AGENDA
CITY OF GLENWOOD SPRINGS
REGULAR CITY COUNCIL MEETING
JULY 21, 2022
101 W. 8TH 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.*

ATTENTION: To ensure your written comments are included in the City Council packet, public comments must be received by 4 p.m. on the day before City Council meetings. Comments may be submitted to ryan.muse@cogs.us. Written comments may be submitted after this deadline and will be shared via email to City Council but are not guaranteed to make it into the meeting packet. Submit comments at any time directly to City Council via email at citycouncil@cogs.us.

ZOOM INSTRUCTIONS

You are invited to a Zoom webinar.
When: Jul 21, 2022 06:15 PM Mountain Time (US and Canada)
Topic: 2022/07/21 Regular Council Meeting
Please click the link below to join the webinar:
https://us02web.zoom.us/j/88246355049?pwd=Y3VXYmIxYTl2bzlsZ20vV2dSRlV1dz09 Passcode: 899107
Or One tap mobile : US: +16699006833,,88246355049# or +12532158782,,88246355049#
Or Telephone: Dial (for higher quality, dial a number based on your current location):
US: +1 669 900 6833 or +1 253 215 8782 or +1 346 248 7799 or +1 669 444 9171 or +1 929 205 6099 or +1 301 715 8592 or +1 312 626 6799 or +1 646 931 3860
Webinar ID: 882 4635 5049
International numbers available: https://us02web.zoom.us/u/kW8emTKML

WORK SESSION

3:30	1.	Single Hauler Trash Request for Proposal	Information/Discussion
4:00	2.	Airport Board Joint Work Session	Information/Discussion
4:45	3.	Downtown Development Authority Joint Work Session	Information/Discussion

REGULAR SESSION

6:15	4.	Roll Call	
	5.	Pledge of Allegiance	
	6.	Agenda Changes & Conflicts	
6:20	7.	Citizens Appearing Before Council (for items not on the Agenda-comments limited to 3 minutes)	
6:30	8.	Consent Agenda	Discussion and/or Action
		A. July 7, 2022 Council Minutes	
		B. Ordinance 2022-18; Code Amendments to Title 060 and 070 Related to Hotel Conversions. Second Reading	
		C. Colorado River Valley Bureau of Land Management Mountain Pact Letter	
		D. Resolution 2022-29; New Alternate Municipal Energy Agency of Nebraska (MEAN) Director	

ACTIONS AND/OR PRESENTATIONS

6:30	9.	Planning item 12-22, Code Amendments to Title 070.040 as it Relates to Floodplain Regulations (To be continued)	Discussion and/or Action
6:35	10.	Community Wildfire Protection Plan Update	Presentation

A. Update on Cul-De-Sac Parking

6:50 11. North Landing — Discussion and/or Action

7:20 12. Affordable Housing Ad Hoc Update — Discussion and/or Action

8:05 13. Urban Forestry and Beetle Kill — Discussion and/or Action

8:35 14. Council Comments

8:45 15. Report from City Administration

A. City Manager

B. City Attorney

C. Correspondence Incoming/Outgoing

16. Executive Session

An Executive Session pursuant to CRS 24-6-402(4) (d) regarding specialized details of security arrangements or investigations, including defenses against terrorism, both domestic and foreign, and including where disclosure of the matters discussed might reveal information that could be used for the purpose of committing, or avoiding prosecution for, a violation of the law; regarding Downtown Security.

17. Adjournment

City Council
STAFF REPORT
City of Glenwood Springs
July 21, 2022

Agenda Item:	Single Hauler Trash Request for Proposal
Action Requested:	Direction
Department:	City Administration
Presented By:	Matthew Langhorst, Elizabeth Mauro
Strategic Goals:	Preserve and Improve Infrastructure
Background Info:	The City of Glenwood Springs staff and consultant have been working on moving the single hauler trash pickup discussion forward since the last meeting with Council. The culmination of that discussion is a draft Request for Proposal (RFP). Staff and consultant will go over the attached dpresentation and RFP during the work session.
Issues:	None at this time.
Fiscal Impact:	The award of this RFP may result in a Full Time Employee (FTE) request in the 2023 budget.
Legal Review:	Legal Council will need to review the RFP now that it is in a more complete draft state.
Staff Recommendation:	Staff is recommending a good discussion on the RFP and presentation.

Single-Hauler Draft Request for Proposals

City of Glenwood Springs

LBA ASSOCIATES

July 21, 2022

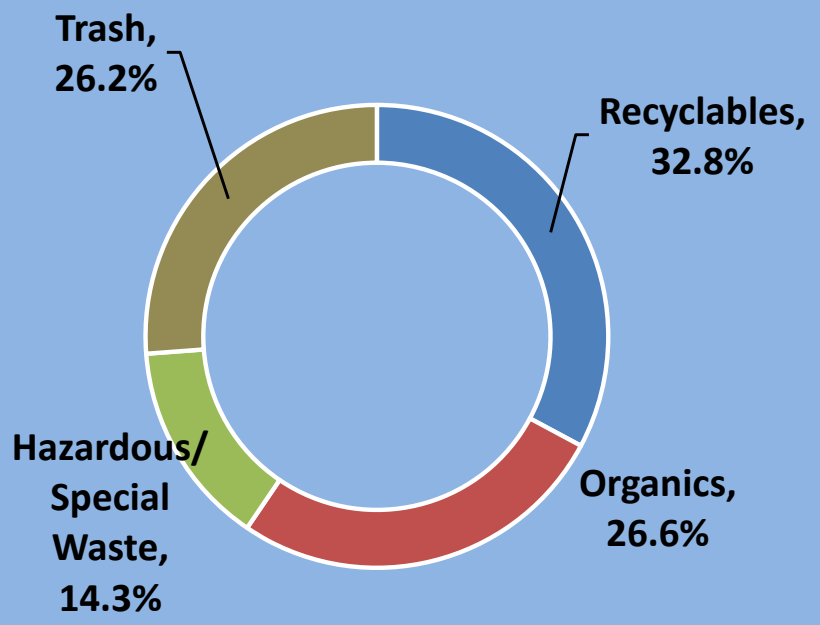
Working Timeline *(subject to change)*

Activity	Date
Obtain Council input	July 2022
Review draft with haulers	August 2022
Public meetings	September 2022
Release RFP	Nov 2022
Proposals due	January 2023
Contract execution	March 2023
New service start date	November 2023

City Goals

- Increase landfill diversion & decrease greenhouse gases
- Improve recycling access
- Provide $$-saving options
- Reduce traffic impacts
- Create strong partnership with private hauling company

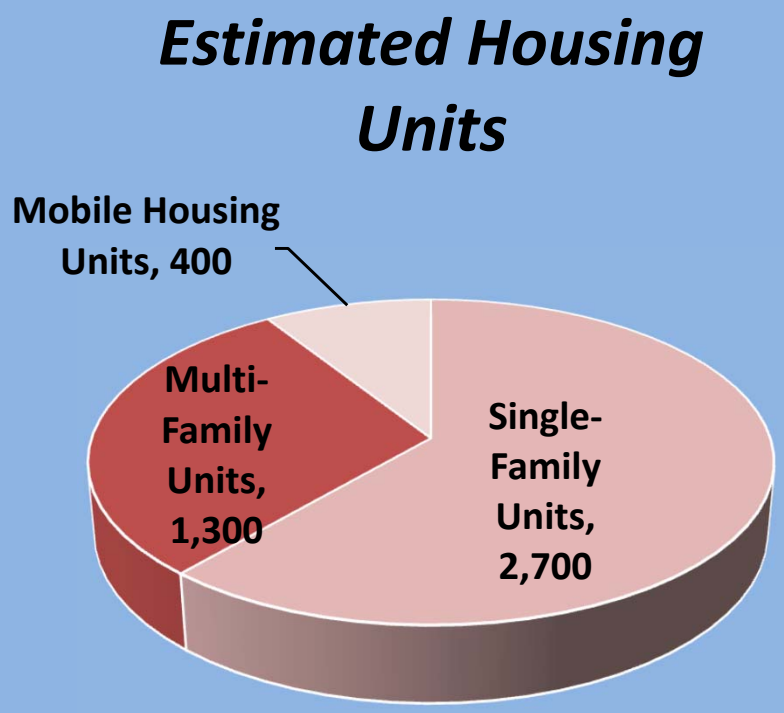
74% of South Canyon LF Trash Could Have Been Diverted



2017 South Canyon Landfill Audit, SMA

Note: curbside compost not included in draft RFP

Residential Customers



Resident:

Any household that receives curbside collection in discrete, individual carts that serve that household only

Exceptions:

- *Group accounts with existing hauler contracts - 1-yr delay*
- *Short-term rentals – large trash cart requirement*
- *Disabled/impaired – door to door service*

Photo credit = Jen Schenk

Volume-Based Trash Recap (PAYT)

Multiple volume-based trash service options that:

- Include recycling
- Have bundled fee for trash + recycling that varies with size of trash cart
- Creates $$ incentive for less trash & more recycling/composting

PAYT Cart Options & Relative Pricing

Small Trash
~32 gallons
+ Recycling

Medium Trash
~64 gallons
Recycling

Large Trash
~96 gallons
+ Recycling

$ Small Volume Bundled Price

$$ Medium Volume Bundled Price

$$$ Large Volume Bundled Price

Note: Hauler sets small volume price; city requires 100% increase for medium & large

Trash Service

- 3 standard service levels (cart size)
  - *Default = medium*
  - *Weekly collection*
  - *No free cart overflows*
- All residential trash to South Canyon Landfill
- Other service options
  - *Super-saver = small cart every-other-week**
  - *Extra large trash cart for extra $$ - regular, weekly collection*
  - *Extra trash collection for extra $$ - any size, periodic service only*
  - *Wildlife carts for extra $$ - may be req'd for some residents*

*Minimum service level for any resident

Recycling Service

- Standard = medium service
  - *Other sizes allowed at no extra $$*
- Minimum every-other-week collection
- Contamination cap of 25%
  - *Can collect as trash for extra $$*
  - *Or leave for resident to clean up*
- Hauler may subcontract recyclables collection

Trash & Recycling Carts

Hauler to provide regular containers

- *Residents may/may not be existing customers*
- *Wheeled carts (no open bins)*
- *Hauler must maintain/replace as needed*

Residents who have already purchased wildlife containers may continue to use IF compliant with PAYT & hauler is able to service

Extra trash collections (periodic service only)

- *In bags or rigid containers acceptable to hauler*
- *Extra cost same as weekly collection*

City v. Hauler Responsibilities

CITY

- Early public notification
- PAYT trash cart selection
- On-going (will require new staff)
  - Coordinate customer service with hauler
  - Conduct residential billing
  - Outreach & education

HAULER

- Ensure existing customer carts are PAYT-compliant
- Clean/repair existing carts as needed
- Deliver carts to new customers
- On-going
  - Collection service
  - Quarterly service & annual resource recovery reports

Hauler Compensation:

- Monthly invoice
- Annual price increases per CPI up to 3% per year
- Possible add'l increases to be determined

Contract Stipulations:

- 3-yr contract with potential for two 2-year extensions – performance review req'd
- Local customer service
- On-going - liquidated damages for failure to meet performance standards
- Performance bond equal to 6 months of service costs

RFP Evaluation Criteria

Criteria	Possible Points
Minimum Qualifications & References	Req'd as condition for further evaluation
Transition Plan*	5
Ability to Meet Residential Customer Service Requirements	40
Strategy for Sustainability**	15
Cost	40
Total	100

*Strategies for verifying PAYT cart compliance, cart exchanges, servicing resident-provided wildlife carts, recycling collection frequency, extra trash containers, etc.
**Strategies for increased diversion, improved contamination, alternative fuel vehicles, education materials, metrics, etc.

Council Input Needed

Revisions to draft RFP

(minimum super-saver service level, HOAs, carts, contract term, evaluation criteria)

Approve sharing of draft RFP to solicit hauler input

Revisions to city code for providing recyclables collection & assessing fees on residents

Revisions to city wildlife protection code

Public review process

LBA ASSOCIATES

Thanks for your time!

Laurie Batchelder Adams

LBA Associates

laurie@lbaassoc.com

303.733.7943

City Council
STAFF REPORT
City of Glenwood Springs
July 21, 2022

Agenda Item: Airport Board Joint Work Session

Action Requested: Airport Board Joint Work Session

Department: Parks & Recreation

Presented By: Brian Smith

Strategic Goals: Provide Efficient and Responsive City Government
Generate Sustainable Economic Development

Background Info: City Council requested a yearly work session with the board.

Airport Board Members:

- Alan Arnold
- Sean Thomas
- Joel Shute
- Stephanie Stanfield
- David Merritt
- Joe Mueller

Issues: Discussion Items:
Airport master plan
Development of additional hangars
Concepts for a common lease

Fiscal Impact: NA

Legal Review: NA

Staff Recommendation: N/A

City Council
STAFF REPORT
City of Glenwood Springs
July 21, 2022

Agenda Item:	Downtown Development Authority Joint Work Session
Action Requested:	NA
Department:	City Administration
Presented By:	Jillian Sutherland
Strategic Goals:	Protect and Preserve our Quality of Life Generate Sustainable Economic Development
Background Info:	NA
Issues:	NA
Fiscal Impact:	DDA Fund will be presented to Council in the budget process
Legal Review:	NA
Staff Recommendation:	NA

Glenwood Springs Downtown Development Authority Strategic Plan 2022 - 2027

Mission and Values	Vision & Desired Outcomes	Goals/Objectives	Priority Projects
MISSION To create vitality for the downtown; strengthening downtown as the retail, entertainment, office, government & tourist; ensuring access for all. **VALUES** Focus on the Local Collaboration Access & Equity You Are Here The Third Place Glenwood Springs DOWNTOWN DEVELOPMENT AUTHORITY	**Economic Vitality** Use creativity, economic diversification and a local emphasis to ensure economic prosperity and opportunity for a diversity of businesses and ventures. **Placemaking** Emphasize the authentic small town character, tone, art and history of Glenwood Springs. **Communications** Clear communication conveys the character, history and sense of place downtown. **Leadership & Activation** Advocate for downtown perspectives and serve as a resource for partners hoping to engage in downtown. **Connectivity & Mobility** Create a downtown that is bicycle and pedestrian friendly encouraging movement, connectivity and vitality.	**Goal 1:** Activate & Revitalize North Glenwood **Goal 2:** Increase Economic Vitality through Activation, Promotion & Communication **Goal 3:** Revitalize Cooper **Goal 4:** Improve Traffic & Parking Management **Goal 5:** Promote Facade Improvements **Goal 6:** Create Active Alley Connections **Goal 7:** Promote the DDA **Goal 8:** Redevelop the Confluence	**Now** ☐ Rocky Mountaineer Engagement ☐ Vacancies on Website ☐ Facade Grants ☐ 6th Street Phase 1 ☐ List & Prioritize Enhancement Projects ☐ Cooper Alley Design ☐ Wings Signs ☐ Sell Bethel Lot ☐ Parking Enforcement **Next** ☐ Alley Lighting ☐ Parking App ☐ North Landing ☐ Cooper Revitalization ☐ Event Investment ☐ Downtown Circulator ☐ Cooper Lighting ☐ Cooper Alley Construction **Future** ☐ Confluence Redevelopment ☐ Alley Connections ☐ TIF/DDA Renewal

Glenwood Springs Downtown Development Authority Strategic Plan 2022 - 2027

Glenwood Springs DOWNTOWN DEVELOPMENT AUTHORITY

CITY COUNCIL JOINT WORK SESSION AGENDA
JULY 21, 2022 4:45 - 5:30 PM
CITY HALL COUNCIL CHAMBERS

Agenda items are for informational purposes only and are subject to change.

15 min	DDA 2022 Strategic Plan Overview & Discussion
15 min	2023 DDA Budget Discussion
15 min	Council Feedback on Downtown Priorities

2023 DDA DRAFT BUDGET

Budget line items may change per the 7.19.22 DDA Board Meeting

Account	*Account Description*	2023 Request	Description
8630-60000	PROJECTS	$50,000	Cooper Streetscape Conceptual Designs
		$100,000	Block 45 Trash Consolidation
		$35,000	6th Street Parklets
86180-51610	SUPPLIES	$4,650	Office & Misc. Supplies
86180-51710	PROFESSIONAL SERVICES	$140,000	Executive Director, Legal, Minutes, Website
86180-52310	MISC. TRAVEL	$8,000	Board Mtg Food, Conference Attendance, etc.
86180-52510	GRANTS	$150,000	Facade Grant Program Fund
86180-52750	TREASURER'S FEES	$1,200	
86180-52810	OTHER OPERATING EXPENSE	$75,000	Economic Development
		$50,000	DDA Contingency
86180-53520	LIABILITY & CASUALTY INSURANCE	$1,350	
86180-53940	INTEREST - OTHER DEBT	$40,410	
86180-54310	INTERFUND COST OF SERVICE	$22,586	
86180-55920	TRANSFER TO A&I	$350,000	DDA Contribution to 6th Street Construction
		$100,000	DDA Contribution to Downtown Maintenance
TOTAL 180 - DDA		**$1,128,196**	

City Council
STAFF REPORT
City of Glenwood Springs
July 21, 2022

Agenda Item: July 7, 2022 Council Minutes

Action Requested: July 7, 2022 City Council Minutes

Department: City Clerk

Presented By:

Strategic Goals: Provide Efficient and Responsive City Government

Background Info:

Issues:

Fiscal Impact:

Legal Review:

Staff Recommendation:

MINUTES

CITY OF GLENWOOD SPRINGS

REGULAR CITY COUNCIL MEETING

JULY 7, 2022

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

Item 9. :09 Roll Call

Present: Mayor Godes, Mayor Pro-Tem Willman, Councilor Dehm, Councilor Stepp, Councilor Wussow, and Councilor Hershey. Also present were Debra Figueroa, City Manager; Steve Boyd, Chief Operating Officer; Jenn Ooton, Asst. City Manager; Ryan Muse, City Clerk; Matt Langhorst, Director of Public Works; Yvette Gustad, Finance Director; Brian Smith, Parks, and Recreation Director; Terri Partch, City Engineer; and Karl Hanlon, City Attorney.

Item 10. :09 Pledge of Allegiance

Mayor Godes led the Pledge of Allegiance.

Comments were made by City Attorney Karl Hanlon.

Item 11. :12 Agenda Changes or Conflicts

Comments were made by Councilor Stepp and City Attorney Karl Hanlon.

Item 12. :13 Citizens Appearing Before Council

Citizen comments were made.

Item 13. :16 Proclamation Honoring City Manager Debra Figueroa

Mayor Godes presented.

Comments were made by City Manager Debra Figueroa and former Councilor Kathryn Trauger.

Item 14. :22 Consent Agenda

:22 Councilor Willman moved, seconded by Councilor Dehm, to approve the Consent Agenda.

Motion passed unanimously.

Item 15. :23 Planning item 12-22, Code Amendments to Title 070.040 as it Relates to Floodplain Regulations (To be continued)

:23 Councilor Willman moved, seconded by Councilor Hershey, to move Planning item 12-22, Code Amendments to Title 070.040 as it Relates to Floodplain Regulations to the next regular scheduled meeting.

Motion passed unanimously.

Item 16. :23 Ordinance 2022-18; Code Amendments to Title 060 and 070 Related to Hotel Conversions

Comment was made by Councilor Wussow.

Jenn Ooton Assistant City Manager, presented.

Comments were made by Councilor Stepp, Assistant City Manager Ooton, and Councilor Wussow.

:42 Mayor Godes opened the item for public comment.

Public comment was taken.

:47 Mayor Godes closed the item for public comment.

:48 Councilor Wussow moved, seconded by Councilor Dehm, to approve Ordinance 2022-18; Code Amendments to Title 060 and 070 Related to Hotel Conversions on first reading.

Motion passed unanimously.

Comments were made by Councilor Dehm and Assistant City Manager Ooton.

Item 17. :50 Build to Zero Homeless Update

Debbie Wilde, City of Glenwood Springs Consultant, and Michelle Skagen, Build for Zero Coordinator presented.

Comments were made by Councilor Wussow, Build for Zero Coordinator Michelle Skagen, City of Glenwood Springs Consultant Debbie Wilde, and Councilor Stepp.

Item 18. 1:06 Update on Middle Colorado Watershed

Councilor Stepp recused herself.

Doug Winter, Board Member of Middle Colorado Watershed, presented.

Comments were made by Councilor Wussow and Doug Winter, Board Member of Middle Colorado Watershed.

Item 19. 1:19 Local Road Safety Plan and Safe Streets and Roads for All Grant Program Opportunity

Terri Partch City Engineer, presented.

Comments were made by Councilor Hershey, City Engineer Partch, Councilor Wussow, Mayor Godes, Councilor Stepp, and Mayor Pro-Tem Willman.

1:42 Mayor Pro-Tem Willman moved, seconded by Councilor Stepp, to ask the City Staff to get estimates and bring back a Resolution in support of the grant.

Comments were made by Councilor Stepp, City Manager Debra Figueroa, Councilor Kaup, Mayor Pro-Tem Willman, and Director of Public Works Matt Langhorst.

Director of Public Works Matt Langhorst, presented.

Comments were made by Mayor Pro-Tem Willman, Councilor Hershey, Councilor Kaup, and City Manager Debra Figueroa.

Motion passed unanimously.

Item 20. 1:42 Ordinance 2022-17; Supplemental Appropriation

Steve Boyd Chief Operating Office, presented

1:43 Mayor Godes opened public comment.

No public comment was given.

1:43 Mayor Godes closed public comment.

1:43 Mayor Pro-Tem Willman moved, seconded by Councilor Wussow, to approve Ordinance 2022-17; Supplemental Appropriation.

Motion passed unanimously.

Comments were made by Mayor Godes,

Item 21. 1:45 Council Comments

Comments were made by Mayor Pro-Tem Willman, City Manager Debra Figueroa, Councilor Stepp, Councilor Wussow, Public Information Officer Bryana Starbuck, and Mayor Godes.

Item 22. 1:54 Report from Administration

City Manager

Comments were made by City Manager Debra Figueroa, Police Chief Joseph Deras, Mayor Godes, Councilor Hershey, Councilor Stepp, and Councilor Wussow.

City Attorney

Comments were made by City Attorney Karl Hanlon.

Correspondence Incoming/Outgoing

Comments were made by Mayor Godes, Councilor Wussow, and City Manager Debra Figueroa.

Item 23. 2:02 Executive Session

2:03 Councilor Hershey motioned, seconded by Councilor Dehm, to go into executive session pursuant to CRS24-6-402(4)(b) and (e) for the purposes of a conference with the City Attorney to receive legal advice on specific legal issues and to determine positions relative to matters that may be subject to negotiations; developing strategy for negotiations; and instructing negotiators specifically related to Mind Spring Health and the County wide IGA for Detox services and adjourn at the end of the executive session.

Motion passed unanimously.

City Council
STAFF REPORT
City of Glenwood Springs
July 21, 2022

Agenda Item: Ordinance 2022-18; Code Amendments to Title 060 and 070 Related to Hotel Conversions. Second Reading

Action Requested: Approval of Ordinance 18-2022.

Department: Economic and Community Development

Presented By: Jenn Ooton

Strategic Goals: Generate Sustainable Economic Development
Protect and Preserve our Quality of Life

Background Info: Review Authority
A code amendment is a legislative decision by the City Council. Planning Commission is a recommending body to City Council for changes in Title 070. This ordinance also includes a change in Title 060.

Planning Commission held a public hearing on proposed code changes to create a use category for extended-stay hotels, make procedure changes for hotel conversions, and make other changes to the non-conformity section of Title 070 on June 28. The Commission voted unanimously to support the proposed changes with changes from the initial proposal to address the definition of kitchenettes, specify the ratio of washer and dryer facilities, and for staff to consider other safety items for the extended stay hotel use.

Background
City of Glenwood Springs Community Development staff members have met with multiple developers over the past several years regarding proposals to convert existing motels into workforce housing/apartments.

Developers have identified several barriers to these conversions, including the high cost of system improvement fees, the need to retrofit fire suppression/fire sprinkler systems, process timelines and challenges related to parking. Staff believes that our region is at a critical point regarding housing and proposed these changes in order to make hotel conversions easier. The proposal includes two strategies, one commercial and one residential.

The following proposed changes would create a new use category, Extended Stay Hotel, which would allow for longer-term stays than what is currently allowed within the code for lodging uses. If approved, extended-stay hotel rental agreements would not exceed 180 days, unless the rental agreement was with a governmental or quasi-governmental entity (such as a school district, special district, county government, etc).

This code change proposes:
- Creating an exemption for extended-stay hotels that were previously another lodging use from the requirement to provide the additional number of parking stalls that would be required by the code today, when the existing footprint of the structure does not change and when the hotel is proximate to transit (750 feet of an active transit stop) and when the number of units doesn't increase from the previous number of rooms.
- This change would also remove two parking lot upgrade requirements entirely from the code for any nonconforming uses. Upgrading the nonconforming parking lot landscaping is currently required when there is an increase in the vehicular use area and the number of parking stalls would need to meet the minimum standards when remodeling of the structure would cost more than 50% of the

current assessed value.

- The proposal would also create a new commercial use category, with requirements regarding kitchenettes, bathrooms and clothes washing facilities on site.
- Staff is proposing that these extended-stay hotels have rental agreements where there is a deed restriction requiring 20% of the units be leased at an average of 80 percent area median income.
- Additionally, staff is including a potential short delay of the installation of a fire suppression sprinkler system of 90-days. This provision would be in Title 060. Code changes in this section are attached in the ordinance as Exhibit B.

For more traditional hotel conversion projects, where the end result is a new multi-family residential project, staff is proposing changes to the code that are largely focused on processing time. These buildings are already in the built environment, so the changes to the neighborhood surrounding them should be minimized. These projects would still have to provide new parking stalls, which might mean combining hotel rooms to make the parking work on constrained sites.

For hotel conversions, the proposal includes:

- Changing the process requirements to make the Planning Commission the decision-making body. For most of these hotel properties, a change to apartments would currently require a hearing before the Commission and City Council. This is because projects that convert commercial or mixed-use area into dwelling units would follow the normal development review thresholds in the code: 9 to 24 new units would be heard and decided by Planning Commission; 25 units or more would be decided by City Council.
- Create a final plans exemption for hotel conversions when the footprint does not change. Staff would recommend that these projects vest following the major site architectural consideration at Planning and Zoning Commission and upon signature of the development agreement. Following the public hearing and development agreement, these projects would be able to submit for building permit processing.
- Staff believes that these projects should be presented at a public hearing, but that the full 28-week process should not be necessary.
- Exempt development from common open space requirements due to these sites generally being constrained and the difficulty in meeting the requirement that 20 percent of the site be common open space area for residential uses when the sites are generally taken up by parking.

Review Criteria and Staff Analysis

A Code amendment is a legislative decision by the City Council. Prior to recommending approval of a proposed Code amendment, the Planning Commission and City Council shall consider whether and to what extent the proposed amendment:

i. Is consistent with the Comprehensive Plan and other City policies;
ii. Does not conflict with other provisions of this Code or other provisions in the Glenwood Springs Municipal Code;
iii. necessary to address a demonstrated community need;
iv. Is necessary to respond to substantial changes in conditions and/or policy; and
v. Is consistent with the general purpose and intent of this Code.

The Comprehensive Plan identifies providing housing for the entire community as a goal.
Comprehensive Plan Policies:

- The City encourages a variety of housing types, sizes and costs throughout the community and in each neighborhood. A variety of housing types will create the opportunity for households with diverse characteristics.
- The City will use both regulations and incentives (such as density or zoning bonuses, additional height, parking waiver, etc.) to encourage the development of housing at lower, more attainable price points.

A 2019 Regional Housing Study showed that at the time Glenwood Springs has a gap of 107 units in the 60-80 percent AMI category, and predicted that number growing to 403 by 2027. The pandemic has exacerbated the housing crisis, but the exact gap in this AMI category is unknown.

Recently, the city conducted a community survey in advance of the Comprehensive Plan update

process. Affordable Housing ranked as one of the top issues to address in the next three years.

Issues: Planning Commission members raised the issue of wanting these units to feel safe and for people to want to stay in these extended-stay hotels. In response, the proposed code changes have been updated to include a provision for lighting at entrance doors for extended-stay hotels and a prohibition on recreational vehicles and trailers in the parking lot for those uses.

Planning Commission also raised questions related to occupancy limits for the extended-stay hotels. This would be regulated by the Building Code. The first person within a unit would require a minimum of 75 square feet in the bedroom and a second person would require an additional 50 square feet.

Fiscal Impact: The exact impact of these changes is unknown.

Legal Review: Legal staff drafted the ordinance.

Staff Recommendation: Approval of Ordinance 2022-18

ORDINANCE NO. 18

Series of 2022

AN ORDINANCE OF THE CITY OF GLENWOOD SPRINGS, COLORADO, AMENDING TITLES 060 AND 070 OF THE GLENWOOD SPRINGS MUNICIPAL CODE, TO PROVIDE FOR CONVERSIONS OF EXISTING MOTELS AND HOTELS INTO EXTENDED STAY HOTELS AND MULTIFAMILY RESIDENTIAL BUILDINGS.

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, On June 28, 2022, the City's Planning and Zoning Commission conducted a public hearing to consider these proposed text amendments and recommended approval with amendments that are included herein; and

WHEREAS, City Council finds that there exists a housing crisis in the City and the surrounding region that can be addressed in part by providing for the conversion of existing motels and hotels into extended-stay hotels and multifamily residential developments; and

WHEREAS, City Council finds that providing relief from some requirements of Title 070 will incentivize such conversions to occur; and

WHEREAS, City Council finds that these amendments are consistent with the Comprehensive Plan and other City policies, do not conflict with other provisions of the Code, are necessary to address a demonstrated community need, are necessary to respond to substantial changes in conditions and/or policy, and are consistent with the general purpose and intent of the Code; and

WHEREAS, City Council finds it is necessary and proper to amend Title 070 of the Glenwood Springs Municipal Code as provided in this ordinance to provide for the conversion of existing motels and hotels into extended-stay hotels and multifamily residential buildings.

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. Title 070 of the Glenwood Springs Municipal Code is hereby amended as provided for on the attached **Exhibit A** with double underline text added and ~~strikethrough text deleted~~.

Section 3. Title 060 of the Glenwood Springs Municipal Code is hereby amended as provided for on the attached **Exhibit B** with double underline text added and ~~strikethrough text deleted~~.

Section 4. The codifier is hereby authorized to renumber the Code in conformance with these amendments.

INTRODUCED, READ ON FIRST READING, PASSED AND ORDERED PUBLISHED BY TITLE ONLY THIS 7TH DAY OF JULY 2022.

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 READING THIS 21 DAY OF JULY 2022.

CITY OF GLENWOOD SPRINGS, COLORADO

Jonathan Godes, Mayor

ATTEST:

Ryan Muse, City Clerk

070.010.070 Nonconformities.

…

(f) *Nonconforming Site Features.*

(1) *Applicability.*

a. For purposes of this Subsection, the term "nonconforming site feature" includes any driveway, off-street parking or loading area, landscaping, buffer, screening, or exterior lighting element that lawfully existed per regulations in place prior to the effective date of this Code, as well as the lack of any such feature required by subsequently enacted City regulations.

b. A nonconforming site feature may continue to exist even though it does not conform to current applicable standards of this Code, subject to the requirements of this Subsection.

c. No action shall be taken that increases the degree of the nonconformity of a site feature.

(2) *Nonconforming Parking.*

a. *Continuation of Nonconforming Parking.* Any parking spaces or access to public rights-of-way lawfully existing on the effective date of this Code that are made nonconforming by virtue of enactment of this Code shall be allowed to continue, provided that:

1. Any change or expansion of any use or structure shall only be permitted if the additional number of parking spaces required by such change or expansion is provided in accordance with Subsection 070.040.060, Off-Street Parking and Loading.

<u>i. Extended stay hotels previously categorized as another lodging use shall be exempted from this requirement when the footprint of the existing hotel building(s) does not change, the number of extended hotel stay rooms does not increase from the previous use, and where the building(s) is proximate to transit per 070.040.060(e)(7)</u>

2. Nonconforming parking areas shall not be expanded, except pursuant to Paragraph b. below.

b. *Upgrading Nonconforming Parking.*

1. Nonconforming off-street parking facilities shall be upgraded to comply with this Code's minimum parking space requirements when the following development activities occur:

i. An addition to or expansion of one (1) or more structures that, over a two-year period, would increase the total gross floor area of the structures by more than fifty (50) percent; or

ii. ~~A remodeling of one (1) or more structures that, over a two-year period, would cost more than fifty (50) percent of the current assessed value of the structures.~~

… (3) *Nonconforming Buffers, Landscaping, Screening, and Exterior Lighting.* Nonconforming buffers, landscaping, screening elements, and exterior lighting shall be upgraded to comply with this Code's applicable standards for such features if the site containing the nonconforming site feature is proposed for any of the following development activities:

~~a. An increase in the total square footage of the vehicular use area, including parking, loading, circulation, and driveway areas;~~

070.030.020 - Table of Allowed Uses.

Use Category	Use Type	RR	RL	RM1	RM2	RH	RT	M1	M2	M3	CO	RE	I1	I2	IN	HP	Use Specific Standard	Required Min. Parking
Lodging Facilities	Accessory tourist rental	P	P	P	P	P	P	P	P	P	P	P				P	070.030.030(e)(7)	Per residential use standards
	Bed and breakfast	S	S	S	S	P	P	P	P	P	P	P				S	070.030.030(e)(8)	1 space per guest room, plus 1 space for the owner/manager
	Boarding house					S	S	P	P	P	P	S				S		1 space per guest room, plus 1 space for the owner/management
	Hotel, motel, hostel, or lodge						S	P	P	P	P	P				S		1 space per guest room
	Short-term rental	P	P	P	P	P	P	P	P	P	P	P				P	070.030.030(e)(9)	Per residential use standards
	<u>Extended stay hotel</u>						<u>S</u>	<u>P</u>	<u>P</u>	<u>P</u>	<u>P</u>	<u>P</u>					<u>070.030.030(e)(10)</u>	<u>1 space per guest room</u>
Marijuana Businesses	Medical marijuana business, excluding cultivation							S	S	S	S			S			070.030.030(e)~~(10)~~ <u>(11)</u>	1 per 300 square feet
	Retail marijuana business, excluding cultivation							S	S		S			S			070.030.030(e)~~(11)~~ <u>(12)</u>	1 per 300 square feet

Office, Business, and Professional Services	Administrative, professional, or government office					P	P	P	P	P	P	P	P	P	P			1 per 300 square feet
	Bank or financial institution					P	P	P	P	P	P	P	P	P	P		070.030.030(e)~~(12)~~(13)	1 per 300 square feet
	Printing and copying establishment						S	P	P	P	P	P	P	P	P			1 per 400 square feet
Personal Services	Commercial laundry and dry cleaning										P		P	P				1 per 400 square feet
	Personal service, general <1,500 sq. ft.						P	P	P	P	P	P	P	P	P		070.030.030(e)~~(13)~~ (14)	1 per 400 square feet
	Personal service, general ≥1,500 sq. ft.						S	P	P	P	P	P	S	S	S		070.030.030(e)~~(13)~~ (14)	1 per 400 square feet
	Self-service laundry						S	P	P	P	P	P	P	P	P			1 per 400 square feet
Recreation and Entertainment, Indoor	Indoor recreation facility					S	S	P	P	P	P	P	P	P	P			1 per 400 square feet
Recreation and Entertainment, Outdoor	Commercial outdoor recreation use	S	S	S	S	P	P	P	P	P	P	P	P	P	P	S		1 per 400 square feet building area, plus 1 per 10,000 square

																		feet site area
	Commercial outdoor recreation-concentrated							S	S	S	S	S	S	S	S	S		Based on demand study, see Subsection 070.040.060(c)(5)
	Golf course or country club	P	P	P								P				S		4 per hole, plus 1 per 250 square feet clubhouse area
	Recreational vehicle park					S	S	S	S		S					S	070.030.030(e)~~(14)~~ (15)	
Retail Sales	Building materials and supply store							P	P	P	P		P	P				1 per 400 square feet
	Convenience store							P	P	P	P	P	S	S	S			1 per 300 square feet
	Flea market or swap meet							S			P	P						Based on demand study, see Subsection 070.040.060(c)(5)
	Grocery store							P	P	P	P	P						1 per 300 square feet
	Liquor store							P	P	P	P						070.030.030(e)~~(15)~~ (16)	1 per 300 square feet
	Lumber yard										P		P	S				Based on demand study, see Subsection

																	070.040.060(c)(5)
	Pawn shop							P	P	P	P						1 per 300 square feet
	Retail, general <1,500 sq. ft.						P	P	P	P	P	P	S	P	S	070.030.030(e)~~(16)~~ (17)	1 per 400 square feet
	Retail, general >1,500 sq. ft.						S	P	P	P	P	P	S	P	S	070.030.030(e)~~(16)~~ (17)	1 per 300 square feet
	Retail, shopping center									P	S			S			1 per 300 square feet
Vehicles and Equipment	Automotive fuel sales and service station							S		P	S	S	S	S	S	070.030.030(e)~~(17)~~ (18)	1 per fueling pump, plus 1 per 400 square feet retail and office area
	Automotive parts and accessories sales							P	S	P	P		P	P			1 per 400 square feet
	Automotive repair shop							P			P		S	P			1 per 500 square feet, plus 3 per repair bay
	Automotive sales or leasing							S	S	S	P		P	P		070.030.030(e)~~(18)~~ (19)	1 per 500 square feet sales area, plus 2 per repair bay

070.030.030 Use Specific Standards

…

(e) *Commercial Uses.*

…

(10) Extended Stay Hotels

a. Each extended stay hotel unit shall have in place an individual kitchenette and at minimum a ¾ bathroom. Kitchenettes shall include a cooking appliance that is a built-in cook-top or stove unit, with a hood. Hot plates, griddles, microwaves or similar devices shall not be considered cooking appliances for the purpose of this section. Two sinks must be located within the unit. One for use with the kitchenette, and one for use with the lavatory.

b. Extended stay hotels shall provide common laundry facilities consisting of washer and dryer machines made available to patrons for a fee. Laundry facilities shall be provided at a ratio of one washer and dryer for every 20 units.

c. An outdoor wall mounted sharp-cutoff luminaire shall be provided at each unit entrance with a manual lighting control switch at each entry door and other exterior lighting shall be in conformance with the International Building Codes.

d. All improvements required by this section shall be maintained and in good repair at all times.

e. No extended-stay rental agreement shall exceed 180 consecutive days. Notwithstanding the foregoing, the provisions of this subsection (e) shall not apply when the extended-stay rental agreement is with a governmental or quasi-governmental entity.

f. No recreational vehicle or trailer shall be stored or parked within the parking lot provided at the hotel.

g. Twenty percent of the development shall be deed restricted per 070.045.100(a). The average of all deed-restricted units in the development shall not exceed eighty (80) percent of the maximum rents established according to the Colorado Housing and Finance Authority, Colorado County Income and Rent Table, as determined at the time each individual unit was leased. Maximum rent prices are updated annually.

…

~~(10)~~ (11) *Medical Marijuana Business*

~~(11)~~ (12) *Retail Marijuana Business*

~~(12)~~ (13) *Bank or Financial Institution.*

~~(13)~~ (14) *Personal Service, General.*

~~(14)~~ (15) *Recreational Vehicle Park.*

~~(15)~~ (16) *Liquor Store.* Drive-through services are prohibited in all zoning districts except for the M2 and CO districts.

~~(16)~~ (17) *Retail, General.* In the I2 district, retail sales exceeding ten (10) percent of the gross floor area of the structure and/or site shall require a special use permit.

~~(17)~~ (18) *Automotive Fuel Sales and Service Station.* The following types of modifications to the site and use require a special use permit and approval from the Fire Department:

~~(18)~~ (19) *Automotive Sales or Leasing.*

070.040.050 Development Permits.

…

Table 060.2: Site/Architectural Plan Review Thresholds [1]			
Type of Development	Administrative Site/Architectural Plan (Director) [2]	Minor Site/Architectural Plan (Planning Commission)	Major Site/Architectural Plan (City Council)
Residential	1 to 8 new dwelling units	9 to 24 new dwelling units Hotel Conversions	Any new development on site larger than 10 acres; 25 or more new dwelling units

070.045.120 Affordable and Workforce Housing.

…

(d) Hotel Conversions. Conversion of an existing hotel, motel, hostel or lodge with to a multi-family residential use with six (6) or more dwelling units shall be exempted from the Common Open Space requirements in 070.040.040 and Final Plans review when
(1). The existing footprint of the building(s) does not change
(2.) The development shall be deed restricted per 070.045.100(a)

070.070.020 Definitions of Use Categories and Specific Use Types.

…

Lodging Facilities. Uses in this category include facilities where lodging, meals, and other services are provided to ~~transient~~ visitors and guests for a fee for a defined period of time ~~less than thirty (30) days per instance~~. Accessory uses may include storage, cafeterias, limited retail, health and recreation facilities, and parking or other amenities. Uses in this category primarily include facilities where lodging, meals, and other services are provided to transient visitors and guests for a fee for a defined period of time less than thirty (30) days per instance. Transient lodging for any period of less than thirty (30) consecutive days shall pay accommodation tax.

(f). *Extended-stay hotel* means any structure consisting of one or more buildings, with more than five dwelling units with provisions for living, sanitation, and sleeping, that is specifically constructed, kept, used, maintained, advertised, and held out to the public to be a place where temporary residence is offered to persons for non-transient extended stays or stays longer than 30 days, regardless of the presence of rentals or leases for shorter periods of time. Extended-stay hotels must include individual kitchenette facilities.

060.020.020 - Amendments to the International Building Code:

. . .

903.2.8.5 Extended-stay hotel conversions.

For extended-stay hotels converting from a Group R1 occupancy in existence as of the effective date of the ordinance, may receive a 90-day extension for the installation of an approved fire suppression sprinkler system if the development is on a properly sized and approved city water service at the time of the Building Permit such that it is sufficient to meet required fire flows. This may be extended by the Building Official for an additional 90 days.

. . .

060.090.020 - Amendments to the International Fire Code.

. . .

903.2.8.5 Extended-stay hotel conversions.

For extended-stay hotels converting from a Group R1 occupancy in existence as of the effective date of the ordinance, may receive a 90-day extension for the installation of an approved fire suppression sprinkler system if the development is on a properly sized and approved city water service at the time of the Building Permit such that it is sufficient to meet required fire flows. This may be extended by the Building Official for an additional 90 days.

. . .

