



CITY COUNCIL

WORKSHOP AND REGULAR MEETING AGENDA

May 18, 2022
7:00 PM
202 Railroad Avenue, Rifle, CO

6:00 PM - Workshop Meeting

Discussion and Review

- a. Receive Information on Wildland Urban Interface and Electrical Code Update

7:00 PM - Regular Meeting

1. **Call to Order**
2. **Pledge of Allegiance**
3. **Roll Call**
4. **Swearing-In of New Police Officers**
 - 4.a. Swearing-In of New Officers David Adkins, Nathan Roos and Ethan Turner
 - 4.b. Present Proclamation Recognizing National Police Week
5. **Public Comment** *(maximum time permitted for Public Comment is 3 minutes per person)
6. **Consent Agenda**
 - 6.a. Consider Minutes of the May 4, 2022, Regular Meeting
 - 6.b. Consider Buy Back of Cemetery Space
7. **Action, if any, on Workshop Items**
8. **Presentation**
 - 8.a. Receive Presentation from Eco Dwelling LLC. Regarding Rifle Area Development Proposals
9. **Public Hearing**

9.a. Consider Final Plan and PUD Request for Last Chance Commons

9.a.i. Consider Request for Community Service PUD Zoning for the Last Chance Commons Subdivision - Ordinance No. 9, Series of 2022 - 1st Reading

9.a.ii. Consider Request for Final Plan Approval for Last Chance Commons - Ordinance No. 10, Series of 2022 - 1st Reading and Subdivision Improvements Agreement

10. Regular Agenda

10.a. Consider Amending Section 10-3-50 of the City of Rifle Municipal Code Setting Forth the Definition of the Municipal Offense of Harassment - Ordinance No. 11, Series of 2022 - 1st Reading

10.b. Consider Increasing Rose Hill Cemetery Fees

11. Administrative Reports

11.a. Report to City Manager

12. Comments from Mayor and Council

13. Adjournment



Agenda Item #a.

Agenda Item Name:

Receive Information on Wildland Urban Interface and Electrical Code Update

Presenter:

Patrick Waller, Planning Director

Item Description:

Building Department Staff and Fire Marshal will provide information on adopting the Wildland Urban Interface Building Code and Electrical Code

Recommended Action:

No Action Needed for a Workshop

Fiscal Impact:

No additional impact to City. Cost concerns from construction are sometimes identified as issues for WUI Code adoption.

Operational Impact:

None. Existing Staff can oversee WUI Code and Electrical inspections are already addressed by the State.

Prior Board Motions:

None

Background Information:

Building Staff is presenting information to Council regarding the potential adoption of the Wildland Urban Interface Building Code and National Electrical Code.

Executive Summary:

The purpose of the WUI Code is to help prevent wildland/brush fires from burning into housing areas and subdivisions and to mitigate damage to the areas. The Marshall Fire is a recent example of a brush fire that caused significant damage to large subdivisions, but the threat from wildfire is significant throughout the state and the risk continues to increase.

The national electrical code has not been adopted by the City of Rifle which does not allow the City to address violations as part of the code enforcement process. The City relies on the State for electrical inspections and if there is a problem with an installation or a code enforcement issue the City has to rely on the State for enforcement.

Notification Requirements:

None

Prepared By:

Patrick Waller, Planning Director

Attachments:

1. WUI and Electrical Code Memo
2. Headwaters Economics Report

MEMORANDUM

To: Honorable Mayor and City Council
From: John Nihiser - Building Official, Patrick Waller – Planning Director
Date: April 20, 2022
Subject: WUI Code and National Electric Code Adoption

The City of Rifle, Building Department is holding this Workshop with the Rifle City Council to provide information regarding the potential adoption of the Wildland Urban Interface Code and National Electric Code, to improve the code coverage in the city, and to bring a higher degree of safety, health and general welfare to the citizens of Rifle.

Wildland Urban Interface Code (WUI)

The purpose of the WUI Code is to help prevent wildland/brush fires from burning into housing areas and subdivisions and to mitigate damage to the areas. The Marshall Fire is a recent example of a brush fire that caused significant damage to large subdivisions, but the threat from wildfire is significant throughout the State and the risk continues to increase.

The WUI code is designed to address those areas of new construction which will be located adjacent to wildland areas with natural vegetation which when paired with other conditions like slope, water supply, density of vegetation, steep terrain and access, puts them at risk from a wildfire. Because so much of the City is near these types of areas, the Building Department is recommending that the WUI code be implemented throughout the City.

The major item the code will address is the type of building materials to be used on the exterior of structures in at risk areas. This will include roof coverings (very important), siding, soffit materials, decks and decking materials and roof vents. These items will vary as to what class ignition resistant construction group the area falls into.

Because of the requirements regarding construction with different materials, the most common issue identified with implementing a WUI code is construction cost. However, the City of Rifle doesn't have any class one areas which will help keep costs down and builders in the city are for the most part, already using materials which would fall into the three classes of ignition resistant construction and thus it will likely add little cost to new home construction. One item that will likely increase costs in these areas will be the requirement that decks will need to be built from a composite material like Trex to reduce the flammability of the deck surface from flying ambers rather than wood.

Staff research on the issue includes the review of a research paper by Headwaters Economics (included in the Workshop Packet) that analyzed the costs of WUI Code construction. The research paper concluded that constructing new homes to be wildfire-resistant is not substantially more expensive than traditional home building requirements. Retrofitting existing homes can have much more significant costs; however this wouldn't be required by the WUI Code, unless a renovation involves substantial changes to the exterior of a building. Additionally, the study indicates that building houses to WUI code standards can provide additional benefits such as a longer lifestyle and reduced maintenance.

Additional WUI Code requirements address, defensible space requirements for vegetation distance from structures, emergency vehicle access (similar to existing fire code requirements, water supply, and fire protection items.

The code adoption has the full support of Fire Marshal Orrin Moon and the Colorado River Fire Rescue who will be significantly involved in the administration of the code. The entire WUI code is available for review here: <https://codes.iccsafe.org/content/IWUIC2021P1/preface>.

National Electric Code

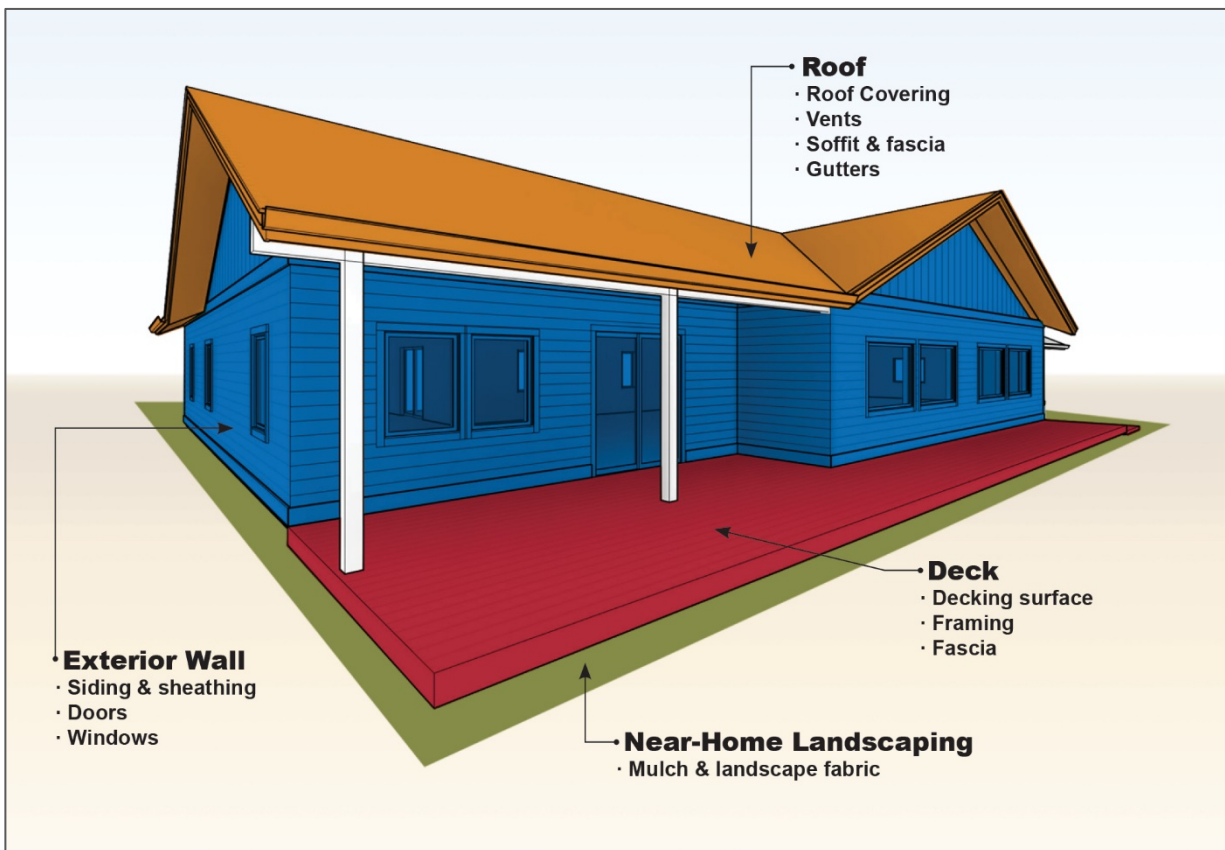
The national electrical code has not been adopted by the City of Rifle which does not allow the City to address violations as part of the code enforcement process. The City relies on the State for electrical inspections and if there is a problem with an installation or a code enforcement issue the City has to rely on the State for enforcement.

The State of Colorado Electrical Inspection Program does a good job on the inspection of electrical installations on a day to day basis, but the State is not always available to address an enforcement issue. As an example, in 2021 the City had a major enforcement problem with a violation regarding an unpermitted manufacturing operation. The unpermitted use included several major electrical code violations. While Colorado River Fire Rescue and the Building Official addressed the issue through a municipal summons, they were unable to include serious electrical code violations because the City had not formally adopted the National Electric Code.

Based on this past experience, the Building Department is requesting that the National Electrical Code is adopted to prevent this type of problem in the future. Both the Fire District and the Building Department are supportive of the adoption and have the ability to inspect and enforce the provisions of the code for violations that result in hazardous conditions.



Building a Wildfire-Resistant Home: Codes and Costs



November 2018

Building a Wildfire-Resistant Home: Codes and Costs

PUBLISHED ONLINE:

<https://headwaterseconomics.org/wildfire/homes-risk/building-costs-codes>

ABOUT HEADWATERS ECONOMICS

[Headwaters Economics](https://headwaterseconomics.org) is an independent, nonprofit research group whose mission is to improve community development and land management decisions.

ABOUT INSURANCE INSTITUTE FOR BUSINESS & HOME SAFETY

The Insurance Institute for Business & Home Safety (IBHS) is an independent, nonprofit, scientific research and communications organization supported solely by property insurers and reinsurers. The mission of the IBHS is to conduct objective, scientific research to identify and promote the most effective ways to strengthen homes, businesses and communities against natural disasters and other causes of loss.

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ACKNOWLEDGMENTS

This report was made possible through the generous support of the U.S. Forest Service, the LOR Foundation, and the Insurance Institute for Business & Home Safety. It was completed at the request of Park County, Montana as part of the [Community Planning Assistance for Wildfire](#) program, which works with communities to reduce wildfire risks through improved land use planning. We would like to thank Ben Elias and Lee Elder with [Bechtle Architects](#) for their expertise and guidance in the creation of this report, and Mike Burnett, Daniel Gorham, Kelly Johnston, David Shew, and Paul Summerfelt for reviewing earlier drafts of this document. Any errors or omissions are solely the responsibility of Headwaters Economics.



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<https://headwaterseconomics.org>

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I. EXECUTIVE SUMMARY

This study examines the cost differences between a typical home and a home constructed using wildfire-resistant materials and design features. Decades of research and post-fire assessments have provided clear evidence that building materials and design, coupled with landscaping on the property, are the most important factors influencing home survivability during a wildfire. With one-third of all U.S. homes in the wildland-urban interface¹ and more than 35,000 structures lost to wildfire in the last decade,² more communities are considering adopting building codes that require new home construction to meet wildfire-resistant standards.

While codes and standards have been developed for building in wildfire-prone lands, the perceived cost of implementing such regulations is a commonly cited barrier to consideration and adoption by some communities. However, little research has previously examined how much it would actually cost the homeowner or builder to comply with such regulations.

This study compares existing codes and standards for wildfire-resistant construction and estimates cost differences in constructing a wildfire-resistant home compared to a typical home. It also examines the cost of retrofitting a typical home to be more wildfire-resistant. Key findings include:

- A new home built to wildfire-resistant codes can be constructed for roughly the same cost as a typical home.
- Costs vary for retrofitting an existing home to be wildfire-resistant, with some components such as the roof and walls having significant expense. Some of these costs can be divided and prioritized into smaller projects.
- Many wildfire-resistant home features have additional benefits, such as a longer lifecycle and reduced maintenance.

This study was completed in partnership with [The Insurance Institute for Business & Home Safety](#) (IBHS) and was prepared at the request of Park County, Montana, as part of the [Community Planning Assistance for Wildfire](#) (CPAW) program. CPAW is a program of Headwaters Economics and is funded by the U.S. Forest Service, the LOR Foundation, and other private foundations.

Wildfire-Resistant Codes and Standards

While certain jurisdictional codes have been established, three existing statewide or national building codes and standards guide wildfire-resistant construction. They are:

- the International Code Council's International Wildland Urban Interface Code (IWUIC),³
- the National Fire Protection Association's Standard for Reducing Structure Ignition Hazards from Wildland Fire (Standard 1144),⁴ and
- the California Building Code Chapter 7A—Materials and Construction Methods for Exterior Wildfire Exposure.⁵

These three documents address construction requirements of the home by component parts (e.g., roof, walls, etc.) and often provide multiple options for complying with the provision. Many of the requirements in these documents are based on standard laboratory testing methods that evaluate the ability of a material or assembly to resist ignition or fire spread. California is one of only a few states to have adopted a wildfire-related building code at the state level for areas of high hazard, but many cities and counties have adopted portions of the IWUIC or other wildfire-related codes. In some communities, the

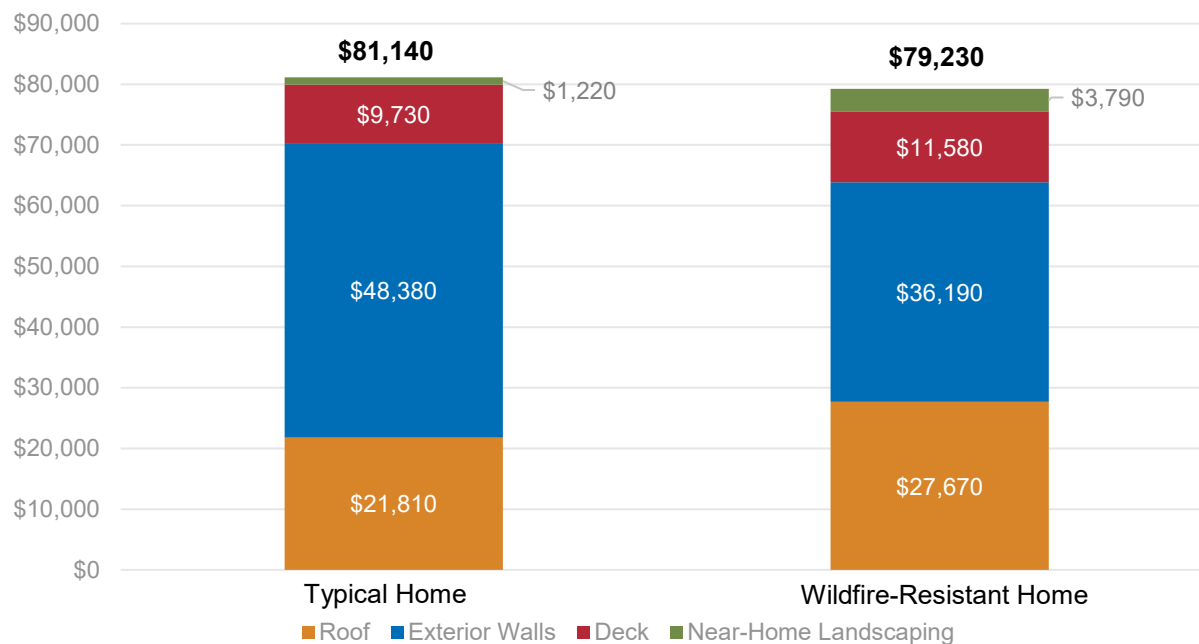
inaccurately assumed cost of constructing a home to comply with a wildfire-resistant building code is a barrier to implementing such codes.

