical helicopter for Valley View Hospital. We absolutely love living in Glenwood and try to be as considerate as we can with the helicopter noise as we bring patients in and out. Monday evening the Childrens hospital in Denver sent their helicopter here to pick up a small patient. As a pilot if you are not familiar with the location of VVH and the airport for refueling they can be very difficult to spot in the dark. Unfortunately it took that pilot a couple low passes over town looking for the best way into the hospital and airport. That situation was by no means ideal and it appears most everyone heard the helicopter in the middle of the night. Although this was a temporary discomfort the most important thing to remember is the patient was able to get the specialty care they needed. Every life is precious and as a community we are grateful for all the help. In the future we will try to be more proactive with helping these visiting pilots and medevac companies as they come into our valley to help with patient care. Explaining the areas we try to avoid flying over and maintaining altitudes over town. Thank you for your understanding and thanks for being such a wonderful community to live in and serve."

Hello all,

My name is Stephanie Nick, I work for Garfield County Public Health. I am a Registered Dietitian who sees high risk WIC (Women Infant Children) clients for Garfield County, I am a satellite partner of Cooking Matters, which is a non-profit organization that strives to end childhood hunger by educating parents on healthy affordable eating for the whole family and I am a part of the Breastfeeding Coalition that strives to increase and support breastfeeding in our community. I live in Glenwood Springs and work in both Rifle and Glenwood Springs Public Health offices. I am a part of a church and bible study group here as well.

I am writing to you today to tell you how the houses crisis has impacted me. I am single and live off of my own income. I recently had my last roommate move to another state and found myself in a state of panic over who I was going to live with next. As you know, it is nearly impossible to afford living in this valley, let alone Glenwood Springs with just one income. To make things worse, I also wanted to relocate due to some issues with my past landlord, it is near to impossible to find a place to live, let alone a place that is less than 50% of my income. I would say my income is pretty substantial, given that I work for the county, I can only imagine how others who make less than I do afford to live here. The stress of relying on a roommate (someone I may or may not know) and their income is incredibly stressful. It makes me feel unstable and insecure when I am at a stage in my life where I feel like I should be able to live on my own and rely only on my own income.

I have seen the movement of WIC clients, who are a part of the program because of their low income status, to different parts of the valley such as Rifle and Parachute, many of these families are essential workers who are a part of the hospitality and services industry. They are essential and yet they are traveling far distances to serve other people who do not contribute to our community in the same way. Traveling far distances impact health negatively, from less time to be physically active to less time to cook for their families. Both decreased physical activity and an increase in consuming fast foods leads to many chronic diseases that are preventable and add an extra cost to all of us.

This is an emergency that needs to be addressed now. I do not want to live in a community where normal people who are the essential work force cannot afford to live. I do not want Glenwood Springs to become the new Vail or Aspen. Several Councilors have expressed discomfort with the speed at which this would appear on a ballot. Personally, I am uncomfortable that we would wait another year to address a community crisis. What if we had waited a year to repair our water treatment facility after the Grizzly Creek fire? A crisis deserves immediate attention.

Four months ago Glenwood Springs conducted a poll of its citizens. The number one identified need was affordable housing. This is a real issue, and should not be pushed aside. Think of the impact on our community if we have restaurants and local stores closing because they simply cannot hire someone who can afford to live here.

Please, think of your community, this is a need not a want.

### **Stephanie Nick, RDN, CLC**

Public Health Nutritionist  
Cooking Matters Coordinator  
MCH & ECOP Coordinator  
Garfield County Public Health

VV Hospital imports over 60% of their workforce from outside of GWS, perhaps in your experience you also have found many who do not live in Glenwood but own a business here or employ help from outside of our city. At the last televised council meeting a young man spoke of his frustration of unaffordable independent residency within our community. We believe it would be a wise investment to examine the efforts undertaken by other similar cities and work towards a vision for our future.

Appreciation for your service,

Murray and Diane Reynolds  
1215 Blake Avenue  
Glenwood Springs, CO

Dear Member of the Glenwood Springs City Council,

On behalf of Mountain Family Health Centers and as a citizen of Glenwood Springs, I'm writing to convey my strong support for the City of Glenwood Springs efforts to expand access to affordable housing in our community.

I am the CEO of Mountain Family Health Centers, which provides integrated medical, dental, and behavioral healthcare services to 22,000 unique patients across Garfield, Eagle, and Pitkin Counties. We provide affordable care via four integrated health care sites in Glenwood Springs, Rifle, Basalt, and Edwards and six school-based health centers in Glenwood Springs, Carbondale, Avon, and Basalt (at three locations in Basalt). Thank you for your support of our recently opened Glenwood Springs Highschool School Based Health Center. More on Mountain Family Health Centers at: <https://www.mountainfamily.org/>.

Mountain Family Health Center's Glenwood Springs community health center is our flagship site, started in 1998, and our largest community health center, serving 7,233 patients with 32,294 medical, dental, and behavioral health visits in the past 18 months alone. In addition, we've provided more than 9,500 COVID-19 vaccinations to our communities in need since early 2021, and ongoing testing and telehealth services since the COVID-19 pandemic began.

As an employer, Mountain Family Health Centers employs 200 talented staff, including physicians, nurses, dentists, behavioral health therapists, medical assistants, social workers, back office and front office staff. While we have a deeply mission-oriented group of staff serving at MFHC, the biggest recruitment and retention barrier we face as an employer is helping our staff find affordable and sustainable housing in Glenwood Springs. This is also true for our Basalt and Edwards clinics given the dearth of affordable housing in Glenwood Springs, Basalt, and Edwards.

Today, we have staff and providers in our Glenwood Springs clinics who commute daily to/from Glenwood Springs from as far away as Meeker, Battlement Mesa, Gypsum, and Grand Junction. They do so not by choice, but because of the lack of affordable housing available in Glenwood Springs, the community they serve. It's an all-too common recruitment challenge for us when talented candidates are ready to accept our offer to serve our community, only to turn down the offer at the last minute once they understand the cost of living, and especially housing/rent, in our community. Unfortunately, it's also a major driver of turnover as well as providers and staff eventually tire of the long-commutes from Meeker, Grand Junction, Battlement Mesa, or Gypsum and often eventually leave MFHC for other jobs closer to home.

I ask that you take urgent action on providing more affordable housing options to support our community so that our workforce can live where they work, and so that we can continue to staff Mountain Family Health Centers and provide high quality medical, dental, and behavioral healthcare to all in our community.

Thank you,

**Ross Brooks**

*Chief Executive Officer*





Thank you for having the courage and leadership to take on the issue of affordable housing. Too many communities have long ignored this crisis and have seen the places they love change dramatically. When essential workers can't live in the communities they serve, the multiple negative impacts of this are compounded and felt by all, including industries and sectors such as tourism, health and education. Housing is a basic need and when it's pushed out of reach due to "market conditions" it's time for the public sector to step in and help balance things for the benefit of the community. Please do this now as conditions continue to get worse.

Thanks,  
Bryan