Extended Stay Hotel	Hotel Conversion to Multi-Family Residential
Commercial Classification	Residential Classification
Would require kitchenettes, washer and dryer facilities to be available on site, and at least a ¾ bathroom within the units. Stays not longer than 180 days, unless the contract is with a government or quasi-governmental agency. Would require certain lighting requirements and would prohibit recreational vehicles/trailers in the parking lots.	Full multi-family residential conversion
Planning Application is not required. Change of use would be commercial to commercial use. Building Permit application for remodeling	Planning Commission would be deciding body
Average time for building permit review 6-8 weeks	No Final Plans Review. Shortens development review timeline by 12 weeks. Building permit review would be the same: 6-8 weeks.
Stays commercial for the purposes of system improvement fees.	Would be subject to residential system improvement fees.
Deed restriction of 20 percent of the units at an average of 80 percent area median income	Subject to the Inclusionary Zoning requirements (No Change)
	Exempt from common open space requirements.
Exemption from providing additional parking stalls if the footprint of the building(s) does not change, when the hotel is proximate to transit, and when the number of units doesn't increase from the previous number of rooms	Subject to the requirement to provide parking stalls for the number of units (No Change).
Extended-stay hotels in existence as of the effective date of the ordinance, may receive a 90-day extension for the installation of the approved fire suppression sprinkler system if the development is on a properly sized and approved city water service at the time of the Building Permit such that it is sufficient to meet required fire flows. This may be extended by the Building Official for an additional 90 days.	

chfa

2022 Income Limit and Maximum Rent Tables for All Colorado Counties

20% to 120% of Area Median Income (AMI)

HUD Effective Date: April 18, 2022

- The IRS allows Housing Tax Credit projects that placed in service as of 12.31.2008 to use higher HERA Special limits.
- All Housing Tax Credit and CHFA Loan projects are "held harmless" from limit decreases. To be "held harmless," a project must be in service before 06.03.2022.
- Housing Tax Credit and CHFA Multifamily Loan projects whose counties experienced a decrease in 2022 limits and that place in service before 06.03.2022 may continue to apply the same limits used in 2021.

County	HERA	AMI	2022 Maximum Rents					2022 Income Limits							
			0 Bdrm	1 Bdrm	2 Bdrm	3 Bdrm	4 Bdrm	1 Person	2 Person	3 Person	4 Person	5 Person	6 Person	7 Person	8 Person
Fremont		120%	1,728	1,851	2,220	2,565	2,862	69,120	78,960	88,800	98,640	106,560	114,480	122,400	130,320
Fremont		100%	1,440	1,542	1,850	2,137	2,385	57,600	65,800	74,000	82,200	88,800	95,400	102,000	108,600
Fremont		80%	1,152	1,234	1,480	1,710	1,908	46,080	52,640	59,200	65,760	71,040	76,320	81,600	86,880
Fremont		70%	1,008	1,079	1,295	1,496	1,669	40,320	46,060	51,800	57,540	62,160	66,780	71,400	76,020
Fremont		60%	864	925	1,110	1,282	1,431	34,560	39,480	44,400	49,320	53,280	57,240	61,200	65,160
Fremont		55%	792	848	1,017	1,175	1,311	31,680	36,190	40,700	45,210	48,840	52,470	56,100	59,730
Fremont		50%	720	771	925	1,068	1,192	28,800	32,900	37,000	41,100	44,400	47,700	51,000	54,300
Fremont		45%	648	694	832	961	1,073	25,920	29,610	33,300	36,990	39,960	42,930	45,900	48,870
Fremont		40%	576	617	740	855	954	23,040	26,320	29,600	32,880	35,520	38,160	40,800	43,440
Fremont		30%	432	462	555	641	715	17,280	19,740	22,200	24,660	26,640	28,620	30,600	32,580
Fremont		20%	288	308	370	427	477	11,520	13,160	14,800	16,440	17,760	19,080	20,400	21,720
Garfield		120%	1,980	2,121	2,544	2,940	3,279	79,200	90,480	101,760	113,040	122,160	131,160	140,280	149,280
Garfield		100%	1,650	1,767	2,120	2,450	2,732	66,000	75,400	84,800	94,200	101,800	109,300	116,900	124,400
Garfield		80%	1,320	1,414	1,696	1,960	2,186	52,800	60,320	67,840	75,360	81,440	87,440	93,520	99,520
Garfield		70%	1,155	1,237	1,484	1,715	1,912	46,200	52,780	59,360	65,940	71,260	76,510	81,830	87,080
Garfield		60%	990	1,060	1,272	1,470	1,639	39,600	45,240	50,880	56,520	61,080	65,580	70,140	74,640
Garfield		55%	907	972	1,166	1,347	1,502	36,300	41,470	46,640	51,810	55,990	60,115	64,295	68,420
Garfield		50%	825	883	1,060	1,225	1,366	33,000	37,700	42,400	47,100	50,900	54,650	58,450	62,200
Garfield		45%	742	795	954	1,102	1,229	29,700	33,930	38,160	42,390	45,810	49,185	52,605	55,980
Garfield		40%	660	707	848	980	1,093	26,400	30,160	33,920	37,680	40,720	43,720	46,760	49,760
Garfield		30%	495	530	636	735	819	19,800	22,620	25,440	28,260	30,540	32,790	35,070	37,320
Garfield		20%	330	353	424	490	546	13,200	15,080	16,960	18,840	20,360	21,860	23,380	24,880

Planning and Zoning Commission Report

Date: June 17, 2022
To: Planning and Zoning Commission
From: Jenn Ooton, Director Community Development
Subject: Planning Item 19-22

REQUEST	Consideration of code changes to Title 070 development standards in regard to hotel conversions.
APPLICANT	City of Glenwood Springs
LOCATION	Citywide

ACTION ITEMS

Action 1:

Consideration of code text amendments to Municipal Code Section 070.010.070 Nonconformities, 070.030 Use Regulations, 070.045.120 Affordable and Workforce Housing and 070.060.050 Development Permits.

Staff recommends approval with suggested findings on page 5.

Review Authority

A Code amendment is a legislative decision by the City Council. Planning Commission is a recommending body to City Council.

Background & Project Summary

City of Glenwood Springs Community Development staff members have met with several developers over the past four-five years regarding proposals to convert existing motels into workforce housing/apartments.

Developers have identified several barriers to these conversions, including the high cost of system improvement fees, the need to retrofit fire suppression/fire sprinkler systems, process timelines and challenges related to parking. Staff believes that our region is at a critical point regarding housing and is proposing these changes in order to make hotel conversions easier. The proposal includes two strategies, one commercial and one residential.

The following proposed changes would create a new use category, Extended Stay Hotel, which would allow for longer-term stays than what is currently allowed within the code for lodging uses. If approved, extended-stay hotel rental agreements would not exceed 180 days, unless the rental agreement was with a governmental or quasi-governmental entity (such as a school district, special district, county government, etc). Staff proposes:

- Creating an exemption for extended-stay hotels that were previously another lodging use from the requirement to provide the additional number of parking stalls that would be required by the code today, when the existing footprint of the structure does not change and when the hotel is proximate

to transit (750 feet of an active transit stop) and when the number of units doesn't increase from the previous number of rooms.

- The proposal would also create a new commercial use category, with requirements regarding kitchenettes, bathrooms and clothes washing facilities on site.
- Staff is proposing that these extended-stay hotels have rental agreements where there is a deed restriction requiring 20% of the units be leased at an average of 80 percent area median income. Current Area Median Income rent limits provided by Colorado Housing and Finance Authority are included below.
- This change would also remove two parking lot upgrade requirements entirely from the code for any nonconforming uses. Upgrading the nonconforming parking lot is currently required when there is an increase in the vehicular use area and when remodeling of the structure would cost more than 50% of the current assessed value.
- Additionally, staff is including a potential short delay of the installation of a fire suppression sprinkler system of 90-days. This provision would be in Title 060.

Rent and Income limits are published annually by the United States Department of Housing and Urban Development.

County HERA	AMI	2022 Maximum Rents				
		0 Bdrm	1 Bdrm	2 Bdrm	3 Bdrm	4 Bdrm
Garfield	120%	1,980	2,121	2,544	2,940	3,279
Garfield	100%	1,650	1,767	2,120	2,450	2,732
Garfield	80%	1,320	1,414	1,696	1,960	2,186
Garfield	70%	1,155	1,237	1,484	1,715	1,912
Garfield	60%	990	1,060	1,272	1,470	1,639
Garfield	55%	907	972	1,166	1,347	1,502
Garfield	50%	825	883	1,060	1,225	1,366
Garfield	45%	742	795	954	1,102	1,229
Garfield	40%	660	707	848	980	1,093
Garfield	30%	495	530	636	735	819
Garfield	20%	330	353	424	490	546

For more traditional hotel conversion projects, where the end result is a new multi-family residential project, staff is proposing changes to the code that largely are focused on processing time. These buildings are already in the built environment, so the changes to the neighborhood surrounding them should be minimized. These projects would still have to provide new parking stalls, which might mean combining hotel rooms to make the parking work on constrained sites.

For hotel conversions, staff proposes:

- Changing the process requirements to make the Planning Commission the decision-making body. For most of these hotel properties, a change to apartments would currently require a hearing before the Commission and City Council. This is because projects that convert commercial or mixed-use area into dwelling units would follow the normal development review thresholds in the code: 9 to 24 new units would be heard and decided by Planning Commission; 25 units or more would be decided by City Council.

- Create a final plans exemption for hotel conversions when the footprint doesn't change. Staff would recommend that these projects vest following the major site architectural consideration at Planning and Zoning Commission and upon signature of the development agreement. Following the public hearing and development agreement, these projects would be able to submit for building permit processing.
- Staff believes that these projects should be presented at a public hearing, but that the full 28-week process should not be necessary.
- Exempt development from common open space requirements due to these sites generally being constrained and the difficulty in meeting the requirement that 20 percent of the site be common open space area for residential uses when the sites are generally taken up by parking.

Extended Stay Hotel	**Hotel Conversion to Multi-Family Residential**
Commercial Classification	Residential Classification
Would require kitchenettes, washer and dryer facilities to be available on site, and at least a ¾ bathroom within the units. Stays not longer than 180 days, unless the contract is with a government or quasi-governmental agency.	Full multi-family residential conversion
Planning Application is not required. Change of use would be commercial to commercial use. Building Permit application for remodeling	Planning Commission would be deciding body
Average time for building permit review 6-8 weeks	No Final Plans Review. Shortens development review timeline by 12 weeks. Building permit review would be the same: 6-8 weeks.
Stays commercial for the purposes of system improvement fees.	Would be subject to residential system improvement fees.
Deed restriction of 20 percent of the units at an average of 80 percent area median income	Subject to the Inclusionary Zoning requirements (No Change)
	Exempt from common open space requirements.
Exemption from providing additional parking stalls if the footprint of the building(s) does not change, when the hotel is proximate to transit, and when the number of units doesn't increase from the previous number of rooms	Subject to the requirement to provide parking stalls for the number of units (No Change).
Extended-stay hotels in existence as of the effective date of the ordinance, may receive a 90-day extension for the installation of the approved fire suppression sprinkler system if the development is on a properly sized and approved city water service at the time of the Building Permit such that it is sufficient to meet required fire flows. This may be extended by the Building Official for an additional 90 days.	

Reviewing Agency Comments
Staff discussed code changes for these types of extended stay hotels and hotel conversions with the Fire Marshal and Building Official and incorporated changes to the proposal. Staff believes the requirement of a kitchenette would improve safety.

The Housing Commission at their June meeting heard a presentation on the topic. Members of the Housing Commission wanted to clarify what type of bathrooms would be in the units and increase the affordability for these projects with deeper affordability/a greater percentage of affordability. Staff incorporated language regarding the bathrooms. Housing Commission felt that with the trade offs in the code, there should be an increased gain in affordability. The Commission talked about 50 percent affordable units or rents at much deeper AMI.

Review Criteria and Staff Analysis
A Code amendment is a legislative decision by the City Council. Prior to recommending approval a proposed Code amendment, the Planning Commission and City Council shall consider whether and to what extent the proposed amendment:

i. Is consistent with the Comprehensive Plan and other City policies;
ii. Does not conflict with other provisions of this Code or other provisions in the Glenwood Springs Municipal Code;
iii. necessary to address a demonstrated community need;
iv. Is necessary to respond to substantial changes in conditions and/or policy; and
v. Is consistent with the general purpose and intent of this Code.

The Comprehensive Plan identifies providing housing for the entire community as a goal.
Comprehensive Plan Policies:

- The City encourages a variety of housing types, sizes and costs throughout the community and in each neighborhood. A variety of housing types will create the opportunity for households with diverse characteristics.
- The City will use both regulations and incentives (such as density or zoning bonuses, additional height, parking waiver, etc.) to encourage the development of housing at lower, more attainable price points.

A 2019 Regional Housing Study showed that at the time Glenwood Springs has a gap of 107 units in the 60-80 percent AMI category, and predicted that number growing to 403 by 2027. The pandemic has exacerbated the housing crisis, but the exact gap in this AMI category is unknown.

Recently, the city conducted a community survey in advance of the Comprehensive Plan update process. Affordable Housing ranked as one of the top issues to address in the next three years.

According to the work of the Ad Hoc Housing Committee that has convened for the past several months to focus on addressing this issue, “The housing affordability challenges in our community impact a wide range of households. Our regional housing needs assessment identified significant shortfalls across nearly every income level from very low income all the way to over 160% of AMI. In our community, this includes: a city police officer (100% AMI), a marketing and communications specialist at CMC (~70-75% AMI), an established Teacher (80% AMI), a registered nurse at Valley View (~120% AMI), a Senior Systems Administrator at Holy Cross Energy (~160% AMI), a dental assistant (50-60% AMI). These are people and jobs we need for a healthy community and economy.”

This proposal is intended to incentivize conversion of these units to more stable and longer-term housing. Staff believes that requiring a greater percentage of affordability or much deeper affordability may make these projects more difficult to finance.

Action Item and Staff Recommendation

Action Item: Consideration of code text amendments to Municipal Code Section 070.010.070 Nonconformities, 070.030 Use Regulations, 070.045.120 Affordable and Workforce Housing and 070.060.050 Development Permits.

Staff recommends approval of the proposed text amendments with the following suggested findings:

i. Is consistent with the Comprehensive Plan and other City policies;
ii. Does not conflict with other provisions of this Code or other provisions in the Glenwood Springs Municipal Code;
iii. necessary to address a demonstrated community need;
iv. Is necessary to respond to substantial changes in conditions and/or policy; and
v. Is consistent with the general purpose and intent of this code.

MINUTES

CITY OF GLENWOOD SPRINGS

Planning and Zoning Commission

Regular Meeting

JUNE 28, 2022

Council Chambers, First Floor

101 W. 8TH STREET

6:00 PM

1. Roll Call

Commissioners Present: Commissioner White, Commissioner Cipperly, Commissioner Waller, Commissioner Shaver, Commissioner Hardcastle, Commissioner Connerton, Commissioner Davey.

Not Present: Commissioner Wissing, Commissioner Weimer

Others Present: Asst. City Manager Jenn Ooton, Asst. City Attorney Richard, Asst. Director Community Development Hannah Klausman, Senior Planner Watkins Fulk-Gray.

Chair Shaver called for a motion to seat alternate Commissioner April Davey to fill the vacant seat.

Commissioner White motioned to seat Commissioner Davey. Commissioner Cipperly seconded the motion. **Motion to seat alternate unanimously approved.**

2. Receipt of the May 24, 2022 and April 26, 2022 Minutes

Commissioner Cipperly pointed out a possible omission in the May 24, 2022 minutes. Page 4 of the packet, 3rd paragraph, uses the pronoun She, but should list Commissioner Cipperly by name.

Commissioner Waller motions to accept minutes with edits, Commissioner White seconds. **Minutes unanimously approved.**

3. Comments from citizens appearing for items not on the agenda
4. New Items

A. Planning Item 19-22 Code Amendment Hotel Conversions

Jenn Ooton, Assistant City Manager presented the Code Change Amendment. Mrs. Ooton explained that the reason behind the code changes is the housing crisis and employment crisis. Regional Housing study points to a housing unit gap of 2,000 units, primarily in the lower AMI bands and that has been exacerbated by the pandemic. The action item is consideration of code text amendments to Municipal Code Section 070.010.070 Nonconformities, 070.030 Use Regulations, 070.045.120 Affordable and Workforce Housing and 070.060.050 Development Permits.

Staff recommends approval with suggested findings on page 5 of the staff report

Commissioner questions:

- Clarification and specifics on 90 day sprinkler delay and relation to new fire suppression code that was recently adopted.
- What is the benefit of the 180-day maximum?
- What will be the impact of the loss of lodging taxes for these hotels that no longer have to pay lodging tax for stays under 29 days?
- Should there be a streetscape landscaping improvement at minimum for landscaping requirements? Screening landscape would be beneficial to have.
- How many residents will be allowed in one unit? Would 10 people in a bunk room be allowed?
- Do we feel that this need might change back to a pre-covid housing equilibrium?
- Clarify the parking per unit. Is it per unit or bedroom?
- Could a Bed and Breakfast also convert to an extended stay?
- Was this item brought before the Housing Commission?
- Was there other agencies that were involved in the proposal such as law enforcement that might be involved to mitigate possible negative impacts of this use?
- Should a lighting plan be required as part of the change of use? Should a planner do a site visit to double check lighting safety?
- Is there storage space required similar to multifamily project requirements? Perhaps a shared storage somewhere else on site?
- Concern over the provisions for laundry facilities and only requiring one washer and dryer unit. Perhaps consider a requirement for a minimum number required.

Staff explained the definitions of categories proposed, and interactions with other areas of code including lighting, landscaping, zoning and new building codes.

Chair Shaver opened it up for public comment.

Michael Herms, Director of Facilities and Capital projects for RFTA:

Mr. Herms explained that RFTA is supportive of the code amendments and looking at the concept of purchasing a hotel for employment housing. RFTA is currently short 40 drivers, 8 mechanics, and half a dozen other positions short. RFTA expects that the employees that would utilize these types of units would be more seasonal and new to the area employees and transitioning long term employees into more permanent living situations.

Lee Touchfarber, Renew Roaring Fork Property:

Interested in worker housing and how this could help. Renew Roaring Fork is experiencing employee shortages and retention with the housing market. This could provide a more affordable short term solution.

7:26 PM Chair Shaver closed the public comment period.

Commissioner Waller motioned to approved action item 1 with suggested findings on page 5. Commissioner Hardcastle seconded the motion.

Commissioner Discussion:

Commissioner White wants to include a definition of a kitchenette and that staff have a safety requirement discussion on the extended stay category, and a requirement for a minimum number of washer and dryer units per unit.

Staff asked for clarification on the safety requirements including requiring a sharp-cutoff light at the entrances to units that can be controlled by the units.

At minimum meet the lighting requirements of the hotels.

Commissioner Waller amend his motion to include the discussed suggestions including lighting and safety to be reviewed by staff. Commissioner Hardcastle amended his second.

Motion passes unanimously with a 7-0 vote.

B. Affordable Housing Accomplishment Report

Hannah Klausman, Assistant Director of Community Development, explained that Planning and Zoning Commissioners requested Staff to update the Commission on City efforts around affordable and workforce housing. Staff prepared a brief report to highlight the accomplishments of the last few years with updates on specific programs and projects in the following categories:

1. Voluntary Deed Restriction Program, Adopted 2016.
2. Parking Updates from 2018 Development Code Adoption
3. Vacation Rental Code Update, 2019
4. Accessory Dwelling Unit Code Update, 2020
5. Inclusionary Zoning Program, Adopted in 2021
6. City Owned Property Project
7. Ad Hoc Housing Committee Tax Questions

6. Commissioner Comments

7. Director Comments

8. Adjournment

Meeting adjourned at 8:40PM

City Council
STAFF REPORT
City of Glenwood Springs
July 21, 2022

Agenda Item:	Colorado River Valley Bureau of Land Management Mountain Pact Letter
Action Requested:	Sign the Mountain Pact Letter
Department:	City Administration
Presented By:	Steve Boyd
Strategic Goals:	Protect and Preserve our Quality of Life
Background Info:	The Bureau of Land Management is developing a new management plan for western Colorado that will determine how 2 million acres of public lands and minerals will be managed.
Issues:	The Mountain Pact is submitting a letter addressing the items included in the documents attached to this agenda item.
Fiscal Impact:	NA
Legal Review:	NA
Staff Recommendation:	Staff defers to Council

Upper Colorado River Oil and Gas Plan

Scoping Comment Writing Guide

Background

Oil and gas drilling on public lands has a big impact on the land and wildlife, on recreation and other land uses, and on our shared climate. Yet in 2015, the Bureau of Land Management created Resource Management Plans (RMPs) for our two local field offices, the Colorado River Valley Field Office and the Grand Junction Field Office, that left nearly all of the lands under its jurisdiction open to new oil and gas leasing. As a result of litigation challenging those plans brought by Wilderness Workshop and our partners, the BLM is now revising those plans and considering whether to close more areas to oil and gas leasing. The BLM is also required to analyze in more detail the climate impacts of oil and gas development on our public lands.

With the BLM revisiting the oil and gas decisions in the previous plans through a "Supplemental Environmental Impact Statement" (SEIS), we have a unique opportunity to influence oil and gas management on our local BLM lands for years to come. The BLM will use the new plan to guide decisions about where oil and gas leasing and drilling will be permitted and where other uses will be prioritized, such as recreation and wildlife habitat protection.

Opportunity

Because the BLM is tasked with managing lands in the public interest, it is required to consider the public's issues and concerns throughout the planning process. By getting involved in this process, we can advocate for places that should be managed for other multiple uses as a priority over oil and gas development, such as wilderness-quality lands, important wildlife habitat, valued recreation settings and other areas that are incompatible with oil and gas drilling. We can also advocate for the BLM to protect our communities from oil and gas development, such as by keeping drilling away from homes, schools, farms and water sources, and analyzing and mitigating climate change impacts.

The agency has begun the first step in this process, known as scoping. Scoping provides the public with the opportunity to help the BLM identify issues that should be analyzed in the planning process. This is a critical time for us to tell the BLM what our community values are, such as clean air and water, access to wild public lands, and healthy wildlife and ecosystems. By submitting written public comments during the scoping period, we can push for the BLM to consider a broad category of landscapes and values to be protected from oil and gas development.

Tips for Writing an Effective Scoping Public Comment

1. Speak to your personal experience and connection on the landscape or issue
2. Lay out all of the things you believe need to be considered by the BLM in making a decision and why (i.e. impacts of oil and development to climate, water, wildlife, etc.)
3. Name specific places that you would like to see protected from oil and gas. Be sure to provide as much information as you can about known uses of the area, ecological values like plants and wildlife, and your personal experience on the land.
4. Provide any reputable resources you have available, such as scientific studies, recent articles and research papers.

Values to Analyze

When writing a scoping comment, it is very important to help the agency "set the scope" of this process by communicating what values or things the agency needs to consider when making decisions around oil and gas management on these lands. Here is list of suggested values to include in a comment:

- **Climate.** We need to be managing our public lands in a way that recognizes the threat and scale of climate change. Climate science shows us more and more that the crisis is worsening, and the BLM needs to do more to reduce emissions from public lands by closing more lands off to oil and gas development and planning for climate adaptation. It's time to wind down fossil fuel development on our public lands.
- **Water.** The BLM needs to stop leasing lands that are adjacent to or in close proximity to water resources that nearby communities, agricultural producers, and wildlife all rely on. Oil and gas development near water poses a big threat, as it can result in surface water contamination and other impacts.
- **Wildlife.** Our local BLM lands are home to an abundance of wildlife species and provide critical habitat and winter range for species like mule deer and elk. They are also home to threatened species like the greater sage grouse. Oil and gas development can cause harmful impacts to wildlife like habitat loss and fragmentation.
- **Lands with wilderness characteristics.** The BLM identifies public lands that have wilderness qualities, and calls them "lands with wilderness characteristics." These wild public lands provide backcountry recreation opportunities, wildlife habitat, scenic vistas, clean air and water, and many other natural and ecological values that are incompatible with oil and gas development.
- **Recreation.** Both field offices are home to several Recreation Management Areas that provide a variety of recreation opportunities, such as mountain biking, hiking, climbing, fishing, boating and camping. These recreation experiences are treasured by local residents, and help sustain our rural economies. Oil and gas drilling is damaging to quality recreation experiences, and should be kept away from popular recreation areas.
- **Additional natural resources.** The BLM's management plans identify Areas of Critical Environmental Concern - public lands that have documented resources such as rare and endangered species - and other special areas such as Wildlife Emphasis Areas. All of these important landscapes should be protected from oil and gas development.

Landscapes

Typically in written public comment, it is very helpful to mention specific landscapes, especially places that you have spent time in and can describe the experience, values, natural features, and uses of the area in your comment. Your comment should describe why oil and gas development is incompatible with your experiences in these landscapes.

See below for some of the most well-known landscapes under the jurisdiction of the Colorado River Valley Field Office (CRVFO) and Grand Junction Field Office (GJFO) to mention in your comment. Please also mention other areas that are important to you that may not be on this list.
Lands with Wilderness Characteristics:

- Castle Peak (CRVFO)
- Deep Creek (CRVFO)
- Hack Lake (CRVFO)
- Thompson Creek (CRVFO)
- Bangs Canyon (GJFO)
- Unaweep Canyon (GJFO)

Recreation Management Areas:

- Red Hill SRMA (CRVFO)
- The Crown SRMA (CRVFO)
- New Castle ERMA (CRVFO)
- Silt Mesa ERMA (CRVFO)
- North Fruita Desert SRMA (GJFO)
- Palisade Rim SRMA (GJFO)

Areas of Critical Environmental Concern:

- Bull Gulch (CRVFO)
- Grand Hogback (CRVFO)
- Mt. Garfield (GJFO)
- The Palisade (GJFO)
- Dolores River riparian area (GJFO)

Submission Instructions

All written comments must be submitted by July 25, 2022. You can submit comments electronically through the BLM's online comment portal.

Questions?

Contact Wilderness Workshop's Director of Community Organizing, Erin Riccio, at erin@wildernessworshop.org.

Colorado River Valley & Grand Junction Oil & Gas SEIS
Talking Points July 2022

WW reporter memo: https://wildernessworkshop.org/wp-content/uploads/2022/06/Reporter-Memo-Upper-Colorado-River-Oil-and-Gas-Plan-SEIS-FINAL-6.23.22.docx.pdf

High Level Messages:

- The BLM is developing a new management plan for western Colorado that will determine how 2 million acres of public lands and minerals will be managed for decades to come.

- Through the planning process, the BLM is required to thoroughly analyze the climate impacts of new oil and gas development and to consider closing additional public lands to oil and gas leasing.

- This region contains some of our state's most important wildlife habitat, treasured recreation areas, wildlands that should be protected for future generations, critical water resources, famed Colorado scenery and Indigenous cultural sites. Beyond the on-the-ground values of these public lands, oil and gas development is a major driver of climate change that is already impacting our communities, agriculture, water, wildlife and way of life. The SEIS is an opportunity for the BLM to take a hard look at the climate impacts of oil and gas drilling and make decisions to minimize and mitigate those impacts, including severe drought and massive wildfires, for the benefit of Colorado's future.

- A true accounting of the climate impacts of the federal oil and gas program shows that we must immediately phase out new fossil fuel leasing to avoid catastrophic climate change.

- In addition to reducing greenhouse gas emissions, we must also increase conservation on public lands to mitigate the climate crisis. Protected public lands provide essential core habitat and migration corridors that enable wildlife species and entire ecosystems to survive and thrive. The Biden-Harris administration has established an ambitious goal to conserve 30% of our nation's lands and waters by 2030 in order to safeguard biodiversity against the threat of climate change, and this planning process can be a key piece for Colorado.

- The BLM has an opportunity to scale down climate pollution while scaling up conservation - a win-win for our public lands, wildlife habitat, western communities and Colorado's future.

- Limiting emissions from any future oil and gas production and ensuring that they off-set all development by identifying and protecting additional "Lands with Wilderness Characteristics" (LWC) and designating new "Areas of Critical Environmental Concern" (ACECs).

Reporter Memo: Upper Colorado River Oil and Gas Plan

Contact: Grant Stevens, Wilderness Workshop Communications Director
grant@wildernessworkshop.org, 319-427-0260

On June 23, 2022 the Bureau of Land Management (BLM) initiated the public scoping period for a Supplemental Environmental Impact Statement (SEIS) to the Colorado River Valley and Grand Junction Resource Management Plans (RMPs); additional information can be found here and here. The SEIS will revisit oil and gas management decisions for nearly 2 million acres of federal minerals in western Colorado and will specifically analyze the climate impacts of leasing and development on public lands.

This memo is designed to provide background on the SEIS, explain why this SEIS is important to western Colorado, and describe the opportunities and anticipated decisions affecting Colorado's public lands and climate that will result from the SEIS process.

Background and Process

- BLM finalized the Colorado River Valley and Grand Junction RMPs in 2015, after nearly decade-long planning processes. These plans dictate how nearly 2 million acres of public lands and minerals, largely within the Piceance Basin, will be managed for the next 20 years. In addition to the thousands of oil and gas wells that already exist in the area, BLM anticipated thousands of new wells would be drilled in coming years. The plans created a presumption that oil and gas can and should be the dominant use, even in places where other incompatible values exist and areas where BLM has concluded that oil and gas development is unlikely, and opened 80% of the planning area (1.5 million acres) to oil and gas leasing and development.

- In 2016, Wilderness Workshop and conservation partners filed a lawsuit on the Colorado River Valley RMP challenging BLM's failure to analyze the climate impacts of its decision, or to consider alternatives that would limit new oil and gas leasing in order to protect other public lands values such as wildlife habitat, recreation and wilderness. In 2018, we prevailed in federal court and the agency was ordered to reconsider portions of the plan pertaining to oil and gas development and climate analysis.

- In 2019, Wilderness Workshop and conservation partners filed a similar lawsuit on the Grand Junction RMP. BLM voluntarily remanded the oil and gas portions of that plan as well, as similar flaws plagued both RMPs.

- As a result of these two lawsuits, BLM is now conducting an SEIS for both RMPs in order to more thoroughly analyze the climate impacts of new oil and gas development and to consider closing additional public lands to oil and gas leasing.

- The SEIS is a public process conducted pursuant to the National Environmental Policy Act (NEPA), which will include the following opportunities for public participation:

    - *Scoping* – The BLM is providing a 30-day scoping period during which the public can submit comments identifying key issues for the agency to address in the SEIS process. BLM will also host 2 virtual public meetings on July 12 and 13. Comments will be due on July 25, 2022.
    - *Draft SEIS* – The BLM will then release a Draft SEIS for public review and comment. The Draft SEIS will include the agency's analysis of potential oil and gas impacts on resources such as wildlife, water and climate, and alternatives for opening and closing public lands to oil and gas leasing. There will be a 90-day public comment period on the Draft SEIS. The BLM intends to release the Draft SEIS in spring 2023.
    - *Final SEIS* – The BLM will then release a Final SEIS, which incorporates comments received on the Draft SEIS. The Final SEIS will identify a proposed management plan, and there will be a formal protest period and governor's consistency review. The BLM intends to release the Final SEIS in winter 2023.
    - *Record of Decision (ROD)* – The BLM will then sign a Record of Decision, and begin implementing the new plan. The agency intends to have the plan complete by spring 2024.

- The outcome of the SEIS will be new planning decisions for western Colorado's public lands that determine where and how oil and gas leasing and development can occur for the next 20 years or more.

Why the SEIS matters to Western Coloradans

The SEIS planning area, which includes the entire Grand Junction and Colorado River Valley field offices, includes 1.5 million acres of public land and 2 million acres of federal minerals in western Colorado. This region contains some of our state's most important wildlife habitat, treasured recreation areas, wildlands that should be protected for future generations, critical water resources, famed Colorado scenery and Indigenous cultural sites. Beyond the on-the-ground values of these public lands, oil and gas development is a major driver of climate change that is already impacting our communities, agriculture, water, wildlife and way of life. The SEIS is an opportunity for the BLM to take a hard look at the climate impacts of oil and gas drilling and make decisions to minimize and mitigate those impacts, including severe drought and massive wildfires, for the benefit of Colorado's future.

Fossil Fuel Development on Public Lands

A key outcome of Wilderness Workshop's successful legal challenge is the court's finding that the BLM hasn't taken a hard look at the true impacts of federal oil and gas development on our climate, meaning the BLM has to complete a more thorough analysis of those impacts. Better climate analysis can and should lead to better climate decisions – a true accounting of the climate impacts of our federal oil and gas program shows that we must immediately phase out new fossil fuel leasing to avoid catastrophic climate change. Similar court decisions have been emerging around the country, requiring the BLM to take a deeper dive into the climate impacts of its fossil fuel decisions at multiple levels. Colorado is a climate change hot spot and the SEIS presents the best and most important opportunity we have to analyze those impacts and reduce climate pollution from our public lands.

Resources regarding oil and gas impacts:

- Fossil fuels from federal lands produced the equivalent of nearly a quarter of the United States' total carbon dioxide emissions over a 10-year period, according to a scientific analysis by the U.S. Geological Survey (USGS).
- Thousands of people in the SEIS planning area live within a half-mile of active oil and gas wells, compressors and processors – the radius at which peer-reviewed studies have documented potential health impacts resulting from oil and gas pollution.
- Greenhouse gas emissions from federal lands are on pace to drastically exceed the reductions needed to meet climate targets established by the International Panel on Climate Change (IPCC).
- Federal fossil fuels that have not been leased to industry contain up to 450 billion tons of potential climate pollution. Pollution from already-leased fossil fuels on federal lands, if fully developed, would exhaust the U.S. carbon budget for keeping the world below a 1.5 degrees Celsius temperature increase.

Recreation, Wildlife and Wilderness Values

Oil and gas extraction includes wells and well pads, gas lines, roads, hydraulic fracturing and other infrastructure that destroy habitat for wildlife, degrade recreation experiences, impact the health and quality of life for nearby communities, and damage other public lands resources. Spills occur frequently and can contaminate water resources that are used for drinking water, agriculture, and recreation.

Demonstrating the reckless oil and gas decisions made in the 2015 Grand Junction RMP, some of the oil and gas leases that were issued in the immediate aftermath of finalizing the RMP included lease parcels near three state parks, a migratory bird hotspot, the site of the "18 Hours of Fruita" mountain-bike race, within a half-mile of a K-12 public school in De Beque and beneath Vega Reservoir, an important area for wildlife, recreation, and irrigation.

Now, the BLM has an opportunity to refine the areas open for oil and gas leasing and make sounder decisions to protect communities and natural resources. Some of the locally treasured public lands that should be protected from oil and gas development in the SEIS include:

- *Dolores River*: The Lower Dolores River is comprised of a collection of deep sandstone canyons, vibrant riparian corridors, and sprawling unroaded wildlands surrounding the Dolores River between Roc Creek, Gateway, and the Utah state line. Petroglyphs, pictographs, and other culturally important sites are found throughout the river corridor. Several of the river's tributaries act as important transportation corridors with game trails leading up into the forested highlands of the Uncompahgre Plateau and La Sal Mountains, many of which were used by and retain cultural significance to Indigenous people. Much of the Lower Dolores is open to oil and gas leasing and development, despite the immense values that would be put at risk by development and the area's low potential for fluid mineral resources.

- *Grand Hogback:* The Grand Hogback is an immediately recognizable feature to travelers on the I-70 corridor, a unique landscape of flatirons and fins cascading from a central monocline. According to the BLM, the Hogback contains one of the largest Ute habitation (wickiup) sites in Colorado, composed of the remnants of at least 80 structural features. In addition to wilderness-quality public lands, cultural and historic resources, and year-round wildlife habitat, a popular mountain biking trail network is being developed with easy access from Rifle. During the Colorado River Valley RMP revision, the BLM decided against managing the Grand Hogback to protect its wilderness-quality

lands and associated values due to the presence of non-producing oil and gas leases. Since the RMP was finalized, almost all of the leases in the Grand Hogback expired without ever going into production, and the BLM has a chance with the SEIS to make a smarter management decision and prioritize other public lands resources over oil and gas speculation.

- *Grand Junction Book Cliffs:* The dramatic backdrop for more than 150,000 people who call the Grand Valley home, the Book Cliffs not only provide incredible recreation opportunities, but are home to important wildlife habitat and wilderness-quality lands. From the world-famous biking trails of the North Fruita Desert, to the quiet solitude of Hunter Canyon and Lipan Wash, to the unique bird species occupying Prairie Canyon, to the forested high country popular for its renowned big game habitat, the Book Cliffs contain a wealth of resources and are recovering from the massive Pine Gulch fire of 2020. While the area has seen some oil and gas development over the decades, much of the area is considered to have low potential. BLM must end the speculative leasing in these important areas adjacent to the communities of the Grand Valley and ensure that the area remains not just a scenic backdrop, but a home to important wildlife habitats and recreation opportunities.

- *Upper Colorado and Roaring Fork Valleys*: The public lands surrounding the Colorado and Roaring Fork Rivers above their confluence in Glenwood Springs are highly valued recreation areas in western Colorado. The Roaring Fork Valley's BLM-managed public lands include locals' favorites such as the Crown, Red Hill, and Thompson Creek – popular spots for mountain biking, hiking, and climbing right out the backdoor of valley communities. The Colorado River corridor from State Bridge to Glenwood Canyon is also surrounded by BLM-managed public lands that attract recreation visitors for boating, mountain biking, and hiking at the scenic foot of the Flat Tops Wilderness. Despite managing many of these areas for recreation purposes, the BLM left them largely open to oil and gas leasing in the 2015 RMP.

Public Support for Conserving Public Lands

Polling shows that Coloradans support a more balanced approach to land management, rather than prioritizing oil and gas development over all other uses. The 2022 Conservation in the West Poll found that:

- 75% of Coloradans "think that oil and gas development on national public lands should be stopped or strictly limited, as opposed to expanded."
- 83% "support a national goal of protecting 30% of America's lands and waters by 2030."

Colorado Bureau of Land Management State Director
U.S. Department of the Interior
BLM Upper Colorado River District
Attn: Supplemental EIS
2518 H Road, Grand Junction, CO 81506

CC: Senator Michael Bennet, Senator John Hickenlooper, Representative Joe Neguse

Dear NAME,

The below listed local elected officials, who represent communities within the Colorado River Valley Bureau of Land Management (BLM) Field Office, urge you to reduce federal oil and gas leasing on BLM lands within our communities; as well as to take steps to administratively protect lands with wilderness characteristics and areas of environmental concern through this and future planning processes. Doing so will protect some of our communities' critical water resources, Indigenous cultural sites, important wildlife habitat, and treasured recreation areas.

Many of the BLM lands located in our region are favorites for visitors and residents alike for camping, fishing, mountain biking, and hiking. Yet, many of these areas were left open to oil and gas leasing in the 2015 Resource Management Plan.

While you are completing a more thorough analysis of the impacts of federal oil and gas development on our climate and communities, we urge you to consider that fossil fuel extraction on public lands generates 25 percent of the United States' climate change causing emissions.

Our communities are now facing year-long wildfire seasons, drought, flooding, and extreme weather. By protecting our public lands and reducing oil and gas leasing, we can increase conservation to mitigate the incredibly expensive and devastating climate crisis that is significantly impacting our communities; local agriculture; outdoor recreation and tourism economies; public health and well-being.

Our nation's protected public lands are tremendous assets to our Western communities. They play a critical role in our way of life. They help make the communities where we live what they are while contributing to a healthier and better tomorrow for future generations.

The Bureau of Land Management has an opportunity to embrace the America the Beautiful initiative and help conserve and restore more of our nation's lands and waters for residents, wildlife, and future generations. Limiting oil and gas development on BLM lands, identifying and protecting additional Lands with Wilderness Characteristics as well as increasing the designations of Areas of Critical Environmental Concern (ACECs) is essential to providing continued opportunities for outdoor recreation, equitable access to nature, and ultimately safeguarding the climate.

Some specific lands within our communities that would benefit from greater protections, among others, by the BLM include:

Recreation Management Areas:

- Red Hill Special Recreation Management Area
- The Crown Special Recreation Management Area

Areas of Critical Environmental Concern:

- Bull Gulch
- Grand Hogback

Lands with Wilderness Characteristics:

- Castle Peak
- Deep Creek
- Hack Lake
- Thompson Creek

As the largest land manager in the nation, the Bureau of Land Management must play a leading role in protecting our public lands for the future. 75 percent of Coloradans "think that oil and gas development on national public lands should be stopped or strictly limited, as opposed to expanded.

We must take action now to avoid the increasing and extremely costly catastrophic climate impacts that are harming our communities. We look forward to working with you and your forward-looking analysis that will ensure greater protections for BLM lands and waters in and near our communities.

Sincerely,

Mayor Torre, City of Aspen, Colorado
Mayor Pro Tem Ward Hauenstein, City of Aspen, Colorado
Council Member John Doyle, City of Aspen, Colorado
Council Member Rachel Richards, City of Aspen, Colorado
Council Member Skippy Mesirow, City of Aspen, Colorado
County Commissioner Jeanne McQueeney, Eagle County, Colorado
County Commissioner Matt Scherr, Eagle County, Colorado
County Commissioner Kathy Chandler-Henry, Eagle County, Colorado

City Council
STAFF REPORT
City of Glenwood Springs
July 21, 2022

Agenda Item:	Resolution 2022-29; New Alternate Municipal Energy Agency of Nebraska (MEAN) Director
Action Requested:	Approval of Resolution to name Doug Hazzard to the Board of Municipal Energy Agency of Nebraska (MEAN)
Department:	Public Works
Presented By:	Matthew Langhorst
Strategic Goals:	Provide Efficient and Responsive City Government
Background Info:	MEAN requires a resolution from a participating municipality to appoint members to its board. Doug Hazzard will be our alternate to Matthew Langhorst.
Issues:	None
Fiscal Impact:	None
Legal Review:	NA
Staff Recommendation:	Approval of resolution 2022-29 appointing Doug Hazzard as an alternate board member

Resolution No. 2022-29

Appointment to MEAN Board of Directors

Alternate Director to MEAN Board of Directors

This is to certify that on July 21, 2022, in the City of Glenwood Springs, State of Colorado I duly Appointed Doug Hazzard to serve as alternate director to represent the City of Glenwood Springs on the Board of Directors of the Municipal Energy Agency of Nebraska. The appointment will run until a successor is appointed with all of the powers and duties incident to such office. This certificate is issued in compliance with the Municipal Cooperative Financing Act contained in the Nebraska Revised Statutes §18-2401 et seq.

This is to certify that the appointments set out above were approved by the City Council of the City Of Glenwood Springs, State of Colorado, at their meeting on July 21, 2022.

(SEAL)

Mayor: _____

This is to certify that the appointments set out above were approved by the

_____*of the*_____*of*
[Insert: City Council/Village Board of Trustees/Town Board of Trustees] *[Insert: City/Village/Town]*

*of*_____*, State of*_____*, at their meeting on*
[Insert: Name of City/Village/Town] *[Insert: Name of State]*

_____*, 20*_____*.*
[Insert: Month, Day] *[Insert: Year]*

_____
Clerk

(SEAL)

Planning and Zoning Commission Report

Date: July 21, 2022
To: Planning and Zoning Commission
From: Ensure Public Safety
Subject: Planning item 12-22, Code Amendments to Title 070.040 as it Relates to Floodplain Regulations (To be continued)

In January of 2022 the Colorado Water Conservation Board revised the regulations regarding the evaluation of floodplains in the State of Colorado. These new rules will replace our old code section regarding the review of floodplains.

ACTION ITEMS

None at this time.

BACKGROUND

None.

PROJECT SUMMARY

REVIEW CRITERIA AND STAFF ANALYSIS

REVIEWING AGENCY COMMENTS

ACTION ITEMS & STAFF RECOMMENDATIONS

Suggested Findings:

DEPARTMENT OF NATURAL RESOURCES

Colorado Water Conservation Board

RULES AND REGULATIONS FOR REGULATORY FLOODPLAINS IN COLORADO

2 CCR 408-1

Rule 1. Title:

The formal title of the previous Rules and Regulations was "Rules and Regulations for the Designation and Approval of Floodplains and of Storm or Floodwater Runoff Channels in Colorado" as approved in 1988. The title for these Rules and Regulations was revised in 2005 to "Rules and Regulations for Regulatory Floodplains in Colorado," and amended here under the same title (referred to herein collectively as the "Rules" or individually as "Rule"). These Rules supersede the 2010, the 2005 and the 1988 Rules.