Wildfire-Resistant Construction Costs

To identify whether the cost of constructing to a wildfire-resistant building code differs from typical construction, this study priced new construction and retrofitting expenses for a three-bedroom, 2,500-square-foot, single-story, single-family home representative of wildland-urban interface building styles in southwest Montana, one of the fastest-growing regions in the country. The typical home was assumed to have an asphalt shingle roof, wood siding, dual-pane windows, and a wood deck. Wildfire-resistant materials were selected for similar aesthetics but also comply with wildfire-resistant building codes. Costs were primarily derived from *RSMeans*,⁶ a database that averages material and labor pricing from hundreds of U.S. cities and includes materials, labor, and contractor overhead and profit.

We examined costs in four vulnerable components of the home: the roof (including gutters, vents, and eaves), exterior walls (including windows and doors), decks, and near-home landscaping. Overall, the wildfire-resistant construction cost 2% less than the typical construction (Figure 1.1), with the greatest cost savings resulting from using wildfire-resistant fiber cement siding on exterior walls, in lieu of typical cedar plank siding. While cedar plank siding is typical in the wildland-urban interface of western Montana, fiber cement siding is already a common choice in many regions because of its relative affordability, durability and low maintenance needs. Wildfire-resistant changes to the roof resulted in the largest cost increase, with a 27% increase in gutters, vents, and soffits. The following sections describe the wildfire-resistant mitigations for each component.

Figure 1.1. New construction costs by component in typical home and wildfire-resistant home.

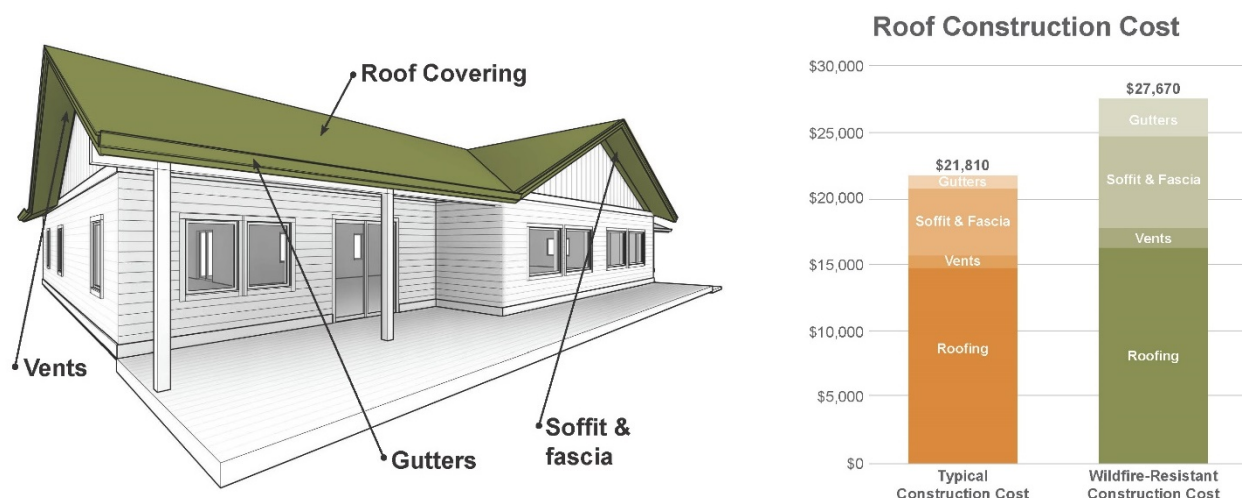


Roof

The roof is arguably the most vulnerable area of the home because of its large surface area. Embers can ignite vegetative debris that has accumulated on the roof surface or in gutters. Embers also can enter the attic through roof and under-eave vents. Also, unenclosed eaves and overhangs can trap embers and heat.

Wildfire-resistant modifications to roofing, vents, fascia, soffits, and gutters added \$5,860 (27%) to the cost of the typical roof (Figure 1.2), assuming both homes use Class A (fire-rated) asphalt composition shingles. Retrofitting an existing roof to be wildfire-resistant approached the cost of new construction, totaling \$22,010 for the model home. However, many of the wildfire-resistant roof materials have longer lifespan and reduced maintenance needs as compared to typical materials.

Figure 1.2. Roof subcomponents and new construction cost.



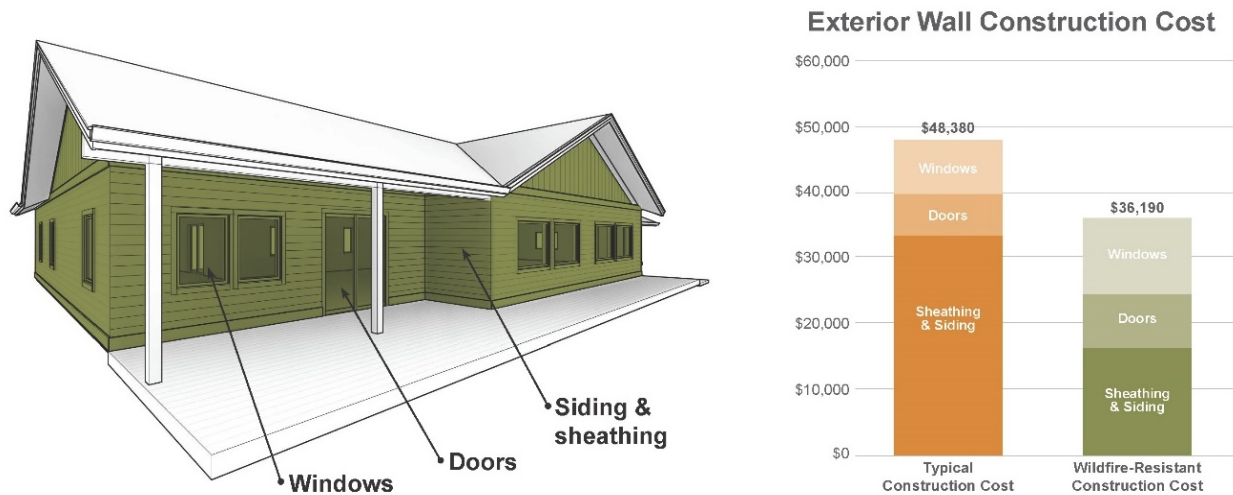
Exterior Walls

Exterior walls are especially vulnerable from exposure to flames or prolonged exposure to radiant heat, such as from burning vegetation or a neighboring home. These exposures can potentially ignite combustible siding products. Some plastic siding products (e.g., vinyl) can also melt, exposing underlying sheathing. Wind-blown embers can accumulate in gaps or pass through openings around windows and doors. Glass in a window or door can break from radiant heat or flame contact, exposing the interior of the home. Wildfire-resistant siding and installation design features, tempered glass in windows, wildfire-resistant doors, and weather-stripping can reduce home vulnerability. The relative importance of each of these items varies depending on home-to-home spacing and location of vegetation on the property. Siting on the property relative to topography and typical wind directions can also be important factors in determining necessary external wall mitigations.

Wildfire-resistant construction for exterior walls was \$12,190 (25%) less expensive than the typical home, with the cost savings resulting from the difference in using wildfire-resistant fiber-cement siding as compared to cedar plank siding (Figure 1.3). Fiber cement siding is already a common siding option in many regions and several styles mimic the look of wood siding. While the change in siding reduced the cost of the wildfire-resistant home, cost increases for other exterior wall features are \$5,370 (29%) more than typical exterior wall features. Retrofitting the exterior walls (including windows and doors) on the

model home totaled \$40,750. Depending on neighboring home spacing, not all retrofitting activities may be necessary, but several of these activities will have added benefits such as improved energy efficiency (e.g., multi-pane windows) and reduced maintenance.

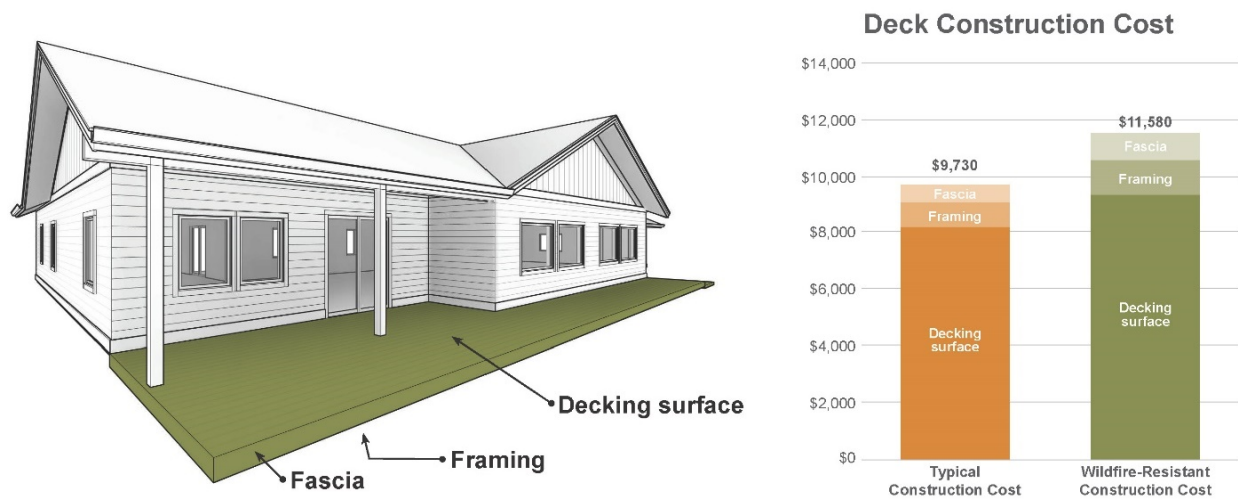
Figure 1.3. Exterior walls subcomponents and new construction cost.



Deck

Embers can ignite vegetative debris or other combustible material stored or accumulated on top of the deck. If ignited, the burning deck could expose walls, windows, and doors to radiant heat. Embers can ignite decking materials directly when they accumulate on the surface of vulnerable decking, typically occurring in the gaps between deck boards. Decks can also ignite from below when vegetation or stored materials ignite beneath the deck. Mitigations to make a deck wildfire-resistant include using wildfire-resistant materials for walking surface (e.g., composite boards), using foil-faced bitumen tape on the top surface of the support joists, and creating a noncombustible zone underneath the deck. The wildfire-resistant deck added \$1,850 (19%) to the cost of the typical deck (Figure 1.4). Some wildfire-resistant decking materials can have a longer lifespan and require less maintenance than typical materials.

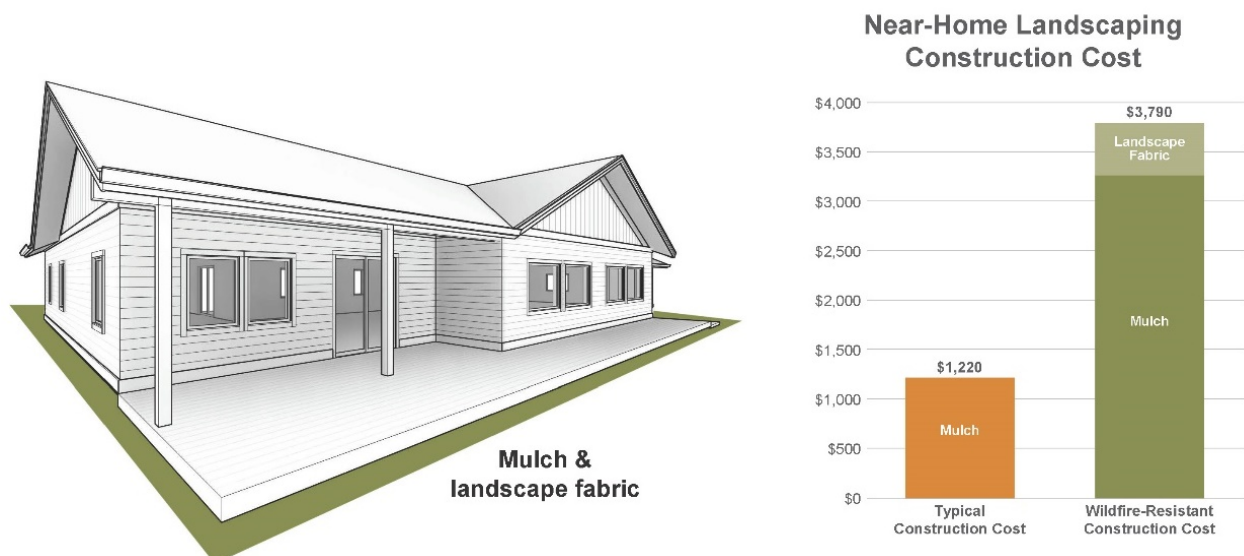
Figure 1.4. Deck subcomponents and new construction cost.



Near-Home Landscaping

If ignited by wind-blown embers, burning vegetation and other combustible materials near the home can allow flames to touch the home or subject it to an extended radiant heat exposure, potentially igniting siding or breaking glass in windows. Maintaining a noncombustible zone of five feet around the entire perimeter of the house and outer edges of the deck can significantly reduce the vulnerability of the home. Mitigations include using rock instead of bark mulch on top of landscape fabric. Placing landscape fabric underneath the area can reduce the growth of weeds, thereby minimizing the maintenance needed by the homeowner. These modifications increased the cost of near-home landscaping by \$2,570 (210%) (Figure 1.5). Rock has a longer lifespan than bark mulch and landscape fabric will reduce the maintenance required in the near-home landscaping area.

Figure 1.5. Near-home landscaping subcomponents and new construction cost.



Constructing a Wildfire-Resistant Home Is Similar in Cost to a Typical Home

Laboratory research and post-fire analysis have determined that local ignitability of the home itself, largely determined by the building materials and design features, is an important factor in determining survivability during a wildfire. Existing codes and standards provide ample guidance for how to construct a wildfire-resistant home and reduce vulnerability. This study demonstrates that a new home can be constructed to such standards for approximately the same cost as a typical home, and some of these materials have added benefits such as longer lifespan and reduced maintenance.

City, county, and state governments must weigh many issues when considering new regulations, but the cost of constructing a home to meet wildfire-resistant building codes need not be a barrier. If communities continue to allow growth in wildfire-prone lands, adopting wildfire-resistant building codes may be one of the most effective tools for reducing home loss. Absent such requirements, homeowners and builders can take steps to protect the home by carefully designing and constructing (or retrofitting) the most vulnerable components—the roof, walls, deck, and landscaping—to be wildfire-resistant. The long-term benefits may include longer lifecycle and reduced maintenance.

As recent wildfire disasters have demonstrated, the converging trends of rapid growth in the wildland-urban interface, fuel accumulation after a century of fire suppression, and a warming climate will make wildfires more costly and dangerous in years to come. Just as the cause of this problem is multipronged, there is no single solution to protecting lives and property, and we must employ a suite of solutions that include land use planning, vegetation management, and emergency preparedness. Constructing homes to be wildfire-resistant is a critical and cost-effective piece of the puzzle.

¹ Radeloff, V.C., D. P. Helmers, H. A. Kramer, M. H. Mockrin, P.M. Alexandre, A. Bar-Massada, V. Butsic, T.J. Hawbaker, s. Martinuzzi, A. D. Syphard, and S. I. Stewart. 2018. Rapid growth of the US wildland-urban interface raises wildfire risk. PNAS. <http://www.pnas.org/content/early/2018/03/06/1718850115.short>

² Derived from National Incident Coordination Center Annual Reports.

<https://www.predictiveservices.nifc.gov/intelligence/intelligence.htm>

³ 2018 International Wildland-Urban Interface Code. 2017. International Code Council, Inc.

⁴ National Fire Protection Association. 2018. NFPA 1144. Standard for Reducing Structure Ignition Hazards from Wildland Fire. 2018 Edition.

⁵ 2016 California State Building Code, Part 2, Volume 1, Chapter 7A.

<https://codes.iccsafe.org/public/chapter/content/9997/>

⁶ RSMeans Online. 2018. Version 8.7. Gordian. <https://www.rsmeans.com/>

II. BACKGROUND

Trends in the Wildland-Urban Interface

Home development in the wildland-urban interface (WUI)—the area where housing and burnable vegetation meet or intermingle—is growing faster than in other land use types in the United States.¹ Homeowners in the WUI often are attracted to the natural scenery, access to public lands, privacy, and a rural lifestyle, but these amenities are accompanied by a rapidly growing risk.

Wildfires in the U.S. are bigger and burn longer than just a few decades ago, and danger to communities is increasing. Since the 1990s, the average acreage burned in U.S. wildfires has more than doubled.² In the western U.S., the average wildfire season is nearly three months longer than in the 1970s,³ and globally it is an average of one month longer.⁴ Since 2000, more than 3,000 U.S. communities saw 100 acre or larger wildfires within 10 miles of town.⁵

Current climate projections are likely to exacerbate the problem in the future. Fuel aridity is increasing in the western U.S. and climate trends are expected to expand the potential for wildfire activity.⁶ Earlier spring snowmelt in the West is also drying fuels in areas previously snow-covered into late spring, expanding the geographic and temporal extent of wildfires.

The spatial and seasonal expansion of wildfire is compounded by the expanding WUI and the increasing presence of people near wildland vegetation. Human-ignited wildfires account for 84% of all U.S. wildfires from 1992-2012, causing wildfires in places and during times of the year that would not typically occur.⁷

Due to these trends, the costs of wildfire in the U.S. are on the rise. In the last decade, federal fire suppression expenditures cost taxpayers an average of \$3.7 billion per year.⁸ Federal managers estimate that 50 to 95% of suppression costs are directly related to protecting homes in the WUI.⁹

While these numbers are staggering, the true costs are even higher. Wildfire suppression represents less than 10% of the full costs of wildfire to communities, and communities bear nearly half of the full costs of wildfire.¹⁰ Long-term damages can have devastating impacts, such as lost business and tax revenue, physical and mental health effects, watershed rehabilitation, and property and infrastructure repairs. Loss of human life in wildfire disasters causes immeasurable harm to families and communities.

Since 2008, wildfires have damaged or destroyed more than 35,000 structures in the U.S.,¹¹ putting insurance claims at \$5.1 billion.¹² Although firefighters successfully control most wildfires, WUI disasters generally occur when extreme weather conditions result in rapid fire spread that overwhelms firefighting resources.

Decades of research and post-fire analyses have resulted in guidance that can reduce the vulnerability of buildings located in wildfire-prone areas and improve their ability to survive when wildfire threatens. Nevertheless, few communities have adopted requirements for wildfire-resistant building materials and design in high-risk areas. Two documents establish model building codes and standards: the National Fire Protection Association's *Standard for Reducing Structure Ignition Hazards from Wildland Fire*¹³ and the International Code Council's *International Wildland-Urban Interface Code (IWUIC)*.¹⁴ Each addresses vulnerabilities of structures subjected to wildfire exposures. Most states have not adopted a building code on a state-wide level, but rather have left local jurisdictions to decide whether and how to adopt such model codes as regulations. California is a notable exception, having adopted *Materials and Construction Methods for Exterior Wildfire Exposure* as Chapter 7A of the state building code in 2008.¹⁵

For some local jurisdictions, a barrier to implementing WUI building regulations is the perceived cost. Although research has shown that the benefits of wildfire-resistant construction far outweigh the costs to a community,¹⁶ little research has examined the immediate costs to homeowners and builders. Communities often assume that implementing wildfire-resistant building regulations will cost too much for homeowners and the homebuilding industry. The purpose of this study is to identify the cost differences of constructing or retrofitting a home to wildfire-resistant standards as compared to a typical home, not built to wildfire-resistant standards.

How Homes Are Lost to Wildfire

Home vulnerability is primarily driven by the home's local ignitability, based on the home materials and design features and landscaping selections and maintenance on the property.¹⁷ Modern wildland fire suppression is extremely successful, quickly controlling 97 to 99% of wildfires.¹⁸ Most WUI disasters occur during the 1 to 3% of events when severe weather conditions and terrain align to create rapid fire growth rates and widespread ember showers leading to extreme fire intensities that overwhelm firefighting capabilities.¹⁹ Post-fire studies have shown that most buildings ignited during a wildfire have been completely destroyed.

Buildings can be ignited from three types of wildfire exposure (listed in order of significance): wind-blown embers (also called firebrands), radiant heat, and direct flame contact.

Embers

Most homes lost in WUI disasters are burned not by the flame front of the wildfire, but rather by direct ember ignition, or from low-intensity fires ignited by embers near the home.²⁰ In dry and windy conditions often associated with extreme weather events, embers can be cast a mile ahead of the fire front, igniting spot fires across broad areas in advance of the wildfire front. In recent post-fire analyses, it was not uncommon to find more than two-thirds of home losses were from embers or low-intensity fires.^{21, 22, 23}

Direct ember ignition can occur when embers enter the building through openings such as vents or an open or broken window. Once inside, embers can ignite furnishings or other combustible materials stored there. Direct ember ignition can also occur when embers accumulate and ignite combustible parts of the building, such as a wood shake roof, combustible decking, or debris accumulated on a roof or in a gutter.

Embers can also result in an indirect ignition scenario if they ignite vegetation or other nearby combustible materials that cause a spot fire, subjecting a portion of a building to either a direct flame contact exposure where the flames touch the building or a radiant heat exposure.

Radiant Heat

Radiant heat can be generated by burning tree canopies or shrubs, landscape vegetation, neighboring buildings, or other nearby fuel. The vulnerability of a building to radiant heat depends on the intensity and duration of the exposure. If the radiant heat level is high enough and the duration long enough, it can result in the ignition of a combustible product (for example, wood siding), or it can break the glass in windows and doors, making ember-ignition of interior materials more likely. Exposures to lower levels of radiant heat can pre-heat materials, making them easier to ignite if exposed to flames.

Direct Flame Contact

Direct flame contact from the wildfire as it passes the property can be the trigger that leads to ignition of a building component, such as combustible siding. Once a building component ignites it is easier for the fire to enter the building through the component or through the stud cavity behind a component, such as wall siding. Fire can also spread vertically up the wall, impinging on and possibly breaking glass in windows or doors, or enter the attic through the eave or eave vent. Once glass breaks, embers can readily enter the building and ignite interior furnishings.

Building Wildfire-Resistant Homes & Communities

Although the factors affecting whether a home survives a wildfire are complex—including weather, topography, fuels, and fire suppression capabilities—empirical research and laboratory experiments have demonstrated that building construction and design play a major role in home survival.^{24, 25} Building wildfire-resistant homes and communities requires addressing all wildfire vulnerabilities, including provisions to make buildings less vulnerable to ember exposures, reducing the opportunity for the fire to reach the building, and minimizing the opportunity for radiant heat exposures from landscaping vegetation, outbuildings, or other nearby combustible materials.

Reducing home losses to wildfire requires a coupled approach, addressing two primary sources of home vulnerability:^{26, 27}

1. The selection, location, and maintenance of vegetation and other combustible materials within approximately 100 feet surrounding the home, referred to as the “home ignition zone” (HIZ).
2. The building materials and design features used in construction of the home itself.

Home Ignition Zone (HIZ)

Developing wildfire-resistant properties for HIZ (also referred to as defensible space) generally involves managing vegetation, landscaping, debris, and other combustible materials (like wood piles and outbuildings) in a 100-foot area around the home. Research has found that defensible space beyond that radius has little effect on a home’s survivability.²⁸ In general, the area is broken into three subzones:²⁹

- Zone 1: 0 to 5 feet;
- Zone 2: 5 to 30 feet; and
- Zone 3: 30 to 100+ feet.

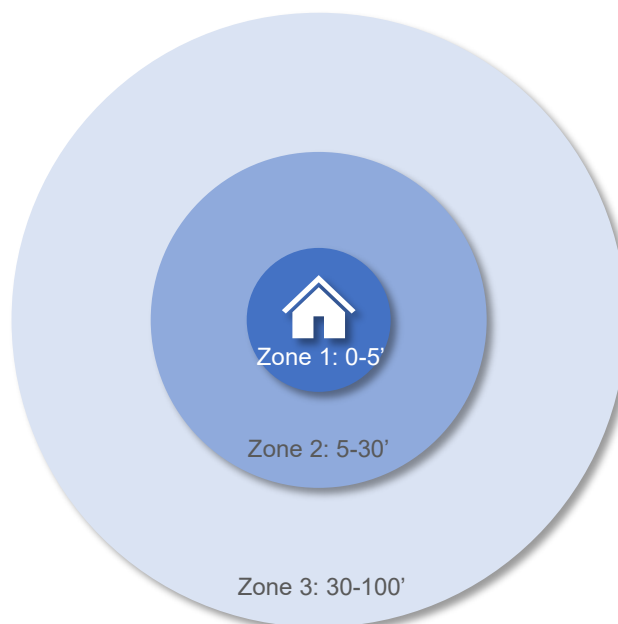


Figure 2.1. The Home Ignition Zone (HIZ), comprising three sub-zones.

The exact recommendations for each zone will vary depending on topography, the siting of the home on the property, and the vegetation type, but the objectives are to reduce the energy of the fire and minimize the chance it will burn directly to the home, and, if present, to allow for safe fire suppression activities to protect the home.

Reducing potential fire energy and spread in Zones 2 and 3 involves carefully selecting and maintaining vegetation, creating separation between plant groupings, and eliminating vertical continuity of fuels, also known as ladder fuels. Information about creating, designing, and maintaining defensible space for different climatic regions, fuel types, and topography is readily available through state and local agencies and will not be further addressed in this report.

Zone 1, also called the near-home zone or the “noncombustible zone,” includes the 0- to 5-foot area immediately adjacent to the home where, if ignited, landscaping and other combustible materials could spread to and ignite the home. The strong likelihood of ember attack in most wildland fire events means that homes are most vulnerable to ignition in this near-home area. Although a completely noncombustible zone is desirable (e.g., use of rock mulch or other hardscape features), vegetation considered to be less combustible could also be used. This “less-combustible” vegetation would be restricted to an irrigated lawn and non-woody, low-growing, herbaceous vegetation, both of which must be well-maintained. Given the ability of wind-blown embers to pass over the defensible space created on most properties, incorporating a noncombustible zone provides additional protection by reducing the opportunity for a flame to directly contact the home as a result of ember-ignited combustibles located immediately adjacent to the home. The near-building zone is described in additional detail in Chapter VIII.

Building Materials & Design Features

The materials used to construct a home and their arrangement and design can have a major influence on survivability. Several components of single-family homes are most vulnerable to wildfire and must therefore be built and designed to specifically withstand ignition from embers, radiant heat, and direct flame contact. These components include:

- Roof, including vents, gutters, and eaves/soffits
- Exterior walls, including siding, windows, and doors
- Decks and other exterior attachments.

Definitions

Many of the terms used to describe favorable performance are used interchangeably, even though they may have different technical definitions. Different wildfire codes may have discrepancies, but are generally based on traditional laboratory tests that determine a material’s response or reaction to fire.

Wildfire-Resistant. A general term used in this report to describe a material and design feature that can reduce the vulnerability of a building to ignite, either from wind-blown embers or other wildfire exposures.

Fire-Resistant. Materials and systems that resist the *spread* of fire from the fire-exposed to a non-exposed side of an assembly (i.e., a wall or roof).

Ignition-Resistant. Material that resists *ignition* or sustained flaming combustion. Materials designated ignition-resistant have passed a standard test that evaluates flame spread on the material.

Noncombustible. Material of which *no part will ignite or burn* when subjected to fire or heat, even after exposure to moisture or the effects of age. Materials designated noncombustible have passed a standard test.

Given the relatively large surface area of the roof, this component generally is considered the most vulnerable. One recent study found that window preparation was especially important, but defensible space in the near-home area was as important as building construction.³⁰ Because of the many complex ways wildfire interacts with the landscape and fuels—including combustible materials used in construction—home vulnerability must be addressed through both property-level landscaping and the building materials and design.

Even if constructed with wildfire-resistant materials and design features, the home and its landscaping must be maintained to retain the necessary level of performance. The potential for extended radiant heat exposure and/or direct flame contact will depend on the defensible space and on the proximity of any neighboring homes or outbuildings. Therefore, overall land use planning decisions—including where homes should or should not be allowed on the landscape, proximity of neighboring homes, and siting of a home on an individual lot relative to neighboring structures, topography, and primary wind direction—are also important factors.

The Costs to Homeowners and Builders

The cost of building a single-family home using wildfire-resistant materials and design has not been previously analyzed in detail. Studies at the individual home level have mostly been tied to creation and management of defensible space. Australian studies have found the cost for retrofitting a home to be wildfire-resilient averaged \$19,000,³¹ and the cost of preparation is approximately \$8,000³² (U.S. 2018 dollars), but most of the modifications were related to management of the vegetation on the property and purchase of equipment to defend the home, not the construction of the home itself. Similarly, little research exists on the effects of WUI regulations on home or property values. A 2017 report by the National Institute of Building Sciences estimated a savings of \$4 for every \$1 of additional construction cost by implementing the IWUIC at the community scale.³³

Researchers have investigated the costs of building codes that address other natural disasters, such as hurricanes and tornadoes. A recent study in Moore, Oklahoma, found that implementation of new regulatory building codes to address severe tornado risk did not impact the quantity of homes sold, price of homes, or the number of permits for construction.³⁴ An analysis of Florida's state building code—implemented after the devastation of Hurricane Andrew—not only was successful in reducing losses by up to 72% from major windstorm events, but also realized a benefit of \$6 for every \$1 of added cost.³⁵

In addition, some research has shown that buyers were willing to pay a premium for safety. In Florida, homes built under more recent, stronger building codes saw a 10% higher price than older homes built before the code change.³⁶ Anecdotal evidence from wildfire-prone areas suggests that some housing markets use wildfire-resistance as an advertising and marketing strategy.

To address the research gap in the cost to construct a home to meet wildfire-resistant building codes, this study compares the three most well-known wildfire-resistant building codes and then examines the cost to build a home to those requirements.

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III. WUI CODES AND STANDARDS

Before examining the cost of constructing a home built to wildfire-resistant standards, it is helpful to understand the primary guiding documents for wildfire-resistant construction in the U.S. This chapter compares the three most well-known building code options for construction in wildfire prone areas: the International Code Council’s Wildland-Urban Interface Code (IWUIC),¹ the National Fire Protection Association Standard for Reducing Structure Ignition Hazards from Wildland Fire (NFPA 1144),² and Chapter 7A in the California Building Code (Materials and Construction Methods for Exterior Wildfire Exposure).³ Even though building codes are generally reserved for new construction or significant remodels that meet certain thresholds, they can be useful for improving resistance to wildfire risks when retrofitting.

This report focuses on the portion of the documents related to building design and construction, although the three codes incorporate additional information related to home survival during wildfire such as infrastructure (like water supply and roads), landscaping and site requirements, and fire protection systems. Some communities may adopt a stand-alone code specifically designed to address wildfire in at-risk portions of the community (generally called a “WUI Code”), but wildfire-related issues may also be incorporated into a variety of other existing regulations (e.g., building codes, zoning regulations, landscaping ordinances).