Rule 2. Authority:

These Rules are promulgated pursuant to the authority granted the Colorado Water Conservation Board (Board or CWCB) in sections, 24-65.1-101(1)(c), 24-65.1-202(2)(a), 24-65.1-302(2)(a), 24-65.1-403(3), 37-60-106(1), 37-60-106(1)(c)–(g), (j), (k), and 37-60-108, C.R.S..

Rule 3. Purpose and Scope:

A. **Purpose.** The purpose of these Rules is to provide uniform standards for Regulatory Floodplains (or Floodplains) in Colorado, to provide standards for activities that may impact Regulatory Floodplains in Colorado, and to define the process by which floodplains will be Designated and Approved by the Board. Rules for Regulatory Floodplains are of statewide concern to the State of Colorado and the Board in order to prevent Flooding and the negative impacts of Floods, as well as to promote public health, safety, welfare and property by limiting Development in Floodplains. These Rules also assist the CWCB and Communities in Colorado to develop sound Floodplain Management practices and implement the NFIP. These Rules shall apply throughout the State of Colorado, without regard to whether a Community participates in the National Flood Insurance Program. These Rules shall also apply to Stream Alteration Activities conducted by state agencies and to federal Stream Alteration Activities that are fully or partially financed by state funds. These Rules also apply to projects or studies for which the Board has made a loan or grant pursuant to sections 37-60-120(2) and 37-60-121(1)(b)(VII), (IX)(C), C.R.S.

B. **Scope.**

(1) **Zoning.** These Rules apply to all Floodplain information developed for zoning and for Floodplain permitting purposes for waterways in the State of Colorado by, but not limited to, individuals, corporations, local government agencies, regional government agencies, state government agencies, Native American tribes, and federal government agencies.

(2) **Subdivisions.** These Rules generally apply to the local approval of subdivision drainage reports that provide 100-Year Floodplain information. Local governments should ensure that site-specific Floodplain delineations, intended for regulatory purposes when they are

prepared for Development activities, are consistent with Floodplain information Designated and Approved by the Board.

(3) **Dam Failure Floodplain.** These Rules do not apply to the identification of the area potentially inundated by the catastrophic or sudden failure of any man-made structure such as a dam, canal, irrigation ditch, pipeline, or other artificial channel.

Rule 4. Definitions:

The following definitions are applicable to these Rules and Regulations for Regulatory Floodplain in Colorado:

Term	Definition
100-Year-Flood	A Flood having a recurrence interval that has a 1-percent-annual-chance of being equaled or exceeded during any given year (1-percent-annual-chance-Flood). For the purpose of these Rules, the terms “100-Year-Flood” “1-percent -annual-chance Flood,” and “base Flood,” are synonymous. The term does not imply that the Flood will necessarily happen once every one hundred years.
100-Year-Floodplain	The area of land susceptible to being inundated as a result of the occurrence of a 100-Year-Flood. 100-Year-Floodplains are considered to be areas of high Flood hazard. For the purposes of these Rules, the terms “100-Year-Floodplain,” “Regulatory Floodplain,” and “Special Flood Hazard Area” are synonymous.
500-Year-Flood	A Flood having a recurrence interval that has a 0.2-percent-annual-chance of being equaled or exceeded during any given year (0.2-percent- annual-chance-Flood). The terms “five-hundred-year Flood” and “0.2-percent -annual-chance Flood” are synonymous with the term “500-Year-Flood.” The term does not imply that the Flood will necessarily happen once every five hundred years.
500-Year-Floodplain	The area of land susceptible to being inundated as a result of the occurrence of a 500-year-Flood. 500-Year-Floodplains are typically considered to be areas of moderate Flood hazard.
Accessory Structure	A structure which is on the same parcel of property as a principal structure and the use of which is incidental to the use of the principal structure.
Addition	Any activity that expands the enclosed footprint or increases the horizontal square footage of an existing structure.
Agricultural Structure	For Floodplain Management Regulation purposes, Agricultural Structures are structures that are used exclusively for agricultural purposes or uses in connection with the production, harvesting, storage, raising, or drying of agricultural commodities and livestock.

	Structures used for human habitation and those that are places of employment or entertainment and structures with multiple or mixed purposes do not satisfy the “exclusive use” requirement and are not Agricultural Structures.
Alluvial Fans	A fan-shaped sediment deposit formed by a stream that flows from a steep mountain valley or gorge onto a plain or the junction of a tributary stream with the main stream. Alluvial Fans contain active stream Channels and boulder bars, and recently abandoned Channels. Alluvial Fans are predominantly formed by alluvial deposits and are modified by infrequent sheet Flood, Channel avulsions and other stream processes.
Approximate Floodplain Information	Flood hazard information based on a reduced level of detail for topographic mapping or hydraulic calculations. Analysis results may be used to develop Flood hazard delineations and corresponding data (i.e., water surface elevations, associated depths and velocities). This may or may not have a comparison of water surface profiles with a topographic map of compatible accuracy. The level of detail for hydrology is consistent with that of detailed Floodplain information. Base Flood Elevations are often not portrayed on a mapped stream reach with Approximate Floodplain Information.
Base Flood	Is synonymous with 100-Year-Flood and is a Flood having a 1-percent-annual-chance of being equaled or exceeded in any given year.
Base Flood Elevation (BFE)	The elevation shown on a FEMA FIRM for Zones AE, AH, A1-A30, AR, AR/A, AR/AE, AR/A1-A30, AR/AH, AR/AO, V1-V30, and VE that indicates the water surface elevation resulting from a Flood that has a 1-percent-annual-chance of equaling or exceeding that level in any given year.
Basin	The total land surface area from which precipitation is conveyed or carried by a stream or system of streams under the force of gravity and discharged through one or more outlets.
Board	Refers to the Board of Directors of the Colorado Water Conservation Board.
Channel	The physical confine of stream or waterway consisting of a bed and stream banks, existing in a variety of geometries.
Channelization	The artificial creation, enlargement or realignment of a stream Channel.
Code of Federal Regulations (CFR)	The codification of the general and permanent Rules published in the Federal Register by the executive departments and agencies of the Federal Government. It is divided into 50 titles that represent broad

areas subject to Federal regulation.

Colorado Floodplain and Stormwater Criteria Manual	The Manual prepared by the CWCB to, if needed, aid local officials and engineers in the proper regulation and design of Flood protected facilities. The Manual is advisory, rather than regulatory, in purpose.
Colorado Revised Statutes (CRS)	The codified general and permanent statutes of the Colorado General Assembly.
Colorado Water Conservation Board	As used in these Rules, “CWCB” refers to the agency and its staff, and “Board” refers to the Board of Directors of the Colorado Water Conservation Board.
Community	Any political subdivision in the state of Colorado that has authority to adopt and enforce Floodplain Management Regulations through zoning, including, but not limited to, cities, towns, unincorporated areas in the counties, Native American tribes and drainage and Flood control districts.
Conditional Letter of Map Revision (CLOMR)	FEMA's comment on a proposed project, which evaluates potential project impacts on the hydrologic or hydraulic characteristics of a Flooding source. A CLOMR does not revise an effective Floodplain Map, but determines whether a proposed project, once constructed, would warrant revisions to the effective Flood Hazard Information.
Critical Facility or Critical Facilities	Means a structure or related infrastructure, but not the land on which it is situated, as specified in Rule 6, that if flooded may result in significant hazards to public health and safety or interrupt essential services and operations for the Community at any time before, during and after a Flood. *See* Rule 6.
Debris Flow	Movement of mud, water, and other materials downward over sloping terrain. The flow typically consists of a mixture of soil, rock, woody debris and water that flows down steep terrain.
Designation and Approval	Certification by formal action of the Board that technical information developed through scientific study using accepted engineering methods is suitable for local governments making land use decisions under statutorily authorized zoning powers.
Detailed Floodplain Information	Floodplain information prepared utilizing topographic base mapping, supplemental survey data, Hydrologic Analysis, and hydraulic calculations (at the time of the study) to arrive at precise Flood Hazard Information suitable for making land use decisions under statutorily authorized zoning powers.
Development	Any man-made changes to improved or unimproved real estate, including, but not limited to, buildings or other structures, mining,

dredging, filling, grading, paving, excavation or drilling operations.

FEMA	Federal Emergency Management Agency.
FEMA Risk Mapping Assessment and Planning (Risk MAP) Technical References, Guidelines and Standards for Flood Risk Analysis and Mapping Activities	FEMA Risk MAP Technical References, Guidelines and Standards for Flood Risk Analysis and Mapping, and associated resources, define the implementation details for statutory and regulatory requirements for NFIP mapping.
Flood or Flooding	A general and temporary condition of partial or complete inundation of normally dry land areas from: 1. The overflow of water from Channels and reservoir spillways; 2. The unusual and rapid accumulation or runoff of surface waters from any source; or 3. Mudslides or mudflows that occur from excess surface water that is combined with mud or other debris that is sufficiently fluid so as to flow over the surface of normally dry land areas (such as earth carried by a current of water and deposited along the path of the current.
Flood Control Structure	A physical structure designed and built expressly or partially for the purpose of reducing, redirecting, or guiding Flood flows along a particular waterway.
Flood Hazard Information	Floodplain Maps, profiles, and other related information for Flood hazard areas that have been Designated and Approved by the Board. *See* Rule 5.
Flood Insurance Rate Map (FIRM)	A FIRM is the official FEMA Flood map for a Community for delineating both the 100-Year-Floodplain and 500-Year-Floodplain, the Floodway, and hazard zone designations applicable to the Community.
Flood Insurance Study (FIS)	A FEMA FIS is a compilation and presentation of Flood hazard data (information and maps) for watercourses, lakes, and other sources of Flood hazard within a Community for the NFIP. The FIS report contains detailed Flood elevation data in Flood profiles and data

tables.

Floodplain	The area of land that could be inundated as a result of a Flood, including the area of land over which floodwater would flow from the spillway of a reservoir.
Floodplain Management	The operation of an overall program of corrective, preventive, and maintenance measures for reducing potential Flood risk and associated damage, including, but not limited to, zoning or land-use regulations, Flood mitigation measures, and emergency preparedness plans.
Floodplain Management Regulations	Zoning ordinances, subdivision regulations, building codes, health regulations, land-use permits, special purpose ordinances (Floodplain ordinance, grading ordinance, or erosion control ordinance) and other applications of regulatory powers. The term describes state/local regulations that provide standards for Floodplain preservation and potential Flood risk reduction to life, safety, health and property.
Floodplain Maps	Maps that show in a plan view the horizontal boundary of Floods of various magnitudes or frequencies. Such maps include, but are not limited to, Flood Hazard Boundary Maps (FHBM), and Flood Insurance Rate Maps (FIRMs)published by FEMA, Flood Prone Area Maps published by the U.S. Geological Survey (USGS), Flooded Area Maps published by the U. S. Army Corps of Engineers (USACE), Floodplain Information Reports published by the CWCB or others, Flood Hazard Area Delineation studies (FHADs) published by the Urban Drainage and Flood Control District (UDFCD) a/k/a the Mile High Flood District, and other locally adopted Floodplain Studies and master plans.
Floodplain Studies	A formal presentation of the study process, results, and technical support information developed for Floodplain Maps.
Floodway	The Channel of a river or other watercourse and the adjacent land areas that must be kept free of obstructions in order to discharge the Base Flood without cumulatively increasing the water surface elevation more than a designated height.
Freeboard	The vertical distance in feet above a predicted water surface elevation intended to provide a margin of safety to compensate for unknown factors that could contribute to Flood heights greater than the height calculated for a selected size Flood such as debris blockage of bridge openings and the increased runoff due to urbanization of the

	watershed.
Geographic Information Systems (GIS)	Computer software that utilizes databases and terrain mapping to store and display spacial and tabular data, such as floodplains, as layers (e.g. political boundaries, roadways, structures, topographic information, land use) for natural resource management and other uses.
Hydraulic analysis	The determination of Flood elevations, depths, and velocities for various storm frequencies/events based on a scientific analysis of the movement and behavior of floodwaters in Channels and overbank areas through a Basin or watershed.
Hydrologic Analysis	The computation of the hydrograph, peak rate of flow, or discharge in cubic feet per second, for various storm frequencies/events for streams, Channels, or watersheds based on a scientific analysis of the physical process resulting in precipitation runoff amounts at specific locations.
Letter of Map Revision (LOMR)	An official revision issued by FEMA to modify the currently effective FIRM and FIS. Based on supporting technical documentation, it is issued by FEMA for changes to Flood hazard potential, Flood zones, Flood hazard delineations, and corresponding Flood elevations.
Letter of Map Revision Based on Fill (LOMR-F)	FEMA's official determination document supporting a revision to the 100-Year-Floodplain, also known as the "Special Flood Hazard Area (SFHA)" or high risk Flood zone shown on the effective FIRM based on the placement of fill outside the effective regulatory Floodway. The determination is based on either the lowest adjacent grade or Lowest Floor relative to the effective BFE or 100-Year water surface elevation. This type of revision does not physically change the SFHA, but provides the property owner an official document verifying the property or building is above the regulatory Flood elevation at that location.
Levee or Levee System	A man-made structure or land feature (or series of structures or land features) designed and operated, wholly or in part, for the purpose of containing, controlling, or diverting the flow of water to reduce Flood risk potential for areas on the landward side of the Levee or Levee System.
Lowest Floor	The lowest floor of the lowest enclosed area (including basement). An unfinished or flood resistant enclosure, useable solely for parking of vehicles, building access, or storage in an area other than a basement area is not considered a building's lowest floor. Provided, that such enclosure is not built so as to render the structure in violation of the applicable non-elevation design requirements of 44 C.F.R. § 60.3. *See* Rule 17.

Low Impact Development (LID)	Development design/construction strategy that maintains the predevelopment hydrologic regime to the extent possible at the development site. The goal of LID is to mimic the natural runoff hydrograph as much as practicable in terms of magnitude, frequency, duration, timing, and rate of change of stream flows. LID focuses on small scale stormwater retention and detention, reduced impervious areas, and increased runoff periods.
Material Safety Data Sheet (MSDS)	A form with data regarding the properties of a particular substance. An important component of product stewardship and workplace safety, it is intended to provide workers and emergency personnel with procedures for handling or working with that substance in a safe manner, and includes information such as physical data (melting point, boiling point, flash point, etc.), toxicity, health effects, first aid, reactivity, storage, disposal, protective equipment, and spill-handling procedures.
Mitigation	The process of preventing disasters or reducing impacts of related hazards. Structural Mitigation, includes, but is not limited to, Flood proofing structures, diverting floodwaters, detention ponds, floodwalls or Levees. Nonstructural Mitigation includes, but is not limited to, education, planning, and design of Flood prevention measures, emergency preparedness plans, elevating or relocating structures, purchasing property for open space, and/or early Flood warning detection systems.
Model-Backed Approximate Flood Elevation	The 100-Year-Flood water surface elevation resulting from a hydraulic model used to determine an Approximate Floodplain.
National Flood Insurance Program (NFIP)	FEMA's program of Flood insurance coverage and national Floodplain Management administered in conjunction with the Robert T. Stafford Disaster Relief and Emergency Assistance Act. The NFIP has applicable federal regulations promulgated in Title 44 of the Code of Federal Regulations. The U.S. Congress established the NFIP in 1968 with the passage of the National Flood Insurance Act of 1968.
Notice of Non-Compliance (NONC)	Written notification notifying a Community or person that the CWCB has discovered potential violations of these Rules.
Post-Wildfire Hydrology	Methodologies and calculations developed to account for the increased stormwater runoff following forest fires. Post-wildfire hydrology is typically evaluated every 3 to 5 years to assess the need for further revision based on watershed recovery, forest re-growth, and other factors.
Provisionally Accredited Levee (PAL)	A temporary FEMA Levee designation option for previously accredited Levees or Levee Systems recognized on a FIRM that allows mapping for an area while affording time for a Levee owner or Community to

	provide data and documentation demonstrating the Levee still meets requirements set forth in 44 C.F.R § 65.10. A PAL notation on the FIRM indicates that the Levee owner has signed and submitted an agreement to FEMA to provide documentation of the structure's compliance under NFIP regulations within a specified period of time. As a result, FEMA has provisionally accredited the Levee (for a defined period of time), and that any designation of existing Zone X (shaded) areas due to Flood hazard reduction from a 1-percent-annual-chance-Flood on an effective FIRM (landward of the Levee) is also provisional.
Regulatory Floodplain	In Colorado the Regulatory Floodplain is the extents of the area subject to inundation by the 100-Year-Floodplain that have been Designated and Approved by the Board, unless a Community voluntarily elects to regulate to a 500-Year-Flood standard for certain circumstances.
Residual Risk	The Flood risk (probability of capacity exceedance or failure and the associated consequences) that remains after a Flood risk management or Mitigation measure has been implemented.
Special Flood Hazard Area (SFHA)	Special Flood Hazard Area means an area having special Flood, mudslide (i.e. mudflow), or Flood-related erosion hazards, and show on a Flood Hazard Boundary Map or FIRM as Zone A, AO, A1-30, AE, AR, AR/A1-30, AR/AE, AR/AO, AR/AH, AR/A, A99, AH.
Stream Alteration Activity	Any manmade activity within a stream or Floodplain that alters the natural Channel, geometry, or flow characteristics of the stream.
Substantial Damage / Substantially Damaged	Damage of any origin sustained by a structure whereby the cost of restoring the structure to its before damaged condition would equal or exceed 50 percent of the market value of the structure before the damage occurred.
Substantial Improvement / Substantially Improved	Any reconstruction, rehabilitation, addition, or other improvement of a structure, the cost of which equals or exceeds 50 percent of the market value of the structure before the "start of construction" of the improvement. This term includes structures that have been Substantially Damaged, regardless of the actual repair work performed. The term does not, however, include either: 1) Any project for improvement of a structure to correct existing violations of state or local health, sanitary, or safety code specifications, which have been identified by the Community and which are the minimum necessary to assure safe living conditions; or 2) Any alteration of a "historic structure," provided that the alteration will not preclude the structure's continued designation as a "historic structure."

Threshold Planning Quantity (TPQ)	A quantity designated for each chemical on the list of extremely hazardous substances that triggers notification by facilities to the State that such facilities are subject to emergency planning requirements.
Topography	Configuration (relief) of the land surface elevation; the graphic delineation or portrayal of that configuration in map form, as by lines of constant elevation called contour lines.
Use Change	Any change in the primary use of a facility or unimproved land.
Water Surface Profile	A graph that shows the relationship between the vertical elevation of the top of the floodwater and of the streambed with the horizontal distance along the stream alignment.

Rule 5. Regulatory Floodplain:

The Regulatory Floodplain in Colorado is the 100-Year-Floodplain, unless a Community voluntarily elects to regulate to a 500-Year-Flood standard for certain circumstances. The Board will also Designate and Approve 500-Year-Floodplain information when available. In addition, previously designated Floodplain areas that have been removed from FEMA's effective Regulatory Floodplain by a Letter of Map Revision based on Fill (LOMR-F) shall remain within the Regulatory Floodplain for all activities affected by Rule 11.C. All Designated and Approved Regulatory Floodplain information can be used by Communities for the purpose of local regulation. The General Assembly has deemed the designation of Floodplains a matter of statewide importance and interest and gave the CWCB the responsibility for the designation of Regulatory Floodplains and to promote protection of public health, safety, welfare and property by protecting development in the Regulatory Floodplains. § § 24-65.1-101, 24-65.1-202(2)(a)(I), 24-65.1-302(1)(b), (2)(a), 24-65.1-403(3), 24-65.1-404(3).

Rule 6. Critical Facilities:

A. **Classification:** Critical Facilities are classified under the following categories: (1) Essential services facilities; (2) Hazardous materials facilities; (3) At risk populations facilities; and (4) Facilities vital to restoring normal services.

(1) *Essential services facilities* include public safety, emergency response, emergency medical, designated emergency shelters, communications, public utility plant facilities, and transportation lifelines.

a. These facilities consist of:

i. Public safety (police stations, fire and rescue stations, emergency vehicle and equipment storage, and emergency operation centers);

ii. Emergency medical (hospitals, ambulance service centers, urgent care centers having emergency treatment functions, and non-ambulatory surgical structures but excluding clinics, doctor offices, and non-urgent care medical structures that do not provide these functions);

iii. Designated emergency shelters;

iv. Communications (main hubs for telephone, broadcasting equipment for cable systems, satellite dish systems, cellular systems, television, radio, and other emergency warning systems, but excluding towers, poles, lines, cables, and conduits);

v. Public utility plant facilities for generation and distribution (hubs, treatment plants, substations and pumping stations for water, power and gas, but not including towers, poles, power lines, buried pipelines, transmission lines, distribution lines, and service lines); and

vi. Air transportation lifelines [airports (municipal and larger), helicopter pads and structures serving emergency functions], and associated infrastructure (aviation control towers, air traffic control centers, and emergency equipment aircraft hangars).

b. Specific exemptions to this category include wastewater treatment plants, non-potable water treatment and distribution systems, and hydroelectric power generating plants and related appurtenances.

i. Owners of these facilities are encouraged to meet the spirit of Rule 6.D. when practicable in order to protect their own infrastructure and to avoid system failures during extreme Flood events. Emergency restoring plans following major Flood events should be considered as a prudent addition to operation and maintenance plans for those facilities.

ii. Public utility plant facilities may be exempted if it is demonstrated to the satisfaction of the Community that the facility is an element of a redundant system for which service will not be interrupted during a Flood. At a minimum, it shall be demonstrated that redundant facilities are available (either owned by the same utility or available through an intergovernmental agreement or other contract) and connected, the alternative facilities are either located outside of the Regulatory Floodplain or are compliant with this Rule, and an operations plan is in effect that states how redundant systems will provide service to the affected area in the event of a Flood. Evidence of ongoing redundancy shall be provided to the Community on an as-needed basis upon request by that Community.

(2) *Hazardous materials facilities* include facilities that produce or store highly volatile, flammable, explosive, toxic, and/or water reactive materials.

a. These facilities consist of*:*

i. Chemical and pharmaceutical plants (chemical plant, pharmaceutical manufacturing);

ii. Laboratories containing highly volatile, flammable, explosive, toxic and/or water reactive materials;

iii. Refineries;

iv. Hazardous waste storage and disposal sites; and

v. Above ground gasoline or propane storage or sales centers.

b. Facilities shall be determined to be Critical Facilities if they produce or store materials in excess of threshold limits. If the owner of a facility is required by the Occupational Safety and Health Administration (OSHA) to keep a MSDS on file for any chemicals stored or used in the work place, AND the chemical(s) is stored in quantities equal to or greater than the TPQ for that chemical, then that facility shall be considered to be a Critical Facility. OSHA requirements for MSDS can be found in 29 C.F.R. § 1910. *See* Rule 17.

i. The TPQ for these chemicals is: either 500 pounds or the TPQ listed (whichever is lower) for the 356 chemicals listed under 40 C.F.R. § 302, also known as Extremely Hazardous Substances; or 10,000 pounds for any other chemical. This threshold is consistent with the requirements for reportable chemicals established by the Colorado Department of Public Health and Environment (CDPHE). The Environmental Protection Agency (EPA) regulation "Designation, Reportable Quantities, and Notification," can be found at 40 C.F.R. § 302. *See* Rule 17.

c. Specific exemptions to this category include: Finished consumer products within retail centers and households containing hazardous materials intended for household use, and agricultural products intended for agricultural use; Buildings and other structures containing hazardous materials for which it can be demonstrated to the satisfaction of the Community and certification by a qualified professional (as determined by the Community) that a release of the subject hazardous material does not pose a major threat to the public; and Pharmaceutical sales, use, storage, and distribution centers that do not manufacture pharmaceutical products.

d. These exemptions shall not apply to buildings or other structures that also function as Critical Facilities under another category outlined in this Rule 6.A.

(3) *At risk population facilities* include medical care, congregate care, and schools.

a. These facilities consist of:

i. Elder care (nursing homes);

ii. Congregate care serving 12 or more individuals (day care and assisted living); and

iii. Public and private schools (pre-schools, K-12 schools), before-school and after-school care serving 12 or more children);

(4) *Facilities vital to restoring normal services* including government operations.

a. These facilities consist of:

i. Essential government operations (public records, courts, jails, building permitting and inspection services, community administration and management, maintenance and equipment centers);and

ii. Essential structures for public colleges and universities (dormitories, offices, and classrooms only);

b. These facilities may be exempted if it is demonstrated to the satisfaction of the Community that the facility is an element of a redundant system for which service will not be interrupted during a Flood. At a minimum, it shall be demonstrated that redundant facilities are available (either owned by the same entity or available through an intergovernmental agreement or other contract), the alternative facilities are either located outside of the Regulatory Floodplain or are compliant with this Rule, and an operations plan is in effect that states how redundant facilities will provide service to the affected area in the event of a Flood. Evidence of ongoing redundancy shall be provided to the Community on an as-needed basis upon request by that Community.

B. **Identification of Critical Facilities**.

(1) It is the responsibility of the Community to identify and confirm that specific structures in their Community meet the criteria outlined in Rule 6.A. and are deemed to be Critical Facilities. All structures that clearly meet the intent of Rule 6 shall be deemed Critical Facilities by that Community. For those structures for which it is unclear or otherwise ambiguous if the criteria are met, the Community shall have the sole discretion to determine if the structure is a Critical Facility. Communities may adopt ordinances that regulate to higher standards or that include additional facilities within the definition of Critical Facilities. Critical Facilities that are also designated as historic structures (determinations by the State Historic Preservation Office) are exempt from these requirements. Pursuant to section 24-65.1-202(2)(a)(I)(A), C.R.S., open space activities such as agriculture, horticulture, floriculture, recreation, and mineral extraction, including oil and gas activities, shall be encouraged in the Floodplain, and are exempt as Critical Facilities unless provisions within Rule 6.A.(2) apply. These activities may still require coordination with the Community and be subject to other local, state, and federal requirements or permits.

(2) Required identification of Critical Facilities shall be limited to owner-occupied structures. Communities may, at their sole discretion, include leased facilities in their identification of Critical Facilities.

C. **500-Year-Flood Events**. The CWCB acknowledges that Flooding does and has occurred above and beyond 100-Year-Flood events. Communities are encouraged to regulate Development of Critical Facilities within the 500-Year-Floodplain, when available.

D. **Protection of Critical Facilities**.

(1) All new, Substantially Damaged, and Substantially Improved Critical Facilities, and new Additions to Critical Facilities, shall be regulated to a higher standard than those structures not determined to be Critical Facilities. Communities are encouraged to consult with the owner of the Critical Facility in determining the value of the Critical Facility when a Substantial Damage and/or Substantial Improvement is being considered.

(2) This Rule 6 shall be applied to a Use Change if the new use meets the provisions within Rule 6.A. Further, although Rule 6 shall apply to new Additions made at Critical Facilities, it shall only apply to the new Additions, and not the Critical Facility to the extent the Critical Facility existed prior to the amendment of these Rules.

(3) The higher standard for Critical Facilities shall be as follows: For Critical Facilities located within the Regulatory Floodplain, the structure shall be protected according to Rule 11.B. herein, with the exception of a two-foot Freeboard requirement substituted for the standard one-foot Freeboard. The International Building Code and Flood Resistant Design and Construction (ASCE 24) can be used as reference tools for this standard, but are not incorporated by reference herein.

(4) For the purposes of this Rule 6.D., protection shall include one of the following:

a. Location outside the Regulatory Floodplain; or

b. Elevation or Flood proofing of the structure so that it is protected to the level indicated in this Rule 6.D.

(5) Unimproved lands associated with a Critical Facility that lie within a Regulatory Floodplain shall not be subject to this requirement, until future Development takes place on those lands. Likewise, if an undeveloped portion of a facility's property lies within a Regulatory Floodplain, but the developed portion of that facility lies outside of the Regulatory Floodplain, then that facility shall not be classified as a Critical Facility.

(6) All other rules and regulations governing structures not deemed Critical Facilities remain in effect and unchanged.

E. **Ingress and Egress for New Critical Facilities.** New Critical Facilities shall, when practicable as determined by the Community, have continuous non-inundated access (ingress and egress for evacuation and emergency services) during a Regulatory Flood event. This criterion is also recommended, but not required, for changes to existing Critical Facilities and use changes involving existing structures or unimproved lands whose classification changes to Critical Facilities.

F. **Variances**. For all Critical Facilities, the Variance procedure outlined in Rule 15 herein remains available and may be considered when deemed necessary and appropriate by the Community over the Critical Facility.

Rule 7. Standards for Delineation of Regulatory Floodplain Information:

A. **Intent of this Rule**. This Rule contains standards for approximate and detailed Floodplains. All Floodplain information intended to be used by Communities for the purpose of regulating Flood hazard areas, with the exception of local stormwater drainage reports, CLOMR, LOMR, and LOMR-F submittals, and supporting documentation submitted to FEMA, shall be provided to the CWCB for Designation and Approval by the Board in order to enable Communities to regulate floodplains appropriately. The standards in this rule reference, and incorporate herein, the FEMA Risk MAP Technical References, Guidelines and Standards for Flood Risk Analysis and Mapping Activities, and associated resource documents.

B. **Level of Detail**.

(1) Approximate Floodplain Information will be based on detailed hydrology computed for 100-Year-Floods. Hydraulic information shall be produced using approximate, field, or limited techniques and best available topographic/survey data.

(2) Detailed Floodplain Information will be based on detailed hydrologic and hydraulic determinations for 100-YearFloods, Flood profiles and Floodplain delineations for 100-Year-Flood and other frequencies, if any, shall be plotted, preferably using a digital method. The Board shall Designate and Approve 100-Year-Floodplain information, and 500-Year-Floodplain information when available.

C. **Base Mapping.** Base mapping for Floodplain Studies shall meet the minimum standards as set forth in FEMA Risk MAP Technical References, Guidelines and Standards for Flood Risk Analysis and Mapping Activities.

D. **Topography and Surveys**. Topographic and field survey information for Floodplain Studies shall meet the minimum standards as set forth in FEMA Risk MAP Technical References, Guidelines and Standards for Flood Risk Analysis and Mapping Activities.

E. **Geographic Information Systems (GIS)**. GIS information for Floodplain Studies in Colorado shall meet the minimum standards as set forth in FEMA Risk MAP Technical References, Guidelines and Standards for Flood Risk Analysis and Mapping Activities.

F. **Hydrology**. Hydrologic Analyses for Floodplain Studies in Colorado shall be completed using the information set forth in FEMA Risk MAP Technical References, Guidelines and Standards for Flood Risk Analysis and Mapping Activities. The Colorado Floodplain and Criteria Stormwater Manual may be used as a reference document to aid in this analysis. In addition, hydrology studies must comply with the following:

(1) All Floodplain Studies, regardless of the level of detail, (e.g., approximate or detailed) shall utilize detailed hydrologic information. The CWCB recognizes existing and future watershed conditions for the purposes of computing Flood hydrology. The CWCB may evaluate future watershed conditions, in addition to existing conditions.

(2) Any new study to evaluate hydrologic information and/or design storm criteria shall be completed in such a way that it is scientifically defensible and technically reproducible.

(3) All jurisdictions and Communities affected by revised hydrologic data, due to their geographic proximity to the affected stream reach within a particular watershed, are encouraged to participate in the update process, and shall be given the opportunity by the study sponsor to review and comment on the revised information. Opponents to the revised information may present technically accurate and sound scientific data to the Board that clearly demonstrates that the information in question is inaccurate pursuant to Rule 12. The Board shall make the final determination regarding disputes.

(4) Within any given watershed, or hydrologic subregion, consistency in hydrologic data and runoff methodology shall be pursued to the extent possible through cooperation of all affected jurisdictions and entities.

G. **Detailed Hydraulic Method**. Hydraulic Analyses for Floodplain Studies in Colorado shall be completed using protocols set forth FEMA Risk MAP Technical References, Guidelines and Standards for Flood Risk Analysis and Mapping Activities.

H. **Floodplain Delineations**. Floodplain delineations shall be completed using protocols set forth in FEMA Risk MAP Technical References, Guidelines and Standards for Flood Risk Analysis and Mapping Activities , and shall, at a minimum, comply with the technical quality assurance standards as follows:

(1) The Flood elevations and the Floodplain delineations on the maps must meet or exceed FEMA NFIP standards for tolerance and technical accuracy for correlation to the best available topographic information for the stream and adjacent corridor.

(2) The planimetric features on the Floodplain Maps (including, but not limited to: streets and highways, stream centerlines, bridges and other critical hydraulic features, corporate limits, section lines and corners, survey benchmarks) must be consistent with the best available geospatial data for the stream and the adjacent corridor, as determined through prevailing industry practices, and must meet an acceptable level of technical accuracy.

I. **Special Floodplain Conditions**. There are a number of special Floodplain conditions, or natural Flood hazards, in Colorado that fall outside of the standard riverine environment. Studies for the Regulatory Flood involving special conditions shall be completed using protocols set forth in FEMA Risk MAP Technical References, Guidelines and Standards for Flood Risk Analysis and Mapping Activities. The special conditions are:

(1) Alluvial Fan and Debris Flow Floodplains located within foothill and mountainous regions of Colorado shall be considered on a case-by-case basis.

(2) Post-Wildfire Hydrology may be evaluated on a case-by-case basis in forested areas immediately following moderate to intense wildfires resulting in approximately 15% or greater burn area of the affected watershed. Interim Flood advisory maps, based on burned watershed conditions, may be produced at the request of the Community or by Board initiative. The interim Floodplain Maps should show increased runoff from hydrophobic soils and lack of vegetation. The post-wildfire maps may be evaluated every

3 to 5 years to assess the need for further revision based on watershed recovery, forest re-growth, and other factors.

(3) Ice jam Flooding shall be considered within stream reaches where this phenomenon is known to occur. Ice jam Flooding may be analyzed utilizing methodologies outlined in the FEMA Risk MAP Technical References, Guidelines and Standards for Flood Risk Analysis and Mapping Activities, *Guidance for Flood Risk Analysis and Mapping: Ice Jam Analyses and Mapping*.

J. **Written reports and maps**. The results of the Hydrologic Analyses, Hydraulic Analyses, and Flood hazard area delineations shall be summarized in a written report and submitted to the CWCB. All Approximate and Detailed Floodplain Information that is presented to the Board for Designation and Approval shall be properly titled, dated, organized, and compiled as a stand-alone digital document (in MS Word and PDF formats). All pertinent technical backup data to support the flood hazard study, regardless of data format be provided to the CWCB in acceptable digital formats. The CWCB shall make pertinent supporting documentation for flood hazard studies available for access to interested parties, to the extent possible, through a secure data sharing platform. In one-dimensional riverine situations, where discrepancies appear between Regulatory Floodplain maps and water surface profiles, any regulatory water surface profile designated and approved by the Board shall take precedence over any corresponding flooded area map for the same stream reach or site location, unless a profile error is identified and substantiated.

K. **Contractor Qualifications**.

(1) Qualified engineers licensed in Colorado shall direct or supervise the Flood hazard studies and projects pertaining to the Regulatory Floodplain. All Floodplain maps, reports and project designs pertaining to the Regulatory Floodplain, except those prepared by federal agencies, shall be certified and sealed by the Colorado Registered Professional Engineer of record.

(2) Federal agencies or other recognized and qualified government authorities may produce Floodplain mapping work as a study proponent or on behalf of a study proponent.

Rule 8. Standards for Regulatory Floodways:

A. **Establishment of Floodway Criteria**. The CWCB recognizes that Designated Floodways are administrative limits and tools used by Communities to regulate existing and future Floodplain Development within their jurisdictions. This Rule 8.A. does not require Communities to automatically map ½ foot floodways within their jurisdictions. However, at such time when Floodways are to be delineated based on revised Flood hazard studies or through physical map revisions involving local government participation, Communities shall delineate Floodways for the revised reaches based on ½-foot rise criteria. Letters of Map Revision to existing Floodway delineations may continue to use the Floodway criteria in place at the time of the existing Floodway delineation. Until such time that Floodways are revised and designated, Communities may continue to regulate their mapped one-foot Floodways. For reaches where a transition must be shown to connect new studies to existing studies with different Floodway criteria, the transition length shall not exceed 2,000 feet.

B. **Designation of Floodways**. Designation and Approval of Floodplain information shall also include the Designation and Approval of corresponding Floodway Information. For waterways with Model-Backed Approximate Flood Elevations or BFEs for which Floodways are not computed, the Community shall apply a ½ foot Floodway regulation according to its own determination, as outlined in FEMA Regulation 44 C.F.R. § 60.3(c)(10), for the FEMA minimum requirement of a 1-foot floodway. *See* Rule 17.

C. **Incorporation of FEMA's Floodway Regulations**. All Communities participating in the NFIP that have BFEs or Model-Backed Approximate Flood Elevation defined for one or more of the waterways within their jurisdictions shall adopt and enforce the "Criteria for Land Management and Use" Floodway regulations at 44 C.F.R. § 60.3(c)(10), (d). Failure to enforce Floodway regulations may impact the Community's standing in the NFIP and may eliminate or reduce eligibility for federal or state financial assistance for Flood Mitigation and disaster relief purposes.

D. **Communities in Which This Rule Applies**. Communities with Regulatory Floodplains that have been Designated and Approved by the Board with BFEs or Model-Backed Approximate Flood Elevations defined for one or more of the waterways within their jurisdictions shall be required to establish technical (quantified) surcharge criteria for Floodway determination and regulation, which must meet or exceed the requirements set forth in this Rule. This Rule shall not apply to approximate stream reaches for which BFEs or Model-Backed Approximate Flood Elevation have not been defined (i.e. non-model-backed Flood hazard areas).

Rule 9. Criteria for Determining the Effects of Flood Control Structures on Regulatory Floodplains:

A. For the purposes of this Rule, local and regional hydraulic structures providing local or regional Flood or stormwater detention, shall be considered to be Flood Control Structures. There are no separate criteria for these structures.

B. **Flood Control Structures**.

(1) If a publicly operated and maintained structure, as further defined in subparagraph B.(3), is specifically designed and operated either in whole or in part for Flood control purposes, then its effects shall be taken into consideration when delineating the Floodplain below such structure. The effects of the structure shall be based upon the 100-Year-Flood with full credit given to the attenuation of peak Flood discharges, which would result from normal Flood Control Structure operating procedures.

(2) The Hydrologic Analysis pertaining to State Regulatory Floodplains shall consider the effects of on-site detention for rooftops, parking lots, highways, road fills, railroad embankments, diversion structures, refuse embankments (including, but not limited to, solid waste disposal facilities), mill tailings, impoundments, siltation ponds, livestock water tanks, erosion control structures, or other structures, only if they have been designed and constructed with the purpose of impounding water for Flood detention and/or infiltration and are publicly operated and maintained in accordance with subparagraph B.(3).

(3) For the purposes of this Rule, public operation and maintenance is required for credit of the flood control structure, which may include direct responsibility, ultimate Community responsibility, or Community enforcement. *See* 44 C.F.R. § 65.6 (a)(12). This does not

apply to state or federally operated and/or maintained facilities. Detention structures that are privately operated or maintained shall not be included in the Hydrologic Analysis unless it can be shown that they exacerbate downstream peak discharges.

C. **Non-Flood Control Structures**. If a structure is not specifically designed and operated, either in whole or in part, for Flood control purposes, then its effects, even if it provides inadvertent Flood routing capabilities that reduce the 100-Year-Flood impacts downstream, shall not be taken into account, and the delineation of the Flood hazard areas below such structure shall be based upon the 100-Year-Flood that could occur absent the structure's influence. However, if adequate assurances have been obtained to preserve the Flood routing capabilities of such structure, then the delineation of the Flood hazard areas below the structure may, but need not, be based on the assumption that the reservoir formed by the structure will be filled to the elevation of the structure's emergency spillway and the 100-Year-Flood hydrology can be routed through the reservoir to account for any Flood attenuation effects.

D. **Adequate Assurances**. For the purposes of this Rule 9 "adequate assurances" shall, at a minimum, include appropriate recognition in either a signed adequate assurance agreement, or the Community's adopted master plan of:

(1) The Flood routing capability of the reservoir, as shown by comparison of the 100-Year-Flood hazard area in plan and profile (where applicable) with and without the structure in place, in order that the public may be made aware of the potential change in level of Flood protection in the event that the reservoir Flood routing capability is lost;

(2) The need to preserve that Flood routing capability by whatever means available in the event that the reservoir owners attempt to make changes that would decrease the Flood routing capability; and

(3) A complete operations and maintenance plan.

E. **Irrigation Facilities**. The CWCB recommends that irrigation facilities (including, but not limited to, ditches and canals) not be used as stormwater or Flood conveyance facilities, unless specifically approved and designated by Community and approved by the irrigation facility owners. The Flood conveyance capacity of irrigation facilities shall be acknowledged only by agreement between the facility owners and Communities, with review and concurrence from the Colorado Division of Water Resources to ensure that water rights administration needs are properly considered. A maintenance easement or agreement shall be in place allowing the Community maintenance access to the irrigation facility if needed.

Unless specified otherwise by aforementioned written agreement, Flood hydrology for State Regulatory Floodplain mapping purposes shall consist of peak hydrologic flows that are identical immediately downstream and immediately upstream of a ditch or canal that is generally perpendicular to the stream or drainageway of interest. The irrigation facility shall be assumed as running full so that there are no computed Flood reduction benefits downstream of the irrigation facility. Backwater behind irrigation facilities shall be mapped. The Board will Designate and Approve 100-Year-Flood Flood Hazard Information for irrigation facilities if the above recommendations are met. This Rule is not intended in any way to interfere with Colorado water law.

Rule 10. Criteria for Determining Effects of Levees on Regulatory Floodplains:

A. **General**. The use of Levees for property protection, Flood control, and Flood hazard Mitigation is not encouraged by the CWCB, unless other Mitigation alternatives are not viable. The areas landward of an accredited Levee and Provisionally Accredited Levee (PAL) system shall be mapped and annotated on the FIRM in accordance with FEMA Risk MAP Technical References, Guidelines and Standards for Flood Risk Analysis and Mapping Activities. In situations where Levees are the only viable alternative for protection of existing development, "setback" levees should be designed and constructed to maintain the natural Channel and reserve a portion of the natural Floodplain capacity. Levees should not be used for Flood protection along streams or watercourses where new Development is planned. However, Levees may be used to protect public utility plant facilities for wastewater treatment and pumping as well as electric power plants due to their close proximity to natural waterways. For existing Levees that protect existing development, proper maintenance should be performed by Levee owners/operators, or non-federal sponsors in the case of federal Levees, according to an operations and maintenance plan.

(1) Levees should not be constructed for the primary purpose of removing undeveloped lands from mapped Floodplain areas for the purposes of developing those lands because of the potential impairment of the health, safety, welfare and property of the people. Design and construction of Levees identified for this purpose will not be eligible for CWCB grants or loans.

(2) When constructed, Levees for which protection will be considered for designation and approval must meet the requirements set forth in "Mapping of Areas Protected by Levee Systems," 44 C.F.R. § 65.10. Artificial embankments that either function as a Levee or a Flood Control Structure must meet the provisions of this Rule or the "Office of the State Engineer Rules and Regulations for Dam Safety and Dam Construction," 2 C.C.R. 402-1, respectively, in order to be considered as providing protection. *See* Rule 17.