Few states have adopted wildfire-related codes at the state level, with some notable exceptions. California adopted Chapter 7A as part of the California Building Code in 2008. NFPA 1144 has not been adopted in its entirety by any state. In 2018, the State of Washington adopted portions of the 2018 IWUIC into its building code, specifically those sections related to ignition-resistant construction (IWUIC Section 504).⁴

Similarities Among the Codes

Each of the three wildfire-related documents (IWUIC, NFPA 1144, and California Chapter 7A) is similar in some respects. All acknowledge the importance of vegetation and vegetation management. In the IWUIC, construction requirements are tiered depending on the wildfire hazard zone. These zones typically are referred to as “fire hazard severity zones” – the levels escalate from “moderate” to “very high” or “extreme.”

Construction requirements divide the home or building into component parts (such as roof, exterior wall, vents, and decking) and provide material or assembly (i.e., “system”) options for the component (or assembly). An example of an assembly would be an exterior wall that includes the siding material, sheathing, framing, and other components used in the wall construction. In many cases, multiple options for complying with the provisions for a given component are provided. These options are separated by “or” statements in the code or standard. While these options are compliant, they do not necessarily provide equivalent protection. Table 3.1 summarizes the building requirements for the principal components specified in the IWUIC, NFPA 1144, and Chapter 7A.

Many of the material and assembly requirements in these codes and standards are based on “reaction to fire” and “resistance to fire” standard test methods. “Reaction to fire” standards provide procedures to evaluate whether a material can be considered noncombustible or ignition-resistant. “Resistance to fire”

Codes vs. Standards

Codes are model sets of rules recommended by experts and informed by research. Codes can be adopted by state or local jurisdictions as-is, or customized for local conditions to become law. Codes explain *what* needs to be done.

Standards include definitions, procedures for testing materials, and technical guidelines. They are intended to provide standardization and a common reference, explaining *how* to meet minimum requirements referenced in a building code.

standards provide procedures to evaluate the ability of an assembly to resist fire spread from the fire-exposed side to the non-fire-exposed side.

The response of the building and construction materials to a direct ember exposure is largely either assumed or inferred from flame or radiant heat exposures. Until recently the ability to generate a realistic ember exposure in a laboratory environment has been lacking. Based on efforts by researchers at the National Institute of Standards and Technology (NIST), an apparatus that can generate an ember exposure was developed. This design has now been modified and adopted by others, including the Insurance Institute for Business & Home Safety.⁵ Standard test methods may be developed in the future.

Specifics of Each Code

Each of the three wildfire-related documents (IWUIC, NFPA 1144, and California Chapter 7A) is described and compared below and in Table 3.1

International Code Council: International WUI Code (IWUIC)

Chapter 5 in the IWUIC provides specifications for three ignition-resistant (IR) construction classes, designated IR 1, IR 2, and IR 3. The ignition-resistant class level depends on the fire hazard severity zone, and whether the water supply and defensible space requirements are in compliance. IR 1 has the most restrictive requirements and IR 3 the least restrictive. The three-tier set of requirements is unique to the IWUIC. By comparison, NFPA 1144 and Chapter 7A in the California Building Code have only one level of building construction requirements, which are applicable regardless of the fire hazard severity zone ranking.

The IWUIC provides explicit language about the need to maintain buildings, vegetation, and defensible space. Maintenance is a critical component for homes and landscapes.

NFPA 1144: Standard for Reducing Structure Ignition Hazards from Wildland Fire

NFPA 1144 is designated as a standard, but if adopted by a jurisdiction, it can serve as a building code. This standard provides a methodology for assessing the potential for wildland fire ignition around existing buildings and provides minimum requirements for reducing the potential for ignition. A feature of this standard, as well as other wildfire-related building codes used in the United States, is linking building survival with vegetation selection and placement on the property, and construction materials and design.

This standard provides the user with information to do an assessment of the building components and vegetation on the property (Chapter 4). The assessment results in a list documenting materials and components used on or attached to the building, location on the property relative to topographical features and location on slope, and location of vegetation. The standard also provides specific minimum requirements for new construction (Chapter 5) and information for modifying vegetative fuels in the structure ignition zone.

California Building Code: Chapter 7A

Chapter 7A of the California Building Code was implemented in two phases. It is applicable in all fire hazard severity zones in State Responsibility Areas (SRA) and only in Very High Fire Hazard Severity Zones (VHFHSZ) in Local Responsibility Areas (LRA), as defined by CAL FIRE. In the SRA, fire protection is provided by the state. In LRA, fire protection is not provided by the state, but rather by the local jurisdiction.

Like the other codes and standards, Chapter 7A acknowledges the importance of well-maintained near-home (landscaping) vegetation to a fire-safe building by requiring compliance with Public Resource Code (PRC) 4291 and Government Code (GC) 51182. PRC 4291 applies to SRA land and GC 51182 applies to LRA land.

Building Components

The IWUIC, NFPA 1144, and Chapter 7A typically discriminate between the performance of materials and designs based on the response to direct flame contact or radiant heat exposure. However, as research results provide options, some sections are being added to address ember exposures. Since an ember exposure that results in damage or loss of a building is ultimately caused by a flaming and/or radiant exposure, selecting materials based on these exposures can be useful.

Roofs

Building codes rely on a standard test method to provide a fire rating for roof coverings. This standard test incorporates three separate components to evaluate the fire rating of the covering: (1) fire-resistance (fire-penetration), (2) flame spread, and (3) the ember generation potential of the roof covering and assembly (Figure 3.1). The “Class A” fire rating is the highest level of protection.

This test method does not address vulnerabilities that can occur at the edge of the roof, particularly where a gap occurs between the roof covering and the roof deck. Codes acknowledge this vulnerability and require that any gaps between the roof covering and the roof deck at the edge be plugged with a fire-stop or “bird-stop” material.

Roof vulnerabilities and mitigations are discussed in more detail in Chapter VI.



Figure 3.1. During a standard test to determine the fire rating of a roof covering. For this test, a Class A burning brand (wooden crib) was placed on top of the roof covering. Flames on the underside of the roof indicate that, as constructed, this roof covering is not Class A. Photo: Stephen L. Quarles

Wall and Eave Assemblies

For wall and eave assemblies, building codes provide the option of using noncombustible materials or combustible materials that meet fire-resistance and/or flame spread test procedures. These tests address only one of the vulnerabilities of a wall—the ability of fire to penetrate from the outside to the inside of the building. They do not directly address flame spreading up or laterally over the siding. Depending on the flame spread characteristics of the material, use of the fire-resistance rating to the exclusion of other requirements may just transfer the vulnerability of an exterior wall to another component (e.g., to a window, eave, vent) (Figure 3.2). Therefore, conservative use of combustible materials that meet fire-resistance test procedures is recommended.

Exterior wall vulnerabilities and mitigations are discussed in more detail in Chapter VII.

Decks and Attachments

Treatment of decks and other attachments in the building codes is challenging and complex. Like walls and eave assemblies, building codes provide the option of using noncombustible materials or combustible materials that meet fire-resistance test procedures. There are few noncombustible decking products available. The three wildfire-related documents reviewed in this report treat combustible materials differently.

IWUIC and NFPA 1144 limit combustible decking materials to only those that are ignition-resistant, which excludes the use of the most commonly used decking products (such as solid wood without fire-retardant treatment and plastic composite decking). However, Chapter 7A restricts the use of combustible decking products based on the heat release rate, which is the amount of energy released after the deck is ignited by a specified gas burner. Solid wood and plastic composite decking products comply with Chapter 7A, but not with IWUIC and NFPA 1144.

Chapter 7A explicitly states that only the walking surfaces of the deck are considered in the standard—the structural support members are not. IWUIC and NFPA 1144 both allow the use of a one-hour fire-resistance-rated assembly as one option for complying with the deck requirements. The one-hour-rated assembly implies the use of either a horizontal or vertical deck enclosure, thereby implicitly addressing the support members. Although not explicitly stated, this effectively excludes the use of deck boards unless, for example, a deck platform is placed on top of a lightweight concrete surface. If traditional deck boards were allowed without other ventilation or moisture removal requirements, moisture-related degradation (decay in wood timbers and joists, corrosion of metal fasteners and connectors) would eventually develop in the under-deck area.



Figure 3.2. Vertical flame spread after exterior siding ignites can threaten other components on the wall, such as windows and the under-eave area. Photo: Stephen L. Quarles

Deck vulnerabilities and mitigations are discussed in more detail in Chapter VIII.

Fencing is not addressed in any of the reference codes or standards. Guidance provided by education and outreach organizations state that a noncombustible section of fencing, typically 5 to 8 feet in length, should attach to an exterior wall to stop the spread of fire from the fence to the home.

Vents

Except for Chapter 7A, reducing ember intrusion through vents is accomplished exclusively by specifying maximum mesh size for the screen material and by restricting where vents can be located. The allowable screen mesh size in these documents ranges from about 1/16-inch to 1/4-inch. Chapter 7A specifies screen mesh information, but also allows vents with design features that resist entry of embers and flames. A standard test method to evaluate resistance to embers and flame intrusion has been developed and published by the American Society for Testing and Materials (ASTM) and accepted for use by the California Office of the State Fire Marshal.⁶

NFPA 1144 and IWUIC restrict the use of vents in the under-eave area. Chapter 7A allows the use of vents in under-eave areas if the specified provisions have been met. The restriction of vents in an under-eave area comes largely from anecdotal evidence that these areas would be vulnerable to ember entry. Recent testing at the IBHS Research Center and at NIST has demonstrated that ember entry was more dependent on the eave construction than on the general eave area. Vents in open-eave construction (i.e., vents in the between-joint blocking) were more vulnerable to ember entry than vents located in a soffited eave. Gable end vents were particularly vulnerable to ember entry. This suggests that a design approach to vent location and type in high-hazard areas would also be valuable in minimizing the vulnerability of buildings to wildfire.

Vents are addressed in more detail in Chapter VI in conjunction with roof vulnerabilities and mitigations.

Near-Home Zone

Although the near-home noncombustible zone (the area within a 5-foot perimeter around a house) has been incorporated into educational materials developed and distributed by education and outreach organizations, including IBHS, NFPA-Firewise, and Nevada's Living with Fire, this guidance is not explicitly specified in any of the codes or standards. The vulnerability of the near-home zone is important when considering ember accumulation exposures either on or adjacent to exterior-use materials and assemblies.

Near-home vulnerabilities and mitigations are discussed in more detail in Chapter IX.

¹ 2018 International Wildland-Urban Interface Code. 2017. International Code Council, Inc.

² National Fire Protection Association. 2018. NFPA 1144. Standard for Reducing Structure Ignition Hazards from Wildland Fire. 2018 Edition.

³ 2016 California State Building Code, Part 2, Volume 1, Chapter 7A.

<https://codes.iccsafe.org/public/chapter/content/9997/>

⁴ 2018 Washington State Building Code. Revised Code of Washington, 2018, §19.27.560.

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⁵ Insurance Institute for Business & Home Safety. 2011. Wildfire Demonstration.

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⁶ ASTM E2886. 2014. Standard Test Method for Evaluating the Ability of Exterior Vents to Resist the Entry of Embers and Direct Flame Impingement. West Conshohocken, PA.

Table 3.1: Comparison of WUI Codes and Standards

Component	IWUIC (2018) (Ignition-Resistant Class 1)	NFPA 1144 (2018)	California Building Code Chapter 7A (2013)
Roof			
Roof	Class A fire-rated covering required. Plug gaps at the end (i.e., bird-stop) and underlayment full length of any valleys.	Class A fire-rated covering required. Roof covering must be tested using all components in the as-built assembly. Where gaps exist between covering and roof deck, a roll-roofing product shall be laid over the entire deck surface and gaps at end and ridge plugged with a noncombustible material.	Requires a fire-rated covering, actual rating (Class A, B or C) dependent on fire hazard severity zone. Plug gaps at ends (i.e., bird-stopped, fire-stopped). A minimum 36-inch-wide cap sheet must be installed under metal valley flashing.
Eaves & Fascia	Eaves and soffits protected by ignition-resistant material or one-hour fire-resistant-rated construction, or 1-inch fire-resistant treated lumber, or ¾-inch plywood. Fascias required, protected by ignition-resistant material or 1-hour fire-resistant-rated construction, or 2-inch dimensional lumber.	Eaves must be enclosed with fire retardant-treated wood, ignition-resistant materials, noncombustible materials, or materials exhibiting resistance to wildfire penetration. Metal drip-edge required on eave edges.	Soffited or open-eave allowed. If open-eave, nominal 2x material required as blocking.
Gutters	Noncombustible gutter (vinyl gutters not allowed). Use of gutter cover is required.	Use of noncombustible gutter and gutter cover device required.	Metal and vinyl gutters allowed. Installation of a gutter cover is required.
Vents	Vents covered by 1/4-inch mesh screen. Vents in exterior walls shall not exceed 144 square inches or shall be designated/approved to prevent flame or ember penetration into the structure. Vents not allowed in under-eave areas. Gable end and dormer vents shall be >10 feet from lot line. Underfloor vent openings located as close to grade as practical.	Vents covered by 1/8-inch mesh screen or use of vents designed to resist flame intrusion and embers. Vents not allowed in under-eave area.	General requirement for vents to resist intrusion of embers and flame through ventilation openings. 1/16- to 1/8-inch mesh screening is specified. Vents not allowed in under-eave area unless vent has been accepted as ember- and flame-resistant.

Component	IWUIC (2018) (Ignition-Resistant Class 1)	NFPA 1144 (2018)	California Building Code Chapter 7A (2013)
Exterior Walls			
Siding	Specifies compliance with one of five methods: 1) one-hour fire-resistant-rated construction, 2) approved noncombustible materials, 3) heavy timber or log wall construction, 4) fire-retardant-treated wood on exterior side (rated for exterior use), or 5) ignition-resistant materials on exterior side.	Specifies ignition-resistant material (including exterior fire-retardant-treated wood) or an assembly with at minimum a one-hour fire rating. Six-inch noncombustible vertical separation required between a horizontal surface and siding.	Four options for compliance: 1) noncombustible material, 2) ignition-resistant material, 3) heavy timber construction, 4) log wall assembly, or 5) assembly complying with State Fire Marshal 12-7A-1 (10-minute direct flame exposure test).
Windows	At a minimum, all windows (including doors and skylights) shall be dual pane (multilayered) with tempered glass, or glass blocks or fire-resistant rated of not less than 20 minutes.	Requires all windows (including in doors and skylights) to be tempered glass, multilayered glazed panels, glass block, or fire-resistance rating of not less than 20 minutes.	Four options for compliance: 1) multi-pane glazing with a minimum of one tempered pane, 2) glass block units, 3) fire-resistance rating of not less than 20 minutes, or 4) meeting performance requirements of SFM 12-7A-2.
Doors	Approved noncombustible construction, solid-core wood not less than 1¾-inches thick, or fire protection rating of not less than 20 minutes.	Solid-core wood not less than 1¾-inches thick, constructed of noncombustible material, or fire protection rating of not less than 20 minutes.	Four options for compliance: 1) Noncombustible exterior surface or cladding, 2) solid core wood meeting thickness specifications, 3) fire resistance rating of not less than 20 minutes, or 4) meeting the performance requirements of SFM Standard 12-7A-1.
Decks			
Decks	One-hour fire-resistant-rated construction, heavy timber construction, or constructed with noncombustible materials, or fire-retardant-treated wood or other ignition-resistant materials. A deck extending over a slope greater than 10% must be enclosed to within 6 inches of the ground using same exterior wall construction standards.	Requires heavy timber, noncombustible materials, fire-retardant-treated wood, or other ignition-resistant material, or be a one-hour fire-resistance-rated assembly.	Only applies to the walking surfaces of the deck. Four options for compliance: 1) ignition-resistant material that complies with SFM Standard 12-7A-4, 2) exterior fire-retardant wood, 3) noncombustible material, or 4) comply with SFM Standard 12-7A-4.
Near-Home Landscaping			
Near-Home Landscaping	Does not explicitly address near-home landscaping but addresses fuel modifications in 30+-foot defensible space area.	Does not explicitly address near-home landscaping but addresses location and maintenance of vegetation in two zones, including from the home to 30-feet, and from 30-feet to 100-feet, or to the property line.	Hazardous vegetation and fuel management required based on different fire hazard severity zones. Does not explicitly address near-home landscaping.

IV. METHODS

This study involves two cost analyses: (1) the cost of constructing a wildfire-resistant home compared to a typical home; and (2) the cost of retrofitting an existing home to be more wildfire-resistant. Similar methods were employed for both analyses. For the wildfire-resistant home, we selected materials that would comply with one or more of the codes or standards described in Chapter III.

Cost Data: *RSMeans*

For both analyses, we used *RSMeans*,¹ a national database of construction materials, labor, and contractor overhead and profit costs. *RSMeans* is updated quarterly, includes average construction cost indices from more than 700 cities, and uses the latest negotiated wages across 21 building trades. It includes national averages as well as cost indices to compare regional variability across the country.

While using a national database like *RSMeans* provided consistency for this study, it also has limitations. The values included in the database are averages and do not reflect local conditions such as product and contractor availability, managerial efficiency, competitive conditions, or local building or union requirements. In reality, many wildland-urban interface communities are growing rapidly and face highly competitive conditions and a short supply of contractors, which may raise overall prices for any style of home—wildfire-resistant or otherwise. Demand for contractors can also be especially high during reconstruction periods following wildfire disasters.

When *RSMeans* provided multiple options for building materials, we used mid-range products typical of construction in southwest Montana. Expert judgment and guidance was provided by Bechtle Architects² in Bozeman, Montana, who queried the *RSMeans* database for this study. In some instances, wildfire-resistant materials were not available in *RSMeans*. For these cases, we acquired pricing directly from the manufacturer or received bids from retailers or local distributors and added labor, overhead, and profit rates at national averages using the appropriate cost indices from *RSMeans*.

The monetized values include only the immediate costs of construction and do not account for long-term maintenance and replacement costs of the features. In many cases, wildfire-resistant materials have added benefits such as reduced maintenance, longer lifespan, and energy efficiency. We have noted where such co-benefits exist, even when they are not fully quantifiable.

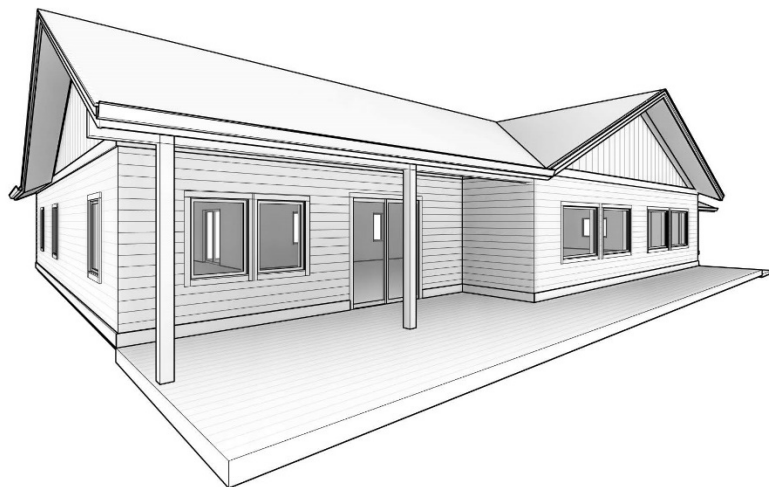


Figure 4.1. Architectural rendering of the home used in this study. The home is representative of typical construction in Park County, Montana and is approximately 2,500 square feet.

Model Home and Selection of Features

To compare costs, we required a baseline home representative of typical building styles found in the wildland-urban interface in southwest Montana, one of the fastest-growing WUI regions in the country. The home used in this study is a mid-range home constructed in 2017 in Park County, Montana. It is a three-bedroom, 2,500-square-foot, single-level, single-family home with two exterior decks and a two-car garage. It was constructed for approximately \$140 per square foot, or a total of \$350,000 (Figure 4.1).³

For the purposes of this analysis, we made many assumptions about the typical home features, some of which would reduce or increase the cost difference with the wildfire-resistant home. We made these assumptions based on expert input about regional preferences for southwest Montana. The primary assumptions include that the typical home has a Class A asphalt roof, cedar plank siding, and a wood deck. Using a home typical of southwest Montana will make the cost comparisons less applicable in other regions due to different aesthetic preferences, climatological differences, functional needs, and local building code requirements. For several features, we include alternative product options to show how different choices and regional preferences may affect cost.

We identified the individual features on the home that make it vulnerable to wildfire, based on the best available science about home ignitions. We included features from four components of the home: roof, exterior walls (including windows and doors), deck, and landscaping.

New Construction Comparison

To compare the cost of constructing a wildfire-resistant home with the typical home, we priced: (a) typical building materials (including labor and contractor overhead and profit) representative of typical WUI construction in southwest Montana, and (b) wildfire-resistant building materials (including labor and contractor overhead and profit) that comply with or exceed the International WUI Code (IWUIC) for the vulnerable features. We did not only price materials, but also included labor and contractor overhead and profit because installation of some wildfire-resistant features may require more labor. We did not compare features that are unlikely to pose wildfire vulnerability issues (for example, the foundation, exterior building sheathing and framing, and interior walls).

This report shows a percentage increase in changing from typical to wildfire-resistant components but does not reflect a percentage increase as related to the entire cost associated with constructing a home. Because we did not evaluate the cost of constructing the entire home using *RSMeans*, it is not possible to extrapolate precisely what percentage of the total home these costs represent. However, the costs associated with constructing wildfire-resistant components represent only a fraction of the total costs of constructing a home.

Retrofit Analysis

To examine the cost of retrofitting vulnerable features in the baseline home with wildfire-resistant materials, we priced: (a) labor costs for demolition of typical building materials (including contractor overhead and profit), and (b) wildfire-resistant building materials (including labor and contractor overhead and profit) that comply with or exceed the IWUIC. Where possible, we include the total cost of retrofitting the feature in the baseline home as well as a per-unit cost.

It is important to note that *RSMeans*' labor costs for demolition do not include disposal costs, onsite retaining of material (i.e., a dumpster), nor do they account for challenges finding contractors willing to

take on small demolition projects. Finding a contractor willing to take on a relatively small job, like swapping out a gutter or roof vent, may be difficult in many markets.

However, some of the retrofitting techniques described here can be combined into a larger job that may be more attractive to contractors or completed independently by handy homeowners. Where possible, we have tried to indicate the difficulty of the retrofitting job for those inclined to D-I-Y. We have also tried to rank retrofitting tasks for each vulnerable feature to help identify where homeowners can achieve the most benefit for the least cost.

¹ RSMeans Online. 2018. Version 8.7. Gordian. <https://www.rsmeans.com/>

² Bechtle Architects: <http://bechtlearchitects.com/>

³ Andrew Ford, Ford Woodworks, LLC, Clyde Park, Montana. Personal communications.

V. RESULTS

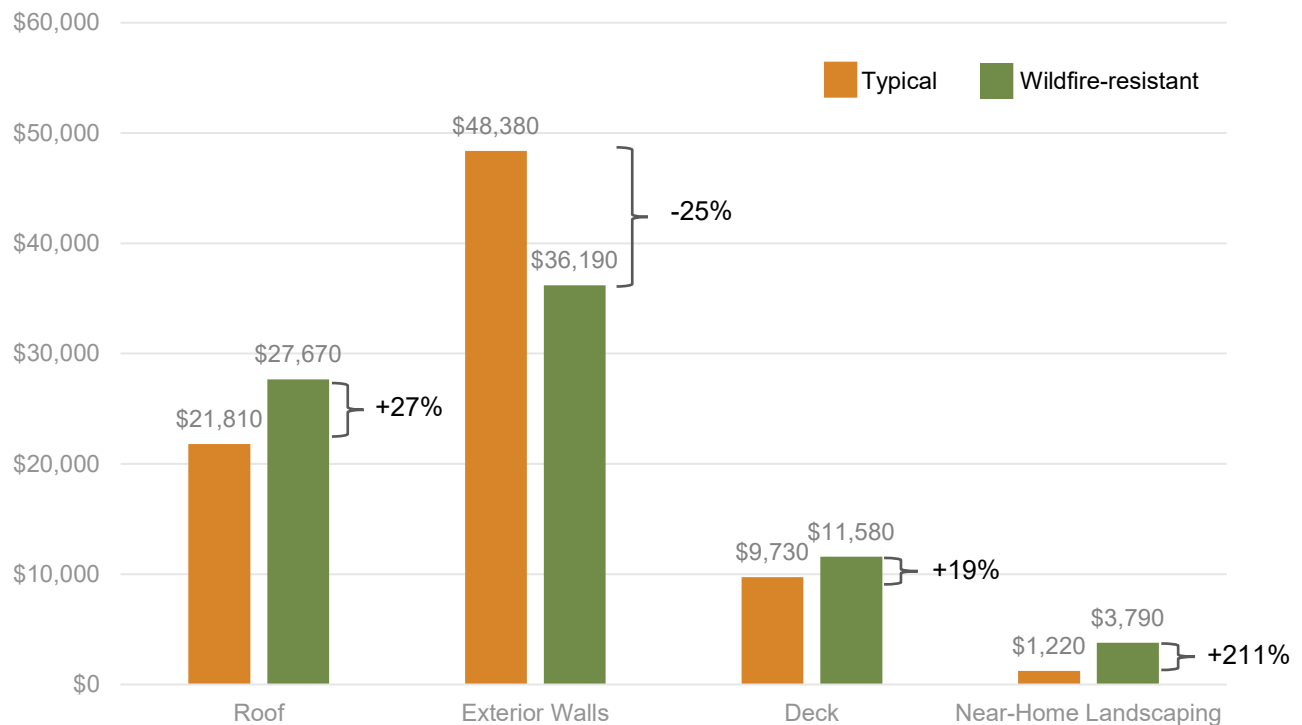
New Construction

This analysis finds that a new home constructed to comply with a wildfire-resistant building code, as defined by the International WUI Code (IWUIC), can be constructed for roughly the same cost as a typical home. In fact, our model wildfire-resistant components cost approximately \$1,910, or 2% less than the typical home (Table 5.1). The roof, deck, and landscaping all added costs, while switching from wood to fiber cement siding for the exterior walls created a cost savings. Proportionally, the wildfire-resistant landscaping saw the greatest increase over the typical home, but in absolute dollars, the roof added the most cost (Figure 5.1).

Table 5.1: Cost and Proportional Difference of Components in New Construction for Typical and Wildfire-Resistant Scenarios

	Typical	Wildfire-Resistant	Difference	
Roof				
Roofing	14,870	16,380	1,510	10%
Vents	930	1,560	630	68%
Soffit & Fascia	5,080	6,970	1,890	37%
Gutters	930	2,760	1,830	197%
Subtotal	\$21,810	\$27,670	\$5,860	27%
Exterior Walls				
Siding	29,930	12,360	(17,570)	-58%
Sheathing	3,810	4,180	370	10%
Doors	6,170	8,120	1,950	32%
Windows	8,470	11,530	3,060	36%
Subtotal	\$48,380	\$36,190	-\$12,190	-25%
Deck				
Decking surface	8,230	9,430	1,200	15%
Framing	930	1,230	300	32%
Fascia	570	920	350	61%
Subtotal	\$9,730	\$11,580	\$1,850	19%
Near-Home Landscaping				
Mulch (bark vs. rock)	1,220	3,250	2030	166%
Landscape Fabric	0	540	540	-
Subtotal	\$1,220	\$3,790	\$2,570	211%
All Components				
Total	\$81,140	\$79,230	-\$1,910	-2%

Figure 5.1. Cost difference and percent change between typical and wildfire-resistant new construction. Orange bars are typical; green bars are wildfire-resistant.



Retrofit

Retrofitting costs for each component are detailed in Table 5.2. The cost of retrofitting the roof and exterior walls for the model home are both substantial if undertaken in whole. Retrofitting the roof, assuming removal of wood shingles and replacement of vents and gutters, approaches the cost of new construction at \$22,000. Retrofitting exterior walls, assuming removal and demolition of vinyl siding and wood-framed windows, came to \$40,350, which is more than the cost of new construction due to the expense of demolition of siding and sheathing. We did not price the cost of retrofitting the deck or landscaping, as these would be similar to new construction, but variable depending on demolition of existing conditions. Although retrofitting the roof or exterior walls in their entirety has substantial costs, there is also significant benefit as these can be especially vulnerable areas of the home.

Further, roof and exterior wall retrofitting can be broken into phases and prioritized based on existing conditions and neighborhood and landscape context. For example, many homes already have asphalt shingles that provide wildfire-resistance, so they would only need new vents and gutters to improve their wildfire-resistance. Homes that are 30 feet or more from neighboring structures and that have well-maintained landscaping are unlikely to be exposed to extended radiant heat and may not need siding to be replaced everywhere on the home. Homeowners may be able to prioritize siding replacement only at locations where radiant heat exposures are more likely (such as where other buildings are nearby, where walls face slopes, or on sides of the home facing common wind aspects) or in areas where flame contact from ember-ignited debris or vegetation is possible (such as at roof-to-wall junctions or within approximately 6 inches of the ground).

Table 5.2: Cost of retrofitting roof and exterior wall from typical to wildfire-resistant. Costs shown are for model home and assume removal of wood shingles on the roof and wood siding on the walls, to be replaced with the same wildfire-resistant materials described in the new construction scenario.

Roof	
Roofing	13,180
Vents	370
Soffit & Fascia	5,600
Gutters	2,860
Subtotal	\$22,010
Exterior Walls	
Sheathing and Siding	20,580
Doors	8,120
Windows	12,050
Subtotal	\$40,750

In the following chapters, detailed analyses of vulnerabilities, mitigations, new construction cost differences, and retrofitting options are provided for each component of the home. Detailed data tables can also be downloaded at <https://headwaterseconomics.org/wildfire/homes-risk/building-costs-codes-appendix>. For the roof, exterior wall, and deck components, prices for alternative materials are included to show the range of potential costs. Prioritization of retrofitting activities and co-benefits are also described.

VI. ROOF VULNERABILITIES, MITIGATIONS, AND COST

This chapter analyzes the vulnerabilities, mitigations, code requirements, and detailed costs related to constructing a wildfire-resistant roof. For the purposes of this study, roof is defined as the peak of the roof ridgeline to and including the gutters and under-eave area. This includes the roofing materials and underlayment, ridge vents, soffit vents, soffit covering, and gutters.

Vulnerabilities

Roof coverings are vulnerable because of their relatively large surface area that can be exposed to wind-blown embers. Complex roof shapes that include dormers, split-level designs, and components with other roof-to-wall junctions increase the vulnerability of the roof because embers can accumulate in these joints. In these same junctions, vegetative debris can also accumulate, providing fuel that is easily ignited by embers (Figure 6.1).

The edge of the roof where a gutter can be attached and locations where the roof intersects with a vent can also be vulnerable locations, particularly when vegetative debris has accumulated in the gutter or at the inlet to the vent (Figure 6.2).

Roof vents are important for circulation of air to remove excess moisture in the attic but are also susceptible to ember and flame entry. The under-eave area is also vulnerable as construction detailing allows embers to be trapped in gaps. An open eave also traps heat, if near home vegetation (or other combustibles) ignite. If under-eave vents are present, they can be an entry point for embers to pass into the attic.



Figure 6.1. Complex roof showing roof-to-siding junction where pine needle debris has accumulated on top of asphalt composition shingle roofing (a Class A fire-rated covering), adjacent to wood shingle siding. The vulnerable component of this roof is the siding, should the pine needle debris ignite. Photo: Stephen L. Quarles



Figure 6.2. Debris accumulation at the entry of a (plastic) ridge vent. Ember ignition of this debris could result in ignition of the ridge vent. Photo: Stephen L. Quarles

There are two types of ventilation openings to provide circulation in attic spaces: one for inlet air and one for exiting air. Inlet air comes from vents located in the under-eave area, at the edge of the roof. Under-eave vents are located either:

- in the blocking, in the case of open-eave construction (Figure 6.3), or
- in the soffit material, in the case of soffited-eave construction (Figure 6.4).

Exiting air leaves through vents located on or near the roof. Exiting air vents are either:

- placed at the ridge of roof (called “ridge vents”),
- placed in an off-ridge location on the roof, or
- located on the exterior walls, at the end of the home (called “gable end vents”).