B. **Maintenance**. An operating and maintenance manual that ensures continuous proper function of the structure shall be prepared and updated. The Levee shall be structurally sound and adequately maintained. Sedimentation effects shall be considered for all Levee projects. Certification from a federal agency, state agency, or a Colorado Registered Professional Engineer that the Levee meets the minimum Freeboard criteria, as stated above in Rule 10.A.(2), shall be provided to CWCB.A visual inspection shall be required on a three-year basis to demonstrate that the Levee continues to be structurally sound and adequately maintained and results of the inspection shall be provided to the CWCB. Levees that have obvious structural defects or that are obviously lacking in proper maintenance shall not be considered in the Hydraulic Analysis without a funded project plan to bring the Levee deficiencies into compliance (to be considered on a case-by-case basis).

C. **Ownership**. Privately-owned or non-Community-owned Levee systems shall only be considered in the Hydraulic Analysis if they are publicly operated and maintained. For the purposes of this Rule, public operation and maintenance is required for credit of the Levee system, which may include direct responsibility, ultimate Community responsibility, or Community enforcement. *See* 44 C.F.R. § 65.6 (a)(12). Levees for which the Community, state, or federal government has responsibility for operations and maintenance will be considered, provided that the criteria set forth in this Rule are met.

D. **Levee Analysis and Standards Consistent with Federal Regulation.** To comply with these Rules, analysis of Levees and Levee standards for Freeboard, interior drainage, and human intervention and operation must comply with the standards in 44 CFR § 65.10 and the FEMA Risk MAP Technical References, Guidelines and Standards for Flood Risk Analysis & Mapping Activities, *Guidance for Flood Risk Analysis and Mapping: Levees*, Guidance Document 95.

Rule 11. Floodplain Management Regulations:

A. **Compliance with Minimum Standards of the National Flood Insurance Program**. Each Community in the State of Colorado shall comply with the minimum Floodplain criteria set forth in the FEMA regulation "Criteria for Land Management and Use," 44 C.F.R. § § 60.3–60.5, *see* Rule 17, unless more restrictive standards have been adopted as set forth in these Rules or pursuant to regulations adopted by the Community. These Rules do not apply to local stormwater or local storm drainage studies where riverine Flooding sources are not considered.

B. **Minimum Freeboard**. A minimum Freeboard of one foot above the 100-Year-Flood elevation (BFE or Model-Backed Approximate Flood Elevation) shall apply to structures in the Floodplain as follows:

(1) **Residential Structures**. New, Substantially Damaged, and/or Substantially Improved residential structures, and Additions to existing residential structures shall be constructed with the Lowest Floor, including basements, placed with a minimum of one foot of Freeboard above the BFE or Model-Backed Approximate Flood Elevation. In AO Zones, new, Substantially Damaged, and/or Substantially Improved residential structures, and Additions to existing residential structures shall be constructed with the Lowest Floor, including basements, elevated above the highest adjacent grade at least as high as the depth number specified in feet on the Community's FIRM (at least two feet if no depth number is specified) plus one foot of Freeboard.

(2) **Non-residential Structures**.

a. New, Substantially Damaged, and/or Substantially Improved non-residential structures, and Additions to existing non-residential structures shall be constructed with the Lowest Floor, including basements, placed with a minimum of one foot of Freeboard above the BFE or Model-Backed Approximate Flood Elevation, or together with attendant utility and sanitary facilities, be designed so that the structure is watertight to an elevation at least one foot above the BFE or Model-Backed Approximate Flood Elevation with walls substantially impermeable to the passage of water and with structural components having the capability of resisting hydrostatic and hydrodynamic loads and effects of buoyancy. In AO Zones, new, Substantially Damaged, and/or Substantially Improved non-residential structures and Additions to existing non-residential structures shall be constructed with the Lowest Floor, including basements, elevated above the highest adjacent grade at least as high as the depth number specified in feet on the Community's FIRM (at least two feet if no depth number is specified) plus one foot of Freeboard, or together with attendant utility and sanitary facilities be completely floodproofed to that level with walls substantially impermeable to the past of water and with structural components having the capability of resisting hydrostatic and hydrodynamic loads and effects of buoyancy. Agricultural

Structures and Accessory Structures shall be exempt from the Freeboard requirement but shall meet all other requirements set forth in FEMA Policy No. 104-008-03: Floodplain Management Requirements for Agricultural Structures and Accessory Structures.

b. Critical Facilities shall be regulated according to Rule 6.D. This Rule does not affect the Freeboard requirement for Levees described in Rule 10.D.

C. **Permit Restrictions for Properties Removed from the Floodplain by Fill**. No Community shall issue a permit for the construction of a new structure on a property removed from the Floodplain by the issuance of a FEMA LOMR-F unless the Lowest Floor elevation placed below the BFE or Model-Backed Approximate Flood Elevation with one foot of Freeboard that existed prior to the placement of fill. In AO Zones, new structures shall be constructed with the Lowest Floor, including basements, elevated above the highest adjacent grade at least as high as the depth number specified in feet on the Community's FIRM (at least two feet if no depth is specified) that existed prior to the placement of fill plus one-foot of Freeboard. Issuance of any such permit shall constitute a violation of these Rules. Critical Facilities are exempted from this restriction if the facility is protected according to Rule 6.D. herein.

D. **Highest Adjacent Grade**. For the purposes of this Rule 11, highest adjacent grade means the highest natural elevation of the ground surface, prior to the start of construction, next to the proposed walls of a structure.

Rule 12. Effects of Flood Mitigation Measures and Stream Alteration Activities on Regulatory Floodplains:

In order to assist the CWCB in carrying out its mission to protect the health, safety, welfare and property of the public, through the prevention of Floods in Colorado, the CWCB requires the following:

A. Flood control Channels shall include a low-flow Channel with a capacity to convey the average annual flow rate, or other appropriate flow rate as determined through a hydrogeomorphological analysis, without excessive erosion or Channel migration, with an adjacent overbank Floodplain to convey the remainder of the 100-Year-Flood flow. The Channel improvement shall not cause increased velocities or erosive forces upstream or downstream of the improvement.

B. Channelization and flow diversion projects shall appropriately consider issues of sediment transport, erosion, deposition, and Channel migration and properly mitigate potential problems through the project as well as upstream and downstream of any improvement activity. A detailed geomorphological analysis should be considered, when appropriate, to assist in determining the most appropriate design.

Project proponents for a Mitigation activity must evaluate the residual 100-Year-Floodplain. Proponents are also encouraged to map the residual 500-Year-Floodplain.

C. All dams must be maintained to ensure that they retain their structural and hydraulic integrity pursuant to FEMA Risk MAP Technical References, Guidelines, and Standards for Flood Risk Analysis and Mapping Activities, *Dams/Reservoirs and Non-Dam Features*. *See* Rule 17. All Levees must be maintained to ensure that they retain their structural and hydraulic integrity

pursuant to FEMA Risk MAP Technical References, Guidelines, and Standards for Flood Risk Analysis and Mapping Activities, *Levees*. *See* Rule 17.

D. Any Stream Alteration Activity proposed by a project proponent in either i) a Floodway or ii) a Regulatory Floodplain with no established Floodway (except in shallow Flooding areas, defined as Flooding with an average depth limited to 3.0 feet or less where no defined Channel exists) must be evaluated for its impact on the Regulatory Floodplain. All Stream Alteration Activity shall be in compliance with all applicable federal, state and local Floodplain rules, regulations and ordinances.

E. Any Stream Alteration Activity shall be designed and sealed by a Colorado Registered Professional Engineer.

F. All activities within the Regulatory Floodplain performed by federal agencies using local or state funds, or by private, local or state entities shall meet all applicable federal, state and local Floodplain requirements.

G. For compliance purposes, Stream Alteration Activities shall not be constructed in a Floodway unless the project proponent demonstrates through a Floodway analysis and report, sealed by a Colorado Registered Professional Engineer, that there is no rise resulting from the project unless a CLOMR has been obtained. No rise means a 0.00-foot rise or a decrease in the Flood elevation between the existing and proposed conditions. Stream Alteration Activities proposed in a Regulatory Floodplain with no established Floodway (except in shallow Flooding areas, defined as Flooding with an average depth limited to 3.0 feet or less where no defined Channel exists), shall demonstrate no more than $^1/_2$-foot rise in Flood elevations (or a more stringent standard adopted by the Community) between the existing and proposed conditions unless a CLOMR is obtained. This requirement only applies on stream reaches with BFEs or Model-Backed Approximate Flood Elevations established.

H. Rule 12.D. addresses when hydraulic modeling is required for Stream Alteration Activities. For map update purposes, regardless of whether modeling is required or not, whenever a Stream Alteration Activity is shown by hydraulic modeling to increase or decrease the established BFE in excess of 0.30 vertical feet between the pre-project and post-project conditions (or a more stringent standard adopted by the Community), a LOMR (or comparable revision process) showing such changes shall be obtained in order to accurately reflect the proposed changes on the Regulatory Floodplain map for the stream reach. This is necessary so that upon confirmation of those physical changes affecting flooding conditions, risk assessment and Floodplain management requirements will be based upon current data, 44 CFR § 65.3. The Community is responsible for ensuring that this process is pursued. This section herein does not require a CLOMR to be applied for, unless mandated by the Community. This section reflects state policy and may not fully reflect federal and other requirements for map maintenance. This section is not intended to undermine or replace federal requirements, and Communities and project proponents are responsible for satisfying any other map maintenance requirements as a result of Stream Alteration Activities.

Rule 13. Process for Designation and Approval of Regulatory Floodplains:

A. **Designation and Approval Requirements**. The Board will Designate and Approve Regulatory Floodplains by the adoption of written resolutions based only upon such Floodplain information as the CWCB determines meets the standards set forth in Rule 7, as applicable, with consideration of the effects of dams and Levees being subject to the criteria or Rules 9 and 10, respectively and any Mitigation activity in Rule 12.

B. **Base Flood**. 100-Year-Floodplain information shall generally be the basis for all Designation and Approval actions by the Board for regulatory purposes in Colorado. However, the Board will Designate and Approve 500-Year-Floodplain information when available.

C. **Provisional Designation**. The Board may Designate and Approve, on a provisional basis and for a maximum period of time not to exceed two years, Floodplain information that does not meet the minimum requirements as set forth in Rule 7.

D. **Process for Taking Designation and Approval Actions**. The Board shall consider the Designation and Approval of Floodplain information either by request of a Community or by acting on its own initiative.

(1) **Consideration at a Community's Request**. The Board shall consider Designation and Approval of Floodplain information upon written request from the Community having jurisdiction in the area where the Floodplain information is applicable. The letter of request shall identify the report title, date, author or agency which prepared the report, stream name(s), upstream and downstream limits of the stream reach(es) to be designated, stream length(s) in miles, type of designation requested (detailed or approximate), and any other relevant information. The CWCB shall receive such a request at least 30 days prior to the Board meeting at which consideration of Designation and Approval is requested.

(2) **Consideration at the CWCB's initiative**. If Designation and Approval of a Floodplain would be in the best interest of the health, safety, welfare and property of the citizens of the State of Colorado, then the CWCB may take action at its own initiative to consider the Designation and Approval of Floodplain information. In such cases, the CWCB shall notify the affected Communities in writing at the time of study initiation or, in the case of a previously completed study, the CWCB will endeavor to receive concurrence in writing from the affected Community at least 45 days prior to the Board meeting at which it will consider the Designation and Approval of Floodplain information within their jurisdiction. Regardless of Community concurrence, CWCB may pursue Designation and Approval.

(3) **Notification of Adopted Resolutions**. The CWCB shall send signed copies of each adopted resolution of Designation and Approval to each Community in the study area and to FEMA within 30 days of adoption.

Rule 14. Designation and Approval of Changes to Regulatory Floodplains:

When changes are made to the characteristics of a Floodplain that result in a revision of a Community's FIRMs or Flood Hazard Boundary Maps (and a subsequent designation of the new map), the Board will Designate and Approve changes to the Regulatory Floodplain caused by Development, new or better technical information, or other sources. The Board will designate the revised Floodplains by adopting

written resolutions based upon such Floodplain information as the Board determines meets the standards set forth in Rules 6-12.

A. In the event that a Community is aware of and has access to better available information on a previously designated flooding source, then the CWCB allows for that undesignated information to be used for regulatory purposes if it is to the same or greater level of detail as the previously designated Regulatory Floodplain information, has been approved through a detailed technical review by a qualified Colorado Professional Engineer, and meets one of the following conditions in (1) – (3). Communities may need to formally adopt this information through its local adoption process.

(1) Regulatory Floodplain included on a FEMA FIRM – the revised Floodplain mapping is more restrictive, the Community has informed all impacted property owners of the change and provided due process as established in Community guidelines, and the revised Floodplain mapping is ultimately Designated and Approved by the Board; or

(2) Regulatory Floodplain not included on a FEMA FIRM – the Community has informed all impacted property owners of the change, and provided due process as established in Community guidelines. The Community must submit Floodplain mapping revisions for Designation and Approval by the Board in a timely manner (not to exceed two years from the date of completion); or

(3) Regulatory Floodplain – the revised Floodplain mapping has been approved by FEMA through a LOMR or Physical Map Revision process, and ultimately Designated and Approved by the Board.

B. **Conditions**. All changes to Regulatory Floodplains shall meet or exceed the same conditions as those required for original Designation and Approval.

C. **Process for Designation and Approval of Changes to a Regulatory Floodplain**. The Board may consider the Designation and Approval of changes to Regulatory Floodplain information either by request of a Community or by acting on its own initiative.

(1) **Consideration at a Community's Request**. The Board shall consider Designation and Approval of changes to a Regulatory Floodplain upon written request from the governing body of any Community having jurisdiction in the area where the Floodplain information is applicable. The CWCB staff shall receive such requests at least 30 calendar days prior to the Board meeting at which consideration of Designation and Approval is requested.

(2) **Consideration at the CWCB's Initiative**. If Designation and Approval of changes to a Regulatory Floodplain would be in the best interest of the health, safety, welfare and property of the citizens of the State of Colorado, then the CWCB may take action at its own initiative to consider the Designation and Approval of Floodplain information. In such cases, the CWCB shall notify the affected Communities in writing at the time of the study initiation or, in the case of a previously completed study, the CWCB will endeavor to receive concurrence in writing from the affected Community at least 45 days prior to the Board meeting at which it will consider the Designation and Approval of Floodplain information within their jurisdiction. Regardless of Community concurrence, CWCB may pursue Designation and Approval.

(3) **Notification of Adopted Resolution**. The CWCB shall send signed copies of each adopted resolution of Designation and Approval of changes to a Regulatory Floodplain to each Community within the limits of the changed Floodplain within 30 calendar days of Designation and Approval.

D. **Identification of Designations of Changes to a Regulatory Floodplain**. The designation of the changes to the Regulatory Floodplain will be given a reference identification number that will differentiate the changed designation from the original. It is implied that designations to changes to a Regulatory Floodplain will only rescind the affected portions of the previously designated Floodplain information. All other unaffected reaches will remain as originally designated.

E. **Map Revisions to Flood Insurance Rate Maps (FIRMs) or Flood Hazard Boundary Maps**. Floodplain Map revisions (e.g., FEMA LOMRs) may be designated twice annually by the Board during a regularly scheduled Board meeting and will not be subject to a full technical review by the CWCB staff.

Rule 15. Variances:

A. **Consideration by Community**. Request for a variance to any of these Rules may be considered by the Community, provided the entity or individual requesting the variance has submitted a written request to the appropriate authority. A notice of the request must be provided to any adjacent Communities that would be affected by the variance.

B. **Contents of a Request for Variance**. The request for a variance shall identify:

(1) The Rule from which the variance is requested;

(2) The Communities that would be affected by the variance;

(3) The reasons why the Rule cannot be complied with;

(4) The estimated difference in water surface elevations, Flood velocities and Flood boundaries that would result if the requested variance were granted than if the calculations were made through strict compliance with the Rule;

(5) The estimated number of people and structures that will be impacted by granting of the variance; and

(6) Any other evidence submitted by the Community, the CWCB staff, or other party of interest.

C. **Factors to be considered**. Variances may be issued if it can be determined that:

(1) There is a good and sufficient cause; and

(2) The variance is the minimum necessary, considering the Flood hazard, to afford relief; and

(3) Failure to grant the variance would result in exceptional hardship to the Community or the requestor and that the hardship is not the Community's or requestor's own making; and

(4) The granting of a variance will not result in increased vulnerability to Flood losses, additional threats to public safety and welfare, extraordinary public expense, create nuisances, cause fraud or victimization of the public, hide information of significant interest to the public, or conflict with existing local laws or regulations.

(5) In lieu of items C(1) through C(4) above, a Community may, at its sole discretion, use an established variance procedure.

D. **Variance Process**. Variance requests shall be processed as follows:

(1) Communities shall render, confirm, modify, or reject all variance requests pertaining to these Rules.

(2) The Board may review local variance decisions on a case-by-case basis to ensure that the overall intent and spirit of these Rules are properly considered at the local level.

(3) Informal variance determination request may be presented to CWCB staff in order to guide Community officials or project applicants as to whether a formal variance would be needed on a case-by-case basis.

Rule 16. Enforcement of Floodplain Rules and Regulations:

A. **Procedure to be followed regarding alleged violations**

(1) **Notice of Non-Compliance**.

a. A NONC may be prepared and transmitted by the CWCB or its Director. Information regarding potential violations may be discovered directly by CWCB staff or can be brought to the CWCB or its Director by a Complainant, such as FEMA, other state agencies, the Community within whose boundaries the alleged violation took place, or by any other person who may be directly and adversely affected or aggrieved as a result of the alleged violation.

b. Oral complaints shall be confirmed in writing by the Complainant. Persons making a complaint are required to submit a formal letter of complaint to the CWCB Director.

c. NONC process.

i. An NONC issued by the CWCB shall be delivered to an alleged violator by personal delivery or by certified mail (return receipt requested). A copy of the NONC shall be transmitted to FEMA Region VIII and the Community.

ii. The NONC does not constitute final agency action.

iii. The NONC shall identify the statute, Rule, regulation, or policy subject to CWCB jurisdiction allegedly violated and the facts alleged to constitute the violation. The NONC may propose appropriate corrective action and suggested corrective action(s) if any, that the CWCB recommends.

(2) FEMA Region VIII shall support, through its NFIP activities, these Rules. This support will include the existing ability for FEMA to place sanctions upon a Community for non-compliance.

(3) Certain Board decisions to provide Flood and watershed related grant funding to Communities may be directly dependent upon a Community's compliance with these Rules.

Rule 17. Incorporation by Reference:

A. The following rules, regulations, standards, and guidelines are hereby incorporated by reference:

(1) FEMA Risk Mapping, Assessment and Planning (Risk MAP) Technical References, Guidelines and Standards for Flood Risk Analysis and Mapping Activities, December 1, 2020, available at https://www.fema.gov/flood-maps/guidance-reports/guidelines-standards, including but not limited to the following specific guidance documents:

a. *Guidance for Flood Risk Analysis and Mapping: Ice Jam Analyses and Mapping;*

b. *Guidance for Flood Risk Analysis and Mapping: Levees*; and

c. *Guidance for Flood Risk Analysis and Mapping: Dams/Reservoirs and Non-Dam Features*.

(2) FEMA National Flood Insurance Program, 44 C.F.R. §§ 59, 60, 65, 70, and 72, May 13, 2021, available at https://www.ecfr.gov/cgi-bin/text-idx?SID=504ee2bfc731d90f6be69c8f09fd0b3c&mc=true&tpl=/ecfrbrowse/Title44/44CIsubchapB.tpl.

(3) The United States Environmental Protection Agency Superfund, Emergency Planning, and Community Right-to-Know Programs, Designation, Reportable Quantities, and Notification Regulations, 40 C.F.R. § 302, May 13, 2021, available at https://www.ecfr.gov/cgi-bin/text-idx?node=pt40.30.302&rgn=div5.

(4) The Occupational Safety and Health Administration Occupational Safety and Health Standards Regulations, 29 C.F.R. § 1910, May 13, 2021, available at https://www.ecfr.gov/cgi-bin/retrieveECFR?gp=1&SID=13981877314c1c75ef4ee8c5652c8449&ty=HTML&h=L&mc=true&n=pt29.5.1910&r=PART.

(5) The Colorado Office of the State Engineer Rules and Regulations for Dam Safety and Dam Construction Materials, 2 CCR 402-1, January 1, 2020, available at https://www.sos.state.co.us/CCR/GenerateRulePdf.do?ruleVersionId=8426&fileName=2%20CCR%20402-1.

(6) FEMA Policy No. 104-008-03: Floodplain Management Requirements for Agricultural Structures and Accessory Structures, February 2020, available at https://www.fema.gov/sites/default/files/2020-08/fema_floodplain-management_agriculture-accessory-structures_2020.pdf.

B. These rules, regulations, standards, and guidelines in subparagraphs (1)-(6) of Rule 17.A. are hereby incorporated by reference by the Board and made a part of these Rules. Materials in these Rules, which are incorporated by reference are limited to those materials in existence as of the effective date of these revised Rules and do not include later amendments to or editions of such rules, regulations, standards, and guidelines. The material incorporated by reference is available for public inspection during regular business hours at the office of the Colorado Water Conservation Board, 1313 Sherman Street, Room 718, Denver, CO 80203 or may be examined at any state or federal publications depository library, or on the FEMA or CWCB website.

Rule 18. Severability:

If any portion of these Rules is found to be invalid, the remaining portion of the Rules shall remain in force and in effect.

Rule 19. Recommended Activities for Regulatory Floodplains:

The following list contains Floodplain Management activities and actions suggested by the CWCB to increase a Community's overall level of Flood protection. Communities and other authorized government entities may:

A. Adopt local standards above and beyond the FEMA and CWCB minimum requirements.

B. Develop a Flood response plan that identifies responsibilities/actions before, during, and after a Flood event.

C. Enroll in FEMA's NFIP and possibly FEMA's Community Rating System Program.

D. Develop an early warning Flood detection system (Flood warning system) using available technologies such as automated precipitation and stream flow gages linked to an appropriate notification system.

E. Coordinate with lenders, insurance agents, real estate agents, and developers to prepare and discuss educational tools based on state and federal requirements.

F. Promote wise Floodplain Development and support effective structural and non-structural Flood Mitigation projects.

G. Conduct Floodplain Studies in areas of foreseeable development that do not currently have detailed Floodplain Studies.

H. Maintain an electronic or paper library of local flood related data.

I. Develop a Flood risk outreach program and notify Flood prone residents annually of Flood hazards and the need for Flood insurance.

J. Encourage elevation of Flood-prone structures and Flood-proofing of structures in the Floodplains.

K. Utilize available state/federal Mitigation and preparedness funds.

L. Require certified Floodplain managers to review proposed land developments.

M. Advise the public at large that Flooding does occur above and beyond the 100-Year-Flood and 500-Year-Floods. Floods greater than 500-Year-Floods (0.2-percent-annual-chance Floods) do occur, and loss of life and property is possible in areas mapped outside of both the 100-Year-Floodplain and 500-Year-Floodplain.

N. Utilize the concept of “No Adverse Impact” Floodplain Management where the action of one property owner does not adversely impact the rights of other property owners, as measured by increased Flood peaks, Flood stage, Flood velocity, and erosion and sedimentation. “No Adverse Impact” could be extended to entire watersheds as a means to promote the use of retention/detention or other techniques to mitigate increased runoff from urban areas.

O. Prohibit the construction of new Levees that are intended to remove land from a Regulatory Floodplain for the purpose of allowing new Development activity to take place in areas that are otherwise Flood prone.

P. Require an appropriate level of Freeboard at bridges between the 100-Year-Flood water surface elevation and the lowest elevation of the lowest structural member to allow for passage of waterborne debris.

Q. Identify areas prone to Flooding outside of the 500-Year-Floodplain where loss of life or Substantial Damage may occur. Flooding greater than 500-Year-Flood events can and do occur as well, and loss of life and property is possible in areas mapped outside of both the 100-Year-Floodplain and 500-Year-Floodplain. Communities are encouraged to map and regulate 500-Year-Floodplains for Critical Facilities at their sole discretion.

R. Maintain a Flood hazard page on the Community website with links to the CWCB, FEMA Flood Map Service Center, NFIP, National Weather Service, local building codes, and local permitting information.

S. The CWCB discourages compensatory Flood storage because existing Flood storage volume should be preserved. However, when necessary, structures and fill that displace Floodplain storage volume shall be compensated for by excavation of equivalent volumes at equivalent elevations within a nearby vicinity of the displaced volume. The compensatory storage area shall be hydraulically connected to the source of Flooding.

T. Adopt buffer ordinances that limit Development in and near natural protective features such as riparian stream corridors and wetlands. Natural protective features may extend beyond 100-Year-Flood elevations. Extra protections for these areas are beneficial because these areas attenuate runoff periods, improve water quality, stabilize streambanks, recharge groundwater aquifers, allow for lateral stream migration, and protect aquatic and terrestrial habitat. Riparian and wetland areas also enhance the general aesthetic value of a community.

U. Buffer ordinances are often seen as part of land use or zoning code. They may also stand alone in other portions of the municipal code. Options for widths include fixed width, variable width, or multi-zoned buffers.

V. **Establish Residual Risk Mapping**. Residual Risk is the threat to the areas behind Levees that may still be at risk for Flooding. FEMA has identified thousands of miles of Levees nationwide, affecting millions of people. It is important for Levee owners, Communities, and homeowners to understand the risks associated with living in Levee-impacted areas and the steps that can be taken to provide full protection from Flooding. Even the best Flood protection system or structure cannot completely eliminate the risk of every Flood event, and when Levee systems fail, the results may be catastrophic and the damage may be more significant than if the Levee system had not been built.

W. A Community may regulate any Designated and Approved 100-Year shallow Flooding areas, defined as Flooding with an average depth limited to 3.0 feet or less where no defined Channel exists.

X. Detention/Flood control storage and LID should be considered, when practicable, as part of a basinwide program for the watershed.

Rule 20. Effective Date:

These revised Rules shall apply to the Designation and Approval of all Flood Hazard Information made by the CWCB and all other Floodplain activities on or after January 14, 2022 and are, therefore, not retroactive to any Floodplain information Designated and Approved by the Board or other Floodplain activities prior to the effective date.

070.040.020 Sensitive Area Protection.

(a) *General Provisions.*

(1) *Purpose.* This Section 070.040.020 is intended to protect and enhance the natural features that contribute significantly to Glenwood Springs's quality and character, including but not limited to the varying topography and hillsides, floodplains, wetlands, viewsheds, and other significant features. This Section also is intended to ensure that land subject to natural hazards such as flooding, falling rock, landslides, mud flows, or snowslides is not approved for development without appropriate consideration by the City of potential conditions and safeguards to help protect life, health, and property.

(2) *Applicability.* This Section shall apply to any proposed development that requires one (1) or more of the following:

a. Any development permit required by Section 070.060.050, Development Permits, including:

1. Site/Architectural Plan Review (Subsection 070.060.050(a));

2. Master Plan (Subsection 070.060.050(b));

3. Final Plans (Subsection 070.060.050(c));

4. Location and Extent Review (Subsection 070.060.050(d));

5. Special Use Permit (Subsection 070.060.050(e)); and/or

6. Right-of-Way Encroachment License (Subsection 070.060.050(f)).

b. A variance required by Subsection 070.060.070(a), Variance;

c. A permit for excavation and/or grading, as required by the Engineering Standards;

d. A building permit for construction of a new building or structure; or

e. A building permit for addition, alteration, or repair of an existing building or structure, the value of which exceeds fifty (50) percent of the assessed value of the building or structure.

(3) *Additional Submittal Requirements.*

a. In order to evaluate and ensure compliance with the standards in this Section, the Director may require existing conditions reports and other technical reports and plans, as set forth in the Administrative Manual, that identify slopes, soil conditions, floodplains, geologic hazards, and other sensitive features present on the site, and that recommend steps to mitigate any hazards in order to comply with this Code.

b. Such reports shall be prepared to standards adopted by the City Engineer. Best practices to mitigate such hazards recommended in such reports shall be required. Geotechnical and geologic reports shall be prepared by a licensed professional engineer.

(4) *Limits of Disturbance.*

a. *Establishment of Limits of Disturbance.* Except for properties in the Downtown Core, for every development subject to this Section the applicant shall establish "limits of disturbance" that indicate the specific area(s) of a site within which construction and development activity shall be contained. The limits of disturbance shall be shown on the site/architectural plan.

b. *Criteria for Establishing Limits of Disturbance.* In establishing limits of disturbance, the following criteria and standards shall be considered and applied, as well as applicable requirements from the City's Engineering Standards:

1. Minimize visual impacts from the development, including but not limited to screening from adjacent and downhill properties, ridgeline area protection, and protection of scenic views;
2. Erosion prevention and control, including but not limited to protection of steep slopes and natural drainage channels;
3. Fire prevention and safety, including but not limited to location of trees and vegetation near structures;
4. Preservation of significant trees or vegetation;
5. Conservation of water including but not limited to preservation of existing native vegetation, reduction in amounts of irrigated areas, and similar considerations;
6. Wildlife habitat protection, including but not limited to preservation of critical wildlife habitat and identified migration corridors and routes;
7. Stream corridor and wetland protection and buffering; and
8. Preservation of the maximum amount of the site's natural topography, tree cover, and vegetation.

c. *Maximum Limits of Disturbance.*

1. *Single-Family Detached Residential Uses.* For single-family detached residential uses subject to the requirements of Subsection 070.040.020(b), Hillside Development, the limits of disturbance for an individual single-family detached residential use and any accessory structure shall not exceed fifty (50) percent of the total gross area of the underlying lot or lots, or twenty thousand (20,000) square feet, whichever is less. For most single-family residential development, limits of disturbance will cover the area(s) needed to provide the building sites for the principal structure and any major accessory structure(s), plus the area(s) necessary to provide an access driveway and necessary septic systems, utilities, services, and drainage facilities.
2. *All Other Developments.* For all other types of development, including planned unit developments, the limits of disturbance, including parking areas and accessory buildings and structures, shall be determined on a case-by-case basis, as determined by setback, common open space, landscaping, and other requirements of this Code.
3. *On-Site Wastewater Treatment Systems.* For all types of development, leach fields constructed in connection with an on-site sewer system shall not be counted toward the maximum limits of disturbance provided the leach field is revegetated with native vegetation in accord with state onsite wastewater treatment regulations.

d. *Location of Limits of Disturbance.*

1. *Zero Lot Lines.* Where appropriate to preserve or to protect steep slopes or other natural features, a structure may be located on a lot in such a manner that one (1) or both of the side facades of a structure rest directly on a lot line. This provision shall not be interpreted to exempt a structure from any applicable building and fire code provisions or requirements.
2. *Contiguity.* Limits of disturbance necessary to accommodate proposed development may be non-contiguous in order to best meet the criteria and standards set forth in this Section.
3. *Clustering.* Clustering of building pads and parking areas within a building site is strongly encouraged and may be required to minimize the size of the limits of disturbance and to maintain the maximum amount of open space in the development.

e. *Modification of Limits of Disturbance.* The Director has discretion to administratively increase the limits of disturbance by a maximum of twenty (20) percent where applicable, provided one (1) of the following criteria is met:

1. The modification is designed to yield:

i. More effective preservation of existing mature trees, vegetation, riparian areas, rock outcrops, or other significant natural features of the site;

ii. Less visual impact on the property or on the surrounding area; or

iii. Better protection of wildlife habitat; or,

2. Strict application of the standard(s) would render a site undevelopable.

(5) *Clustering.* Clustering of development in sensitive areas is strongly encouraged and may be required to meet the requirements of this Section. (Figure 040-1)

a. *When Allowed.* Minimum lot size may be reduced through clustering of development if the applicable decision-making body finds that:

1. The clustering proposal, compared with a more traditional site development plan, better attains the policies and objectives of this Article, such as providing more open space, preserving existing trees and vegetation coverage, and preserving sensitive environmental areas such as stream corridors, slide areas, wetlands, and steep slopes;

2. The clustering proposal will have no significant adverse impact on adjacent properties or development, or the applicant has agreed to adopt appropriate mitigation measures such as landscaping, screening, illumination standards, and other design features as recommended by the Director to buffer and protect adjacent properties from the proposed clustered development;

3. The architecture, height, building materials, building colors, and other design features of the development are compatible with adjacent properties or development and blend with the surrounding natural landscape; and

4. The clustering proposal meets all other applicable requirements set forth in this Article or in other applicable ordinances or regulations.

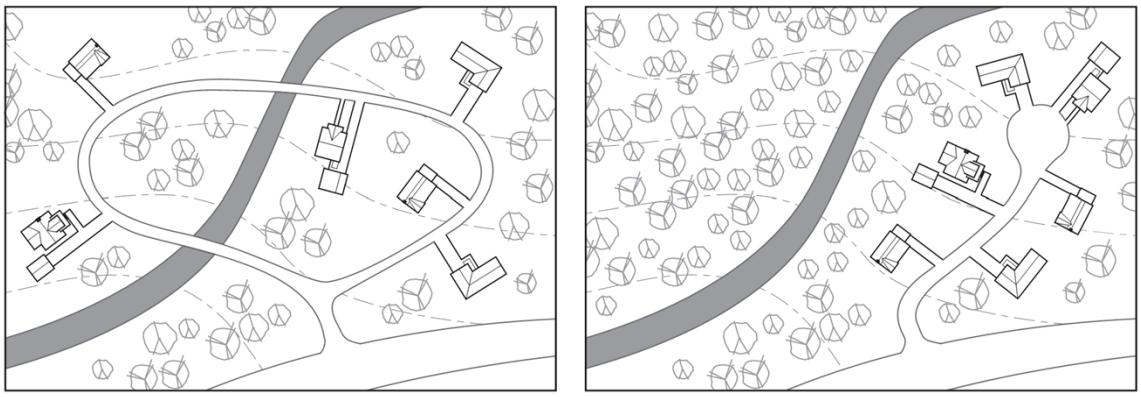


Figure 040-1: Clustering

b. *Minimum Lot Size Reduction.* Minimum lot sizes required for the underlying zoning district in Article 070.020: Zoning Districts, may be reduced by up to twenty-five (25) percent for lots within cluster developments that satisfy the above standards.

c. *Pre-Application Conference Required.* Any applicant proposing to reduce minimum lot sizes through clustering shall be required to attend a pre-application conference pursuant to Subsection 070.060.030(b), Pre-Application Conference, prior to submitting a development application.

(6) *Interpretation.* The provisions of this Section 070.040.020 shall be deemed to be minimum requirements. Nothing in this Section shall impair the obligations of or interfere with private agreements in excess of the minimum requirements. Where this Section imposes a restriction different from that imposed by other applicable provisions of law, contract, or deed, the more restrictive provision shall control.

(7) *Disclaimer of Liability.* This Section 070.040.020 is intended to provide some degree of protection to life, safety, and property. It is based on scientific and engineering considerations that are continually being developed and proven. Compliance with this Section cannot ensure freedom from risk to life, safety, or property. This Section shall not create liability on the part of the City or any officer or employee of the City for any damage that may result from reliance on this Section or any administrative decision lawfully made pursuant to this Code.

(b) *Hillside Development.*

(1) *Purpose.* The purpose of this Subsection is to:

a. Minimize the negative environmental and visual effects of mass cut-and-fill of large pads and excessive terracing through retention of the natural topography of the hillsides;

b. Prevent soil erosion and landslides;

c. Provide safe circulation of vehicular and pedestrian traffic to and within hillside areas and to provide access for emergency vehicles necessary to serve the hillside areas;

d. Preserve visually significant slope banks, ridge lines, rock outcroppings, native plant materials, natural hydrology, and other areas of visual significance;

e. Encourage innovative architectural, landscaping, circulation, and site design that serve to preserve the significant natural resources and visual character of the City;

f. Protect the public from natural hazards caused by unstable slopes and soils, debris flow, erosion and other geologic hazards of hillside development; and

g. Minimize the threat and subsequent damage of wildfire through safe building practices.

(2) *Applicability.* This Subsection shall apply to any of the application types listed in Subsection 070.040.020(a)(2), Applicability (Sensitive Area Protection), that meet any of the following criteria:

a. *Hillside Preservation District.* Any proposed development in the Hillside Preservation district; see Section 070.020.170.

b. *Slopes.* Any proposed development on a lot with average slopes in excess of twenty (20) percent within the limits of disturbance area.

c. *Areas of Geologic Hazard.* Any proposed development in Areas of Geologic Hazard, which consists of the Hazard Avoidance Districts and Hazard Mitigation Districts as defined in Subsection 070.040.020(c)(2)b., Establishment of Geological Hazards Districts.

(3) *Lot and Density/Intensity Requirements.*

a. *Minimum Lot Size.* All development subject to this Subsection shall comply with the minimum lot size and lot width standards required in the underlying zone district and with other development standards in this Article 070.040: Development Standards.

b. *Allowed Density/Intensity.*

1. *Residential Development.* The maximum number of residential units permitted within areas subject to the Hillside Development standards shall be pursuant to Table 040.1 below. In addition, a detached accessory dwelling unit may be allowed so long as the limits of disturbance does not exceed fifty (50) percent of the total gross area of the underlying lot or lots, or twenty thousand (20,000) square feet, whichever is less.

Table 040.1: Allowed Residential Development	
Average Slope of Overall Site (within LOD)	Residential: Allowable Units
In excess of 20% and up to 25%	1 dwelling unit per 10,000 square feet
In excess of 25% and up to 30%	1 dwelling unit per 20,000 square feet

2. *Nonresidential Development.* The maximum amount of nonresidential gross square footage permitted within areas subject to the Hillside Development standards shall be the square footage allowed by the zoning district. Nonresidential buildings are prohibited on slopes greater than twenty (20) percent; however, open decks and support structures for existing buildings may be constructed.

3. *Calculating Density/Intensity.* For the purposes of calculating density/intensity, only the average slope within the proposed area within the limits of disturbance of a specific lot or parcel shall be considered.

c. *Prohibition of Development on Steep Slopes.* No development, including clearing, excavation, and grading, shall be allowed where the average slope within the limits of disturbance is greater than thirty (30) percent. Structures shall be set back from ascending or descending slopes greater than thirty (30) percent in accordance with the requirements of the current adopted building code.

d. *Consolidation of Substandard Lots.*

1. *General Rule: Consolidation Required.* Two (2) or more lots or parcels subject to these Hillside Development standards shall be considered to be a single, undivided lot or parcel for the purposes of this Code, if all the following factors apply:

i. The lots or parcels are contiguous;

ii. The lots or parcels are in single and common ownership and are of record on the effective date of this Code;

iii. No structures are located on the lots or parcels;

iv. All or part of the lots or parcels do not meet the minimum lot area or lot width requirements set forth in the base zoning district; and

v. Such lots have not been improved with individual and separate connections to municipal water or sewer systems.

No portion of such lots or parcels subject to this consolidation provision shall be used or sold in a manner that renders compliance with the lot width and lot area requirements set forth in this Subsection less feasible.

2. *Exception.* Notwithstanding the general rule for consolidation set forth in c. above, if a lot or parcel that would otherwise be subject to the general consolidation rule meets the minimum lot area or lot width requirements set forth in the underlying zone district, then consolidation shall not be required.

e. *Slope Calculations.*

1. Slope shall be calculated as the vertical rise in feet measured over a horizontal distance, expressed as a percentage. Slope calculations shall not include areas outside the limits of disturbance.

2. The applicant shall indicate on a site/architectural plan the limits of proposed development and disturbance and shall include the calculation of the average slope of that area.

(4) *Site Development Standards.*

a. *Building Envelope and Site Design Generally.* Building envelopes and setbacks shall be determined on the basis of natural landforms, vegetation, and underlying geology. The designation of the limits of disturbance, which shall include all structures and access areas, shall be designed to avoid and minimize disturbance to sensitive areas and geologic and natural vegetative features. Natural vegetation, rock outcroppings, and significant landforms shall be retained to the maximum extent practicable. Flexibility and creativity are encouraged in designing development around existing features.

b. *Protection from Potential Hazards.* All proposed development shall be designed to protect the public from the potential hazards of drainage, debris flow, rock fall, fire, and erosion. Projects shall be designed with existing features in order to minimize disturbance to, and therefore mitigation of, surficial hillside geology.

c. *Access Roads.* New roads shall comply with the street standards in Section 070.040.070, Access and Circulation. Such access shall be approved by the Fire Department and the City Engineer.

d. *Fire Hazard Mitigation.*

1. Brush and vegetated areas shall be cleared and maintained according to the Fire Department.

2. New vegetation shall be fire- and drought-resistant species.

3. Roofs, overhangs, and exposed balconies shall be fire-rated according to the adopted Fire Code.

4. Water supply, fire breaks, and access shall be approved by the Fire Department.

5. Buildings shall be sited so that fire hazard clearing zones will not affect mature vegetation.

e. *Viewshed Protection.* Proposed development shall retain the essential visual qualities of the site so that views from public open space areas, rights-of-way, and other public places will not be negatively impacted. In designing a proposed development, applicants shall adhere to the following principles:

1. Following construction, off-site views of retaining walls, structures, parking areas, and landscaping on the development site shall be minimized.

2. The disturbance areas shall be reclaimed as soon as possible after construction ends.

f. *Geology, Soils, and Grading.* Development shall be designed to reduce the potential for soil erosion and slope degradation during and after construction. In addition to meeting the standards of Subsection 070.040.020(a)(5), Clustering, the following standards shall apply:

1. A grading permit shall be required for disturbance in excess of one thousand (1,000) square feet. Grading plans shall be submitted and reviewed according to the City's Engineering Standards.

2. Structures shall be designed to step down with the existing topography. To the maximum extent feasible, building designs that require extensive cut and fills shall not be allowed.

3. Except for driveways, cut-and-fill slopes shall be entirely contained within a lot (i.e., natural grade at the lot lines shall be maintained).

4. Sharp angles shall be rounded off, in a natural manner, at the top and ends of cut and fill slopes (within approximately five (5) feet of the sharp angle) unless steep angles are a natural character of the site. Where this would damage tree root systems, the amount of rounding off may be reduced and shrubs used instead to hide the transition.

5. The subdivider and/or property owner shall maintain in perpetuity and repair (or supply a program for preventative maintenance) of manufactured slope areas, erosion control devices, retaining walls, drainage structures and fire prevention measures as specified in an approved development.

6. Trees and vegetation shall be maintained to provide slope stability and prevent visual scarring wherever possible. When this requirement conflicts with fire hazard mitigation such as defensible space, appropriate mitigation shall be provided as determined by the Fire Department and the Director. A revegetation landscape plan is required for disturbed site areas.

7. Final contours and slopes shall reflect existing landforms to the maximum extent practicable.

8. The grade of a lot shall not be raised or lowered more than four (4) feet at any point for construction of any structure or improvement, except:

    i. The site's original grade may be raised or lowered a maximum of six (6) feet if retaining walls are used to reduce the steepness of man-made slopes, provided that the retaining walls comply with the requirements set forth in this Subsection.

    ii. Grade changes or retaining walls up to six (6) feet may be allowed if necessary to construct a driveway from the street to a garage or parking area,

    iii. For the purposes of this Subsection, basements and buildings set into a slope are not considered to lower the natural grade within their footprint.

g. *Retaining Walls and Fencing.*

1. Generally, a retaining wall shall be no higher than six (6) feet, except that a wall varied in height to accommodate a variable slope shall have an average height no greater than four (4) feet and a maximum height no greater than eight (8) feet in any sixty-foot length. A higher wall is permitted:

    i. Where used internally at the split between one- and two-story portions of a building; and

ii. Where substantially hidden from public view at the rear of a building, where it may not exceed the eave height of the building.