Ridge and off-ridge vents are considered “through-roof” vents. Embers and flames can enter the attic space of a home through any of these vent openings.

Mitigation

Use of a Class A fire-rated roof covering is the most common mitigation strategy. Depending on the roof covering, an underlayment with an enhanced fire resistance rating may be needed to attain the desired fire rating. In addition, removal of debris from the roof and gutter on a regular basis can reduce the likelihood of ignition of this material from embers when wildfire threatens the house.

Use of flashing where the roof meets other features will help reduce the vulnerability of materials at these locations to flame and radiant heat exposures. Examples include use of 1) metal drip edge at the roof edge (i.e., where gutter meets roof) (Figure 6.5), and 2) metal flashing at the base of the wall



Figure 6.3. Vent located in the blocking space in open-eave construction. Photo: Stephen L. Quarles



Figure 6.4. Under-eave strip vent located in a soffit. Photo: Stephen L. Quarles



Figure 6.5 Metal drip edge installed at the edge of the roof. In this case, the drip edge was part of the gutter. Photo: Stephen L. Quarles

where roof meets siding. Use of a noncombustible material can be necessary to plug gaps that can occur with certain roof coverings that create a gap between the covering and roof deck (e.g., barrel tile). This is sometimes referred to as “bird stopping” (Figure 6.6). Gutter cover devices are sometimes recommended or required to minimize the accumulation of debris in gutters.

Treatment in Codes

Building codes require a specified fire rating for the roof coverings. The specific fire rating depends on the designated fire hazard rating in the area. Because of the widespread availability of Class A roof coverings, these are most commonly used. Building codes also address ember exposures at some roof-to-wall or other roof intersection areas. The most common requirement is for providing bird stops at the roof edge and use of a gutter cover device.



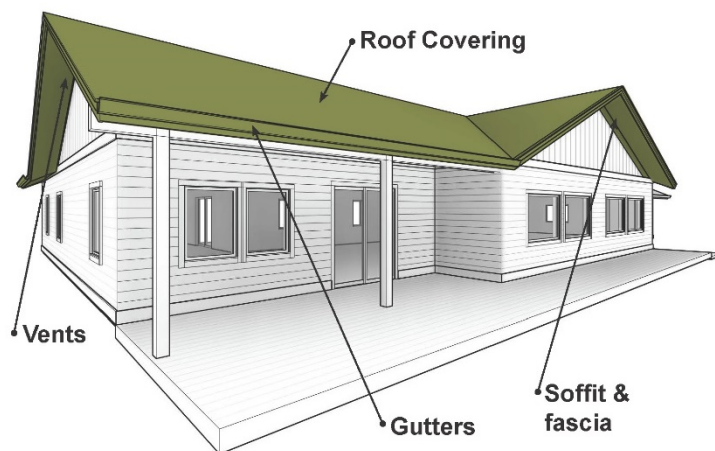
Figure 6.6. Use of a mortar mix to provide an effective “bird stop” at the edge of this barrel style roof (this photograph was taken during a retrofit project while the work was in progress). Photo: Stephen L. Quarles

New Construction Comparison

Four key roof features were modified for wildfire-resistance:

- Roofing and underlayment
- Ridge and soffit vents
- Fascia and soffit covering
- Gutters

Figure 6.7. Roof subcomponents and new construction cost.



A wildfire-resistant roof can be constructed for an approximate 27% increase in cost (Figure 6.7). One of the most expensive features of the roof—the roofing material—was assumed on both the typical and wildfire-resistant home to be Class A asphalt shingles, a fire-resistant material and the most popular roofing material in North America. Wildfire-resistant additions to the roofing underlayment, vents, soffits, and gutters resulted in an increase of \$5,860 or a 27% increase. Several of the materials selected here exceed the requirements of IWUIC, including wildfire-resistant sheathing, membrane, and vents that have been approved in California as being “ember and flame resistant.” More expensive roofing materials that would comply with IWUIC such as metal or clay tiles, or more expensive gutter options, can increase the cost difference to \$33,340, or an increase of 153% (Table 6.1).

The typical sheathing of oriented strand board (OSB) was replaced with CDX plywood underlayment to reduce the potential for fire penetrating into the attic space. In the wildfire-resistant home, mineralized roll roofing was added in the roofing valleys to improve the fire resistance in this area because of the tendency of debris to accumulate in the roof valley area. When a roof covering allows for a gap between the covering and roof deck (e.g., a tile roof), one option to protect the roof deck is to install an asphalt fiberglass composition product.

Ridge and soffit vents in the typical home were replaced with vents designed specifically for fire-resistance that have finer-grained mesh and ember- and flame-resistant features. We examined a variety of manufacturers and found pricing to be in similar ranges. As an alternative to vents, we also priced an unvented attic option, which involves applying spray foam insulation to the underside of the roof deck, making the attic space part of the insulated building enclosure. Although removing vents eliminates the opportunity for ember entry, an unvented attic design can result in moisture-related performance issues.¹ It is important to manage moisture movement from the occupied portion of the home into the attic space. Additional measures—not priced in this study—will be necessary, such as applying a vapor retarder to the ceiling in the occupied portion of the home and sealing all gaps at through-ceiling penetrations.

On the wildfire-resistant home, the soffit was enclosed with fiber cement siding instead of plywood, resulting in a modest price increase. Cedar fascia was replaced with fire-retardant-treated redwood.

Vinyl gutters in the typical home were replaced with aluminum gutters. A metal drip edge was added to provide additional protection against flame and embers at the edge of the roof. A gutter cover device was added to reduce the accumulation of debris in the gutter.

Homes in cold climates will have added expenses for managing snow and ice when gutter cover devices are used. Gutter covers can increase the potential for ice damming and cause the gutter to detach from the building. Although it does not provide any direct benefit from a wildfire vulnerability perspective and may not be necessary in all climates, heat tape is necessary in cold climates and was priced here. Heated gutters were priced as an alternative.

As a complete alternative to gutters, a perimeter drain system was also evaluated. A perimeter drain eliminates the need for gutters and downspouts by using French drains around the perimeter of the house. This requires burying piping around the foundation of the home. Perimeter drain systems are not possible or advisable in all locations, depending on site conditions such as groundwater depth and foundation depth and material, for example. However, they can reduce vulnerability of the gutter by eliminating the ember-ignition likelihood from the accumulation of debris in the gutter.

Retrofit Analysis

Since the roof is one of the most vulnerable areas of the home to wildfire, retrofitting the roof to be more wildfire-resistant can be one of the most cost-effective and important actions a homeowner can take. Depending on which component is replaced and the size of the home, the cost can be as inexpensive as a few hundred dollars, to several thousand (Table 6.2). In the model home, complete retrofit of the entire roof to be wildfire-resistant totaled \$22,010. Individual replacement of features ranged from \$370 for replacing ridge vents to more than \$20,000 for an unvented attic option.

Co-Benefits and Efficiencies

Energy Efficiency

The roof is a key component of a home's natural ability to ventilate and moderate temperatures. A well-insulated and ventilated roof can improve the heating and/or cooling of the home. All of the features included here would contribute to improved venting (except an unvented attic) and efficiency.

Lifespan and Maintenance

Asphalt composition shingle roofs are very low-maintenance and can last several decades.

Gutter cover devices will reduce the amount of gutter cleaning required and can help reduce risk of falls during cleaning because fewer trips up the ladder will be required. When gutter cover devices are used in snowy climates, heat tape or heated gutters may be necessary to reduce the potential for ice damming. Use of heated gutter options require maintenance to ensure proper seasonal operation.

No matter what wildfire-resistant materials are used, none eliminate the need for ongoing maintenance. Homeowners should plan on regularly inspecting and maintaining the roof and gutters to remove accumulated debris.

¹ Quarles, L. and A. TenWolde. 2005. Attic and Crawlspace Ventilation: Implications for Homes Located in the Urban-Wildland Interface. In Conference Proceedings: Woodframe Housing Durability and Disaster Issues, October 2004. Forest Products Society, Madison, WI.

Table 6.1: Roof New Construction						
Feature		Typical	Wildfire-Resistant	Cost Diff.	Percent Diff.	Notes
Roofing	Roof covering	Asphalt shingles, class A architectural	Asphalt shingles, class A architectural	0	0%	
			Alternative: Steel roofing	8,060	86%	A
			Alternative: Clay tile	23,280	250%	A
	Valley flashing	Metal	Metal	0	0%	B
	Sheathing	Oriented strand board (OSB)	CDX Plywood	1,160	25%	
	Roll roofing	(none)	Mineral surface roll roofing in roof valleys	300		
	Membrane	(none)	APP bituminous membrane	40		
	Roofing subtotal			\$1,500 – 24,780	10% - 167%	
Vents	Ridge vents	Flexible roll	Fire- and ember-resistant	-130	-28%	B
	Soffit vents	Aluminum strips	Fire- and ember- resistant with 1/8" mesh screen	760	161%	B
	Vents subtotal			\$630	68%	
Soffit & Fascia	Fascia	Cedar band board	Fire retardant treated redwood	1,280	60%	B
	Soffit covering	Plywood	Fiber cement	620	21%	
	Soffit & fascia subtotal			\$1,900	37%	
Gutters	Gutters	Vinyl	Aluminum	290	31%	
	Drip edge	(none)	Aluminum	750		
	Gutter cover device	(none)	Aluminum mesh	640		
	Heat tape	(none)	Flexible heat tape	150		B, C
	Heated gutter with cover	(none)	Alternative: heated gutter with guard	6,030	649%	A, B
	Perimeter Drain	(none)	Alternative: perimeter drain system	3,760	405%	A, D
	Gutters subtotal			\$1,830 - 6,030	197% - 649%	
TOTAL			\$5,860 - 33,340	27% - 153%		

Download detailed data tables at: <https://headwaterseconomics.org/wildfire/homes-risk/building-costs-codes-appendix>.

Notes

- A. Denotes an alternative to another material; a home would not utilize all materials listed. Totals columns account for range depending on which alternative is selected.
- B. Materials priced from manufacturer, online retailer, or local distributor. Labor priced from RS Means.
- C. Perimeter drain systems are not possible or advisable in all locations, depending on site conditions such as groundwater depth, frequency of wind-driven rain events, foundation depth and material, and site drainage.

Table 6.2: Retrofitting roof features to be wildfire-resistant				
Feature	Description	Cost for model home	DIY	Priority Rank
Roof covering	Removal of existing wood shake roof covering and replacement with Class A roof covering. (Asphalt architectural shingles were priced for this study).	\$13,180	Not recommended	Highest
Vulnerable Roof Vents	Removal of existing vulnerable attic vents and replacement with wildfire-resistant ridge vent, including replacement of surrounding shingles. (Other types of wildfire-resistant attic vents are available but were not priced for this study.)	\$370	Not recommended	High
Gutters	Removal of vinyl gutters and replacement with new metal gutter and gutter cover device.	\$2,110	Moderate skill required	High
Metal Drip Edge	Addition of a metal drip edge where gutter attaches at roof edge.	\$750	Moderate skill required	High
Soffit	Enclosing the roof overhang with wildfire-resistant fiber cement soffit material including needed ventilation.	\$5,600	Not recommended	High
Unvented Attic	As an alternative to ridge or other attic vents. An unvented attic requires removal of insulation in attic and replacement with spray polyurethane foam, as an alternative to replacing vents. Cost varies depending on climate zone and necessary thickness of foam. Cost does not include sealing the ceiling in occupied space below attic. Can be difficult in a retrofit scenario.	\$20,650 - \$32,910	Not recommended	-

VII. EXTERIOR WALLS VULNERABILITIES, MITIGATIONS, AND COST

This chapter analyzes the vulnerabilities, mitigations, code requirements, and costs related to constructing wildfire-resistant exterior walls, including sheathing and siding, doors, and windows.

Vulnerabilities

Exterior walls and components in the wall assembly can be vulnerable if exposed to flames or prolonged exposure to radiant heat from ignited items located relatively close to a home. Combustible items include bark mulch, vegetation, or nearby structures like neighboring homes, tool sheds, and fences. Fire can ignite combustible siding and penetrate gaps or joints in the siding and/or spread vertically and laterally to impinge on other wall components such as windows and the under-eave area. Walls that extend close to the ground (or, as already discussed, close to the roof) can be vulnerable to ignition if embers accumulate at the base of the wall and ignite it or components in the wall assembly (e.g., wood-based sheathing).

Doors and windows can also be vulnerable when exposed to flames or embers. Glass in a window can break from radiant heat or flame contact exposure. When a window is broken, the combustible materials inside the home (e.g., furniture, carpeting, drapes) can be ignited. Wood and vinyl framed windows can be vulnerable, burning or melting when exposed to radiant heat or flames if siding is ignited. However, studies have shown that glass is the most vulnerable component of a window.¹ Doors (including window glass set in doors) and door frames can fail for the same reasons. Small gaps between the door and frame can also create opportunities for wind-blown embers to lodge and ignite the door framing material and potentially the weather sealing material.

Mitigation

To minimize the chance of an ignition from an ember exposure, a vertical noncombustible zone of at least 6 inches should be created between the ground and the start of the siding. Some mitigation strategies for exterior wall features are dependent on home-to-home spacing. If the exterior wall is within 30 feet of neighboring homes, a noncombustible or ignition-resistant material should be used for the siding. In some cases, additional sheathing can provide added protection by enhancing the fire resistance of the wall.

Research has consistently shown that glass is the most vulnerable component of window failure during a fire. Multi-pane tempered glass windows should be used to reduce the likelihood of a window breaking when exposed to radiant heat. Vinyl frames are more susceptible to damage from radiant heat than other frame types. The horizontal interlock member in a vinyl-framed single- or



Figure 7.1. This window frame was exposed to radiant heat. The metal-reinforced member (in the back) did not deform when exposed during the exposure interval. The member without the metal reinforcement deflected downward, allowing insulated glass unit to fall out (without initial glass breakage), exposing the interior of the home. Photo: IBHS.

double-hung window can be vulnerable to radiant heat or direct flame contact if a metal reinforcement member isn't included (Figure 7.1). Aluminum or other metal window screens can help protect against ember entry if the glass breaks or if a window is inadvertently left open. When home-to-home spacing is less than 30 feet, metal shutters can provide added protection from embers, airborne debris, and radiant heat exposures.

Weather stripping around pedestrian and vehicle access doors can reduce the ability of embers to pass through openings between door and jamb but can also be vulnerable if embers accumulate against it and cause it to ignite or melt. The location of weather stripping on outswing doors is more vulnerable than inswing doors. Weather stripping containing fire retardants can reduce the vulnerability of this component.

Regardless of home spacing, mitigation strategies for exterior walls include creation and maintenance of an effective defensible space to reduce the chance of extended radiant heat or flame contact exposure to the siding, including a 0-5-foot noncombustible zone. This strategy is further discussed in a subsequent section.

Treatment in Codes

Code requirements for siding include specifying a noncombustible or ignition-resistant material. A specific kind of gypsum board can be used as an additional sheathing material that will improve the fire resistance of the exterior wall. This type of construction improves the ability of the wall assembly to resist the passage of fire from one side of the wall to the other. Care should be exercised when taking this approach as this is typically taken when a more vulnerable combustible material is used as the siding material. When using this option, siding materials with demonstrated lower flame spread should be used. This option will be problematic since a more vulnerable combustible material will most likely exhibit a higher flame spread.

Code requirements for the exterior wall also include multi-pane tempered glass windows and fire-resistant doors. Codes are typically silent on window frame material, meaning any framing material can be used.

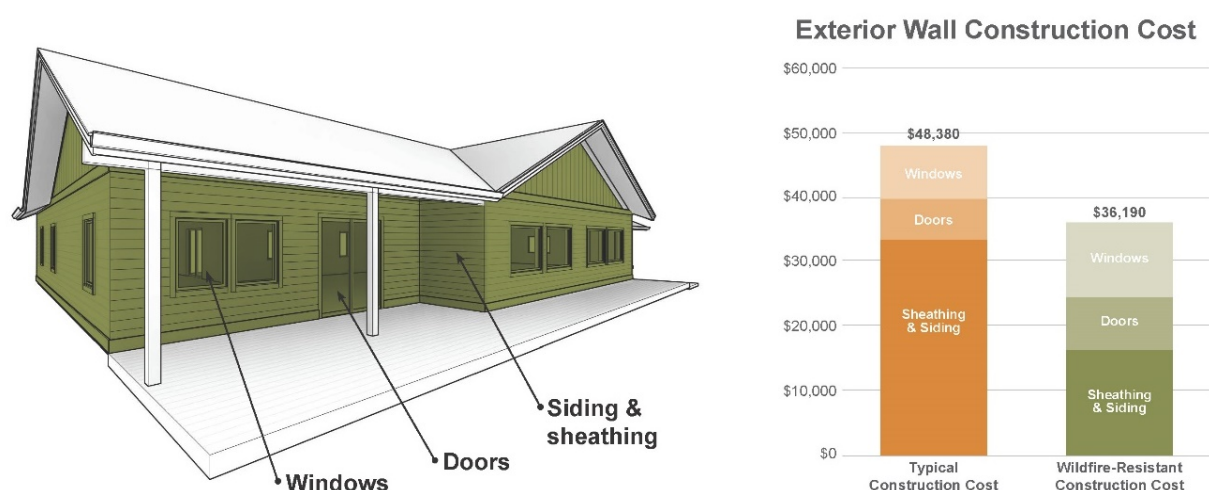
New Construction Comparison

Wildfire-resistant exterior wall features are approximately 75% of the cost of typical features, creating a \$12,190 savings for this model home (Figure 7.2). These savings result primarily from using a fiber cement lap siding in the wildfire-resistant home, which is nearly one-third the cost of the typical cedar lap siding product. Some homeowners may have a preference to the aesthetics of wood siding over fiber cement siding. However, many fiber cement options on the market today mimic the look and texture of natural wood, as did the fiber cement product priced for this study. Alternative siding costs were also examined, including stucco (a 28% savings over cedar lap siding) and fire-retardant-treated cedar lap siding (a 20% additional cost to cedar lap siding). The wildfire-resistant home also uses wildfire-resistant sheathing (CDX plywood instead of typical Oriented Strand Board), which exceeds the requirements in the International WUI Code (IWUIC).

Fire-resistant doors cost 28-37% more, or an increase of \$1,640 to \$2,220, in the model home. The bulk of this cost comes from replacing vinyl-framed deck sliding doors with steel-framed doors. A cost savings was realized from replacing the vinyl garage door with steel. IWUIC is silent on garage doors, so this modification exceeds IWUIC. A range of different front and side door options were also priced, including steel fire doors and fiberglass doors.

Windows cost approximately 36% more, increasing the model home by \$3,060. Most of this increase is from using tempered glass in the windows, which increased their cost by an estimated 25%. This cost may be less for standard-sized windows or more for odd-sized windows, and may be less in markets where tempering is in higher demand or required by code. Tempered glass is specified as a requirement in IWUIC.

Figure 7.2. Exterior walls subcomponents and new construction cost.



Retrofit Analysis

To address the vulnerability of existing exterior walls to wildfire, several important components can be updated in pieces or in whole. Retrofitting the exterior walls of the model home (including doors and windows) to be wildfire-resistant cost \$40,750—more than the cost of new wildfire-resistant construction. Removing all siding and assembly, including vapor barrier and sheathing, and replacing with wildfire-resistant materials varies in cost depending on the type of siding to be removed.

In some situations, not all siding would need to be retrofitted to be wildfire-resistant. The prioritization of retrofitting many exterior wall features is dependent on home-to-home separation and home siting. If home spacing is more than 30 feet and good defensible space is established—including incorporation of the noncombustible near-home landscaping zone—the siding material and underlayment is less of a priority. However, if neighboring homes are closer together, if a home is near a slope, or if a side of the home faces the primary wind direction, noncombustible siding and multi-pane tempered glass windows become more important. Although not included in this cost analysis, metal shutters can provide improved protection from flames and extended radiant heat exposures, especially when neighboring homes are closely spaced, and are a viable alternative to replacing windows.

Co-Benefits and Efficiencies

Energy Efficiency

Heat gain and loss from windows account for 25-30% of residential heating and cooling energy use. Replacing old windows in an existing home with better insulated, multi-pane windows can significantly decrease energy usage. Tempered glass is also safer because it is approximately four times more resistant to heat (compared to annealed glass) and does not form sharp shards when it breaks, but rather breaks into smaller chunks.

Lifespan and Maintenance

In addition to costing considerably less than cedar siding, fiber cement siding can have a longer lifespan and requires less maintenance.

¹ Bowditch, P.A., A.J. Sargeant, J. E. Leonard, and L. Macindoe. 2006. Window and glazing exposure to laboratory-simulated brushfires. Brushfire CRC. East Melbourne, Australia.
<http://www.bushfirecrc.com/publications/citation/bf-1263>

Table 7.1: Exterior Walls New Construction					
Feature		Typical	Wildfire-Resistant	Cost Diff.	Percent Diff. Notes
Walls	Sheathing	Oriented strand board	CDX Plywood	370	10%
	Siding	Cedar clapboard siding	Fiber cement lap siding (woodgrain texture for aesthetics)	-17,570	-59%
			Alternative: Stucco	-8,520	-28% A
			Alternative: Fire retardant treated cedar horizontal lap siding	5,940	20% A, B
	Walls Subtotal			-\$17,200 - 6,310	-51% - 19%
Doors	Front door	Birch solid core	Birch solid core	0	0
			Steel fire door	330	144% A, C
			Fiberglass	370	162% A
	Side door (garage)	Steel insulated	Steel insulated	0	0%
			Steel fire door	-210	-27% A
			Fiberglass	-170	-22% A
	Sliding door (deck)	Vinyl	Aluminum	1,870	94% B
	Garage Door	Fiberglass	Steel	-490	-17%
	Weather stripping	Vinyl threshold weather stripping and door sweeps	Silicone, fire-rated weather stripping and aluminum door sweep	100	86% B
	Garage door bottom	Rubber	Aluminum and neoprene	460	293% B
	Doors Subtotal			\$1,730 - 2,310	28% - 37%
Windows	Windows	Vinyl frames; dual-pane insulated glass; no screens	Metal-clad wood frames; dual-pane tempered glass; aluminum screens	3,060	36% B, D
Windows Subtotal				3,060	36%
TOTAL				-\$12,410 - 11,680	-26% - 24%

Download detailed data tables at: <https://headwaterseconomics.org/wildfire/homes-risk/building-costs-codes-appendix>.

Notes

A. Denotes an alternative to another material; a home would not utilize all materials listed. Totals columns account for range depending on which alternative is selected.

B. Materials priced from manufacturer, online retailer, or local distributor. Labor priced from RS Means.

C. Steel fire doors have weather stripping integrated, so cost of weather stripping would be eliminated.

D. Based on pricing from manufacturer, we added 25% to all window cost for tempered glass. We also added 2% for aluminum screens.

Table 7.2: Retrofitting exterior wall features to be wildfire-resistant				
Feature	Description	Cost for model home	DIY	Priority Rank
Siding	Removing existing siding and replacing with fiber-cement. Siding demolition cost varies depending on type to be removed. Siding replacement can also be prioritized in only the most vulnerable locations (e.g., only at roof-to-wall junctions)	\$15,240	Not recommended	High if home-to-home spacing is less than 30 feet
Sheathing and Vapor Barrier	Removing existing vapor barrier and sheathing and replacing with wildfire-resistant materials, as an add-on when replacing siding.	\$5,340	Not recommended	High if home-to-home spacing is less than 30 feet
Doors	Replacing all doors and weather-stripping with wildfire-resistant materials.	\$8,120	Moderate skill required	Moderate priority
Windows	Removing existing windows and replacing with windows with tempered glass. Price varies significantly depending on type of frame to be removed and window sizes. Window demolition cost varies depending on frame type. Cost of new tempered glass window is approximately +25% cost of standard glass.	\$12,050	Not recommended	Higher if home-to-home spacing is less than 30 feet or if defensible space is not established

VIII. DECK VULNERABILITIES, MITIGATIONS, AND COST

This chapter analyzes the vulnerabilities, mitigations, code requirements, and costs related to constructing a wildfire-resistant deck, including the decking (i.e., walking surface), the framing, and the fascia.

Vulnerabilities

Attached decks are a vulnerable component to a home because a burning deck could result in an extended radiant heat exposure to the side of the house. A burning deck could also result in a flame contact exposure to the home. Even if the home has noncombustible siding, the glass in access doors could be vulnerable to breakage, resulting in fire being able to enter the home.

Although metal deck boards are available, most deck board products are combustible (including wood and plastic composite boards). Decks with a noncombustible walking surface, such as light-weight concrete or a flagstone product, are available, but these decks are typically more expensive. Regardless of the walking surface, decks are typically supported by solid wood joists, beams, and columns that have been treated with a preservative to reduce the effects of moisture. Because dual treatments for fire and water are not available, preservative-treated wood members are more commonly used because of the more likely water-related degradation of decks and decking (e.g., from rain or snow).

Decks are vulnerable to wildfire if they are susceptible to ignition from wind-blown embers (firebrands) or from flames impinging from the underside of the deck. A flame contact exposure from the underside of the deck could result from ember-ignited debris or combustible materials stored under the deck or from burning vegetation located downslope from the deck.

Mitigation

When considering ways to make any component better able to resist wildfire exposures, the combination of managing vegetation and the use of wildfire-resistant materials and design features should always be considered. In the case of decks, vegetation management should include location of other combustible materials on the property. To minimize the potential for a flame contact exposure to the underside of the deck, the near-home noncombustible zone should extend under the entire footprint of any attached deck. When a home is located on a slope and an attached deck extends out over that slope, vegetation should be selected, located, and maintained in such a way as to reduce the opportunity for fire to impinge on the underside of the deck.

Regardless of the actions taken to minimize the opportunity for flames to contact the deck, when threatened by a wildfire, it will have to resist ignition from wind-blown embers. Higher-density deck board products, including plastic composites and the tropical hardwood products such as Ipe, are much more resistant to ignition from embers than the lower-density softwood deck board products (such as redwood and cedar) that are more commonly used. Fire-retardant treated (FRT) wood products are also more resistant to ignition from embers.

Deck enclosure is sometimes recommended to reduce the vulnerability of decks to wildfire. Whereas deck enclosure could protect the underside of a deck from a flaming exposure, caution should be used with certain enclosure techniques that can result in water-related degradation of the deck (e.g., fungal decay and insect damage). Such enclosure techniques restrict the ability of wet deck boards and framing members to dry out. They can also result in corroded fasteners.

When using combustible decking products, use of a foil-faced bitumen product, applied to the top surface of the support joists, has been shown to reduce the vulnerability of combustible decking products, particularly the non-fire-retardant treated medium-density solid wood products such as redwood and cedar (Figure 8.1). The foil-faced tape will result in deck boards self-extinguishing before the fire propagates far from the support joists if the deck boards are ignited by embers. The tape should extend about halfway down the side of the joist.



Figure 8.1. Placing foil-faced tape on the top and sides of a deck joist has been shown to reduce vulnerability of deck boards, especially combustible products like cedar or redwood. Photo: IBHS.

Other mitigation strategies for decks include increasing the gap between deck boards (e.g., from 1/8-inch to 1/4-inch) and increasing between-joist spacing from 16-inch on-center to 24-inch on-center. Structural and safety requirements should be confirmed before changing deck board or joist spacing.

Treatment in Codes

The three wildfire reference documents—the IWIUC, NFPA 1144, and California’s Chapter 7A—all have provisions that address the deck. All three focus on the walking surface of the deck, but there are differences in what is permitted by each document.

IWIUC and NFPA 1144 don’t allow for the use of non-fire-retardant treated wood. The only nominally combustible decking products that are allowed are those that qualify as “ignition resistant material.” Currently none of the commercially available plastic composite products comply with this requirement, so technically no non-fire-retardant-treated wood or plastic composite deck board products could be used. Both documents have a provision that allows for a fire-rated assembly to be used (this is referred to as a “one-hour fire rated assembly”) (Figure 8.2). When using deck boards this type of construction would likely make the deck more vulnerable to moisture-related degradation. This leaves few deck options that comply with IWIUC and NFPA 1144.

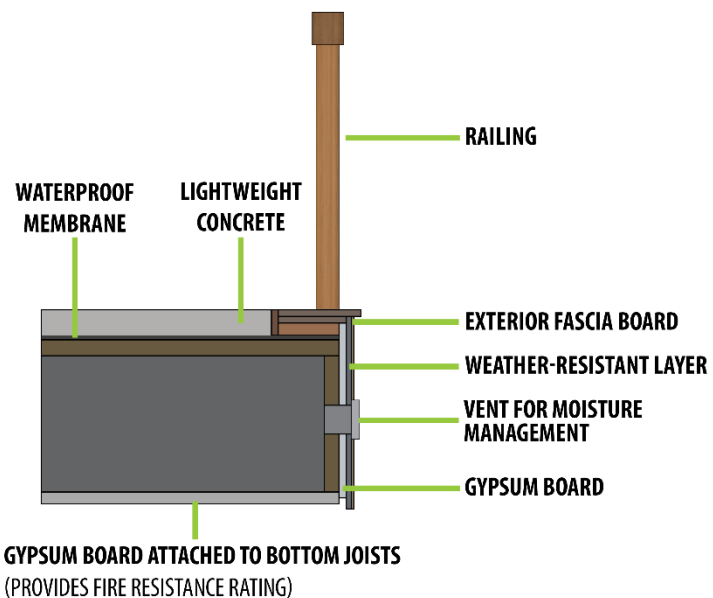


Figure 8.2. One-hour fire rated assembly for a deck.

When using deck boards this type of construction would likely make the deck more vulnerable to moisture-related degradation. This leaves few deck options that comply with IWIUC and NFPA 1144.

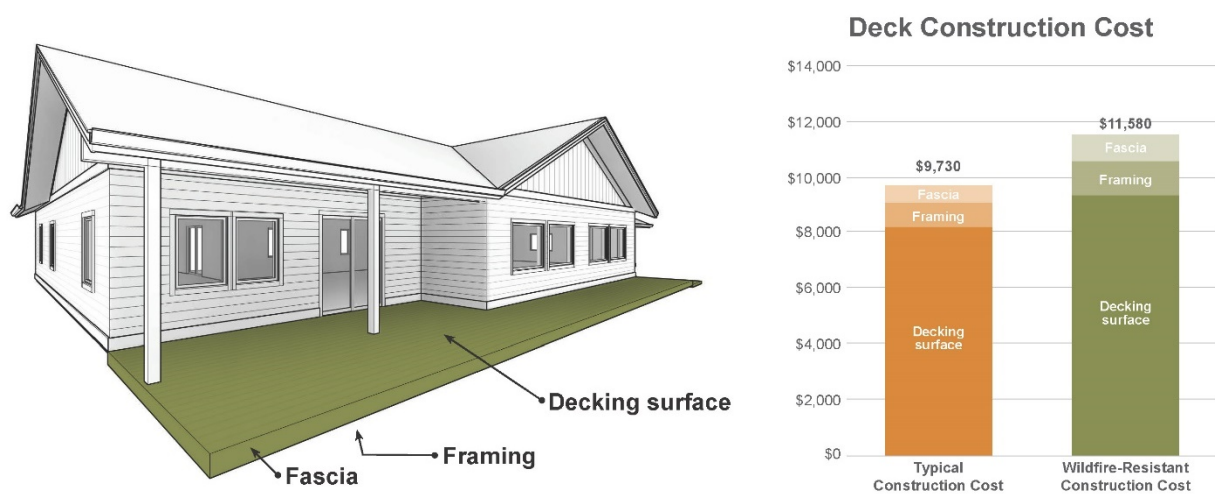
California's Chapter 7A allows for the use of decking products that can pass a performance-based under-deck flame impingement test. Unlike the ICC IWUI Code and NFPA 1144, non-fire-retardant-treated wood and several plastic composite deck board products can comply with the standard test method and are therefore permitted under California's Chapter 7A.