2. Visible retaining walls and fencing shall be designed to maintain human scale and reduce the visual impact of cut lines on the hillside through the use of indigenous materials, terracing and aligning construction with the natural topography.

3. Indigenous materials and/or earth-toned concrete shall be used, and terraced to match existing terrain.

4. Terraced walls and retaining structures should incorporate landscaping, if approved by the City Engineer.

5. Retaining walls and fencing shall comply with all standards in Subsection 070.040.050(f)(3), Retaining Wall Standards.

h. *Water Supply.* Water supply and pressure shall be adequate to serve both residential and emergency services pursuant to the adopted Fire Code.

i. *Drainage.*

1. Natural drainage courses shall not be disturbed by construction activity, and natural runoff shall be maintained unless approved by the City Engineer.

2. A drainage plan prepared by a licensed professional engineer shall be submitted in accordance with the City's Engineering Standards.

(5) *Building Design Standards.*

a. *Structure Design Generally.* Building massing and roof lines shall be designed to blend with the natural terrain. When possible, the massing of the structure shall be broken up using the slope and terrain to vary the exterior dimensions.

b. *Ground Plane.*

1. Buildings that firmly meet the ground convey an appearance of greater permanence and are strongly encouraged.

2. To the maximum extent feasible, placing buildings on piers such that exterior walls do not continue down to the ground shall be prohibited because of aesthetic and energy efficiency concerns. This requirement shall not apply in areas of waterways and areas of special flood hazard.

c. *Building Mass and Scale.*

1. To the maximum extent feasible, building design shall incorporate changes in the planes of walls and changes in the slope and height of roof lines to add variety, create visual interest, and minimize scale.

2. Building mass and wall lines shall be broken up to conform to existing slope and avoid unbroken expanses of building mass and walls that can intrude into the natural setting and dominate a site.

d. *Building Colors.*

1. Colors that enhance the natural colors of the building materials shall be used in developing an overall color scheme. Predominant tones on exterior walls shall tend toward neutral colors such as warm earthy hues, dark green of forests, greys and grey-brown of the mountains, the tan of grasses, and similar colors. Bright, harshly contrasting color combinations shall be avoided.

2. Exterior building, roofing, and exposed rooftop mechanical equipment shall be warm or dark earth-toned colors with low reflectivity.

3. Color and intensity of color proposed for all exterior building and roofing materials, including exposed rooftop mechanical systems such as HVAC equipment, roof vents, air handling/exchange units, shall be subject to approval by the Planning and Zoning Commission and/or City Council, as applicable.

4. Exterior building and roofing colors shall not include white, off-white, high-intensity primary colors, and/or fluorescent colors.

e. *Building Materials.*

1. Primary building materials shall be selected for their ability to withstand Glenwood Springs' variable mountain climate. Materials with demonstrated durability include, but are not limited to:

i. Brick;

ii. Stone;

iii. Cementitous siding products;

iv. Log construction;

v. Cast concrete; or

vi. Other comparable materials as approved by the Director.

2. Exterior Insulation and Finish Systems (EIFS) shall not be utilized in high-traffic areas, such as at primary building entrances, where it may be easily damaged.

f. *Parking Areas.*

1. Parking lots and detached garages accessory to residential uses shall be located so that they can be screened to blend into the natural environment and will not require backing onto an arterial or collector street.

2. To the maximum extent feasible, parking lots and detached garages accessory to residential uses shall be located where they can be screened so they do not dominate the streetscape. Parking facilities shall be designed to follow the existing topography and to provide adequate snow storage areas.

(c) *Development in Areas of Geologic Hazard.*

(1) *Purpose.* The purpose of this Subsection 070.040.020(c) is to promote the public health, safety, and general welfare and to minimize public and private losses due to geologic conditions in specific areas by regulations designed to:

a. Protect human life, safety and property;

b. Minimize damage to public facilities and utilities;

c. Minimize the need for relief and clean-up operations due to geologic events with their accompanying public and private costs;

d. Minimize the need for expensive mitigation measures to protect public and private property; and

e. Alert property owners and potential buyers of geologic hazards existing in certain areas so that they may protect their own property and avoid endangering the property of others.

(2) *General Provisions.*

a. *Types of Geologic Hazards.* As used in this Subsection, the term "geologic hazard" shall include the following hazards, as defined in Colorado Geological Survey Open File Report 78-10 ("C.G.S. 78-10"):

1. "Corrosive soils" are potentially corrosive to concrete and steel.

2. "Debris flow hazard" means severe and moderate debris flow hazard.

    i. "Severe debris flow hazard" poses possible serious damage to structures and risk to life, and mitigation is necessary.

    ii. "Moderate debris flow hazard" poses possible minor damage to structures and risk to life. Mitigation is recommended and may be required and major cleanup is probable.

3. "Landslide hazard" is shown in areas of identified landslide features. Slides are mostly older features but have potential for reactivation.

4. "Rockfall hazard criteria" includes an identifiable source area for rocks and the presence of fallen rocks with intermediate diameters of two (2) feet or more.

5. "Slope instability" denotes areas of past and current mass wasting processes.

b. *Establishment of Geological Hazards Districts.* There are hereby created within the City the following Geologic Hazards Districts:

1. *Hazard Avoidance District.* This district includes undeveloped parcels with the potential or presence of severe debris flow, and/or rockfall. The district also includes developed parcels with the potential or presence of severe geologic hazards where additional development will significantly increase the risk of damage from the hazard or significantly increase the cost to the community of mitigating the hazard.

2. *Hazard Mitigation District.* This district includes parcels with severe geologic hazards where significant development already exists and where additional development will not significantly increase the risk of damage from the hazard nor significantly increase the cost to the community of mitigating the hazard. It also includes areas with the potential or presence of moderate debris flow, and/or rockfall hazards.

c. *Geologic Hazards District Map.* The locations and boundaries of the Geologic Hazards Districts established by this Subsection shall be those established by the official report entitled "Geologic Hazards of the Glenwood Springs Metropolitan Area" as released by the C.G.S. 78-10. The geologic hazards maps that accompany C.G.S. 78-10 are hereby adopted as the "official geologic hazards maps" and shall be maintained along with accompanying sensitive area reports by the Office of the City Engineer. These maps shall serve as official reference in case of dispute regarding the location of hazards, and the City Engineer's interpretation of these maps shall be final. The maps shall be interpreted by the City Engineer as follows:

1. *Hazard Avoidance Districts.*

    i. Undeveloped parcels lying entirely or partly in any area identified as a severe hazard zone on the Map of Debris Flow Fan Deposits and Hazards and/or the General Geologic Hazards Map.

    ii. Developed parcels identified as lying entirely or partly in any area identified as a severe hazard zone on the aforesaid maps where the City Engineer has determined that additional development will increase the risk of damage from the hazards and/or significantly increase the cost to the community of mitigating the hazards.

2. *Hazard Mitigation Districts.*

    i. Parcels lying entirely or partly in any area identified as a moderate hazard zone on the Map of Debris Flow Fan Deposits and Hazards and/or the General Geologic Hazards Map.

    ii. Developed parcels identified as lying entirely or partly in any area identified as a severe hazard zone on the aforementioned maps where the City Engineer has determined that additional development will not increase the risk of damage from the hazard and/or will not significantly increase the cost to the community of mitigating the hazard.

d. *Annexation of Land Within an Area of Geologic Hazard.* Upon annexation of any land within an area of geologic hazard, as determined on the official geologic hazards maps, such land shall be added to the appropriate geologic hazards district, and all provisions of this Subsection shall apply.

(3) *Geologic Hazards District Standards.*

a. *Hazard Avoidance Districts.* No improvement, building, structure, excavation, dumping, or backfill shall be placed, built, undertaken or approved in a Hazard Avoidance District except for fences, geologic stabilization structures, or paths for nonmotorized use unless, before application for a development permit or, if no development permit is required, for a grading or building permit, the applicant demonstrates to the City Engineer and the Director by clear and convincing evidence that one (1) of the following conditions is met:

1. The land to be affected does not lie within an area of severe debris flow, rockfall hazard, or a drainage basin contributing to any such hazard, as shown on the official geologic hazards maps, and the proposal is in conformance with the purposes of this Subsection.

2. The severe hazard does not exist on the subject site in the proposal and is in conformance with the purposes of this Subsection. Such a determination shall require detailed analysis of the area by a qualified geologist and an engineering geology report, which report may be submitted by the City to the Colorado Geologic Survey for review. For purposes of this provision, the area" means the site of the proposed development as well as adjacent land and upslope drainage basins as necessary to compare the area analysis with the official geologic hazards maps. Upon submittal of this report by the applicant, application may be made for a development, grading, or building permit, but such a permit shall not be issued until the City Engineer and the Director have determined that the conditions of this Paragraph are met.

3. The proposed development meets all of the following conditions:

    i. It will include no human habitation;

    ii. It will not require City water, wastewater, streets or other public service;

    iii. It will not increase the hazard to other public or private property; and

    iv. It is consistent with the intent and purposes of this Article.

4. The subject site lies within an area with rockfall hazard but not debris flow and not within a drainage basin contributing to any such hazard as shown on the official geologic hazards maps. In the case of such a determination by the City Engineer, a mitigation plan shall be required before issuance of a development, grading or building permit. The mitigation plan shall be produced and certified by a qualified engineer and shall demonstrate to the City

Engineer and the Director by clear and convincing evidence that rockfall damage will be prevented by a catchment wall or other means.

b. *Hazard Mitigation Districts.*

1. *Applicability.* All new structures and additions or improvements subject to this Subsection and proposed in a hazard mitigation district shall be subject to the requirements of Subsection 070.040.020(c)(3)b.2., Standards, unless before application for a development permit, or, if no development permit is required, for excavation or building permit, the applicant demonstrates to the City Engineer and the Director by clear and convincing evidence that one (1) of the following conditions is met:

i. The land to be affected does not lie within an area of severe or moderate debris flow, rockfall hazard, or a damage basin contributing to any such hazard as shown on the official geologic hazards maps.

ii. The severe or moderate hazards as specified in C.G.S. 78-10 do not exist on the subject site and the proposal is in conformance with the purposes of this Subsection. Such a determination shall require detailed analysis of the area by a qualified geologist in an engineering geology report, which report may be submitted by the City to the Colorado Geological Survey for review. For purposes of this provision, "the area" means the site of the proposed development, as well as the adjacent land and upslope drainage basin as necessary to compare the area analysis with the official geologic hazard maps. Upon submittal of this report by the applicant, application may be made for a development, excavation, or building permit, but such permit shall not be issued until the City Engineer and the Director have determined that the conditions of this Subparagraph are met.

2. *Standards.*

i. In areas with moderate or severe debris flow hazard as shown on the official geologic hazards maps, before issuance of a development permit or, if no development permit is required, an excavation or building permit, the applicant shall demonstrate to the City Engineer and the Director by clear and convincing evidence that any structure or grading change that may divert debris flow or floodwaters from the subject property will not increase hazards to other public or private properties. Such a determination shall require an engineering geology report produced and certified by a qualified engineer.

ii. Before issuance of a building permit, the applicant shall demonstrate to the City Engineer and the Building Official by clear and convincing evidence that all applicable requirements in the City's Engineering Standards are met.

(4) *Public Improvements in Areas of Geologic Hazard.* Public improvements, including but not limited to streets, water, wastewater, and electrical services, will not be extended into the Hazard Avoidance District, except where:

a. An area or a proposed development meets one (1) of the conditions of Subsection 070.040.020(c)(3)a., Hazard Avoidance Districts; or

b. The public good is better served by the extension which shall be in compliance with the City goals and policies. Such determination shall be made by the City Council upon a recommendation from the Planning Commission.

(d) *Development in Waterways and Areas of Special Flood Hazard.*

(1) *Findings of Fact.*

a. The flood hazard areas of the City are subject to periodic inundation which can result in loss of life and property, health and safety hazards, disruption of commerce and governmental services, extraordinary public expenditures for flood protection and relief, of which adversely affect the public health, safety and general welfare of the public.

b. These flood losses are created by the cumulative effect of obstructions in floodplains which cause an increase in flood heights and velocities, and by the occupancy of flood hazard areas by uses vulnerable to floods and hazardous to other lands because they are inadequately elevated, flood-proofed, or otherwise protected from flood damage.

(2) *Statement of Purpose.* It is the purpose of this Subsection 070.040.020(d) to promote the public health, safety, and general welfare, and to minimize public and private losses due to flood conditions to specific areas by provisions designed to:

a. Protect human life and health;

b. Minimize expenditure of public money for costly flood control projects;

c. Minimize the need for rescue and relief efforts associated with flooding and generally undertaken at the expense of the general public;

d. Minimize prolonged business interruptions;

e. Minimize damage to critical facilities, infrastructure and other public facilities such as water, sewer and gas mains, electric and communication stations, and streets and bridges located in floodplains;

f. Help maintain a stable tax base by providing for the sound use and development of flood-prone areas in such a manner so as to minimize future flood blight areas; and

g. Ensure that potential buyers are notified that property is located in a flood hazard area.

(3) *Methods of Reducing Flood Losses.* In order to accomplish its purposes, this Subsection uses the following methods:

a. Restrict or prohibit uses that are dangerous to health, safety or property in times of flood, or cause excessive increases in flood heights or velocities;

b. Require that uses vulnerable to floods, including facilities which serve such uses, be protected against flood damage at the time of initial construction;

c. Control the alteration of natural floodplains, stream channels and natural protective barriers, which are involved in the accommodation of flood waters;

d. Control filling, grading, dredging and other development which may increase flood damage; and

e. Prevent or regulate the construction of flood barriers which will unnaturally divert floodwaters or which may increase flood hazards to other lands.

(4) *Lands to Which this Subsection Applies.* This Subsection shall apply to all areas of Special Flood Hazard Areas and areas removed from the floodplain by the issuance of a FEMA Letter of Map Revision Based on Fill (LOMR-F) within the jurisdiction of the City.

(5) *Basis for Establishing Areas of Special Flood Hazard.* The special flood hazard areas identified by the Federal Emergency Management Agency in a scientific and engineering report entitled, "The Flood Insurance Study for the City of Glenwood Springs," dated October 15, 1985, with an accompanying Flood Insurance Rate Map (FIRM) and/or Flood Boundary-Floodway Maps (FIRM and/or FBFM) and any revisions thereto are hereby adopted by reference and declared to be a part of this Title. The Special

Flood Hazard Areas identified by the FIS and attendant mapping are the minimum area of applicability of this Subsection and may be supplemented by studies designated and approved by the City. The Floodplain Administrator shall keep a copy of the Flood Insurance Study (FIS), DFIRMs, FIRMs and/or FBFMs on file and are available for public inspection.

(6) *Establishment of Floodplain Development Permit.* A floodplain development permit shall be required to ensure conformance with the provisions of this Subsection.

(7) *Compliance.* No structure or land shall hereafter be located, altered or have its use changed within the Special Flood Hazard Area without full compliance with the terms of this Subsection and other applicable regulations. Nothing herein shall prevent the City from taking such lawful action as is necessary to prevent or remedy any violation. These regulations meet the minimum requirements as set forth by the Colorado Water Conservation Board and the National Flood Insurance Program.

(8) *Abrogation and Greater Restrictions.* This Subsection is not intended to repeal, abrogate or impair any existing easements, covenants or deed restrictions. However, where this Subsection and another provision of this Code, easement, covenant or deed restriction conflict or overlap, whichever imposes the more stringent restrictions shall prevail.

(9) *Interpretation.* In the interpretation and application of this Subsection, all provisions shall be:

a. Considered as minimum requirements;

b. Liberally construed in favor of the governing body; and

c. Deemed neither to limit nor repeal any other powers granted under state statutes.

(10) *Warning and Disclaimer of Liability.* The degree of flood protection required by this Subsection is considered reasonable for regulatory purposes and is based on scientific and engineering considerations. On rare occasions, greater floods can and will occur and flood heights may be increased by manmade or natural causes. This Subsection does not imply that land outside the areas of special flood hazard or uses permitted within such areas will be free from flooding or flood damages. This Subsection shall not create liability on the part of the City, any official or employee thereof, for any flood damages that result from reliance on this Subsection or any administrative decision lawfully made thereunder.

(11) *Designation of the Floodplain Administrator.* The City Engineer is hereby appointed as Floodplain Administrator to administer, implement and enforce the provisions of this Subsection and other appropriate sections of 44 CFR (National Flood Insurance Program Regulations) pertaining to floodplain management.

(12) *Duties and Responsibilities of Floodplain Administrator.* Duties of the Floodplain Administrator shall include, but not be limited to the following:

a. Maintain and hold open for public inspection all records pertaining to the provisions of this Subsection, including the actual elevation (in relation to mean sea level) of the lowest floor (including basement) of all new or substantially improved structures and any floodproofing certificate required by Subsection 070.040.020(d)(13).

b. Review, approve, or deny all applications for floodplain development permits required by adoption of this Subsection.

c. Review floodplain development permit applications to determine whether a proposed building site, including the placement of manufactured homes, will be reasonably safe from flooding.

d. Review permits for proposed development to ensure that all necessary permits have been obtained from those federal, state or local governmental agencies (including Section 404 of the

Federal Water Pollution Control Act Amendments of 1972, 33 U.S.C. 1334) from which prior approval is required.

e. Inspect all development at appropriate times during the period of construction to ensure compliance with all provisions of this Subsection, including proper elevation of the structure.

f. Where interpretation is needed as to the exact location of the boundaries of the Special Flood Hazard Area (for example, where there appears to be a conflict between a mapped boundary and actual field conditions) the Floodplain Administrator shall make the necessary interpretation.

g. When Base Flood Elevation data has not been provided in accordance with Section 070.090.060, the Floodplain Administrator shall obtain, review and reasonably utilize any Base Flood Elevation data and Floodway data available from a federal, state or other source, in order to administer the provisions of this Subsection.

h. For waterways with Base Flood Elevations for which a regulatory Floodway has not been designated, no new construction, substantial improvements or other development (including fill) shall be permitted within Zones A1—30 and AE on the City's FIRM, unless it is demonstrated that the cumulative effect of the proposed development, when combined with all other existing and anticipated development, will not increase the water surface elevation of the base flood more than one-half (½) foot at any point within the City.

i. Under the provisions of 44 CFR Chapter 1, Section 65.12, of the National Flood Insurance Program regulations, the City may approve certain development in Zones A1—30, AE, AH, on the City's FIRM which increases the water surface elevation of the base flood by more than one-half (½) foot, provided that the City first applies for a conditional FIRM revision through FEMA (Conditional Letter of Map Revision), fulfills the requirements for such revisions as established under the provisions of Section 65.12, and receives FEMA approval.

j. Notify, in riverline situations, adjacent communities and the State Coordinating Agency which is the Colorado Water Conservation Board, prior to any alteration or relocation of a watercourse, and submit evidence of such notification to FEMA.

k. Ensure that the flood carrying capacity within the altered or relocated portion of any watercourse is maintained.

(13) *Permit Procedures.*

a. *Application.* Application for a Floodplain Development Permit shall be presented to the Floodplain Administrator on forms furnished by him/her and may include, but not be limited to, plans in duplicate drawn to scale showing the location, dimensions and elevations of proposed landscape alterations; existing or proposed structures, including the placement of manufactured homes and the location of the foregoing in relation to Special Flood Hazard Area. Additionally, the following information is required:

1. Elevation (in relation to mean sea level) of the lowest floor (including basement) of all new and substantially improved structures;

2. Elevation in relation to mean sea level to which any nonresidential structure shall be floodproofed;

3. A certificate from a registered Colorado Professional Engineer or architect that the nonresidential floodproofed structure shall meet the floodproofing criteria in Subsection 070.040.020(d)(16)b.;

4. Description of the extent to which any watercourse or natural drainage will be altered or relocated as a result of proposed development; and

5. Maintain a record of all such information in accordance with Subsection 070.040.020(d)(12).

b. *Approval Criteria.* Approval or denial of a floodplain development permit by the Floodplain Administrator shall be based on all of the provisions of this Subsection and the following relevant factors:

1. The danger to life and property due to flooding or erosion damage;
2. The susceptibility of the proposed facility and its contents to flood damage and the effect of such damage on the individual owner;
3. The danger that materials may be swept onto other lands to the injury of others;
4. The compatibility of the proposed use with existing and anticipated development;
5. The safety of access to the property in times of flood for ordinary and emergency vehicles;
6. The costs of providing governmental services during and after flood conditions including maintenance and repair of streets and bridges, and public utilities and facilities such as sewer, gas, electrical and water systems;
7. The expected heights, velocity, duration, rate of rise and sediment transport of the flood waters and the effects of wave action, if applicable, expected at the site;
8. The necessity to the facility of a waterfront location, where applicable;
9. The availability of alternative locations, not subject to flooding or erosion damage, for the proposed use; and
10. The relationship of the proposed use to the comprehensive plan for that area.

(14) *Variance Procedure.*

a. The Planning and Zoning Commission ("Commission") shall hear and render judgment on requests for variances from the requirements of this Subsection.

b. The Commission shall hear and render judgment on an appeal only when it is alleged there is an error in any requirement, decision, or determination made by the Floodplain Administrator in the enforcement or administration of this Subsection. Such appeals shall be subject to the procedures set forth in Subsection 070.060.070(c).

c. Any person or persons aggrieved by the decision of the Commission may appeal such decision in the courts of competent jurisdiction upon completing the administrative procedures set forth in Subsection 070.060.070(c).

d. The Floodplain Administrator shall maintain a record of all actions involving an appeal and shall report variances to the Federal Emergency Management Agency upon request.

e. Variances may be issued for the reconstruction, rehabilitation, or restoration of structures listed on the National Register of Historic Places or the State Inventory of Historic Places without regard to the procedures set forth in the remainder of this Subsection.

f. Variances may be issued for new construction and substantial improvements to be erected on a lot of one-half (½) acre or less in size contiguous to and surrounded by lots with existing structures constructed below the base flood level, provided that the requirements of Subsection 070.040.020(d)(13) have been fully considered. As the lot size increases beyond the one-half (½) acre, the technical justifications required for issuing the variance increases.

g. Upon consideration of the factors noted above and the intent of this Subsection, the Commission may attach such conditions to the granting of variances as it deems necessary to further the purpose and objectives of this Subsection as stated in Subsection 070.040.020(d)(2), Statement of Purpose.

h. Variances shall not be issued within any designated floodway if any increase in flood levels during the base flood discharge would result.

i. Variances may be issued for the repair or rehabilitation of historic structures upon a determination that the proposed repair or rehabilitation will not preclude the structure's continued designation as a historic structure and the variance is the minimum necessary to preserve the historic character and design of the structure.

j. Prerequisites for granting variances:

1. Variances shall only be issued upon a determination that the variance is the minimum necessary, considering the flood hazard, to afford relief.

2. Variances shall only be issued upon:

i. A showing of good and sufficient cause;

ii. A determination that failure to grant the variance would result in exceptional hardship to the applicant; and

iii. A determination that the granting of a variance will not result in increased flood heights, additional threats to public safety or extraordinary public expense, create nuisances, cause fraud on or victimization of the public or conflict with this Code or the City goals, policies and plans.

k. Any applicant to whom a variance is granted shall be given written notice that the structure will be permitted to be built with a lowest floor elevation below the Base Flood Elevation and that the cost of flood insurance will be commensurate with the increased risk resulting from the reduced lowest floor elevation.

l. Variances may be issued for new constructions and substantial improvements and for other development necessary for the conduct of a functionally dependent use provided that:

1. The criteria outlined in Subsections 070.040.020(d)(14)a.—i. are met; and

2. The structure or other development is protected by methods that minimize flood damages during the base flood and create no additional threats to public safety.

(15) *General Standards.* In all areas of special flood hazards, the following standards are required:

a. All new construction or substantial improvements shall be designed (or modified) and adequately anchored to prevent flotation, collapse or lateral movement of the structure resulting from hydrostatic and hydrodynamic loads, including the effects of buoyancy;

b. All new construction or substantial improvements shall be constructed by methods and practices that minimize flood damage;

c. All new construction or substantial improvements shall be constructed with materials resistant to flood damage;

d. All new construction or substantial improvements shall be constructed with electrical, heating, ventilation, plumbing, and air conditioning equipment and other service facilities that are designed and/or located so as to prevent water from entering or accumulating within the components during conditions of flooding;

e. All manufactured homes shall be installed using methods and practices which minimize flood damage. For purposes of this requirement, manufactured homes must be elevated and anchored to resist flotation, collapse or lateral movement. Methods of anchoring may include, but are not limited to, use of over-the-top or frame ties to ground anchors. This requirement is in addition to applicable state and local anchoring requirements for resisting wind forces.

f. All new and replacement water supply systems shall be designed to minimize or eliminate infiltration of floodwaters into the system;

g. New and replacement sanitary sewage systems shall be designed to minimize or eliminate infiltration of floodwaters into the systems and discharge from the systems into floodwaters; and

h. On-site waste disposal systems shall be located to avoid impairment to them or contamination from them during flooding.

(16) *Specific Standards.* In all Special Flood Hazard areas where Base Flood Elevation data has been provided as set forth in Subsection 070.040.020(d)(5), Subsection 070.040.020(d)(12)g., and/or Subsection 070.040.020(d)(21), the following provisions are required:

a. *Residential Construction.* New construction and substantial improvement of any residential structure shall have the lowest floor (including basement), electrical, heating, ventilation, plumbing and air conditioning equipment and other service facilities (including ductwork), elevated to one (1) foot above the Base Flood Elevation. Upon completion of the structure, the elevation of the lowest floor, including basement, shall be certified by a registered Colorado Professional Engineer, architect or land surveyor. Such certification shall be submitted to the Floodplain Administrator.

b. *Nonresidential Construction.*

1. With the exception of Critical Facilities outlined in 070.040.020(d)(22), new construction and substantial improvement of any commercial, industrial or other nonresidential structure shall either have the lowest floor (including basement), electrical, heating, ventilation, plumbing, and air conditioning equipment and other service facilities (including ductwork), elevated to one (1) foot above the Base Flood Elevation; or, together with attendant utility and sanitary facilities, shall: be designed so that at one (1) foot above the Base Flood Elevation the structure is watertight with walls substantially impermeable to the passage of water and with structural components having the capability of resisting hydrostatic and hydrodynamic loads and effects of buoyancy.

2. A registered Colorado Professional Engineer or architect shall develop and/or review structural design, specifications, and plans for the construction, and shall certify that the design and methods of construction are in accordance with accepted standards of practice as outlined in this Subsection. Such certifications shall be maintained by the Floodplain Administrator, as set forth in Subsection 070.040.020(d)(13).

c. *Enclosures.*

1. New construction and substantial improvements, with fully enclosed areas below the lowest floor that are usable solely for parking of vehicles, building access, or storage in an area other than a basement and which are subject to flooding shall be designed to automatically equalize hydrostatic flood forces on exterior walls by allowing for the entry and exit of floodwaters.

2. Designs for meeting this requirement must either be certified by a registered Colorado Professional Engineer or architect or meet or exceed the following minimum criteria:

i. A minimum of two (2) openings having a total net area of not less than one (1) square inch for every square foot of enclosed area subject to flooding shall be provided.

ii. The bottom of all openings shall be no higher than one (1) foot above grade.

iii. Openings may be equipped with screens, louvers, valves or other coverings or devices provided that they permit the automatic entry and exit of floodwaters.

d. *Manufactured Homes.*

1. All manufactured homes that are placed or substantially improved within Zones A1—30, AH and AE on the City's FIRM on sites: (1) outside of a manufactured home park or subdivision; (2) in a new manufactured home park or subdivision; (3) in an expansion to an existing manufactured home park or subdivision; or (4) in an existing manufactured home park or subdivision on which a manufactured home has incurred substantial damage as the result of a flood, be elevated on a permanent foundation such that the lowest floor of the manufactured home, electrical, heating, ventilation, plumbing and air conditioning equipment and other service facilities (including ductwork) are elevated to one (1) foot above the Base Flood Elevation and be securely anchored to an adequately anchored foundation system to resist flotation, collapse and lateral movement.

2. All manufactured homes placed or substantially improved on sites in existing manufactured home parks or subdivision within Zones A1—30, AH and AE on the City's FIRM that are not subject to the provisions of the previous paragraph shall be elevated so that either: (1) the lowest floor of the manufactured home, electrical, heating, ventilation, plumbing, and air conditioning equipment and other service facilities (including ductwork), are one (1) foot above the Base Flood Elevation; or (2) the manufactured home chassis is supported by reinforced piers or other foundation elements of at least equivalent strength that are no less than thirty-six (36) inches in height above grade and shall be securely anchored to an adequately anchored foundation system to resist flotation, collapse and lateral movement.

e. *Recreational Vehicles.*

1. All recreational vehicles placed on sites within Zones A1—30, AH, and AE on the City's FIRM sites either: (1) be on the site for fewer than one hundred eighty (180) consecutive days; (2) be fully licensed and ready for highway use; or (3) meet the permit requirements of Subsection 070.040.020(d)(13), and the elevation and anchoring requirements for "manufactured homes" in Paragraph d. above.

2. A recreational vehicle is ready for highway use if it is on its wheels or jacking system, is attached to the site only by quick disconnect type utilities and security devices, and has no permanently attached additions.

f. *Prior Approved Activities.* Any activity for which a floodplain development permit was issued by the City or a CLOMR was issued by FEMA prior to the effective date of this Subsection may be completed according to the standards in place at the time of the permit or CLOMR issuance and will not be considered in violation of this Subsection if it meets such standards.

(17) *Standards for Areas of Shallow Flooding (AO/AH Zones).* Located within the Special Flood Hazard Area established in Subsection 070.040.020(d)(5), are areas designated as shallow flooding. These areas have special flood hazards associated with base flood depths of one (1) to three (3) feet where a clearly defined channel does not exist and where the path of flooding is unpredictable and where velocity flow may be evident. Such flooding is characterized by ponding or sheet flow; therefore, the following provisions apply:

a. *Residential Construction.* All new construction and substantial improvements of residential structures must have the lowest floor (including basement), electrical, heating, ventilation, plumbing, and air conditioning equipment and other service facilities (including ductwork), elevated above the highest adjacent grade at least one (1) foot above the depth number specified in feet on the City's FIRM (at least three (3) feet if no depth number is specified). Upon completion of the structure, the elevation of the lowest floor, including basement, shall be certified by a registered Colorado Professional Engineer, architect, or land surveyor. Such certification shall be submitted to the Floodplain Administrator.

b. *Nonresidential Construction.*

1. With the exception of Critical Facilities, outlined in Subsection 070.040.020(d)(22), all new construction and Substantial Improvements of non-residential structures, must have the lowest floor (including basement), electrical, heating, ventilation, plumbing, and air conditioning equipment and other service facilities (including ductwork), elevated above the highest adjacent grade at least one (1) foot above the depth number specified in feet on the City's FIRM (at least three (3) feet if no depth number is specified), or together with attendant utility and sanitary facilities, be designed so that the structure is watertight to at least one (1) foot above the base flood level with walls substantially impermeable to the passage of water and with structural components having the capability of resisting hydrostatic and hydrodynamic loads of effects of buoyancy. A registered Colorado Professional Engineer or architect shall submit a certification to the Floodplain Administrator that the standards of this Subsection, as proposed in Subsection 070.040.020(d)(13), are satisfied.

2. Within Zones AH or AO, adequate drainage paths around structures on slopes are required to guide flood waters around and away from proposed structures.

(18) *Floodways.* Floodways are administrative limits and tools used to regulate existing and future floodplain development. The State of Colorado has adopted Floodway standards that are more stringent than the FEMA minimum standard (see definition of Floodway in Subsection 070.040.020(d)(25)). Located within Special Flood Hazard Areas established in Subsection 070.040.020(d)(5) are areas designated as Floodways. Since the Floodway is an extremely hazardous area due to the velocity of floodwaters which carry debris, potential projectiles and erosion potential, the following provisions apply:

a. Encroachments are prohibited, including fill, new construction, substantial improvements and other development within the adopted regulatory Floodway unless it has been demonstrated through hydrologic and hydraulic analysis performed by a licensed Colorado Professional Engineer and in accordance with standard engineering practice that the proposed encroachment would not result in any increase (requires a No-Rise Certification) in flood levels within the City during the occurrence of the base flood discharge.

b. If Paragraph a. above is satisfied, all new construction and substantial improvements shall comply with all applicable flood hazard reduction provisions of Subsections 070.040.020(d)(15) through 070.040.020(d)(22).

c. Under the provisions of 44 CFR Chapter 1, Section 65.12 of the National Flood Insurance Regulations, the City may permit encroachments within the adopted regulatory floodway that would result in an increase in Base Flood Elevations, provided that the City first applies for a CLOMR and floodway revision through FEMA.

(19) *Alteration of a Watercourse.* For all proposed developments that alter a watercourse within a Special Flood Hazard Area, the following standards apply:

a. Channelization and flow diversion projects shall appropriately consider issues of sediment transport, erosion, deposition, and channel migration and properly mitigate potential problems through the project as well as upstream and downstream of any improvement activity. A detailed analysis of sediment transport and overall channel stability should be considered, when appropriate, to assist in determining the most appropriate design.

b. Channelization and flow diversion projects shall evaluate the residual one-hundred-year floodplain.

c. Any channelization or other stream alteration activity proposed by a project proponent must be evaluated for its impact on the regulatory floodplain and be in compliance with all applicable federal, state and local floodplain rules, regulations and ordinances.

d. Any stream alteration activity shall be designed and sealed by a registered Colorado Professional Engineer or Certified Professional Hydrologist.

e. All activities within the regulatory floodplain shall meet all applicable federal, state and City floodplain requirements and regulations.

f. Within the Regulatory Floodway, stream alteration activities shall not be constructed unless the project proponent demonstrates through a Floodway analysis and report, sealed by a registered Colorado Professional Engineer, that there is not more than a 0.00 foot rise in the proposed conditions compared to existing conditions Floodway resulting from the project, otherwise known as a No-Rise Certification, unless the City first applies for a CLOMR and Floodway revision in accordance with Subsections 070.040.020(d)(15) through 070.040.020(d)(22).

g. Maintenance shall be required for any altered or relocated portions of watercourses so that the flood-carrying capacity is not diminished.

(20) *Properties Removed from the Floodplain by Fill.* A floodplain development permit shall not be issued for the construction of a new structure or addition to an existing structure on a property removed from the floodplain by the issuance of a FEMA Letter of Map Revision Based on Fill (LOMR-F), unless such new structure or addition complies with the following:

a. *Residential Construction.* The lowest floor (including basement), electrical, heating, ventilation, plumbing, and air conditioning equipment and other service facilities (including ductwork), must be elevated to one (1) foot above the Base Flood Elevation that existed prior to the placement of fill.

b. *Nonresidential Construction.* The lowest floor (including basement), electrical, ventilation, plumbing, and air conditioning equipment and other service facilities (including ductwork), must be elevated to one (1) foot above the Base Flood Elevation that existed prior to the placement of fill, or together with attendant utility and sanitary facilities be designed so that the structure or addition is watertight to at least one (1) foot above the base flood level that existed prior to the placement of fill with walls substantially impermeable to the passage of water and with structural components having the capability of resisting hydrostatic and hydrodynamic loads of effects of buoyancy.

(21) *Standards for Subdivision Proposals.*

a. All subdivision proposals including the placement of manufactured home parks and subdivisions shall be reasonably safe from flooding. If a subdivision or other development proposal is in a flood-prone area, the proposal shall minimize flood damage.

b. All proposals for the development of subdivisions including the placement of manufactured home parks and subdivisions shall meet floodplain development permit requirements of

Subsection 070.040.020(d)(6), Subsection 070.040.020(d)(13), and the provisions of Subsections 070.040.020(d)(15) through 070.040.020(d)(22).

c. Base Flood Elevation data shall be generated for subdivision proposals and other proposed development including the placement of manufactured home parks and subdivisions which is greater than fifty (50) lots or five (5) acres, whichever is lesser, if not otherwise provided pursuant to Subsection 070.040.020(d)(5) or Subsection 070.040.020(d)(12).

d. All subdivision proposals including the placement of manufactured home parks and subdivisions shall have adequate drainage provided to reduce exposure to flood hazards.

e. All subdivision proposals including the placement of manufactured home parks and subdivisions shall have public utilities and facilities such as sewer, gas, electrical, and water systems located and constructed to minimize or eliminate flood damage.

(22) *Standards for Critical Facilities.* A Critical Facility is a structure or related infrastructure, but not the land on which it is situated, as specified in Rule 6 of the Rules and Regulations for Regulatory Floodplains in Colorado, that if flooded may result in significant hazards to public health and safety or interrupt essential services and operations for the City at any time before, during and after a flood.

a. *Classification of Critical Facilities.*

1. It is the responsibility of the City to identify and confirm that specific structures meet the following criteria: Critical Facilities are classified under the following categories: (a) essential services (b) hazardous materials (c) at-risk populations, and (d) vital to restoring normal Services.

2. Essential services facilities include public safety, emergency response, emergency medical, designated emergency shelters, communications, public utility plant facilities, and transportation lifelines. These facilities consist of:

i. Public safety (police stations, fire and rescue stations, emergency vehicle and equipment storage, and emergency operation centers);

ii. Emergency medical (hospitals, ambulance service centers, urgent care centers having emergency treatment functions, and non-ambulatory surgical structures but excluding clinics, doctor's offices, and non-urgent care medical structures that do not provide these functions;

iii. Designated emergency shelters;

iv. Communications (main hubs for telephone, broadcasting equipment for cable systems, satellite dish systems, cellular systems, television, radio, and other emergency warning systems, but excluding towers, poles, lines, cables and conduits);

v. Public utility plant facilities for generation and distribution (hubs, treatment plants, substations and pumping stations for water, power and gas, but not including towers, poles, power lines, buried pipelines, transmission lines, distribution lines, and service lines); and

vi. Air transportation lifelines (airports [municipal and larger], helicopter pads and structures serving emergency functions, and associated infrastructure [aviation control towers, air traffic control centers, and emergency equipment aircraft hangars]).

vii. Specific exemptions to this category include wastewater treatment plants (WWTP), non-potable water treatment and distribution systems, and hydroelectric power generating plants and related appurtenance.

viii. Public utility plant facilities may be exempted if it can be demonstrated to the satisfaction of the City that the facility is an element of a redundant system for which service will not be interrupted during a flood. At a minimum, it shall be demonstrated that redundant facilities are available (either owned by the same utility or available through an intergovernmental agreement or other contract) and connected, the alternative facilities are either located outside of the one-hundred-year floodplain or are compliant with the provisions of this Subsection, and an operations plan is in effect that states how redundant systems will provide service to the affected area in the event of a flood. Evidence of ongoing redundancy shall be provided to the City on an as-needed basis upon request.

3. Hazardous materials facilities include facilities that produce or store highly volatile, flammable, explosive, toxins and/or water-reactive materials. These facilities may include:

i. Chemical and pharmaceutical plants (chemical plants, pharmaceutical manufacturing);

ii. Laboratories containing highly volatile, flammable, explosive, toxins and/or water-reactive materials;

iii. Refineries;

iv. Hazardous waste storage and disposal sites; and

v. Above ground gasoline or propane storage or sales centers.

vi. Facilities shall be determined to be Critical Facilities if they produce or store materials in excess of threshold limits. If the owner of a facility is required by the Occupational Safety and Health Administration (OSHA) to keep a Material Safety Data Sheet (MSDS) on file for any chemicals stored or used in the workplace, AND the chemical(s) is stored in quantities equal to or greater than the Threshold Planning Quantity (TPQ) for that chemical, then that facility shall be considered to be a Critical Facility. The TPQ for these chemicals is: either five hundred (500) pounds or the TPQ listed (whichever is lower) for the three hundred fifty-six (356) chemicals listed under 40 C.F.R. § 302 (2010), also known as Extremely Hazardous Substances (EHS); or ten thousand (10,000) pounds for any other chemical. This threshold is consistent with the requirements for reportable chemicals established by the Colorado Department of Health and Environment. OSHA requirements for MSDS can be found in 29 C.F.R. § 1910 (2010). The Environmental Protection Agency (EPA) regulation "Designation, Reportable Quantities, and Notification" 40 C.F.R. § 302 (2010) and OSHA regulation "Occupational Safety and Health Standards", 29 C.F.R. § 1910 (2010) are incorporated herein by reference and include the regulations in existence at the time of the promulgation of this Subsection, but exclude later amendments to or editions of the regulations. Specific exemptions to this category include:

a. Finished consumer products within retail centers and households containing hazardous materials intended for household use, and agricultural products intended for agricultural use.

b. Buildings and other structures containing hazardous materials for which it can be demonstrated to the satisfaction of the local authority having jurisdiction by hazard assessment and certification by a qualified professional (as determined by the local jurisdiction having land use authority) that a release of the subject hazardous material does not pose a major threat to the public.

c. Pharmaceutical sales, use, storage, and distribution centers that do not manufacture pharmaceutical products.

d. These exemptions shall not apply to building or other structures that also function as Critical Facilities under another category outlined in this Subsection.

vii. At-risk population facilities include medical care, congregate care, and schools. These facilities consist of:

a. Elder care (nursing homes);

b. Congregate care serving twelve (12) or more individuals (day care and assisted living);

c. Public and private school (pre-schools, K—12 schools), before-school and after-school care serving twelve (12) or more children.

viii. Facilities vital to restoring normal services including government operations. These facilities consist of:

a. Essential government operations (public records, courts, jails, building permitting and inspection services, City administration and management, maintenance and equipment centers);

b. Essential structures for public colleges and universities (dormitories, offices, and classrooms only).

c. These facilities may be exempted if it is demonstrated to the City that the facility is an element of a redundant system for which service will not be interrupted during a flood. At a minimum, it shall be demonstrated that redundant facilities are available (either owned by the same entity or available through an intergovernmental agreement or other contract), the alternative facilities are either located outside of the one-hundred-year floodplain or are compliant with this Subsection, and an operations plan is in effect that states how redundant facilities will provide service to the affected area in the event of a flood. Evidence of ongoing redundancy shall be provided to the City on an as-needed basis upon request.

b. *Protection for Critical Facilities.* All new and substantially improved Critical Facilities and new additions to Critical Facilities located within the Special Flood Hazard Area shall be regulated to a higher standard than structures not determined to be Critical Facilities. For the purposes of this Subsection, protection shall include one (1) of the following:

1. Location outside the Special Flood Hazard Area; or

2. Elevation of the lowest floor or floodproofing of the structure, together with attendant utility and sanitary facilities, to at least two (2) feet above the Base Flood Elevation.

c. *Ingress and Egress for New Critical Facilities.* New Critical Facilities shall, when practicable as determined by the City, have continuous non-inundated access (ingress and egress for evacuation and emergency services) during a one-hundred-year flood event.

(23) *Amendments.* Any amendments of this Subsection or the maps or studies incorporated herein shall be subject to and governed by the provisions of Subsection 070.040.020(d)(5).

(24) *Conservation of Waterways.* It is the purpose of this subsection to conserve and promote the health of the City's riparian ecosystems, water quality, and protect human drinking water by maintaining a functional natural buffer adjacent to waterways.

a. *Applicability*. All new improvements, buildings, additions, structures, excavations, grading, dumping, clearing of native vegetation, or backfill shall be subject to the requirements of Section 070.040.020(d)(24). A permit, engineering or other study would not be required to be in compliance with Section 070.040.020(d)(24)b, if any of the following conditions are met. This would not exempt the following activities from permits or engineering studies required by other parts of the Municipal Code:

1. The removal of native vegetation existing on or before September 17, 2020, not to exceed twenty (20) percent of the setback area defined below, to allow a property owner private access to and personal enjoyment of the waterway. This shall not be interpreted to allow for permanent structures of any kind within said area.

2. The construction of bridges, public utilities, public paths for non-motorized use, public open space areas and boat ramps, wildfire mitigation activities, irrigation structures, flood control and erosion protection devices that do not result in a material increase in water quality degradation, stream bank erosion, or a reduction in the function and quality of a riparian area or wetland.

3. Removal of vegetation listed on the Garfield County noxious weed list, Chinese Elm, or Siberian Elm in compliance with applicable regulations or removal of dead vegetation. The type, kind and amount of replacement vegetation shall be at the discretion of the property owner provided it includes native riparian plant species and is sufficient to limit and prevent erosion at the riverbank.

4. The property owner demonstrates one (1) or more of the following:

i. The area on or before September 17, 2020 did not contain significant riparian plant species or functions;

ii. The area on or before September 17, 2020 was impacted by previous earth disturbing activities; and/or

iii. Any improvement (including but not limited to the pruning of vegetation, construction of access path or steps, hot springs pools) does not result in a material increase in water quality degradation, stream bank erosion, or a reduction in the function and quality of a riparian area or wetland.

b. *Standards.*

1. No improvement, building, structure, excavation, grading, dumping, clearing of native vegetation, or backfill shall be placed, built, undertaken or approved within thirty-five (35) feet of the ordinary high-water mark (as defined by the U.S. Army Corp of Engineers), measured horizontally, of any river or live perennial stream.

2. No chemical treatments, including but not limited to fertilizers, pesticides, and/or herbicides, are permitted within said thirty-five-foot setback area.

(25) *Definitions Related to Floodplain Regulations.* Unless specifically defined below, words or phrases used in this Subsection shall be interpreted so as to give them the meaning they have in common usage and to give this Subsection the most reasonable application.

a. *One-Hundred-Year Flood.* A flood having a recurrence interval that has a one (1) percent chance of being equaled or exceeded during any given year (one (1) percent annual chance of flood). The term "one (1) percent chance flood" is synonymous with the term "one-hundred-year flood." The term does not imply that the flood will necessarily happen once every one hundred (100) years.

b. *One-hundred-Year Floodplain.* The area of land susceptible to being inundated as a result of the occurrence of a one-hundred-year flood.

c. *Five-Hundred-Year Flood.* A flood having a recurrence interval that has a 0.2 percent chance of being equaled or exceeded during any given year (0.2 percent chance annual of flood). The term does not imply that the flood will necessarily happen once every five hundred (500) years.

d. *Five-Hundred-Year Floodplain.* The area of land susceptible to being inundated as a result of the occurrence of a five-hundred-year flood.

e. *Addition.* Any activity that expands the enclosed footprint or increases the square footage of an existing structure.

f. *Alluvial Fan Flooding.* A fan-shaped sediment deposit formed by a stream that flows from a steep mountain valley or gorge onto a plain or the junction of a tributary stream with the main stream. Alluvial fans contain active stream channels and boulder bars, and recently abandoned channels. Alluvial fans are predominantly formed by alluvial deposits and are modified by infrequent sheet flood, channel avulsions and other stream processes.

g. *Area of Shallow Flooding.* A designated Zone AO or AH on a Community's Flood Insurance Rate Map (FIRM) with a one (1) percent chance or greater annual chance of flooding to an average depth of one (1) to three (3) feet where a clearly defined channel does not exist; where the path of flooding is unpredictable, and where velocity flow may be evident. Such flooding is characterized by ponding or sheet flow.

h. *Base Flood Elevation (BFE).* The elevation shown on a FEMA Flood Insurance Rate Map for Zones AE, AH, A1—A30, AR AR/A, AR/AE, AR/A1—A30, AR/AH, AR/AO, V1—V30, and VE that indicates the water surface elevation resulting from a flood that has a one (1) percent chance of equaling or exceeding that level in any given year.

i. *Basement.* Any area of a building having its floor sub-grade (below ground level) on all sides.

j. *Channel.* The physical confine of stream or waterway consisting of a bed and stream banks, existing in a variety of geometries.

k. *Channelization.* The artificial creation, enlargement, or realignment of a stream channel.

l. *Code of Federal Regulations (CFR).* The codification of the general and permanent rules published in the Federal Register by the executive departments and agencies of the Federal Government. It is divided into fifty (50) titles that represent broad areas subject to Federal regulation.

m. *Community.* Any political subdivision in the state of Colorado that has authority to adopt and enforce floodplain management regulations through zoning, including but not limited to, cities, towns, unincorporated areas in the counties, Indian tribes, and drainage and flood control districts.

n. *Conditional Letter of Map Revision (CLOMR).* FEMA's comment on a proposed project, which does not revise an effective floodplain map that would, upon construction, affect the hydrologic or

hydraulic characteristics of a flooding source and thus result in the modification of the existing regulatory floodplain.

o. *Critical Facility.* A structure or related infrastructure but not the land on which it is situated, as specified in Section 070.090.210, that if flooded may result in significant hazards to public health and safety or interrupt essential services and operations for the City at any time before, during and after a flood.

p. *Development.* Any manmade change in improved or unimproved real estate, including but not limited to buildings or other structures, mining, dredging, filling, grading, paving, excavation, or drilling operations or storage of equipment or materials.

q. *DFIRM Database (usually spreadsheets containing data and analyses that accompany DFIRMs).* The FEMA Mapping Specifications and Guidelines outline requirements for the development and maintenance of DFIRM databases.

r. *Digital Flood Insurance Rate Map (DFIRM).* The FEMA digital floodplain map. These digital maps serve as "regulatory floodplain maps" for insurance and floodplain management purposes.

s. *Elevated Building.* A non-basement building (i) built, in the case of a building in Zones A1—30, AE, A, A99, AO, AH, B, C, X and D, to have the top of the elevated floor above the ground level by means of pilings, columns (posts and piers) or shear walls parallel to the flow of the water, and (ii) adequately anchored so as not to impair the structural integrity of the building during a flood of up to the magnitude of the base flood. In the case of Zones A1—30, AE, A, A99, AO, AH, B, C, X, and D, "elevated building" also includes a building elevated by means of fill or solid foundation perimeter walls with openings sufficient to facilitate the unimpeded movement of flood waters.

t. *Existing Manufactured Home Park or Subdivision.* A manufactured home park or subdivision for which the construction of facilities for servicing the lots on which the manufactured homes are to be affixed (including, at a minimum, the installation of utilities, the construction of streets and either final site grading or the pouring of concrete pads) is completed before the effective date of the Floodplain Management Regulations adopted by the City.

u. *Expansion to Existing Manufactured Home Park or Subdivision.* The preparation of additional sites by the construction of facilities for servicing the lots on which the manufactured homes are to be affixed (including the installation of utilities, the construction of streets and either final site grading or the pouring of concrete pads).

v. *Federal Register.* The official daily publication for Rules, proposed Rules, and notices of Federal agencies and organizations, as well as executive orders and other presidential documents.

w. *FEMA.* The Federal Emergency Management Agency, the agency responsible for administering the National Flood Insurance Program.

x. *Flood or Flooding.* A general and temporary condition of partial or complete inundation of normally dry land areas from:

1. The overflow of water from channels and reservoir spillways;
2. The unusual and rapid accumulation or runoff of surface waters from any source; or
3. Mudslides or mudflows that occur from excess surface water that is combined with mud or other debris that is sufficiently fluid so as to flow over the surface of normally dry land areas (such as earth carried by a current of water and deposited along the path of the current).

y. *Flood Insurance Rate Map (FIRM).* An official map of a Community, on which the Federal Emergency Management Agency has delineated both the Special Flood Hazard Areas and the risk premium zones applicable to the Community.

z. *Flood Insurance Study (FIS).* The official report provided by the Federal Emergency Management Agency. The report contains the Flood Insurance Rate Map as well as flood profiles for studied flooding sources that can be used to determine Base Flood Elevations for some areas.

aa. *Floodplain or Flood-Prone Area.* Any land area susceptible to being inundated as the result of a flood, including the area of land over which floodwater would flow from the spillway of a reservoir.

bb. *Floodplain Administrator.* The City Engineer, who is the City official designated to administer and enforce the floodplain management regulations.

cc. *Floodplain Development Permit.* A permit required before construction or development begins within any Special Flood Hazard Area (SFHA). If FEMA has not defined the SFHA within the City, the City shall require permits for all proposed construction or other development in the City including the placement of manufactured homes so that it may determine whether such construction or other development is proposed within flood-prone areas. Permits are required to ensure that proposed development projects meet the requirements of the NFIP and this Subsection.

dd. *Floodplain Management.* The operation of an overall program of corrective and preventive measures for reducing flood damage, including but not limited to emergency preparedness plans, flood control works and floodplain management regulations.

ee. *Floodplain Management Regulations.* Zoning ordinances, subdivision regulations, building codes, health regulations, special purpose ordinances (such as a floodplain ordinance, grading ordinance and erosion control ordinance) and other applications of police power. The term describes such state or local regulations, in any combination thereof, which provide standards for the purpose of flood damage prevention and reduction.

ff. *Flood Control Structure.* A physical structure designed and built expressly or partially for the purpose of reducing, redirecting or guiding flood flows along a particular waterway. These specialized flood modifying works are those constructed in conformance with sound engineering standards.

gg. *Floodproofing.* Any combination of structural and/or non-structural additions, changes or adjustments to structures which reduce or eliminate flood damage to real estate or improved real property, water and sanitary facilities, structures and their contents.

hh. *Floodway (Regulatory Floodway).* The channel of a river or other watercourse and the adjacent land areas that must be reserved in order to discharge the base flood without cumulatively increasing the water surface elevation more than a designated height. The Colorado statewide standard for the designated height to be used for all newly studied reaches shall be one-half (½) foot (six (6) inches). Letters of Map Revision to existing floodway delineations may continue to use the floodway criteria in place at the time of the existing floodway delineation.

ii. *Freeboard.* The vertical distance in feet above a predicted water surface elevation intended to provide a margin of safety to compensate for unknown factors that could contribute to flood heights greater than the height calculated for a selected size flood such as debris blockage of bridge openings and the increased runoff due to urbanization of the watershed.

jj. *Functionally Dependent Use.* A use which cannot perform its intended purpose unless it is located or carried out in close proximity to water. The term includes only docking facilities, port facilities

that are necessary for the loading and unloading of cargo or passengers, and ship building and ship repair facilities, but does not include long-term storage or related manufacturing facilities.

kk. *Highest Adjacent Grade.* The highest natural elevation of the ground surface prior to construction next to the proposed walls of a structure.

ll. *Historic Structure.* Any structure that is:

1. Listed individually in the National Register of Historic Places (a listing maintained by the Department of Interior) or preliminarily determined by the Secretary of the Interior as meeting the requirements for individual listing on the National Register;

2. Certified or preliminarily determined by the Secretary of the Interior as contributing to the historical significance of a registered historic district or a district preliminarily determined by the Secretary of the Interior to qualify as a registered historic district;

3. Individually listed on the state inventory of historic places in states with historic preservation programs which have been approved by the Secretary of Interior; or

4. Individually listed on a local inventory of historic places in communities with historic preservation programs that have been certified either:

    i. By an approved state program as determined by the Secretary of the Interior; or

    ii. Directly by the Secretary of the Interior in states without approved programs.

mm. *Letter of Map Revision (LOMR).* FEMA's official revision of an effective Flood Insurance Rate Map (FIRM) or Flood Boundary and Floodway Map (FBFM), or both. LOMRs are generally based on the implementation of physical measures that affect the hydrologic or hydraulic characteristics of a flooding source and thus result in the modification of the existing regulatory floodway, the effective Base Flood Elevations (BFEs) or the Special Flood Hazard Area (SFHA).

nn. *Letter of Map Revision Based on Fill (LOMR-F).* FEMA's modification of the Special Flood Hazard Area (SFHA) shown on the Flood Insurance Rate Map (FIRM) based on the placement of fill outside the existing regulatory floodway.

oo. *Levee.* A manmade embankment, usually earthen, designed and constructed in accordance with sound engineering practices to contain, control, or divert the flow of water so as to provide protection from temporary flooding. For a levee structure to be reflected on the FEMA FIRMs as providing flood protection, the levee structure must meet the requirements set forth in 44 CFR 65.10.

pp. *Levee System.* A flood protection system which consists of a levee, or levees, and associated structures, such as closure and drainage devices, which are constructed and operated in accordance with sound engineering practices.

qq. *Lowest Floor.* The lowest floor of the lowest enclosed area (including basement). Any floor used for living purposes which includes working, storage, sleeping, cooking and eating, or recreation or any combination thereof. This includes any floor that could be converted to such a use such as a basement or crawl space. The lowest floor is a determinate for the flood insurance premium for a building, home or business. An unfinished or flood-resistant enclosure, usable solely for parking of vehicles, building access or storage, in an area other than a basement area, is not considered a building's lowest floor, provided that such enclosure is not built so as to render the structure in violation of the applicable non-elevation design requirements of Section 60.3 of the National Flood Insurance Program regulations.

rr. *Manufactured Home.* A structure, transportable in one (1) or more sections, which is built on a permanent chassis and is designed for use with or without a permanent foundation when connected to the required utilities. The term manufactured home does not include a recreational vehicle.

ss. *Manufactured Home Park or Subdivision.* A parcel (or contiguous parcels) of land divided into two (2) or more manufactured home lots for rent or sale.

tt. *Mean Sea Level.* For purposes of the National Flood Insurance Program, the North American Vertical Datum (NAVD) of 1988 or other datum, to which Base Flood Elevations shown on a Community's Flood Insurance Rate Map are referenced.

uu. *Material Safety Data Sheets (MSDS).* A form with data regarding the properties of a particular substance. An important component of product stewardship and workplace safety, it is intended to provide workers and emergency personnel with procedures for handling or working with that substance in a safe manner, and includes information such as physical data (melting point, boiling point, flash point, etc.), toxicity, health effects, first aid, reactivity, storage, disposal, protective equipment, and spill-handling procedures.

vv. *National Flood Insurance Program (NFIP).* FEMA's program of flood insurance coverage and floodplain management administered in conjunction with the Robert T. Stafford Relief and Emergency Assistance Act. The NFIP has applicable Federal regulations promulgated in Title 44 of the Code of Federal Regulations. The U.S. Congress established the NFIP in 1968 with the passage of the National Flood Insurance Act of 1968.

ww. *New Manufactured Home Park or Subdivision.* A manufactured home park or subdivision for which the construction of facilities for servicing the lots on which the manufactured homes are to be affixed (including, at a minimum, the installation of utilities, the construction of streets, and either final site grading or the pouring of concrete pads) is completed on or after the effective date of Flood Plain Management Regulations adopted by the City.

xx. *No-Rise Certification.* A record of the results of an engineering analysis conducted to determine whether a project will increase flood heights in a floodway. A No-Rise Certification must be supported by technical data and signed by a registered Colorado Professional Engineer. The supporting technical data should be based on the standard step-backwater computer model used to develop the one-hundred-year floodway show on the Flood Insurance Rate Map (FIRM) or Flood Boundary and Floodway Map (FBFM).

yy. *Physical Map Revision (PMR).* FEMA's action whereby one (1) or more map panels are physically revised and republished. A PMR is used to change flood risk zones, floodplain and/or floodway delineations, flood elevations, and/or planimetric features.

zz. *Recreational Vehicle.* A vehicle which is: (a) built on a single chassis; (b) four hundred (400) square feet or less when measured at the largest horizontal projections; (c) designed to be self-propelled or permanently towable by a light duty truck; and (d) designed primarily not for use as a permanent dwelling but as temporary living quarters for recreational, camping, travel or seasonal use.

aaa. *Special Flood Hazard Area.* The land in the floodplain within a Community subject to a one (1) percent or greater chance of flooding in any given year, i.e., the one-hundred-year floodplain.

bbb. *Start of Construction.* The date the building permit was issued, including substantial improvements, provided that the actual start of construction, repair, reconstruction, rehabilitation, addition, placement or other improvement was within one hundred eighty (180) days of the permit date. The actual start means the first placement of permanent construction of a structure on a site, such as the pouring of slab or footings, installation of piles, construction of

columns or any work beyond the stage of excavation or the placement of a manufactured home on a foundation. Permanent construction does not include land preparation, such as clearing, grading and filling; nor does it include the installation of streets and/or walkways; nor does it include excavation for a basement, footings, piers or foundations or the erection of temporary forms; nor does it include the installation on the property of accessory buildings, such as garages or sheds not occupied as dwelling units or not part of the main structure. For a substantial improvement, the actual start of construction means the first alteration of any wall, ceiling, floor or other structural part of a building, whether or not that alteration affects the external dimensions of the building.

ccc. *Structure.* A walled and roofed building including a gas or liquid storage tank, which is principally above ground as well as a manufactured home.

ddd. *Substantial Damage.* Damage of any origin sustained by a structure whereby the cost of restoring the structure to its before-damaged condition would equal or exceed fifty (50) percent of the market value of the structure just prior to when the damage occurred.

eee. *Substantial Improvement.* Any reconstruction, rehabilitation, addition or other improvement of a structure, the cost of which equals or exceeds fifty (50) percent of the market value of the structure before the start of construction of the improvement. The value of the structure shall be determined by the local jurisdiction having land use authority in the area of interest. This includes structures which have incurred substantial damage regardless of the actual repair work performed. The term does not however, include either:

1. Any project for improvement of a structure to correct existing violations of state or local health, sanitary or safety code specifications which have been identified by the local code enforcement official and which are the minimum necessary conditions; or

2. Any alteration of an historic structure provided that the alteration will not preclude the structure's continued designation as a historic structure.

fff. *Threshold Planning Quantity (TPQ).* A quantity designated for each chemical on the list of extremely hazardous substances that triggers notification by facilities to the State that such facilities are subject to emergency planning requirements.

ggg. *Variance.* A grant of relief from the requirements of this Subsection when specific enforcement would result in unnecessary hardship. A variance, therefore, permits construction or development in a manner that would otherwise be prohibited by this Subsection. (For full requirements see Section 60.6 of the National Flood Insurance Program regulations.)

hhh. *Violation.* The failure of a structure or other development to be fully compliant with the City's floodplain management regulations. A structure or other development without the elevation certificate, other certifications, or other evidence of compliance with Section 60.3(b)(5), (c)(4), (c)(10), (d)(3), (e)(2), (e)(4) or (e)(5) of the National Flood Insurance Program regulations is presumed to be in violation until such time as that documentation is provided.

iii. *Water Surface Elevation.* The height, in relation to the North American Vertical Datum (NAVD) of 1988 (or other datum, where specified), of floods of various magnitudes and frequencies in the floodplains of coastal or riverine areas.

(Ord. No. 19-2018 , § 2(Exh. A), 8-2-2018; Ord. No. 15-2020 , § 2(Exh. A), 7-2-2020; Ord. No. 21-2020 , § 3, 9-17-2020; Ord. No. 3-2021 , § 2(Exh. A), 5-20-2021)

City Council
STAFF REPORT
City of Glenwood Springs
July 21, 2022

Agenda Item:	Community Wildfire Protection Plan Update
Action Requested:	NA
Department:	Fire Department
Presented By:	Gary Tillotson
Strategic Goals:	Ensure Public Safety
Background Info:	Brief update on fire protection planning.
Issues:	NA
Fiscal Impact:	NA
Legal Review:	NA
Staff Recommendation:	NA

City Council

STAFF REPORT

City of Glenwood Springs

July 21, 2022

Agenda Item: Update on Cul-De-Sac Parking

Action Requested:

Department: City Administration

Presented By:

Strategic Goals:

Background Info:

Issues:

Fiscal Impact:

Legal Review:

Staff Recommendation:

City Council Staff Report

Date: 7.12.2022

To: City Council

From: Danielle Campbell, Economic Development Specialist

Subject Consideration to Advance North Landing Vision and Funds for Construction Drawings.

REQUEST	Enter contract with DHM for construction drawings of North Landing.
APPLICANT	City of Glenwood Springs
LOCATION	North Landing
ZONE	Not applicable

REQUIRED ACTION

Enter contract with DHM for construction drawings of North Landing. DHM is a sub consultant of 6th Street improvements. Their existing work will be able provide a cohesive design and aesthetic alignment of North Landing to 6th Street.

Background

North Landing has been a discussion for years following the 6th Street 2016 Master Plan and has multiple concept iterations. However, the project has been put on a hold due to the pandemic and Grizzly Creek Fire. The Parks and Recreation Commission has re-identified North Landing as a priority this year, especially with the future redevelopment of 6th street. Understanding this cannot happen in a vacuum, the Downtown Development Authority (DDA), Parks and Recreation Commission, the Arts and Culture Board, and North Glenwood Community came to a consensus on a unified vision of North Landing.

Public Process

The process included at least two representatives from the Downtown Development Authority Board, Parks and Recreation Commission, Art and Culture Board, and North Glenwood Community. Representatives participated in two public meetings facilitated by City Staff to identify the elements and aesthetics of North Landing. Resulting in the consensus of a conceptual look book.

Once look book was developed, City Staff presented to the Downtown Development Authority Board, Parks and Recreation Commission, and Art and Culture Board for approval. Each board approved the look book. City Staff also had an open house for the North Glenwood Community an opportunity to address questions and give comment on the look book.

Public Comment

Letter of approval from DDA is attached. Parks and Recreation Commission approved the lookbook 4 to 1. Art and Culture Board approved the lookbook 6 to 0. Lookbook North Glenwood public comment cards were received and attached.

Additional Items to Address

During the process and look book approval two items were identified as a need for further study including vendors and placement of elements on North Landing.

Vendors:
During the public process, it was important to participants to have vendors at North Landing, where popup vendors, food trucks and events could be held. However, there is a split on whether to incorporate a permanent vendor structure. The concern of a permanent vendor is to have the structure dominate the site and the ability to keep the space active for most of the year. The positives heard of having a permanent vendor would be to create a destination, consistent activity when events are not occurring, encourage activity and spur private investment on 6th street.

To address permanent vendors staff recommends exploring the feasibility to staff a vendor space or opportunities to lease to a local business.

Location of Elements:
In addition to the look book, City Staff developed a conceptual bubble diagram that incorporated the elements of the look book on the site. The original diagram indicated a multipurpose space in the North portion of North Landing and seating area in the South. Parks and Recreation Commission and the Arts and Culture Board would desire to see performances in the South. However, the Downtown Development Authority favored multipurpose space in the North and seating in the south of the site.

To address concerns from Parks and Recreation Commission and Arts and Culture Board, Staff recommends exploring the feasibility of incorporating two multipurpose spaces on North landing in the South and the North during the production of construction drawings.

Action Item and Staff Recommendation

Approval for staff to negotiate contract with DHM for construction drawings for North Landing for an amount to not exceed $150,320. Staff anticipate an ask for $150,320 from the A&I funds that were set aside for 6th Street construction.

Staff recommends allocating funding to move forward with construction drawings. Address the feasibility of permanent vendors and element locations during construction drawing phase. Limit moving of utilities, preserve natural typography, acknowledgment of noise on the southern end of the site, and prioritize life and safety. DHM is a sub consultant of 6th Street improvements. Their existing work will be able provide a cohesive design and aesthetic alignment of North Landing to 6th Street.

DHM DESIGN
LANDSCAPE ARCHITECTURE | LAND PLANNING | ECOLOGICAL PLANNING | URBAN DESIGN

July 6, 2022

Danielle Campbell
Economic Development Specialist
City of Glenwood Springs
Via email to: Danielle.campbell@cogs.us

RE: North Landing Park – *Revised SOW (program evaluation, work session, property title + ILS option)*

Danielle -

Thank you for the opportunity to submit our proposal for design and technical document services for the community park improvements at the North Landing Park site. We are excited to be supporting the 6th Street streetscape design and this project dovetails well into that process.

From our phone conversation in early June, we understand that the scope of work will include advancing design and documentation for: multi-use stage, restroom building, seating, viewing terraces, natural shade, public art, and alternative(s) for a concessionaire-style vendor space. We also understand that studies have been completed as a part of the corridor master plan in 2017, with additional outreach and evaluation in early 2022 resulting in a refined articulation of the vision for program and materials. We recognize that additional design investigation of feasibility of the site design is likely given several technical realities of the site, including major underground infrastructure and the substantial grade change at the south end of the site. The design is to tie directly into the new 6th Street improvements along the north property boundary (R.O.W.), and engage the multi-use pedestrian path and pedestrian bridge landing to the east. Our proposal includes two options for advancing the building for the project: Option 1 includes a pre-designed restroom structure with limited customization: Option 2 includes a custom restroom and vendor space designed as a unique architectural element to enliven the park. Broadly, the park space should have its own character and identity, but be cohesive with the broader 6th Street improvements and should also reference the successful pedestrian and streetscape improvements at 7th Street.

Our team includes Boundaries Unlimited, who will be responsible for civil engineering and survey; and Keo Studioworks, who will oversee the architectural design and documentation for the building. The intent is to align, where possible, the advancement of design and documentation of this work with the 6th Street improvements; we have scoped the deliverables for the North Landing Park to be packaged as stand-alone documents formatted to be suitable for grant- or other partner-funded opportunities.

Our scope of work and fee summary is provided below; please do not hesitate to contact me with questions as you review our materials.

Regards,
Jason Jaynes
dhm design

Base Scope of Work (includes restroom Option 1)

Task 1: Project Initiation and Data Collection

Tasks include: overall project startup, scheduling, team management, site survey, utilities coordination and potholing (estimate for 1 day), and initial civil engineering evaluation. This Task includes an allowance of $11,900 for title commitment ($900), ISP ($5,000) and geotechnical subsoils investigation ($6,000).

Task 1 fee: $30,180

Task 1a: Site and Program Evaluation

Task includes review of arrangement of program on site related to site design, site survey, and physical infrastructure, with a presentation to council and the public (via work session or similar venue) outlining the feasibility and pros/cons of specific program decisions. Task includes site visit, review of updated survey and potholing information, evaluation of site arrangement options, development of presentation in coordination with staff, and presentation to council.

Task 1a: $4,500

Task 2: 60% / FIR (approximate 6-week active duration)

Individual Task 2 efforts include: design kick-off meeting, one schematic alternative study (if necessary), 60% design package with conceptual site grading, illustrative site plan, restroom/vendor options, planting zone diagram, representative imagery of materials, preliminary site details, preliminary irrigation plans, preliminary civil plans and details, and coordination with factory built restroom structure (or conceptual design options for custom structure, with review meeting and refinement to schematic design). Summary of approximate quantities/draft EOPC, draft specifications manual (CDOT standard and general conditions to be based off of 6th street deliverables).

Meetings: 2 design presentations (may include city council, DDA, etc); 3 project team meetings (1 in person and 2 via web)

Task 2 fee: $48,000

Task 3: Final Design 90% / Draft FOR (approximate 5 week active duration)

Task 3 efforts include: design revision per 60% review. 90% drawing package refining the 60% materials. Ongoing coordination with manufacturer for factory-built structure (or refinement of custom structure to final design, including structural engineering and MEP). Revised summary of quantities and EOPC, revised specifications manual (CDOT specials).

Meetings: 3 project team meetings (up to 2 in person).

Task 3 fee: $19,280

Task 4: 100% CD / Bid Set (approximate 3 week active duration)

Task 4 efforts include: finalization and submittal of the 100% CD drawing and specification package to the City; revised summary of approximate quantities; EOPC.

Meetings: up to 2 project team meetings via web conference.

Task 4 fee: $13,280

Task 5: Construction Period

Proposed construction period services include support for city staff during contractor selection (specifically bid review and pre-bid meeting; response to bidder questions), coordination with prefabrication company for structure (or on-site CA of building construction), RFI's, OAC meetings, field reporting, punch list, and close-out. The project team will leverage the CA fee value as an allowance, supporting city staff where needed and tracking the total fee value against construction progress.

Task 5 fee: $20,060

Total printing and mileage budget allowance: $500.00

Option 2 (custom restroom / vendor space)

Option 2 includes the custom design, documentation, and detailing of a restroom and vending building. The fees noted below are in addition to the base fee outline above. Should the project proceed with a combination of Options 1 and 2 for individual phases of work, our team will add the Option 2 fee by phase until the preferred program, design, and implementation method is determined for the building. Note: implementation of the factory-built structure requires additional coordination, drawing review, and approval process during the CA phase. As such, the base Option 1 carries a higher CA allowance than Option 2, resulting in a cost reduction in Task 5.

Task 1: $ 900
Task 2: $4,340
Task 3: $6,500
Task 4: $3,600
Task 5: $ (820)

Total additional cost, Option 2: $14,520

Project Fee Summary, base scope:

Task 1, Project startup, survey:	$ 30,180
Task 1a, Program alts evaluation:	$ 4,500
Task 2, 60% CD / FIR:	$ 48,000
Task 3, 90% CD:	$ 19,280
Task 4, CD / FOR:	$ 13,280
Task 5, CA:	$ 20,060
Reimbursables:	$ 500
Base Scope total:	***$135,800***

Professional Fees: The billing for the work outlined herein will be done on a monthly basis for time and materials to the not to exceed fees as identified above. The top-set number as provided is sufficient for the tasks as we know them at this time. An itemized statement will be sent monthly, and payment is due within 45 days of receipt. In addition to the fee amounts, the following will be billed as reimbursable expenses at our direct costs: Xerox copies, computer plotting, deliveries, postage, and any consumable supplies required during construction administration (eg, plant flagging/staking materials). Mileage is reimbursed at the current federal rate.

DHM DESIGN

Scope Coordination

Scope Assumptions: DHM has made a series of assumptions regarding our level of project participation, the requisite effort to provide high-quality design and technical documents, team member responsibility and overall division of scope, and internal team coordination. Should any of our assumptions be incorrect based on the needs of owners, we would be happy to revisit our scope and fees. Should additional products be required for any reason, DHM will provide these products hourly at our standard rates.

Additional Services: Should additional services become necessary due to phasing and/or major design changes due to reasons beyond the control of this office, this work will be done on an hourly basis. If this work becomes significant we may, at your request, submit a proposal at that time which will identify the extent of any additional work prior to commencement of the work. We do not anticipate developing three dimensional modeling as a part of this scope of work. DHM has the capability to provide renderings or 3-D studies to more fully illustrate design intent and can provide these products for an additional fee.

Services Not Included: Permitting submittal management, public outreach process, illustrative perspective materials, geotechnical soils investigation, raw water irrigation/pumping systems, lighting design (beyond civil site layout and fixture selection coordination with city staff), structural design of pre-fabricated building.

Acceptance: This agreement may be terminated at any time by the Owner or DHM Design Corporation upon giving (7) days written notice. Work performed up to the date of termination shall be due and payable and shall be included in the final statement. This agreement, unless previously terminated by written notice, shall be terminated by the final payment for the finished work.

Thank you for considering DHM as a member of the project team. Please do not hesitate to call with any questions as you review this letter. We look forward to the opportunity to work with you on this project.

Respectfully,
DHM Design

Jason Jaynes, Principal

Acceptance and Authorization to proceed:

Signature **Printed Name** **Date**

City Council
STAFF REPORT
City of Glenwood Springs
July 21, 2022

Agenda Item: Affordable Housing Ad Hoc Update

Action Requested: This is an update from the Glenwood Community Housing Coalition.

Department: Economic and Community Development

Presented By: Jenn Ooton

Strategic Goals: Protect and Preserve our Quality of Life
Generate Sustainable Economic Development

Background Info: The Glenwood Community Housing Coalition has been meeting regularly since May to further analyze sources of funding for affordable housing in Glenwood Springs.

Seven meetings were held in English and Spanish from late January with the final meeting of the original Ad Hoc Committee occurring on April 19, 2022.

On May 19, following a presentation by the Ad Hoc Committee, Mayor Pro-Tem Willman moved, seconded by Councilor Kaup, to support the recommendations of the Ad Hoc Committee. Council asks them to continue to work with other people, authorizes the City Manager up to fifty thousand dollars, if necessary, for a survey and asks that the entire process move forward as quickly as possible, in order to come back to Council, so if this a viable thing that the community coalesces around and wants to vote for, it can be put on the ballot in November, and to make this a top priority for staff.

Since then, an expanded group of interested participants has been meeting on Mondays and has held two business roundtable meetings, in addition to direct outreach to other business and anchor institutions. WR Communications also conducted surveys related to two different potential ballot questions that could be put before the voters.

The Glenwood Community Housing Coalition has studied several possibilities for tax measures and is nearing making a recommendation to Council about a ballot measure to fund affordable housing, but would like to make a presentation regarding the work over the past 8 weeks. The group also seeks to understand the willingness to put a measure on this November's ballot. The Glenwood Community Housing Coalition - the newly renamed Ad Hoc Committee - is seeking direction from Council regarding next steps for a potential funding source for Affordable Housing with time needed to pull together a citizen's petition, if it is necessary.

Issues: For a Citizen's initiated petition, the City Clerk must receive the signatures within 21 days of when the petitioner starts collecting. September 9 is the last day for the County to certify ballot content. August 4 is the last day to start collecting signatures, if a group wanted to use the full 21 days for signature collection. If the group uses the full 21 days, the Clerk would start checking signatures the Thursday before the Sept. 1 Council meeting.

Fiscal Impact: N/A

Legal Review: N/A

Staff Recommendation: Staff defers to Council.

City Council
STAFF REPORT
City of Glenwood Springs
July 21, 2022

Agenda Item: Urban Forestry and Beetle Kill

Action Requested: NA

Department: Parks & Recreation

Presented By: Brian Smith

Strategic Goals: Preserve and Improve Infrastructure
Protect and Preserve our Quality of Life
Ensure Public Safety

Background Info: Trees provide essential ecosystem and economic benefits such as energy cost savings, storm water absorption, and carbon sequestration. Climate change is now causing major symptoms in our ecosystem with a drastic increase in disease and parasites and trees and vegetation dry out. Glenwood Springs trees are being threatened by Ips Beetles. They develop under the bark and produce girding tunnels that can cause dieback and kill trees. It is vital that a proper response is coordinated with the pubic to protect our urban canopy.

Information included in the packet:

- The grant program draft outline
- Tree species guide draft
- Tree analytics (canopy count and health – outdated inventory count, currently being updated)
- A draft outline for an urban forestry board
- The first 20 pages from the updated Urban Forestry Management plan
- Immediate forestry needs budget list (not a full budget)
- Several Ips beetle flyers (Pinion Ips is most relevant)

Issues: Ips Beetle is quickly spreading throughout the city from both western and eastern neighboring towns, killing trees around the community. Dying and dead trees are a huge fire risk. Infected trees threaten other trees and could devastate our urban canopy if left unmitigated. Minimizing infections can help to minimize costs for treatment and prevent spread. This issue will likely persist a the effects of climate change worsen.

Fiscal Impact: Unknown

Legal Review: NA

Staff Recommendation: NA

Urban Forestry Assistant Program

Grant Description:
Glenwood Springs is in need of a Hazardous Tree Services Grant Program to provide aid to Glenwood Springs residents for assessment, removal, pruning, or treatment of dead or dying hazard trees which qualify as posing significant risk. Since the inception of the tree ordinance requiring homeowners to be responsible for ROW trees, the City has seen many residents come forward with requests for tree care and removal assistance. Unfortunately, with the requests coming in to a variety of departments and with the changes in leadership, many citizens have expressed confusion as to when and why the city provides assistance. It is Parks' recommendation that a grant program be established to help mitigate these issues and manage these requests.

Size of the Grant: up to $1,500 MATCH.

Qualifying Details: Candidacy of trees for the program is to be determined by, and at the full discretion of the city Arborist and/or Urban Forestry Board based via a free assessment and list of qualifying factors.

Award Details:

Option A) Following the assessment, qualifying applicants must agree to and remit payment for their portion for immediate tree removal, pruning, OR treatment services. All services will be arranged by a city arborist and/or Urban Forestry Board representative. Stump removal is not included in the grant program and is a separate cost incurred by the property owner.

Option B) Following the assessment, qualifying applicants must agree to and schedule immediate tree removal, pruning, OR treatment services with an approved contractor (approved by city arborist/Urban Forestry Board). Following tree removal, pruning, OR treatment, and submission of a receipt, grant money in the predetermined amount will be paid as a match to the qualifying property owner. Stump removal is not included in the grant program and is a separate cost incurred by the property owner.

Funding Information: A reimbursement of 50% up to $1,500 for removal, 50% up to $1,000 for pruning (for hazard or health), OR 50% up to $250 for treatment may be given.

Eligibility Criteria:

- ➔ Available to City of Glenwood Springs residential and commercial property owners only.
- ➔ Only one tree and type of service per property per two-year period.
- ➔ Tree must be assessed by a City employed or approved certified arborist to determine eligibility. ISA standards will be used to determine qualifying level of need for assistance..

⚠ YOUR TREES ARE AT RISK ⚠

Glenwood Springs trees are being threatened by Ips Beetles. They develop under the bark and produce girdling tunnels that can cause dieback and kill trees.

CITY OF GLENWOOD SPRINGS COLORADO

Why is this important?

- Trees provide essential ecosystem and economic benefits such as energy cost savings, storm water absorption, and carbon sequestration.
- Dying and dead trees are a huge fire risk.
- Infected trees threaten other trees and could devastate our urban canopy if left unmitigated.
- Minimizing infections can help to minimize costs for treatment and prevent spread.
- This issue will likely persist as the effects of climate change worsen.

Symptoms of Ips Beetle Infestation

- Yellowish- or reddish-brown dust accumulating in bark crevices or around the base of the tree
- Tree discoloration ("fade"); dieback at the top of the tree
- Woodpeckers feeding on the trunk or larger branches (they're a common predator of the Ips beetle)
- Small round holes in the bark. You'll usually see these after the beetles have already done their damage and exited the tree.

← For more information and resources visit www.cogs.us/beetles

Trees at Risk:

Newly transplanted trees, trees suffering root injuries from construction, trees surrounded by large breeding populations of Ips beetles, and trees experiencing climate stressors.

TAKE ACTION

Remember – property owners are responsible for trees on your property AND in the adjacent right-of-way!

- Closely monitor spruce and pine trees for infection. Notify the City immediately if you suspect your tree is infected.
- Wait until temperatures drop to cut down trees to limit the spread of beetles.
  - This winter, cut down infested trees and remove infested logs from your property and have them debarked or chipped.
- Ensure trees are properly irrigated. Adequately, but not excessively, water on your scheduled watering days.
- Store freshly cut branches or logs, or stack unseasoned firewood, a mile or more away from susceptible trees as it will attract the beetles.
  - Cover piles of cut wood in a minimum of 6 mil. plastic and seal edges with soil. Leave for two to four weeks to ensure solarization.
- Consider preventive insecticide applications before infestation. Treatment is only effective if the tree has not yet been attacked. Plan to treat trees next year, before beetles emerge (late February or early March).

Contact: Heather Listermann, Parks & Recreation
970.471.4063 | heather.listermann@cogs.us

TREES & SHRUBS

Ips Beetles no. 5.558

by W. Cranshaw and D.A. Leatherman[1]

Quick Facts...

Ips is a common group of bark beetles that infests pine and spruce trees.

Ips beetles rarely attack healthy trees. Most problems with ips occur to newly transplanted pines or when plants are under stress.

Several generations of ips can occur in a season.

There are 11 species of ips beetles found in Colorado.

Ips beetles, sometimes known as "engraver beetles," are bark beetles that damage pine and spruce trees. They develop under the bark and produce girdling tunnels that can cause dieback and kill trees. Eleven species of ips beetles occur in Colorado (see Table 1).

Ips beetles are generally not considered as destructive or aggressive as bark beetles in the genus *Dendroctonus* (mountain pine beetle, spruce beetle, Douglas-fir beetle). Normally ips beetles limit their attacks to trees that are in decline due to root injuries, wounding, or other stresses. However, under widespread conditions which allow improved survival and large population build-ups, ips beetles are a considerable threat to living trees. Two factors that recently contributed to ips beetle problems in Colorado include: prolonged drought stress; and the creation of freshly-cut wood (which is a prefered breeding site) from forest homeowner efforts to reduce wildfire hazards.

Ips beetles are small (1/8 to 3/8 inch long), reddish-brown to black beetles. They have a pronounced cavity at the rear end, which is lined with three to six pairs of tooth-like spines, depending on the species. The latter feature distinguishes them from other bark beetles (see Figure 1).

Symptoms of Ips Beetle Injury

As adult ips beetles enter trees and tunnel, a yellowish- or reddish-brown boring dust is produced and accumulates in bark crevices or around the base of the tree. When the larval tunnel, affected parts of the tree discolor ("fade") and die. These symptoms may be limited to parts of the tree, such as a single branch or the top. However unlike mountain pine beetle, infestation by ips beetles does not necessarily mean the whole tree will die, but over time, attacks may progress as later generations "fill" the tree and then ultimately the host can die.

Small round holes in the bark of infested trees indicate the beetles have completed development in that part of the tree and the adults have exited. The presence of these holes peppering the bark show the beetles have moved to another part of the same tree or to neighboring trees.

Woodpeckers are common predators of ips beetles. Their presence may also

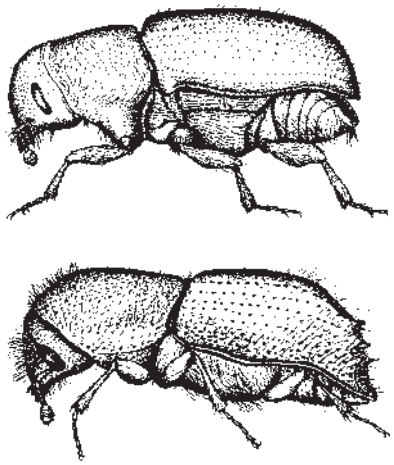


Figure 1: Adult *Dendroctonus* (top) versus *Ips* (bottom). Note gradually curved wing of *Dendroctonus*. Actual size of *Dendroctonus* from 1/8 to 1/3 inch, *Ips* 1/8 to 3/8 inch.

Colorado State University Cooperative Extension

Table 1. Common ips beetles (*Ips* species) affecting pines and spruce in Colorado.

Species	Hosts	Comments
Ips hunteri	Spruce	This is a common species affecting Colorado blue spruce in landscape settings. Upper portions of the tree are typically infested first.
Ips pilifrons	Spruce	A forest species often called the "spruce ips"; tends to infest the upper part of fallen trunks.
Ips pini	Ponderosa, lodgepole	The most common species associated with other pines pines in Colorado.
Ips knausi	Ponderosa pine	Common at base of trunk and in fresh stumps.
Ips calligraphus	Ponderosa pine	Largest ips species in Colorado; often in main trunk.
Ips confusus	Piñon, rarely other pines	Periodically kills piñons over large areas.
Ips latidens	3- and 5-needled pines	
Ips borealis	Engelmann spruce	
Ips integer	primarily Ponderosa pine	
Ips woodi	Limber pine	
Ips mexicanus	Lodgepole and limber pines	

Boring dust at the base of a pine tree. Reddish boring dust is caused by ips beetles. The whitish dust is from ambrosia bark beetles.

Tunneling by *Ips hunteri* in blue spruce.

Note: *Concentrations of insecticides used to control bark beetles are often considerably greater than those used for insects on foliage. To avoid needle burning, try to limit the application to the bark, particularly when using liquid (emulsifiable concentrate) formulations that have increased risk of causing plant injuries.*

indicate bark beetle activity. Woodpeckers often remove the tree bark in an effort to obtain this food source. This habit results in ragged holes or patches of missing bark on the tree.

Generalized Life History

Adults overwinter under the bark or in surrounding litter at the tree base. They begin to attack weakened trees in the spring. Initially the male enters the tree, constructs a cavity under the bark known as the "nuptial chamber." Females are attracted to the tree by chemicals (pheromones) produced by the male.

After mating, females (usually three) excavate egg galleries off the central chamber. The tunnels produced by the adults appear as a "Y"- or "H"-shaped pattern. These galleries are mostly free of boring dust, which is pushed out of the entrance hole as the adult beetles work. These "cleared out" galleries have a different appearance than the debris-filled galleries of *Dendroctonus*. Eggs are laid along the gallery and young larvae soon hatch and begin tunneling smaller lateral galleries that lightly etch the sapwood. They are small grubs, about 1/4 inch long when mature, white to dirty gray, legless, with dark heads. In Colorado, two to four generations of these beetles usually develop per year.

Management

To prevent ips beetle attacks, use practices that promote vigorous tree growth. Properly siting trees in landscape plantings is important to allow optimal growing conditions as the tree matures. Adequate – but not excessive – water may be needed. Root injuries caused by mechanical damage, compaction, or disease should be avoided.

Freshly-cut material that results from pruning or thinning practices (called "slash") should be removed from the vicinity of valuable trees. Never stack green or infested coniferous wood next to living coniferous trees. Such green woody material should be chipped or treated so that the inner bark area is destroyed. Ips larvae will not survive standard chipping or debarking treatments. Other treatments could include scattering (as opposed to piling) slash to promote rapid drying.

Trees at risk of ips attack include newly transplanted trees, trees suffering root injuries from construction, and trees surrounded by large breeding populations of ips beetles. These types of trees can benefit from preventive insecticide applications.

Insecticides are used as drenching preventive sprays on the trunks and larger branches. These insecticides need to be applied prior to adult beetle infestation. (Remember that overwintering beetles begin emerging in spring as soon as daytime temperatures consistently reach 50 F to 60 F.) However, timing can be difficult to determine since ips beetles can have multiple, overlapping generations and life cycles. Adults have been observed entering trees during warm days as early as late-February on through November. Because of this extended activity, two treatments (early spring and summer) may be needed to protect trees during high-risk conditions.

Top dieback of spruce from drought stress and ips attack.

Storing cut firewood near susceptible trees greatly increases the risk of ips beetle attack.

Colorado State FOREST SERVICE

This fact sheet was produced in cooperation with the Colorado State Forest Service.

[1]W. Cranshaw, Colorado State University Cooperative Extension entomologist and professor, bioagricultural sciences and pest management; and D.A. Leatherman, Colorado State Forest Service entomologist.

Insecticides used to prevent ips include either permethrin or carbaryl (Sevin) as the active ingredient. There are many products currently on the market containing these active ingredients. Follow the manufacturer's recommendation for the proper rate for bark beetle treatment. Bark beetle applications at the labeled rate should provide at least three months control of ips beetles.

When a preventively-sprayed tree later dies of beetle attack, it is usually for one of the following reasons: 1) the tree was sprayed after it was attacked; 2) the spray was applied at too dilute a rate; 3) the entire bark surface of the susceptible part of the tree was not sprayed; or 4) the material wore off and was no longer effective.

Insecticide applications are not needed when ips beetles do not pose a serious risk to healthy trees. Ips problems are often an issue for a few years, then lessen naturally to non-threatening levels. This is the normal condition in Colorado. A rule of thumb when deciding if preventive treatments are needed is to survey for infested groups of bark beetle-killed trees (as determined by dead foliage) within sight of the live trees in question. Also, transplants or recently disturbed trees in natural forest areas or near other known sources of ips may warrant protection. Tree value, of course, is always a consideration. There is often more interest in protecting high-value trees such as those around residences, golf courses, or in other highly visible settings.

No chemical treatment exists for trees or wood already infested by ips beetles. In rare cases where it is feasible to reduce the threat to live trees by killing beetles within infested trees before they exit, treatments involve bark removal, chipping the wood into small pieces, covering piles with a double-layer of 6-mil thick clear plastic sealed around the edges with soil to heat (solarize) the wood, or physical removal of infested material from the site to an area a mile or more from susceptible trees.

Ips confusus pitch tubes on infested pinyon pine trunk.

Ips pini egg galleries under bark of ponderosa pine trunk.

Issued in furtherance of Cooperative Extension work, Acts of May 8 and June 30, 1914, in cooperation with the U.S. Department of Agriculture, Milan A. Rewerts, Director of Cooperative Extension, Colorado State University, Fort Collins, Colorado. Cooperative Extension programs are available to all without discrimination. No endorsement of products mentioned is intended nor is criticism implied of products not mentioned.

COLORADO STATE FOREST SERVICE
COLORADO STATE UNIVERSITY

QUICK GUIDE SERIES FM 2020-6

Piñon Ips Bark Beetle

A northwest Colorado landowner points to an adult piñon Ips beetle discovered making a gallery underneath piñon pine bark. Photo: Dennis Brock, for CSFS

The piñon Ips beetle *(Ips confusus)* is a native Colorado insect with a notable ability to take advantage of environmental changes and spread rapidly. In the southwest part of the state, this insect kills more mature piñon pine trees than any other pest.

Colorado's weather patterns help create ideal conditions for many bark beetle populations to increase, including piñon Ips. Oscillations between warm and dry spells throughout much of the state have become all too frequent. During periods of below average precipitation and warmer than average temperatures, trees become stressed from a lack of water. Stressed trees have a difficult time defending themselves against beetles and succumb to infestations easier than healthy trees. As more trees become infested, beetle populations increase, resulting in widespread tree mortality.

Not only can piñon Ips beetles attack stressed trees, they also can reproduce in any fresh, green, recently cut material over 1 inch in diameter, such as green firewood or piles of branches left on the ground after pruning or cutting live piñon trees. Paying attention to how wood is stored is of the utmost importance when considering beetle life cycles and mitigating risk.

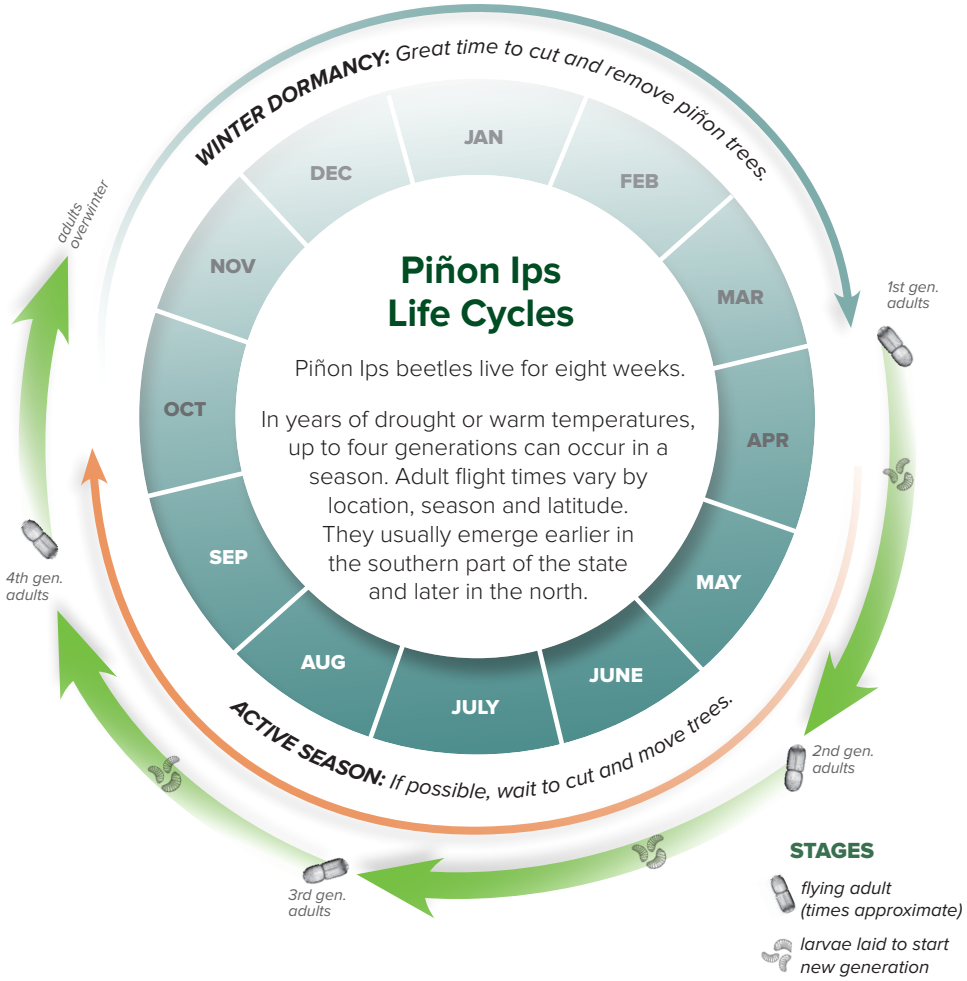
Homeowners and landowners can play a crucial role in minimizing the spread of piñon Ips by following the tips offered in this Quick Guide. Concentrated outbreaks can be addressed with a few simple actions that help keep populations of this insect in check.

This Quick Guide is produced by the Colorado State Forest Service to promote knowledge transfer.

Piñon Ips beetle. Photo: Pest and Diseases Image Library, bugwood.org

QUICK FACTS

- **IDENTIFICATION:** Piñon Ips bark beetles are often light to dark brown and small, about 4 millimeters long.
- **ACTIVITY BEGINS:** once daytime temperatures are consistently above 50 degrees.
- **ACTIVITY ENDS:** once daytime temperatures are consistently below 50 degrees.
- Piñon Ips beetles prefer piñon and only rarely attack other pine species. They will not attack juniper (cedar) trees.
- Ips is a common group of bark beetles that infests pine and spruce trees.
- There are 11 species of Ips beetles in Colorado. Only *Ips confusus* specializes in attacking piñon pines here and around the southwestern United States.
- All members of the Ips genus have spines along the ends of their wing covers (elytra).
- Ips beetles rarely attack healthy trees. Most attacks occur to newly transplanted pines or when trees are under stress.
- There are 45 species of Ips beetles worldwide, 31 of those are found in North America.



How Piñon Ips Attack

Piñon Ips beetles target piñon pines, which typically grow in harsh, low elevations below mixed-conifer/ponderosa pine forests of Colorado. Piñons often grow in proximity to juniper trees and lowland shrubs, where conditions are dry and precipitation fluctuations are normal.

These beetles are attracted to piñon trees with weakened defenses. Piñon Ips usually limit their attacks to trees that are in decline due to root injuries, wounding, compacted soil, winter damage, underwatering or overwatering. However, during high-stress environmental situations, such as drought, beetle populations can increase and pose a considerable threat, even to healthy trees. These beetles kill piñon trees by attacking in mass numbers, and they have to work fast because they only live for about eight weeks.

The trees die when adult beetles create galleries (tunnels) between the bark and wood of the trunk and branches, where they mate and lay eggs.

Piñon Ips beetle flight activity begins in early spring with an emergence of adults that overwintered underneath the bark. This first generation infests stressed trees, freshly cut green logs or firewood, or any green branches removed after tree cutting (called slash). The smell of fresh piñon sap attracts the beetles.

Before piñon Ips die, they mate and lay eggs to ensure another generation will survive. Piñon Ips beetles are prolific breeders and can produce up to four generations a year.

Once hatched, larvae begin creating small galleries in the tree layers under the bark (called phloem), which provide the tree with water and nutrients. The larval galleries cut off nutrients and water supply to the whole tree. This kills the tree by slowly starving it to death.

During development, larvae increase in size. Once they grow into adult beetles and harden their exoskeleton, they chew their way out of the bark. These new adult beetles must seek live or recently cut green piñon tree material to survive — suitable material that has nutrients to sustain larval growth within its phloem.

Signs and Symptoms of an Infestation

When piñon Ips attack, needles throughout the tree fade quickly to a straw color, then red and brown as the tree dies. Photo: Luke Dittrich, CSFS

Fading Needles

Following a successful beetle attack on a piñon, needles fade from green to a straw or rust color. On infested trees, needles continue to die, turning red and eventually brown.

By the time a piñon appears to be dying, the beetles likely have already emerged, moved on and attacked a new tree. In dry years, it is not unusual for needles to start fading just weeks after infestation. But in years with adequate precipitation, needles may slowly fade for several months after attack.

Pitch tubes are a sign the tree has tried to drown the piñon Ips beetle with sap as the insect bores into the tree. Photo: Kamie Long, CSFS

Pitch Tubes

These are a sign the tree's defense system has attempted to flush the wound and drown the beetle as it enters the bark. Pitch tubes are small, thumbnail-sized clumps of sap that appear on the bark where the beetles attempted to or successfully entered the tree. They have a reddish hue from the sawdust the beetles create as they bore through the bark. Pitch tubes only appear if the tree has enough moisture and energy available to produce sap to defend itself during an attack.

Piñon Ips exit holes, at the top of this section of bark, are small and concise, like BB holes. The larger hole, at center, is indicative of woodpecker activity feeding on larvae underneath the bark. Photo: Kamie Long, CSFS

Entry and Exit Holes

One easy way to tell if a tree is or was infested is to look for entry and exit holes in the bark. Entry holes can be accompanied by other signs, like pitch tubes and sawdust. Exit holes are nearly round and the size of a pinhead or BB pellet, made when adult beetles emerge from under the bark. If exit holes are present, even if the tree is still green, the beetles have likely emerged and flown to another tree.

Piñon Ips bore through a tree's bark, creating tunnel-like galleries underneath. Photo: Jerald E. Dewey, USDA Forest Service, bugwood.org

Galleries

Another way to diagnose if a tree is infested with piñon

Ips is by peeling a piece of bark off of the outside of the tree and looking for galleries in the inner bark (phloem and cambium). These characteristic tunnels are made by Ips adults and larvae underneath the bark, and usually form a Y or H shape. Piñon Ips galleries are typically free from boring dust created by their excavation, which sets Ips beetles apart from other bark beetles found in pine species.

Treatment and Prevention Tips

The best way to prevent Ips beetle attacks is to maintain a healthy forest. Thinning your forest, by spacing trees farther apart and removing those that are unhealthy or have dwarf mistletoe, may help increase individual tree health. Consult your local CSFS forester for information.

If dying or recently killed piñon trees are detected, or Ips beetles identified, all surrounding green trees should be inspected to determine if the beetles have successfully attacked other piñons.

Currently infested trees are usually still green and should be promptly removed. It is important to remove trees with beetle larvae or pupae from the property before they emerge and attack other green piñon trees. *(See section: How to Handle Wood)*.

Cutting Trees

» Remove trees infested with piñon Ips as soon as they are identified.

» To prevent colonization, ensure all material is dry (no green wood remaining) or removed from the site before late March.

» When bark is cracking and splitting from the wood, the tree is dry and beetles have already left. This wood is safe to move.

» Remove dead trees as time and money allow for wildfire hazard reduction and aesthetics. This can be done any time of year since there is no sap produced to attract these beetles.

» **BETWEEN APRIL AND OCTOBER:** Cutting during this time is not recommended unless personal safety is a concern. If green material must be cut when Ips beetles are most active, remove all material from site as quickly as possible (within days) and bury the stump to reduce chances of attracting beetles.

» **IN OCTOBER AND NOVEMBER:** As daytime temperatures fall below 50 degrees, beetles are unlikely to search out new material. This is a good time to split and scatter wood larger than 4 inches in diameter and cut branches into short pieces, leaving it in sunny locations to encourage rapid drying. That's important because early next spring, beetles may still attack previously cut material that is still green.

» **BETWEEN NOVEMBER AND FEBRUARY:** Winter is the beetle's inactive period and the best time to cut and remove infested green trees if beetle populations are high. Ensure any slash, chips or wood created is dry prior to beetle emergence in the spring.

» Thin forests during winter months to allow for more water, nutrients and sunlight for each tree. Creating more space between trees improves individual tree health and reduces wildfire intensity.

Winter Watering

» Watering favorite trees in the summer in periods of drought and also in winter months can help protect against tree stress.

» Conifer trees release moisture through their needles all year long in a process called transpiration. When the soil is dry from lack of moisture (snow or rain), trees can become stressed.

» During the winter, water favorite trees about once a month when there is no snow on the ground and the temperature is above 40 degrees. In some areas, this may only occur in the fall and early spring.

» Apply water at the edge of the tree crown's drip line, where rain would drip off. This area is where most of the absorbing tree roots are located. The root system of piñon trees includes tap and spreading roots, which can reach deep and out to twice the height of the tree.

Spraying

» Spray favorite trees with a preventive chemical at least two times per year to prevent bark beetle attack when beetle populations are high in the area.

Environmental and economic concerns around insecticide spraying exist, so homeowners must choose which trees to protect rather than treating large areas. Chemical treatments should never be applied on piñon trees that provide nuts for human consumption.

» Treatment options may include external sprays or injections. Follow insecticide labels for application. Depending on the insecticide, multiple treatments per year may be needed.

» Many products on the market contain ingredients necessary to kill bark beetles. Look at labels for active ingredients such as carbaryl, permethrin or bifenthrin.

» Use insecticides as a drenching spray on the entire trunk and all branches greater than 1 inch in diameter. Follow the manufacturer's recommendation for bark beetle treatment.

» Once a tree is infested, preventive insecticide treatments are ineffective and should not be used. Infested trees should be removed and disposed of properly.

Is The Wood Still Useable?

Once trees are identified as having a piñon Ips infestation, removing the wood should be done cautiously to avoid spreading the insect further. Cut material left at the base of live trees draws beetles in and allows them to overcome otherwise healthy trees. Move cut material at least 1 mile from any piñons. Photo: Austin Shelby, CSFS

Six Ways to Handle Infested Wood

Wood material infested with piñon Ips beetles should be handled cautiously, as should any previously cut green wood on a property. After cutting, piñon material may give off a scent that attracts beetles for up to six months.

Solar treatments, with or without clear plastic, are not effective at destroying the beetles, primarily because of their short life cycle.

Wood may be treated in the following ways to prevent this insect from spreading:

1. **GRIND (MASTICATE) OR CHIP LOGS AND SLASH.** This destroys the larvae and quickly dries the slash, making it useless for beetle reproduction. Grinding and chipping should be done ideally in November or December, when beetles are dormant and the material will have time to dry before more beetles emerge the next spring. On larger acreages, professional mastication may be an economical method of treatment.
2. **SPLIT AND SCATTER, DON'T STACK.** Wood larger than 4 inches in diameter should be split and scattered to encourage rapid drying before beetle flight resumes in the spring.
3. **TRANSPORT GREEN MATERIAL** to a site that is farther than 1 mile from any piñon trees.
4. **BURN INFESTED OR GREEN MATERIAL**, if burning regulations allow. Take care to remove cut green material from the site, instead of piling it, while beetles are active.
5. **BURY THE MATERIAL** more than 8 inches in the soil.
6. **DEBARK LARGE LOGS** with chainsaw attachments that assist stripping bark from logs. This exposes beetles to the elements.

Piñon wood that shows cracking, splitting and chipping bark is dry and safe to use. Photo: Adam Moore, CSFS

Piñon Ips beetles do not damage the wood inside a tree; it can still be used for lumber, firewood or other products once it has dried out. If bark is splitting or cracking, the wood is dry and safe to use.

If exit holes are present on standing dead trees, or all the needles have fallen off the tree, piñon Ips beetles likely have flown to another tree. Once beetles have left the tree, it can be removed any time of year and used for firewood or other purposes.

Piñon pines in southwest Colorado show fading, one of the symptoms of a piñon Ips beetle attack. Photo: Dan West, CSFS

Learn More

about piñon Ips bark beetle and piñon-juniper tree management on the CSFS website at **csfs.colostate.edu**, or contact your local foresters at the nearest Colorado State Forest Service field office.

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URBAN FORESTRY

MANAGEMENT PLAN

INTRODUCTION

History of Our Community Forestry Program

Glenwood Springs initiated a community forestry program in 1888 when the board of trustees authorized the building of irrigation ditches and planting shade trees on Cooper, Grand, Blake and Pitkin Streets. A contract was awarded for planting 3,000 trees at $.75 each.

A report was given in a council meeting in 1889 that some person had damaged several trees on Bennett Avenue between 8th and 9th and also on Blake between 8th and 9th. The mayor was authorized to offer a reward of $50.00 for the discovery of the guilty person or persons. Council minutes of the early years show serious concern for watering and pruning the trees.

Early pictures of Glenwood Springs show Grand Avenue lined with beautiful cottonwoods. Today the Glenwood Springs city administration continues its concern for quality physical environment . Many trees in the older area of the city need attention due to decline from age and from the effects of improper pruning. Wider species variety needs to be utilized in new plantings .

In 1997, the city of Glenwood Springs contracted with Colorado State Forest Service to conduct a tree inventory and make management recommendations for the Glenwood Springs urban forest.

The Glenwood Springs tree inventory covered the older established business areas from First Street to Fourteenth Street and from Terrace Avenue to School Street. This is the area for which an evaluation of the older established tree resource is most needed. Also, this is the area of the city where public and private property lines are most easily distinguished. Public trees (city property & park trees) make up the inventory. Kiwanis Park, Sayre Park, and Rosebud Cemetery are all presented in separate inventories.

Tree conditions and needs in the subdivisions of South Glenwood were presented from general observation since the inventory approach would be impractical in these areas. Management recommendations for these areas will be directed primarily toward involvement of homeowners in private tree improvement programs.

- As of 1997, street Trees in our downtown and residential areas totalled 994, and had a value of $697,773.
- As of 1997, street Trees in our North Glenwood residential areas totalled 93, and had a value of $102,261.

URBAN FOREST MANAGEMENT

Glenwood Springs Urban Forest Management Program

Management of the public forest is the responsibility of public and private owners. Optimum results may be obtained only through the cooperation of the city administration and the private tree owners.

The Glenwood Springs Parks Commission is given responsibility to study the present situation and needs of Glenwood public trees, determine goals and priorities for optimum management, and present these findings to the Glenwood Springs city council. The city council , accepting the community forestry management philosophy, will consider the Parks Commission recommendations, enlist the services of the commission as a tree management resource agency, and make decisions concerning the tree management program.

Private homeowners are concerned with management problems of their trees and seek assistance in tree and shrub planting and maintenance. The trees, public and private, of the Glenwood community are regarded as an urban forest with a high dollar value. Good management enhances the value of this resource making life more pleasant for all. With this goal in mind, Glenwood Springs continues its tradition of community forestry activity.

Goals of Urban Forest Management

Growing conditions for trees and other plants become more difficult as cities grow. Established trees are forced to give way to new shopping centers, office and apartment complexes, and housing developments . New highways and parking areas take their toll on the existing green environment . Trees that remain often suffer from soil disturbances, air pollution , and other urban hazards. All too often, the welfare of trees is neglected, resulting in very decided deterioration of the urban physical environment.

Urban forest management seeks to better maintain and preserve existing trees and shrubs and to plant suitable species of new trees in appropriate locations. Tree removal is also involved in the management system.

Plantings, maintenance, and removals must be planned in terms of the needs of the community, trees in the city, properly selected and located, can protect us from heat of the summer sun and permit warming rays of the sun to come through in winter. Properly maintained, they live long lives and give us a few problems. Adversely,

improperly planted or maintained trees may become costly and dangerous. Some examples include:

- **Trees selected for extremely rapid growth** soon become brittle, break in storms, and are subject to many diseases.
- **Trees planted in the wrong places** may block visibility, interfere with power lines or buildings, or break sewer lines and sidewalks.
- **Trees neglected** by mismanagement suffer from stress, insect and disease attack, and general decline.
- **Topped trees** become weak, disease prone, and unsightly.

Urban forestry applies scientific management principles for the enhancement of the urban physical environment with trees and shrubs. The ultimate goal is sociological , physiological , and economic benefits for the community.

The Value of Our Urban Canopy

- Trees provide pleasant views, protection from the elements, air purification, noise abatement, soil stability, and many other benefits.
- Through a process called photosynthesis , they take carbon dioxide from the air and give back oxygen .
- By a process called transpiration, trees give off large quantities of water to the air. Much of this moisture-laden air stays near leaves and twigs and traps air-born polluted particles from the air.
- Trees and shrubs reduce noise levels by breaking up sound waves and reducing their intensity.
- Glare and reflection can be reduced by placing plants where they will intercept light.
- Unsightly views can be screened and unpleasant odors can be reduced.
- Trees and shrubs provide their own inherent beauty by the lines, forms ,colors, and textures they project.
- They enframe views, soften lines, and accent architectural elements . The city would be a forlorn place to live if it were not for trees.
- Real estate values are increased 10-20% by trees around the home.

- Summer cooling bills are considerably reduced by broadleaf trees that provide shade. These same trees drop their leaves in the winter to allow warming from the sun, again reducing utility bills.
- Tree-lined streets and parking lots attract shoppers to the city.
- Trees make parks and playgrounds more useful as areas of recreation .

GLENWOOD SPRINGS URBAN FOREST

Present Condition

An inventory of the existing public trees of the older residential and business area of the city is used as a base for management planning. Our tree inventory has not been fully updated since 1998.

Urban Forest Needs

Forestry Board

A board to act as a reviewing body for the purpose of determining, professional qualification and competence to engage in the business of cutting, trimming, pruning, spraying, or removing trees by giving written, oral, and practical license examinations.

Urban Forestry Grant Program

Glenwood Springs is in need of a Hazardous Tree Services Grant Program to provide aid to Glenwood Springs residents for assessment, removal, pruning, or treatment of dead or dying hazard trees which qualify as posing significant risk. Since the inception of the tree ordinance requiring homeowners to be responsible for ROW trees, the City has seen many residents come forward with requests for tree care and removal assistance. Unfortunately, with the requests coming in to a variety of departments and with the changes in leadership, many citizens have expressed confusion as to when and why the city provides assistance. It is the recommendation of the city arborist that a grant program be established to help mitigate these issues and manage these requests.

Size of the Grant: up to $1,500 MATCH.

Qualifying Details: Candidacy of trees for the program is to be determined by, and at the full discretion of the city Arborist and/or Urban Forestry Board based via a free assessment and list of qualifying factors.

Award Details:

Option A) Following the assessment, qualifying applicants must agree to and remit payment for their portion for immediate tree removal, pruning, OR treatment services. All services will be arranged by a city arborist and/or Urban Forestry Board representative. Stump removal is not included in the grant program and is a separate cost incurred by the property owner.

Option B) Following the assessment, qualifying applicants must agree to and schedule immediate tree removal, pruning, OR treatment services with an approved contractor (approved by city arborist/Urban Forestry Board). Following tree removal, pruning, OR treatment, and submission of a receipt, grant money in the predetermined amount will be paid as a match to the qualifying property owner. Stump removal is not included in the grant program and is a separate cost incurred by the property owner.

Funding Information: A reimbursement of 50% up to $1,500 for removal, 50% up to $1,000 for pruning (for hazard or health), OR 50% up to $250 for treatment may be given.

Eligibility Criteria:

- ➔ Available to City of Glenwood Springs residential and commercial property owners only.
- ➔ Only one tree and type of service per property per two-year period.
- ➔ Tree must be assessed by a City employed or approved certified arborist to determine eligibility. ISA standards will be used to determine qualifying level of need for assistance.

Dedicated Forestry & Horticulture Crew

The City currently employees one certified arborist, and one forestry and part-time gardens technician. It would be very beneficial for Parks and Recreation to have a slightly larger dedicated crew for preserving the health of Glenwood Springs' urban forest and plants. This crew would be responsible for pruning, plant and tree health record keeping, hazardous trees maintenance, and addressing insect and disease control for the City's more than 3000 trees in parks, City facilities, and right-of-way zones. Glenwood Springs has been a Tree City USA award winner for 37 years.

We could by expanding our part time forestry and gardens position to a full time forestry and horticulture staff position, and add one more for a total of tull full time forestry and horticulture staff positions who are coordinated by the city arborist and/or Urban Forestry Board.

Additional Funding for Forestry Needs & Aggressive Tree Planting Program

Currently our parks financial needs for essential urban forestry care total approximately $28,000. This only includes the bare essential needs to remove hazardous trees and to provide necessary pruning and treatment to prevent incurring additional removal costs.

Trees cost approximately $450 per tree to plant., and any additional funding for replacement trees is advised.

Management Needs - Older Residential and Business Areas

ROW (right of way) trees are a primary concern. As of 1998, Siberian elm and boxelder are the trees in poorest condition and together they made up over 60% of the total. Today the majority of our urban canopy inventory is still primarily Siberian Elm, but with the addition of Ash and Maple trees being the other dominant species. It would be in the best interest of our urban forest to diversify as much as possible and prevent our canopy from becoming large swaths of monoculture forests that can be easily wiped out with one species specific infestation or disease.

- ➔ Ash trees present a real problem because of the imminent threat of the Emerald Ash Borer.
- ➔ Elms pose a risk due to Dutch Elm disease and Elm Beetles.
- ➔ Maples are highly disease prone.

Residential Zones

- Topping should be discontinued and "drop crotching" should be utilized instead. This method improves health, strength, and form of the tree. Priorities of pruning should be removal of dead, dying , diseased, or interfering branches.
- Siberian elms, ash, and maples, should begin to be “replaced” with species from the recommended list.
- Slime flux, an oozing of liquid material through cracks or wounds of the tree, caused by a bacterial infection within, is very prevalent, especially in Siberian elms. A simple treatment of this condition will alleviate the situation somewhat . A treatment project, in cooperation with homeowners, could be organized.

Business & Commercial Zones

Many residents remember the beauty of the trees that once lined Grand Avenue. A special effort at landscaping this street would undoubtedly have public support and thus a positive public relations value

- Use mainly the smaller varieties of deciduous trees. A large range of ornamental crab or plum trees, non-fruiting varieties, are available. Select by recommendation of local nurserymen and from color preferences. Honey Locust and littleleaf linden are two larger varieties that would be suitable.
- Plant trees at a minimum two feet spacing from the curb and a minimum three feet from the store front. Maintain a minimum thirty feet spacing between trees but this need not be uniform since in many cases store owners will not want windows or signs covered
- Form, color, and texture may be blended to create a pleasant effect in the central area of the block, but contrast should be used near intersections.
- An interesting color contrast may be created with sunburst locust and purple leaf plum.
- Raised planter boxes are not advisable here.

Management Needs - North Glenwood Residential and Business

Residential

- Siberian elm, cottonwood, and boxel der all show poor to average condition. A program of replacement plantings for these species is needed.
- American elm trees in this area are suffering from infestation of European elm scale. Some pruning (deadwood removal only) is needed and dormant oil should be used to abate the elm scale problem.
- In many cases, trees are suffering from drought . A public education program on maintenance should be launched in that area. Watering, especially deep watering techniques and winter watering, should be emphasized.
- Trees on private property in the Hot Springs Lodge and Pool area are not in this inventory but might be used as an example of good management . A few of these trees have been pruned back a little more than necessary, but in no cases has drastic topping been done. The trees are healthy, showing the results of good care.

Business

- The business area of North Glenwood, namely 6th Street, presents a unique landscape challenge. Absence of sidewalks and curb precludes the type of planting system recommended for Grand Avenue.
- Elongated raised planters, at least three feet in width, may be used in a few areas where they will not block access to business establishments, Drive-inns, service stations, motels, etc. predominate this business area so planter locations must be carefully planned with business owners and the city engineering department with the snow removal problem in mind.
- The principles of form, texture, and color blend or contrast should be used, and small trees should be emphasized in this area .

Management Needs - Parks and Cemetery

- Sayre Park is an example of good tree selection. Ash and honey locust are used to good advantage here. As the east side of the park is planted, more evergreens should be used along with Norway maple, linden, and hackberry.
- Kiwanis Park needs some pruning (deadwood removal only) in elms and cottonwoods and a replacement program for some of the oldest trees of these species.
- Rosebud cemetery is very well managed despite the obvious problems of decline from aging in the old cottonwoods and the high maintenance needs of Siberian elms due to stopping several years ago. Both species should be eventually removed and replaced.
- More trees are needed in Rosebud Cemetery, especially in the north side which is mainly treeless. A plan for tree planting in areas that will least interfere with grass mowing should be worked out with the cemetery board. Memorial trees for families could be planted in areas other than the grave site. This is a public relations problem which could best be handled by a long range planting plan.

Sayre Park Trees - 1998

Species	Count	Percent of Total	Average DBH	Average Condition	Average Value	Total Value
Honeylocust	22	25	7	0.9	$ 435	$ 9,563
Green Ash	21	25	9	0.85	$ 545	$ 11,445

Lombardy Poplar	12	14	10	0.57	$ 200	$ 2,400
Chokecherry	10	12	2	0.9	$ 45	$ 450
Juniper	4	5	4	0.7	$ 175	$ 700
Silver	3	4	24	0.9	$ 2,052	$ 6,155
Fruit	3	4	5	0.78	$ 300	$ 900
Austrian Pine	3	4	14	0.9	$ 1,400	$ 4,200
Blue Spruce	2	2	4	0.9	$ 250	$ 500
Aspen	2	2	2	0.9	$ 95	$ 190
Weeping Willow	1	1	20	0.9	$ 712	$ 712
Russian Olive	1	1	12	0.9	$ 256	$ 256
Cottonwood	1	1	40	0.6	$ 1,900	$ 1,900
Totals	**85**	**100**				**$ 39,371**

Kiwanis Park Trees - 1998

Species	Count	Percent of Total	Average DBH	Average Condition	Average Value	Total Value
Siberian Elm	32	42	9	0.74	$ 237	$ 7,584
Cottonwood	24	31	0.15	0.69	$ 614	$ 14,745
Aspen	8	10	8	0.85	$ 323	$ 2,584
Blue Spruce	6	8	4	0.9	$ 250	$ 1,500
Boxelder	5	6	3	0.75	$ 65	$ 325
Choke·Cherry	2	3	3	0.8	$ 65	$ 130
Totals	**77**					**$ 26,868**

Rosebud Cemetery Trees - 1998

Species	Count	Percent of Total	Average DBH	Average Condition	Average Value	Total Value
SiberianElm	72	33	21	0.63	$ 550	$ 39,600
Cottonwood	28	13	26	0.45	$ 200	$ 33,600
BlueSpruce	33	15	13	0.87	$ 1,164	$ 38,405
GreenAsh	34	16	12	0.91	$ 37	$ 35,280
Juniper	31	14	5	0.83	$ 320	$ 9,920
EuropeanMountainAsh	5	1	4	0.81	$ 227	$ 1,134
Boxelder	4	1	18	0.57	$ 365	$ 1,462
Linden	4	1	10	0.82	$ 650	$ 2,600
WhitePoplar	2	1	16	0.73	$ 740	$ 1,480
WeepingWillow	1	1	24	0.8	$ 912	$ 912
LombardyPoplar	1	1	10	0.56	$ 110	$ 110
SilverMaple	1	1	16	0.75	$ 760	$ 760
ScotchPine	1	1	12	0.87	$ 990	$ 990
Totals	**217**					**$ 166,253**

Management Needs - South Glenwood

Newer residential areas were surveyed for tree management needs, especially for private yard trees. A street by street inventory was not done here because of the greater difficulty of determining property lines and because the main need here is to work with homeowners on an educational basis .

Species diversity is better here than in the older areas. There are still too many of the short-lived trees and an educational program on tree selection is needed.

The pruning problem is not nearly so evident here because trees are younger and have not reached the stage where owners might think about topping. An educational program about proper tree pruning will pay great dividends in this area by prevention of future problems.

Main objectives for the Glenwood Springs community forestry program in this area should be assistance to property owners in tree selection, planting, and care.

Long Range Goals

3 - 5 year goals (To be achieved by 2025)

- Select a board of interested citizens to be called a "tree board" or "forestry board" to function as an advisory board to the parks superintendent, parks commission, and cemetery board.

- The tree board should also plan and present educational programs and media communications about tree selection, planting and maintenance.

    a. Demonstrate pruning for practicing arborists, city personnel, and the general public. Field demonstrations should be used as well as classroom sessions on tree growth and the pruning response. Early spring, while trees are still dormant, would be the best time.

    b. Demonstrate to homeowners the way to treat slime flux . Alot two days of parks crew time each year to contact homeowners and demonstrate on street trees.

    c. Mail out an information sheet on tree planting and tree care four times each year to homeowners with their water bills. The tree board should prepare the material for the information sheet. Seasonal topics, such as planting methods in spring, insect pests in summer, and watering, especially in winter months, should be featured.

- Start a cost-sharing program with homeowners to assist with trees within public right-of-way.
- Remove the oldest trees from city Parks that pose hazards and replace.
- Develop a planting plan that will be compatible with maintenance activities.
- Update the tree ordinance for Glenwood Springs to require more strict guidelines for contractors and tree removal and replacement–due to the influx of pests and disease that are threatening the urban forest.
- Launch an educational campaign regarding beetle and disease related issues in our urban forest.

5 - 10 year goals (To be achieved by 2032)

- Increase the cost share program to provide assistance fo all homeowners in some way, whether it be via increased grant funding or city provided labor.
- Have tree topping eliminated in Glenwood Springs and as much as possible in the surrounding area.
- Have a nursery functioning to produce needed trees for parks, cemetery, and street tree planting.
- Have 75% of Siberian elms and Green Ash street trees replaced.
- Have a street tree population composed of trees from approved species list with no single species making up more than 15% of total.

10 - 20 year goals (To be achieved by 2042)

- Move to a total tree care program for street trees as well as parks.
- Have the city do planting, pruning, disease treatment, and removals of street trees with homeowners doing the watering.

As the community forestry program progresses, its benefits will become obvious. With citizen interest and greater appreciation of trees, budget dollars will become more available. Experience shows that the increase in dollar value of the tree resource will surpass the expenditure of funds and the aesthetic and environmental benefits will be a source of pride to all citizens of Glenwood Springs.

Glenwood Springs Soils and Climate

Glenwood Spring 's climate is typical of the general Rocky Mountain area.

Rainfall averages less than 12 inches annually and average humidity of the air is low. Wintertime, especially, may cause plant difficulties due to dryness of the air and the reflection of bright sunlight from the snow cover.

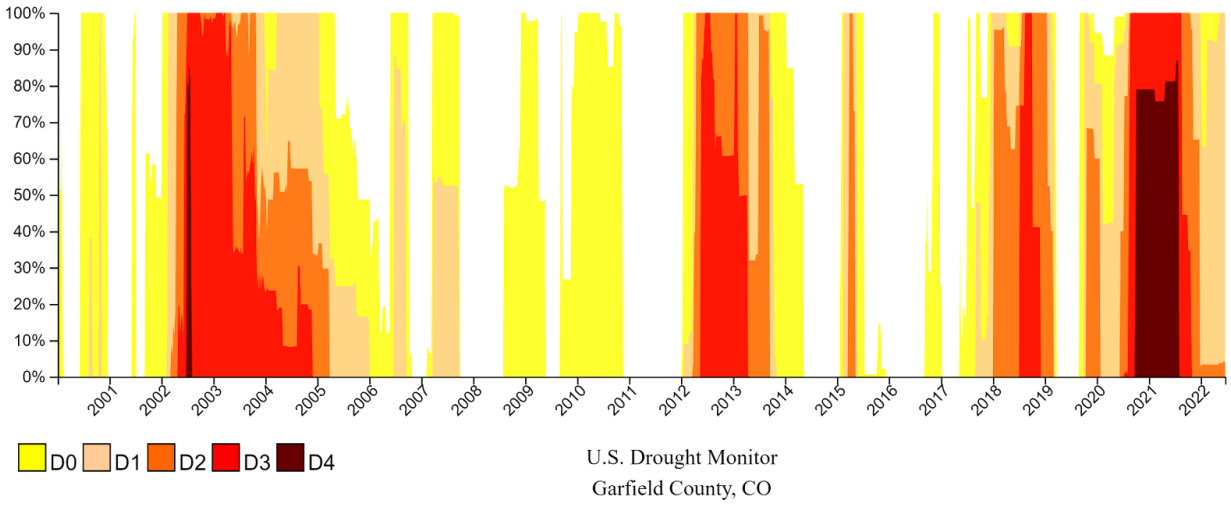
Soils of the Glenwood Spring 's area are generally low in humus with a tendency toward alkalinity. Soil reaction, or alkalinity, is measured in terms of pH, on a scale of 1 to 14. A neutral soil is pH 7; 8 or above is a1ka1ine and 6 or below is acid. Most Rocky Mountain area soils are 8 or above. Most trees prefer a neutral or slightly acid soil .

In recent years, Glenwood Springs has experienced extreme drought. The U.S drought monitor below shows periods of dryness and drought as follows:

D0 - Abnormally Dry **D1 - Moderately Dry** **D3 - Extreme Drought**

D2 - Severe Drought **D4 - Exceptional Drought**

In 2020 and 2021 Glenwood Springs saw periods of extreme drought that our city hasn't experienced in nearly 20 years.



Because of the above described soil and climate limitations, trees and shrubs for Glenwood Springs must be carefully selected for hardiness and adaptability. Cultural and maintenance practices must be determined by climate and soil conditions.

Tree Planting

About 150 trees per street mile (each side of street) or a spacing of 30-40 feet, depending on tree size, is optimum for street tree density. Ideally, no single species should make up more than 153 of the street tree population .

Deciduous and evergreen trees may be successfully transplanted in spring or fall , but spring is generally preferred. Colorado winters may be especially stressful to trees because of dry conditions. Evergreen trees should be moved later in the spring and with a soil ball rather than with bare roots. Deciduous trees may be moved with soil ball or bare root, although the latter results in greater transplant shock and slower re-estab lishmen t.

Hilding trees may be transplanted to new sites but with considerably less success than nursery stock. These trees have fewer roots, many of which are long and scraggly .

Container grown trees suffer less transplant shock than balled and burlapped trees. The trees should be removed from the containers or in the case of paper mache pots, the sides may be scored with a knife. Containers that are called "plantable" may be planted in acid soils where they will deteriorate rapidly, but this is not the case in alkaline soils.

A mulch of some kind around the tree will help keep the surface of the soil from drying out.

- If a plant has bare roots, never allow the roots of plants to dry. Keep roots covered or in water. Remove and plant one at a time .
- Fertilizer may be placed in the back fill before planting.
    - Four (4) tablespoons of 10 nitrogen fertilizer per cubic foot of backfill is adequate.
- Dig holes deep and wide enough to accomodate roots without crowding. A hole 12 Inches larger than root spread in diameter and depth is sufficient.
- Fill hole with water, let drain.
- Place roots over a mound of good soil. Set roots in a natural position at the same or slightly higher depth than the tree grew in the nursery.
- Work soil around roots t>y hand. Fill hole half with soil , pack firmly, 1o;ater, fill with soil, pack firmly again , and water.
- For balled and burlapped plants , dig the hole deep and wide enough to comfortably hold the root ball. A diameter 12 inches larger than the root ball is adequate.
- Fertilizer may be combined with backfi11 at the same rate as rienti one in f 4 .
- Remove any wire or plastic mesh holding burlcp to the ball.

🌿 Fill hole 3/ 4 full with soil and water.
🌿 Remove any twine from around the stem or trunk.
🌿 Finish fi1ling ho1e and·water thoroughly.

❌ Do not plant trees and shrubs too close to existing buildings.
❌ Do not backfill the hole with soil or rock. Only dig as deep as the top of the rootball. Loose soil under the rootball may cause the tree to lean as it settles.
✅ Think of future growth, size, and shape before planting.
✅ Some species need protection from the elements.
✅ Tree wrap may be used for the first few winters to protect deciduous trees.
✅ Shape the basin around the tree to help hold water.
✅ Put on a layer of mulch.
✅ If the tree needs support, use stakes but do not let them damage bark.
✅ Water deeply at least once a week during the first two growing seasons. 10- 15 gallons of water per caliper inch is what most arborists suggest.

Before planting or transplanting trees, several factors concerning the planting stock and the planting site must be carefully considered .

✅ Think of future growth, size, and shape before planting. A good transplanting job requires only a little more time and effort than a poor one and is well worth the differe·nce in terms of growth and development of the tree.
✅ Trees obtained from nurseries may be bare root, balled and burlapped (B&B), or container grown stock. Only plants which are well shaped and healthy should be considered.
✅ Bare root stock is best planted in early spring before growth begins. Plants must be well packed and kept moist in material such as sphagnum moss during shipping and handling . Upon delivery they should be unpacked and soaked in water or "heeled-i n" in moist soil.
✅ In all cases, roots must be kept moist until planted.
❌ Heavy , poorly drained soils are unsuitable for tree planting sites because they do not allow space for oxygen which is needed for root growth .
✅ Tiling with perforated pipe is one system of improving soil drainage but is expensive. An alternate solution is to incorporate organic matter deeply in the soil, Use old , well rotted manure or a thoroughly decomposed compost. Avoid fine textured material such as sewer sludge.
✅ Planting holes for bare root plants must be large enough so that roots are not crowded or restricted.

Add backfill and water working out large air pockets as shown in Figure 6. Add the remaining backfill soil to form a slight slope, build a small dike, and fi1l with 1ater. Do not tamp the backfi 11, because sma 11 air pockets are needed.

Balled and burlapped stock must be planted in a hole at least 50% larger than the diameter of the ball . The ball should be placed on a layer of backfill with the top of the ball even or slightly above grade level .

Remove the top portion of the burlap and any wire or plastic twine. The plant must be lifted by the ball and never by the trunk.

Make sure the plant is straight and if there is a best side, face it in the direction that people are most likely to see. Backfilling procedure is the same as with bare root stock and as shown in Figures 7 and 8.

Container grown stock may be planted successfully in either spring or fall. These plants have been grown for at least a year in the container, from one to five gallon tin cans, metal buckets, plastic or papier-mache which ensures a well established root system. Various types of containers or pots are used.

In all cases, remove the tree from the container to plant. Several types are marketed as Plantable containers, which may be true for acid soils but not for arid alkaline soils. Backfill and water the same as with bare root or balled and burlapped plants.

Tree spade - a hydraulically operated soil cutter to scoop out a soil ball.

Trees of larger sizes, up to 10" caliper trunk, may be removed with a lift the tree, transport, and set it into a hole.

Root Balls must be 8" for each l" of trunk diameter for evergreens and 9" for deciduous trees. The tree should be protected from drying out during transport and well staked after transplanting carefully with a tree spade or root pruned the previous year.

Root pruning - most trees dug and transplanted from a wild state die unless moved may be done with a sharp spade slanting the cut slightly inward about a foot out from the trunk for each inch of trunk diameter. The tree must then be watered during the growing season and moved early the next spring while still in dormant conditions, and planting techniques pay great dividends in tree survival. Proper attention to type and quality of planting stock, soil and site and health. The great benefits derived from trees make this effort very worthwhile.

Selecting Trees for Hardiness

Many varieties of trees are available today for use in the urban forest. Trees are planted for different reasons so a careful process must be followed in choosing size, form, texture,color, branching habit, and other characteristics to achieve desired function . Before choosing trees for a particular area, the list must be narrowed to those trees adapted to the area.

Select for form and function from a list that has been narrowed to include only those trees and shrubs that are adapted to the soils and climate of the area. Most books and articles on horticulture or landscaping are written with reference to environmental conditions in the eastern United States or to California. Nhi le much of this material is of value for the Rocky Mountain area, the point must always be remembered that some of it is not. Soils and climate of Colorado are different from those of most areas of the United States .

Hardness is a tenn denoting whether or not a tree will grow in a particular area . Temperature, rainfall , and soil conditions are the main factors that determine hardiness. Limited rainfall and the resulting generally alkaline condition of soils make western Colorado unique in problems concerned with plant growth .

Much of the precipitation occurs at tires and in quantities which do not give optimum benefits to growing plants. Lack of humus from decaying roots and tops of plants does not provide the acidifying materials

Soil tests determine degree of acidity or alkalinity, which is expressed as pH . Most landscape plants prefer a pH level of 5.5 to 7.5 since within this range nutrients are most available to plants.

Addition of humus by mulching and use of chelated iron or sulfates will help to make soil more acidic, but the best practice is to select trees and shrubs that are more alkaline tolerant.

Ash, honeylocust, hackberry, and lindens are more tolerant of alkaline soils than are oaks and maples.

Selection of trees and shrubs. for a particular zone may be complicated by microclimate conditions within zones. Data from a tree inventory may show trees doing well in contradiction to "what the book says". Norway maple is one example. Observation of trees of the area and experience related by longtime residents are valuable sources of information for tree selection.

Selecting Trees for Low Maintenance

As hardiness is a primary factor in tree selection, maintenance requirements are a very practical factor . Community residents often develop a somewhat negative attitude toward trees in general because they are so annoyed by the nuisance aspects of some of our prevalent species of trees.

Siberian elm is the classic example. In terms of structural strength, cleanliness, life expectancy, and resistance to insect and disease, the tree is a real loser even though it is obviously very tolerant of difficult growing sites. This species predominates in many communities because of its adaptability and its rapid growth rate.

Willows and poplars are other examples of rapid growth, high maintenance trees. Tree inventories in most small western Colorado communities show overwhelming numbers of fast-growing, short-lived, high maintenance trees and a decided lack of the higher quality, slower growing, structurally sound , low maintenance species.

A major challenge of urban forest management is to replace declining weak trees with higher quality, longer-lived species. Obviously, this task cannot be accomplished in a short period of time nor will municipal or private homeowner budgets allow an all -out program. As the project proceeds gradually, replacement tree species must be selected with great care.

Even though examples quoted above show some of our weakest trees to be most adapted to local sites , there are alternatives. Where soils are highly alkaline, the choices are most limited.

Planting a monoculture {high concentration of a certain species in a certain area) is a major error, The risk of outbreak of a disease specific to that species could cause major 1osses. A good example is the extensive loss of American elm from Dutch elm disease that has occurred in many areas of the country. Major losses of honey locust have occurred in Denver due to an outbreak of nectria canker. Honey Locust is a quality tree and should be used but definitely not in a monoculture.

Species composition of the urban forest should be such that no one species makes up more than 15% of the total. Even with a short list of hardy, low maintenance quality trees, a suitable mixture of species may be accomplished in a given area.

Following is a list of trees recommended for the arid alkali conditions of western Colorado. This list is based on hardiness, structural strength, life expectancy, and resistance to insects and disease .

Marshall Seedless Ash - Moderate growth rate, tolerant of difficult soil conditions. Somewhat subject to boring insects but otherwise very few maintenance problems .

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Suggested for Streets & Sidewalk Areas Low-Moderate Water Needs	Native Species*	Group	Botanic Name	Common Name	Height & Spread	Drought Tolerance	Shade Tolerance	Salt Tolerance	Fire Tolerance	Growth Rate	Bloom Season	Inflorescence Color (conspicuous)	Conspicuous Fruit/Seed	Wildlife	Notes
☐	☑	Trees - Evergreen	*Abies concolor*	White Fir	50' x 30'	Drought Tolerant	Seedings part shade, full grown up to full sun.	None	Moderate	Slow	Late Spring	Red	Unimportant, brown	Deer, elk, bear, and mountain beaver habitat. Many bird species, including bald eagle, northern spotted owl, brown creeper, and red-breasted nuthatches are associated with white fir habitat types.	Specimen tree, exceptional foliage. Underutilized.
☑	☐	Trees - Deciduous	*Acer ginnalla*	Amur Maple	15' x 20'	Low	Intermediate	Moderate	High	Rapid	Early Spring	white	Winged Samaras	Food and cover for birds	Fragrant flowers, fiery red fall color, red winged seeds, drought. Shrubby form, multi-stemmed, good for hedging.
☑	☑	Trees - Deciduous	*Acer glabrum*	Rocky Mountain Maple	20' x 15'	Moderate	Intermediate	None	High	Rapid	Late Spring	green	Winged Samaras	Regular source of cover for wildlife.	Multi-stemmed, fragrant flowers, orange-red fall foliage. Long-lived and shade tolerant.
☑	☑	Trees - Deciduous	*Acer grandidentatum*	Bigtooth Maple	30' x 25'	Moderate	Intermediate	Very Low	Low		Mar - Apr	white	Winged Samaras	Food and cover for birds	Shade tolerant, blazing autumn foliage, adaptable
☑	☑	Trees - Deciduous	*Acer negundo 'sensation'*	Sensation Box Elder	30' x 25'	Drought Tolerant	Tolerant	Moderate	Low	Rapid	Summer	yellow/green	Winged Samaras	Seeds are winter forage for birds and small mammals, deer browse young plants.	Red expanding leaves in spring, brilliant red in fall. useful for quick growth in naturalized riparian plantings, but they are short-lived and disease-prone.
☑	☐	Trees - Deciduous	*Acer platanoides 'Emerald Queen"*	Emerald Queen Norway Maple	40' x 40'	Low	Intermediate	Moderate	Low	Rapid	Early Spring	green	Winged Samaras	Food and cover for birds	Yellow showy flowers in spring, bright yellow fall foliage
☑	☐	Trees - Deciduous	*Acer platanoides 'Royal Red'*	Royal Red Norway Maple	30' x 30'	Low	Intermediate	Moderate	Low	Rapid	Early Spring	green	Winged Samaras	Food and cover for birds	Leaves are a glossy deep maroon, nice ornamental tree
☐	☐	Trees - Deciduous	*Acer saccharinum*	Silver Maple	15' x 20'	Low	Intermediate	Low	Low	Rapid	Early Spring	Yellow	Brown	Buds are forage for squirrels, provides nesting for ducks and other birds. Attracts beavers.	Silver bark when young, leaves are green on top and silver/white on the underside. Very rapid growth. Not recommended for streets due to structural insecurity.
☑	☐	Trees - Deciduous	*Acer tataricum*	Tatarian Maple 'Hot Wings'	18' x 18'	Drought Tolerant	Intermediate	Low	Low		Early Spring	white	Winged Samaras	Food and cover for birds	Showy flowers, yellow, orange red fall foliage, scarlet red samaras
☐	☐	Trees - Deciduous	*Aesculus glabra*	Ohio Buckeye	30' x 30'	Moderate	Tolerant	None	Low		Mid Spring	Green	Yes, brown	Squirrels love the fruits (nuts)	Falling fruit would also be a problem along streets. It is suited for naturalized or park plantings.
☑	☐	Trees - Deciduous	*Amelanchier x grandiflora 'Autumn Brilliance'*	Autumn Brilliance Serviceberry	25' x 20'	Moderate	Intermediate	Moderate	Unknown	Slow	Spring	white	yes, red	Food and cover for birds, berries profive forage for multiple species.	Clusters of white flowers in spring, nice orange fall color. Needs very little pruning, has strong structure.
☐	☐	Trees - Deciduous	*Betula nigra*	River Birch	50' x 30'	Low	None	None	Moderate	Rapid	Mid Spring	brown	No	Forage for grouse, turkey, white-tailed deer; cover and nesting sites for waterfowl.	Specimen tree, soft yellow fall foliage, exfoliating bark. Good for use in rain garden, or planted along a waterway.
☐	☑	Trees - Deciduous	*Betula occidentalis*	Water Birch	30' x 25'	Low	Intermediate	None	High		Mid Spring	Yellow	No	Forage for mule deer, moose; cover for various wildlife, important habitat for birds.	Cinnamon-brown bark, multi-stemmed, yellow fall foliage. Good for use in rain garden, or planted along a waterway.

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☐	☐	☑	Trees - Deciduous	*Betula papyrifera*	Paper Birch	50' x 25'	Low	None	Moderate	High		Mid Spring	Yellow	No	Young stands provide cover for deer and moose and cavity-nesting birds including woodpeckers, chickadees, nuthatches, and swallows.	Specimen tree w/ gleaming white peeling bark, golden fall foliage. Paper birch is useful for long-term revegetation and soil stabilization of severely disturbed sites. Good for use in rain garden, or planted along a waterway.
☐	☐	☑	Trees - Deciduous	*Betula pendula*	European White Birch, Silver, Birch, or Warty Birch	50' x 30'	Low	None	Low	Low		Mid Spring	Brown	No		Specimen tree, yellow flowers, white bark, yellow fall foliage. Good for use in rain garden, or planted along a waterway.
☑	☑	☑	Trees - Deciduous	*Catalpa speciosa*	Northern Catalpa, Cigar Tree	50' x 40'	Moderate	None	Low	None		Early Summer	White	Yes; Long, Narrow, Brown Pods	Special value to honeybees.	Fragrant white flowers, large-heart shape leaves. Catalpas are major litter producers, shedding flowers, small branches, large leaves and seedpods. Brittle branches break easily in wind storms. Best for naturalized and park areas.
☐	☑	☑	Trees - Deciduous	*Celtis occidentalis*	Northern Hackberry, American Hackberry, False Elm	50' x 50'	Drought Tolerant	Tolerant	Low	Low		Mid Spring	Green	Yes, Brown	Forage and cover for deer, small wildlife and birds.	Yellow fall foliage, fruit a purply-red, slow grower, long-lived
☑	☐	☐	Trees - Deciduous	*Cornus mas*	Cornelian Cherry, Cornelian Cherry Dogwood	15' x 15'	Low	Intermediate	Low	None		Mid Spring	Yellow	Yes - Red	Forage and cover for deer, small wildlife and birds.	Early spring yellow flowers, fall foliage is purply-red. Winter hardy and good for hedges.
☐	☑	☐	Trees - Deciduous	*Corylus colurna*	Turkish Filbert, Turkish Hazelnut	45' x 40'	Moderate	Intermediate	Unknown	Unknown		March	Yellow	Yes	Forage and cover for deer, small wildlife and birds.	Pyramidal form, thrives in poor soil, moderately drought tolerant. Litter from nuts make it better suited for naturalized or park areas.
☑	☑	☐	Trees - Deciduous	*Crataegus ambigua*	Russian Hawthorn	15' x 20'	Drought Tolerant	Intermediate	Low	Unknown		Apr – May	White	Yes - Red	Forage and cover.	Yellow fall foliage, peeling bark. Occasional thinning required in spring and every summer trim back any suckers that may occur at base.
☐	☑	☐	Trees - Deciduous	*Crataegus crus-galli 'Inermis'*	Thornless Cockspur	20' x 20'	Drought Tolerant	None	Low	Unknown		Apr – May	White	Yes - Red	Forage and cover.	Fragrant white flowers in spring, dark red fruits, golden foliage
☑	☑	☑	Trees - Deciduous	*Crataegus douglassii*	Douglas Hawthorn	25' x 25'	Moderate	None	Low	Unknown		Apr – May	White	Yes, Black	Important forage for grouse, ungulates, and waterfowl.	Showy white flowers, orange-red fall foliage
☑	☑	☑	Trees - Deciduous	*Gleditsia triacanthos inermis 'Imperial'*	Imperial Honeylocust	30' x 40'	Drought Tolerant	None		Moderate		Late spring	Yellow	Yes, Green	Forage and cover for a variety of mammals and birds.	Fine textured foliage , fall color: soft yellow, seedless
☐	☑	☑	Trees - Deciduous	*Gleditsia triacanthos inermis 'Shademaster'*	Shademaster Honeylocust	40' x 40'	Drought Tolerant	None	Moderate	Moderate		Late spring	Yellow	Yes, Green	Forage for larger mammals.	Fine textured foliage , fall color: lemon yellow, seedless
☐	☑	☑	Trees - Deciduous	*Gleditsia triacanthos inermis 'Skyline'*	Skyline Honeylocust	40' x 40'	Drought Tolerant	None	Moderate	Moderate		Late spring	Yellow	Yes, Green	Forage for larger mammals.	Fine textured foliage , fall color: lemon yellow, seedless

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☐	☑	☐	Trees - Deciduous	*Gymnocladus dioicus*	Kentucky Coffeetree	50' x 40'	Drought Tolerant	None	Moderate	Low		Early Summer	White	Yes, Brown Pods		Drought, pollution, fragrant female flowers, yellow fall foliage
☑	☑	☐	Trees - Deciduous	*Gymnocladus dioicus 'Espresso'*	Seedless Kentucky Coffeetree	50' x 50"	Drought Tolerant	None	Moderate	Low		Early Summer	White	Yes, Brown Pods		Large, bipinnate leaves, yellow fall color, seedless
☑	☑	☐	Trees - Evergreen	*Juniperus chinensis*	Chinese Juniper	15' x 6'	Moderate	None	Moderate - High	Low		Spring	White	No		Ornamental upright juniper,topiary, fast grower
☐	☑	☑	Trees - Evergreen	*Juniperus monosperma*	One Seed Juniper	30' x 12'	Drought Tolerant	None	None	None				Yes, Purple		Upright, rounded habit, scale-like leaves, high habitat value
☐	☑	☑	Trees - Evergreen	*Juniperus osteosperma*	Utah Juniper	20' x 15'	Drought Tolerant	None	Low	Low				Yes, Blue		Small tree, foliage & fruit important wildlife forage
☑	☑	☑	Trees - Evergreen	*Juniperus scopulorum*	Rocky Mountain Juniper	20' x 15'	Drought Tolerant	None	Moderate	Low				Yes, Blue		Pyramidal to upright, exfoliating bark, high habitat value
☑	☑	☐	Trees - Deciduous	*Koelreuteria paniculata*	Goldenrain Tree	30' x 30'	Moderate	None	Low	Low		Late Spring	Yellow	Yes, Brown		Striking yellow flowers, ornamental fruit, orange-yellow fall foliage
☐	☐	☐	Trees - Evergreen	*Larix decidua*	European Larch	70' x 25'	None	None	None	None	Moderate			Yes, Brown		Underutilized, deciduous conifer, brilliant yellow fall color
☑	☐	☐	Trees - Deciduous	*Malus spp.*	Crabapple	20' x 20'	Depends on spp.	Depends on spp.	Depends on spp.	Depends on spp.		Spring	Pink, White	Yes	Forage for all wildlife.	Notable flowers, edible fruit and desirable fall color. This is not the most recommended tree to plant due to **bear attraction**, but is approved for planting due to high demand.
☐	☑	☑	Trees - Evergreen	*Picea pungens*	Colorado Blue Spruce	60' x 30'	Moderate	Intermediate	Low	Low						Green to silvery blue, pyramidal, **overused in the landscape**
☑	☑	☑	Trees - Evergreen	*Pinus aristata*	Bristlecone Pine	30' x 20'	Drought Tolerant	None	None	High						Rounded to pyramidal, needles dotted w/ white resin
☑	☐	☐	Trees - Evergreen	*Pinus bungeana*	Lacebark Pine	40' x 25'										Specimen tree w/ glossy needles and showy exfoliating bark
☑	☐	☑	Trees - Evergreen	*Pinus contorta var. latifolia*	Rocky Mountain Lodgepole Pine	50' x 15'										Provide cover & habitat for big game animals
☑	☑	☑	Trees - Evergreen	*Pinus edulis*	Pinyon Pine	20' x 20'	Drought Tolerant	None	Moderate	Low						Broadly rounded, edible fruit/ nut
☐	☑	☑	Trees - Evergreen	*Pinus flexilis*	Limber Pine	40'x 30'	Drought Tolerant	None	None	Low						Pyramidal form with smooth greenish-grey bark
☑	☑	☐	Trees - Evergreen	*Pinus nigra*	Austrian Pine	40' x 40'	Moderate	Intolerant	Moderate	Low	Moderate	Late Spring	No	No	Provides forage for mule deer and cover for birds.	Fast growing, adaptable. Tolerant of harsh urban conditions
☑	☑	☑	Trees - Evergreen	*Pinus ponderosa*	Ponderosa Pine	80' x 30'	High	Intolerant	Moderate	High	Moderate	Mid Spring	No	No		Open form, pyramidal, red to brown plated bark
☐	☑	☑	Trees - Evergreen	*Pinus strobiformis*	Southwestern White Pine	50' x 30'	Moderate	Intolerant	Low	Low	Rapid	Mid Spring	No	No		Fine textured tree with ornamental blue-green needles
☑	☐	☐	Trees - Evergreen	*Pinus sylvestris*	Scots Pine	40' x 30'			Moderate-High							Bright orange exfoliating bark, blue-green needles

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☑	☐	☑	Trees - Deciduous	*Populus angustifolia*	Narrowleaf Cottonwood	50' x 30'	Low	None	Moderate-High	Moderate	Rapid	Spring	Green	White	Narrowleaf cottonwood and other Populus species in Colorado provide habitat for over 200 wilflife species, including but not limited to the gretaer peewee, sharp-shinned hawk, bald eagle, pronghorn, elk, deer and beaver.	Best growing along the river with optimal growing conditions. Well adapted to disturbed sites.
☑	☐	☑	Trees - Deciduous	*Populus tremuloides*	Quaking Aspen	40' x 50'	Low	None	Moderate	High	Rapid	Mid Spring			Provides important breeding, foraging, and resting habitat for a variety of birds and mammals. The browse value is higher than many other winter browsing options.	Does not have longevity below 6,500' ~ pests this tree. New trees are frequently produced from root system, so it can be difficult to manage.
☐	☐	☑	Trees - Deciduous	*Populus x acuminata*	Lanceleaf Cottonwood	60' x 40'	None		Moderate-High	None			Catkin	Green		Messy. Upright, rounded form, yellow fall color, fast grower. Requires constantly moist soil. Do not plant too close to buildings because of the invasive root systems.
☑	☐	☐	Trees - Deciduous	*Prunus armeniaca 'Pioneer'*	Chinese Apricot 'Pioneer'	15' x 15'	Low to Moderate	Low to Moderate	Low					Yes - Gold		Late bloomer, fragrant pink flowers, good fall foliage. Cold hardy and frost resistant.
☐	☑	☐	Trees - Deciduous	*Prunus maacki*	Amur Chokecherry	30' x 25'	Low	None	Moderate	None	Moderate	Spring	White	Yes, black		Fragrant white flowers, yellow fall foliage, black fruit, peeling bark
☑	☐	☐	Trees - Deciduous	*Prunus nigra 'Princess Kay'*	Princess Kay Plum	20' x 20'	None	None	None	None	Moderate	Mid Spring	Red			Fast growing,double white blossoms, red fall foliage
☑	☐	☐	Trees - Deciduous	*Prunus padus*	Mayday Tree/Bird Cherry	30' x 25'	None	None	Moderate	Low	Moderate	Spring	White	Yes, black		Fragrant white flowers, bitter black fruit, yellow fall foliage
☑	☑	☑	Trees - Deciduous	*Prunus virginiana*	Chokecherry	25' x 20'	Moderate	None	Moderate	High	Rapid	Spring	White	Yes, black	High value for forage and habitat.	Good for watershed protection, improving species diversity, and rehabilitation of disturbed sites.
☑	☐	☑	Trees - Evergreen	*Pseudotsuga menziesii*	Douglas Fir	60' x 25'	Low	Moderate	Low	Low	Moderate				Important source of forage for small mammals	Shade tolerant, needles and seeds valuable forage for wildlife.
☑	☑	☐	Trees - Deciduous	*Pyrus ussuriensis*	Ussurian Pear	25' x 25'	Moderate	None	Low	None	Slow	Mid Spring	White	Green		Profuse white flowers, fall foliage ranges from brilliants yellows and oranges to a deep burgundy.
☑	☐	☑	Trees - Deciduous	*Quercus gambelii*	Gambel Oak	20' x 12'	Low	None	None	High	Slow			Acorns	Ecologically important for providing forage and cover for many animal and bird species.	Usually multi-stemmed tree, good wildlife forage
☑	☑	☐	Trees - Deciduous	*Quercus macrocarpa*	Bur Oak	50' x 40'	High	Moderate	Low	High	Slow			Acorns		Stately tree, golden fall color, acorn important wildlife forage
☑	☑	☐	Trees - Deciduous	*Quercus muehlenbergii*	Chinkapin Oak	45' x 45'	High	None	None	Low	Moderate			Acorns		Sharply toothed leaves. Fall foliage a deep yellow-orange, acorn important wildlife forage
☐	☐	☐	Trees - Deciduous	*Quercus rubra*	Northern Red Oak	50' x 50'	Low	Moderate	Moderate	High	Slow			Acorns		Sharply lobed leaves with intensely bright red fall color
☑	☐	☑	Trees - Deciduous	*Quercus undulata*	Wavyleaf oak	10' x 10'	Low	Moderate to High	Moderate - High		Slow			Acorns		Small tree/shrub, bluish-green leaves with wavy margins
☐	☐	☑	Trees - Deciduous	*Salix amygdaloides*	Peach Leaf Willow	60' x 30'	Low	None	None	High	Rapid				PArticularly important for moose, elk, and other ungulates.	Upright & irregular, needs adequate space

CITY OF GLENWOOD SPRINGS
PARKS AND RECREATION

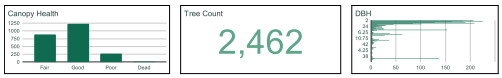
Urban Forestry Species Guide

Suggested for Streets &	Sidewalk Areas Low-Moderate Water Needs	Native Species*	Group	Botanic Name	Common Name	Height & Spread	Drought Tolerance	Shade Tolerance	Salt Tolerance	Fire Tolerance	Growth Rate	Bloom Season	Inflorescence Color (conspicuous)	Conspicuous Fruit/Seed	Wildlife	Notes
☑	☐	☐	Trees - Deciduous	*Sorbus aucuparia*	European Mountain Ash	35' x 15'	Low	Moderate	Low	None	Rapid					Symmetrical & tidy habit, bright red fruit. Susceptible to fireblight
☑	☐	☐	Trees - Deciduous	*Sorbus intermedia*	Swedish Whitebeam	35' x 25'	Moderate	Moderate to High	Low				Whtie	Orange/Red		White blossoms late spring, fall foliage apricot orange
☑	☐	☐	Trees - Deciduous	*Syringa reticulata*	Peking Tree Lilac	20' x 15' 2 of 4			Moderate - High							Fine textured tree, fragrant large white flowers, exfoliating bark
☑	☐	☐	Trees - Deciduous	*Tilia americana*	American Linden or American Basswood	40' x 30'	Low	High	Low	Moderate	Moderate					Fragrant flowers, dangling, rounded fruits, yellow fall foliage
☐	☑	☐	Trees - Deciduous	*Tilia cordata*	Littleleaf Linden	30' x 30'	Moderate	Moderate	None	High	Moderate					Fragrant flowers, dangling, rounded fruits, yellow fall foliage
☐	☑	☐	Trees - Deciduous	*Ulmus americana*	Washington Elm	60' x 45'	Moderate	Moderate	Low	Low	Rapid					Vase shape, yellow fall foliage. Resistant to Dutch Elm Disease
☑	☐	☐	Trees - Deciduous	*Ulmus japonica x U. wilsoniana*	Accolade Elm	50' x 35'			Moderate							Dark green foliage, yellow fall color. Resistant to Dutch Elm Disease
☑	☐	☐	Trees - Deciduous	*Ulmus pumila x U. japonica x U. wilsoniana*	Triumph Elm 'Morton Glossy'	55' x 45'			Moderate							Glossy green foliage. Resistant to Dutch Elm Disease
☑	☐	☐	Trees - Deciduous	*Ulmus wilsoniana 'Prospector'*	Prospector Elm	50' x 30'			Moderate							Dark green foliage, yellow fall color. Resistant to Dutch Elm Disease

*** Regarding "native" plants and trees:** This indicates that the species is native to Colorado. Planting native species anywhere and everywhere in a given region can be problematic. Example 1: An aspen planted on a dry site where little supplemental moisture is available will die. Example 2: Planting of pinyon on naturally wet sites or sites where we water heavily will also lead to plant death. The focus in using native trees should be on trees that are native to the region and that are well-adapted to the specific site where they will be planted.

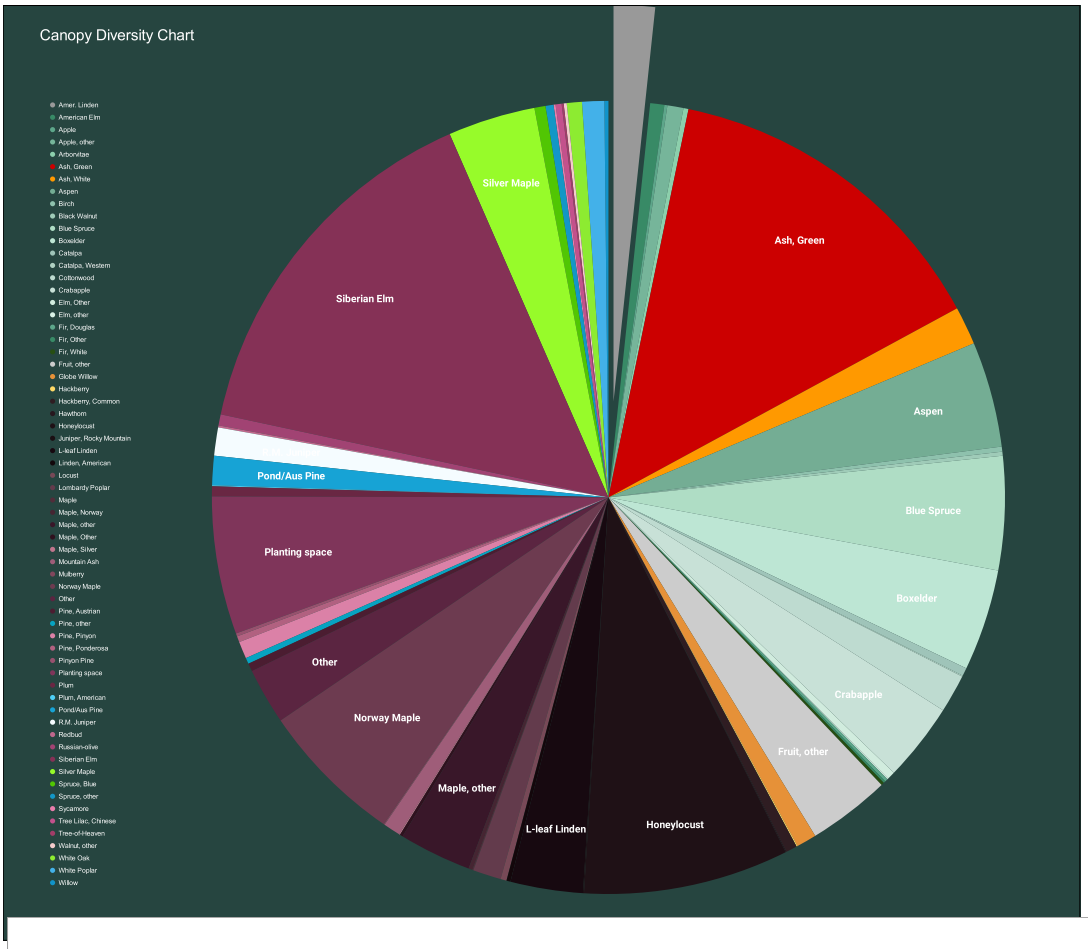
****Regarding "fire tolerance":** There is no such thing as a fire proof tree. Trees with this box checked indicate that the tree can adapt or recover more easily from surrounding fire and smoke damage.

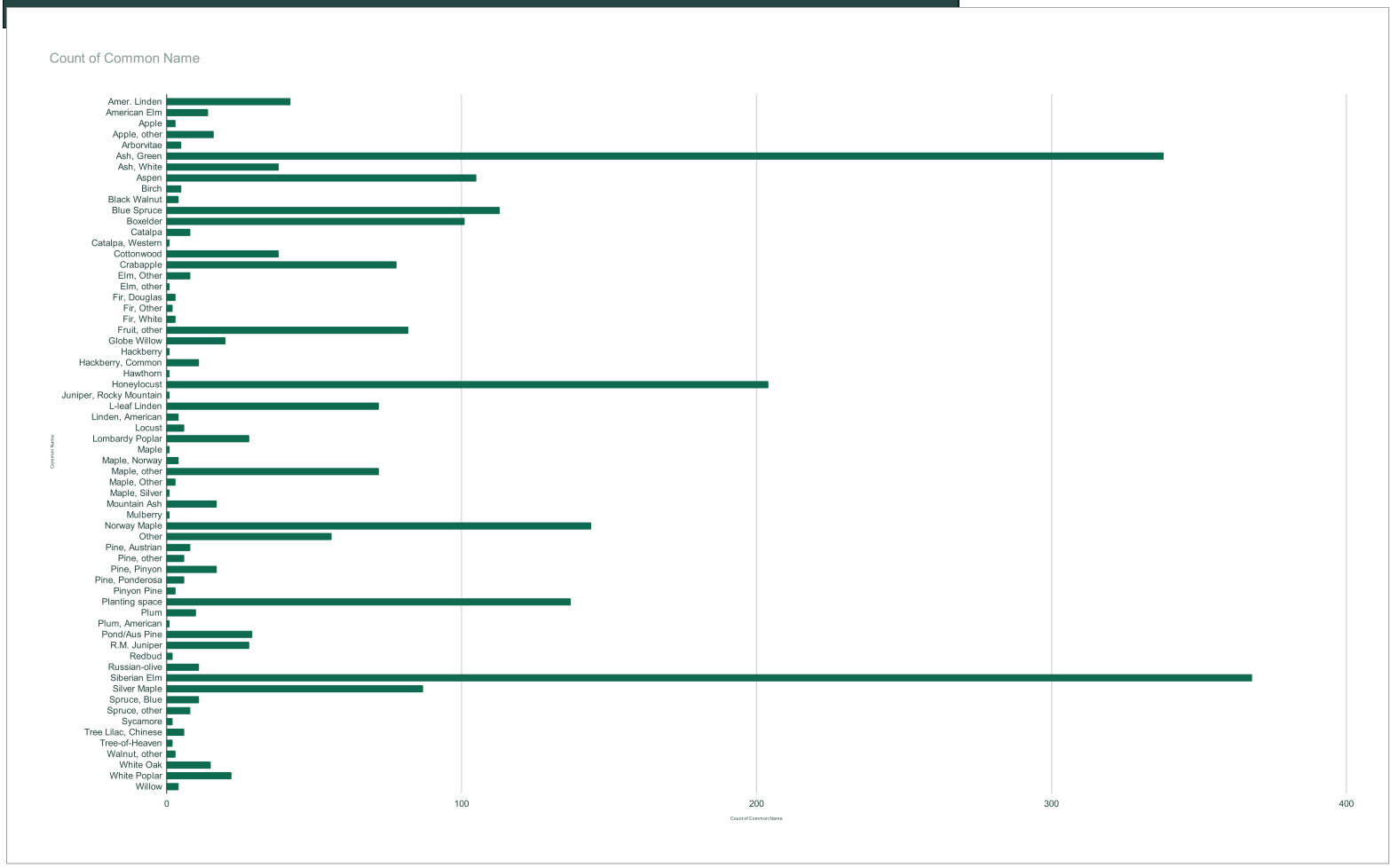
*****Regarding Xeric Species:** Even species with low water needs will establish better and grow more quickly when given regular irrigation during the first 3 years of growth. As they begin to reach maturity, watering frequency can be reduced to a good deep soaking every 10 to 14 days during the heat of summer.


Canopy Health
Fair
Good
Poor
Dead

Tree Count
2,462

DBH


Canopy Diversity Chart
Amer. Linden
American Elm
Apple
Apple, other
Arborvitae
Ash, Green
Ash, White
Aspen
Birch
Black Walnut
Blue Spruce
Boxelder
Catalpa
Catalpa, Western
Cottonwood
Crabapple
Elm, Other
Elm, other
Fir, Douglas
Fir, Other
Fir, White
Fruit, other
Globe Willow
Hackberry
Hackberry, Common
Hawthorn
Honeylocust
Juniper, Rocky Mountain
L-leaf Linden
Linden, American
Locust
Lombardy Poplar
Maple
Maple, Norway
Maple, other
Maple, Other
Maple, Silver
Mountain Ash
Mulberry
Norway Maple
Other
Pine, Austrian
Pine, other
Pine, Pinyon
Pine, Ponderosa
Pinyon Pine
Planting space
Plum
Plum, American
Pond/Aus Pine
R.M. Juniper
Redbud
Russian-olive
Siberian Elm
Silver Maple
Spruce, Blue
Spruce, other
Sycamore
Tree Lilac, Chinese
Tree-of-Heaven
Walnut, other
White Oak
White Poplar
Willow
Silver Maple
Ash, Green
Siberian Elm
Aspen
Pond/Aus Pine
Blue Spruce
Planting space
Boxelder
Other
Crabapple
Norway Maple
Fruit, other
Maple, other
L-leaf Linden
Honeylocust


Count of Common Name
Amer. Linden
American Elm
Apple
Apple, other
Arborvitae
Ash, Green
Ash, White
Aspen
Birch
Black Walnut
Blue Spruce
Boxelder
Catalpa
Catalpa, Western
Cottonwood
Crabapple
Elm, Other
Elm, other
Fir, Douglas
Fir, Other
Fir, White
Fruit, other
Globe Willow
Hackberry
Hackberry, Common
Hawthorn
Honeylocust
Juniper, Rocky Mountain
L-leaf Linden
Linden, American
Locust
Lombardy Poplar
Maple
Maple, Norway
Maple, other
Maple, Other
Maple, Silver
Mountain Ash
Mulberry
Norway Maple
Other
Pine, Austrian
Pine, other
Pine, Pinyon
Pine, Ponderosa
Pinyon Pine
Planting space
Plum
Plum, American
Pond/Aus Pine
R.M. Juniper
Redbud
Russian-olive
Siberian Elm
Silver Maple
Spruce, Blue
Spruce, other
Sycamore
Tree Lilac, Chinese
Tree-of-Heaven
Walnut, other
White Oak
White Poplar
Willow
Common Name
0
100
200
300
400
Count of Common Name

Urban Forestry Board

Creation and Establishment.
There is hereby created and established the Urban Forestry Board for the city of Glenwood Springs, Colorado, which shall consist of up to seven (7) members, citizens and residents of this city who shall be selected and appointed by.....

Term of Office.
The term of office of the seven (7) persons selected shall be three (3) years. In the event that a vacancy shall occur during the term of any member, a successor shall be appointed for the unexpired portion of the term.

Duties and Responsibilities.

1. It shall be the responsibility of the Urban Forestry Board to study and develop and/or update a written proposed work plan. Said plan will include recommended practices and associated costs for the care, preservation, trimming, planting, replanting, removal or disposition of street and park trees and landscape plantings.
    1.1. The Board will create a plan for the City to assist with Hazardous trees in residential areas.
2. *The plan will be presented annually to the City Council (?)and,* upon its acceptance and approval, shall constitute the official comprehensive urban forestry plan for the City. The City Council will attempt to follow, as closely as possible, the plan submitted by the Urban Forestry Board.
3. The Urban Forestry Board, when requested by the City Council, shall consider, investigate, make findings, report and recommend upon any special matter of question coming within the scope of its work.
4. The Urban Forestry Board shall develop and implement a public education plan.

4.1. The plan should include assisting residents determine what are appropriate, climate-adapted, drought tolerant species of trees and landscape plantings, as well as proper planting techniques of the same.

5. The Urban Forestry Board shall work with City staff to ensure City and Park trees are pruned properly, through training efforts implemented by the Board.

6. The Urban Forestry Board will act as advocates of the existing urban forest by identifying areas or specific vegetation in need of care to City staff, and work with staff to ensure proper upkeep.

7. The Urban Forestry Board may be consulted with planning choices for street landscaping and municipal projects.

Operation.

1. The Urban Forestry Board shall choose its own officers, make its own rules and regulations, and keep a journal of its proceedings.

2. A majority of the members shall be a quorum for the transaction of business. Interested individuals may attend meetings but will not vote.

City of Glenwood Springs
Immediate and Upcoming Forestry Needs

Description	Cost	Complete	Immediate	1 Year	3 Years	Notes
Sullivan Park conifer tree maintenance	$ 349.00	☐	☑	☐	☐	
Two Rivers Park conifer tree maintenance	$ 3,635.00	☑	☐	☐	☐	
Veltus Park conifer tree maintenance	$ 716.00	☐	☑	☐	☐	
Wulfsohn trails tree/chip removal and repurposing for mulch in parks	$ 2,750.00	☐	☑	☐	☐	
O'Leary Park conifer tree maintenance	$ 229.00	☐	☐	☑	☐	
Rosebud Cemetery evergreen and deciduous tree maintenance	$ 14,000.00	☐	☑	☐	☐	
Sayre Park evergreen tree maintenance	$ 631.00	☐	☑	☐	☐	
St. Lucy Park evergreen tree maintenance	$ 356.00	☐	☐	☑	☐	
Brush Creek Park evergreen tree maintenance	$ 806.00	☐	☐	☑	☐	
Centennial Park evergreen tree maintenance	$ 184.00	☐	☑	☐	☐	
Conservancy Park evergreen tree maintenance	$ 294.00	☐	☐	☑	☐	
Gregory Park evergreen and deciduous tree maintenance	$ 2,553.00	☐	☑	☐	☐	
Horseshoe Bend Park evergreen tree maintenance	$ 257.00	☐	☐	☑	☐	
	$ 26,760.00	☐	☐	☐	☐	
Updated tree inventory - initial scope of work	$ 30,000.00	☐	☑	☐	☐	
Tree inventory advanced data field sets, statistics, risk assessment, work history, and ecosystem benefit analysis - 3 years	$ 11,000.00	☐	☑	☐	☐	1 year option also available for $4,500
Canopy inventory for trails and open spaces - 3 year	$ 9,000.00	☐	☐	☑	☐	1 year option also available for $5,000
	$ 50,000.00					

July 14, 2022

Mayor Jonathan Godes
City Council of Glenwood Springs
101 W. 8th Street
Glenwood Springs, CO 81601

Dear Mayor Jonathan Godes and the City Council of Glenwood Springs,

West Mountain Regional Health Alliance (WMRHA) would like to extend our heartfelt gratitude for your $20,000 grant award. Thank you for supporting the WMRHA's mission "to build an integrated healthcare system to achieve optimal health for all." Your support of WMRHA supports homelessness response efforts. The past year many individuals and families in the community experiencing homelessness were identified, provided support, and connected to housing and other resources. The service providers have learned so much, but now we are ready to do more. Your support helps to leverage additional funding and shows your belief in addressing the homelessness issue in the City of Glenwood Springs and Garfield County.

Once again, we are grateful for your support and leadership. The funding provided by City of Glenwood Springs is crucial to demonstrate the value of WMRHA's efforts, and this grant will help support Emergency Shelter in the region. Please feel free to contact me at 970-618-9723 or cgair@mountainfamily.org for any additional information. Thanks for caring enough to make our community a priority.

Sincerely,

Cristina Gair

Cristina Gair
Executive Director