This approach has been controversial. Recent research has demonstrated that some non-fire retardant treated solid wood decking products are more easily ignited by wind-blown embers.¹ Use of foil-faced tape can reduce the vulnerability of these products. Some plastic composite products can be more vulnerable to a flame impingement exposure. To minimize the vulnerability of all combustible decking products, the noncombustible zone must include the entire footprint of the deck.

New Construction Comparison

The cost of a wildfire-resistant deck was 19 to 43% more than the typical deck, increasing the cost by \$1,860 to \$6,060 for the model home (Figure 8.3). This deck would not be compliant with IWUIC or NFPA 1144, but would be compliant with California Chapter 7A.

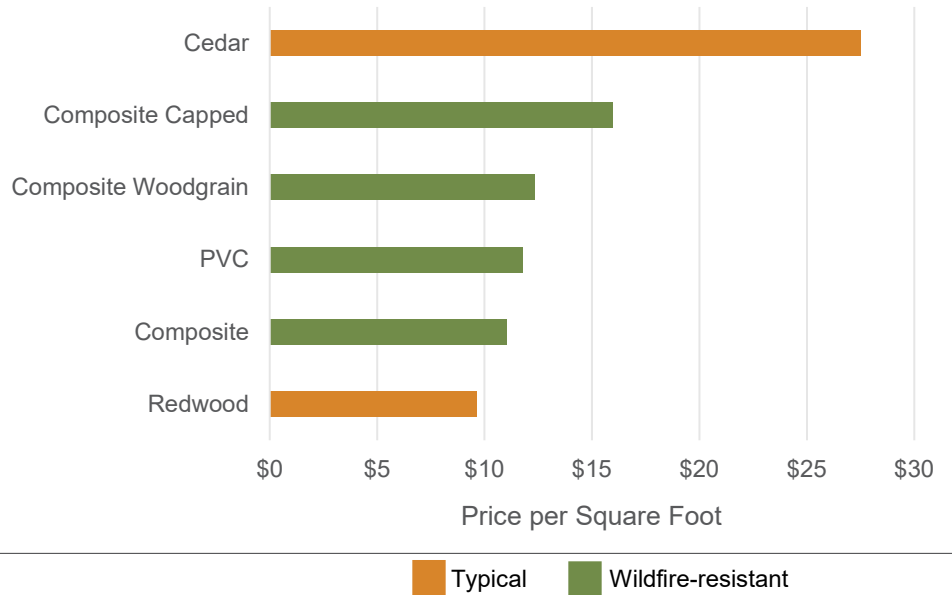
Figure 8.3. Deck subcomponents and new construction cost.



The majority of this price increase resulted from the deck boards. We compared costs of several options for both the typical and wildfire-resistant models and found that prices varied significantly for typical materials, ranging from approximately \$10 per square foot for redwood to \$28 per square foot for cedar, whereas wildfire-resistant materials all fell into the range of \$11 to \$16 per square foot (Figure 8.4).

Moderate price increases were realized from modifications to the deck framing and fascia. Rough-sawn cedar columns visible on the deck were given fire-retardant treatment and foil-faced tape was added to the tops and sides of joists to reduce the likelihood of fire propagating from the anticipated ember exposure. The fascia board was also changed from rough-sawn cedar to fire-retardant-treated redwood.

Figure 8.4. Cost of decking boards per square foot. Orange bars are baseline, non-wildfire-resistant; green bars are more wildfire-resistant. (Wildfire-resistance, in this case, is primarily related to resistance to ember ignition.)



Even the wildfire-resistant (ember-ignition resistant) materials priced here—polyethylene (PE) and PVC composite deck boards—are combustible and would currently only comply with California Chapter 7A—not with IWUIC or NFPA 1144. Prices for materials compliant with IWUIC and NFPA 1144 were difficult to find in the Montana market. Fire-retardant treated (FRT) wood is the most common option that would comply. Some estimates suggest a 20-25% cost increase for treatment, which would put the cost at a similar range to some composite options. However, availability and shipping of FRT deck boards may be challenging in remote, rural markets.

Testing shows that many products are not highly combustible in isolation. Deck fires become large when other fuel sources contribute, such as pine needles that accumulate on deck surfaces and in gaps between deck boards, combustible material stored under or on top of the deck, and decks overhanging slopes with combustible vegetation. Avoiding storage of combustibles under the deck and ongoing maintenance of defensible space are key to deck ignition-resistance.

Solid-surface decks provide an alternative to standard decking boards. These options can provide a noncombustible walking surface. Structural integrity and engineering requirements for sub-framing of a heavier, solid-surface deck are highly dependent on site conditions and local building codes, so they were not priced for this study.

Co-Benefits and Efficiencies

Lifespan and Maintenance

Plastic composite deck boards are reported to require less maintenance than wood deck boards, which can require regular cleaning and refinishing. Some of the composite decking products are resistant to fading and stains, and because of the plastic content are typically more resistant to rot, mold, and insect-related degradation. Some brands come with 25-plus year warranties and are made from recycled plastic and wood.

Regardless of decking materials used, ongoing maintenance of the deck is required. Regularly removing vegetation underneath the deck, as well as from between deck board gaps, is critical. In advance of an approaching wildfire, it is also important to remove furniture and other combustible materials from the surface of the deck.

Table 8.1: Decking New Construction					
Feature	Baseline	Wildfire-Resistant	Cost Diff.	Percent Diff.	Notes
Decking Surface	Redwood decking	Composite (non-capped, non-woodgrain)	1,200	15%	
		Alternative: PVC	1,820	22%	A
		Alternative: Composite Woodgrain	2,310	28%	A
		Alternative: Composite Capped	5,410	66%	A
	Decking Surface Subtotal		\$1,200 - 5,410	15% - 66%	
Framing	Preservative - treated lumber	Preservative-treated lumber	0	0%	
	Cedar rough sawn columns (visible on porch)	Exterior fire-retardant treated cedar rough sawn columns	50	19%	B
	(none)	Foil-faced tape for joist top and sides	250		B
	Framing Subtotal		\$300	32%	
Fascia	Cedar rough sawn band board	Fire-retardant treated redwood band boards	350	59%	B
	Fascia Subtotal		\$350	59%	
Total			\$1,850 - 6,060	19% - 62%	

Download detailed data tables at: <https://headwaterseconomics.org/wildfire/homes-risk/building-costs-codes-appendix>.

Notes

A. Denotes an alternative to another material; a home would not utilize all materials listed. Totals columns account for range depending on which alternative is selected.

B. Materials priced from manufacturer, online retailer, or local distributor. Labor priced from RS Means.

¹ Quarles, S. L. and C. D. Standohar-Alfano. 2017. Ignition potential of decks subject to an ember exposure. Insurance Institute for Business & Home Safety. http://disastersafety.org/wp-content/uploads/2017/10/Deck-Ember-Testing-Report-2017_IBHS.pdf

IX. NEAR-HOME LANDSCAPING VULNERABILITIES, MITIGATIONS, AND COST

This chapter analyzes the vulnerabilities, mitigations, code requirements, and costs related to developing wildfire-resistant near-home landscaping. For the purposes of this study, the near-home landscaping component includes the mulch and landscape fabric in a 5-foot zone immediately around the home, as well as under all attached decks.

Vulnerabilities

Landscaping makes the home vulnerable when, if ignited, it allows fire to burn to the home. Ignition of near-home mulch from ember exposure will allow flames to touch the home, regardless of how well defensible space has been planned and maintained.

Mitigation

Mitigation strategies include selection, placement, and maintenance of vegetation that reduces the chance fire can burn directly to the home. Professionals usually discuss this process by dividing the property into two to three zones where vegetation and other combustible materials are managed in such a way as to reduce the chance that fires can burn to the home. The incorporation of a near-home zone (typically specified as 5 feet wide, extending out from the building), where all combustible materials are removed (e.g., bark mulch, combustible vegetation, and stored materials like firewood) can minimize the opportunity of ignition.

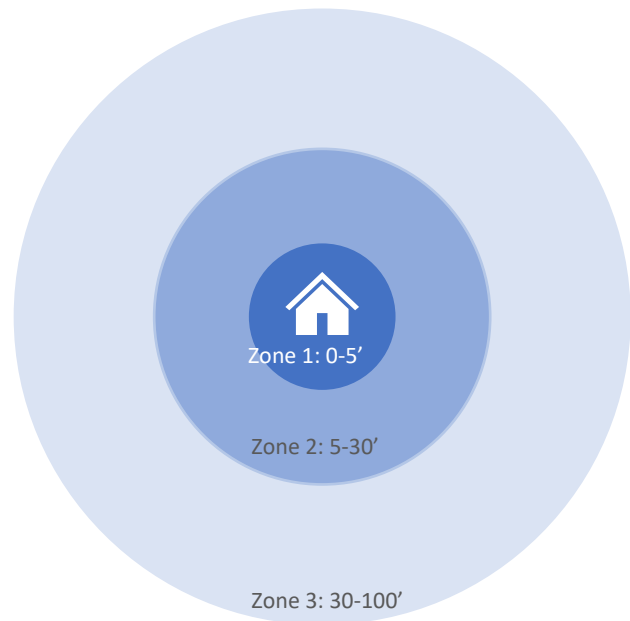


Figure 9.1. Landscaping zones for wildfire-prone areas. All codes lump Zones 1 and 2 into a single description, neglecting to emphasize the importance of the 0-5' near-home landscaping area.

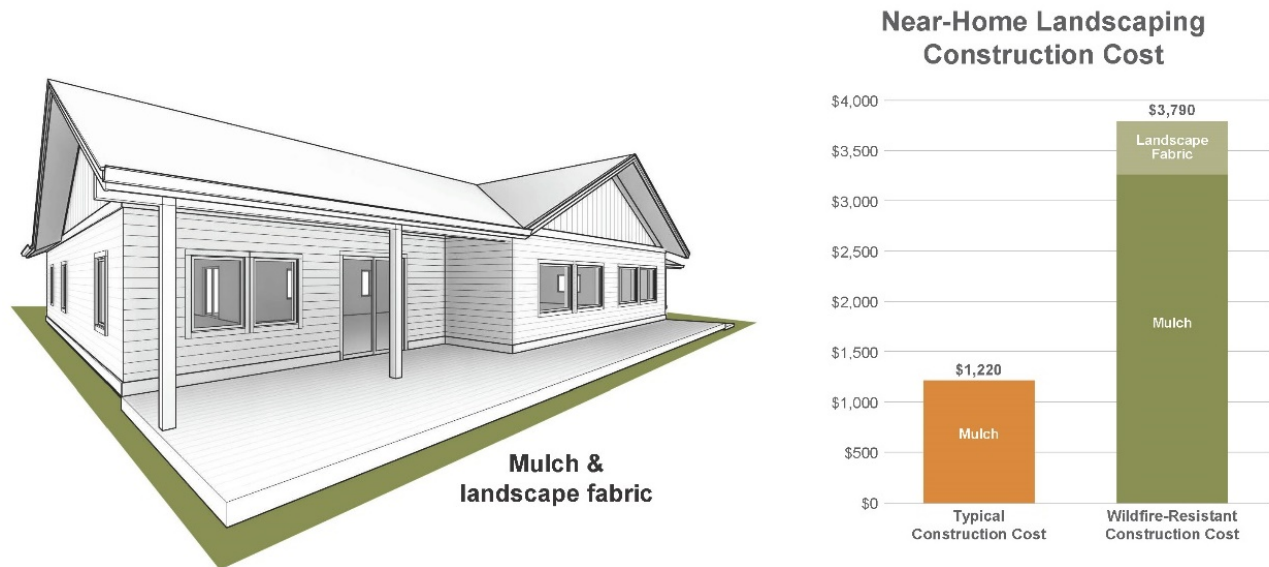
Treatment in Codes

Codes specify development and maintenance of two zones, the first zone being from the edge of the home to 30 feet from the home and the second in the 30- to 100-foot area. It is common for “or to the property line” to be included in the text. None of the major codes require the 0- to 5-foot noncombustible zone (Figure 9.1).

New Construction Comparison

To make the model home wildfire-resistant, bark mulch was replaced with pea gravel. Weed and erosion control fabric was added in a 5-foot zone around the home and in the spaces under the deck. This resulted in a 210% cost increase over the typical materials, or an increase of \$2,570 (Figure 9.2).

Figure 9.2. Near-home landscaping subcomponents and new construction cost.



Co-Benefits and Efficiencies

Lifespan and Maintenance

Compared to organic mulch, pea gravel has a much longer lifespan and requires little to no maintenance, whereas organic mulch will need to be replenished annually as it decomposes. However, organic mulch can be more efficient at maintaining soil temperatures and absorbing water. In drier climates or for xeriscaping, pea gravel can promote healthy soil drainage and prevent unwanted vegetation.

Table 9.1: Landscaping New Construction					
Feature	Typical	Wildfire-Resistant	Cost Diff.	Percent Diff.	Notes
Mulch	Bark mulch	Pea gravel	2,030	166%	
Landscape fabric	(none)	Polypropylene mesh erosion control fabric	540	-	A
TOTAL			\$2,570	210%	

Download detailed data tables at: <https://headwaterseconomics.org/wildfire/homes-risk/building-costs-codes-appendix>.

Notes

A. Includes fabric under the deck.

X. CONCLUSION

Wildfire-Resistant Building Codes and Standards Add Minimal Cost to Homeowners and Builders

Converging trends of hotter, longer, more severe fire seasons and growth in the wildland-urban interface put more people and communities at risk to wildfire disasters. Laboratory research and evidence from post-fire assessments have demonstrated that local ignitability of the home itself and the nearby landscaping are major factors determining home survivability in a wildfire. Three existing building codes and standards provide ample guidance for how to construct wildfire-resistant homes. Such regulations can reduce wildfire loss, and more communities are considering their implementation.

City, county, and state governments must weigh many issues when considering new regulations, but the cost of constructing to comply with wildfire-resistant building codes need not be a barrier. The results of this study demonstrate that the cost of constructing new homes to be wildfire-resistant is not substantively different than the cost of typical construction. Retrofitting existing homes can have substantial costs, but components can be prioritized based on neighborhood and landscape context. Other factors, such as material availability and builder knowledge of wildfire-resistant construction techniques may vary from region to region. For example, IWUIC-compliant decking options were difficult to locate in Montana. However, communities can customize portions of the model codes and standards to address such regional variability. As wildfire-resistant construction becomes more common and in higher demand in wildfire-prone landscapes, these limitations are likely to decrease.

Beyond protecting individual homes, wildfire-related building codes and standards are likely to have many long-term benefits to communities. Reducing wildfire losses can lessen the long-term and profound consequences and disruption borne at the local level following disasters, such as lost business and property tax revenue, physical and mental health impacts, and damage to public infrastructure. Constructing homes to modern wildfire-resistant standards delivers additional benefits to homeowners and the environment, as many components are more sustainable, require reduced maintenance, and provide added energy efficiency.

Key Mitigations Can Be Implemented by Any Builder or Homeowner

Regardless of whether it is required by code within a jurisdiction, individual builders and homeowners can act to mitigate wildfire vulnerabilities with little added cost. Home survival in wildfire-prone areas depends on effective implementation of a coupled approach where 1) vegetation (and other combustible materials) on the property is wisely selected, located, and maintained; and 2) materials and design features of the home are selected that will reduce vulnerability to anticipated wildfire exposures. Homes threatened by wildfires will always be subjected to wind-blown embers. Therefore, all homes in wildfire-prone areas should include design details that minimize vulnerability to embers. The likelihood of a long-term radiant heat or flame contact exposure will be less likely on properties that have developed and continue to maintain an effective defensible space in terms of selection, location, and maintenance of vegetation and other combustible materials on the property.

Roof

The roof—with a large surface area and potential for accumulation of combustible vegetative debris—is one of the most vulnerable parts of a home. Key mitigations for the roof include:

1. Install a Class A fire-rated covering or assembly.
2. Where applicable, install bird stops at roof edge, including any ridges. An additional layer of protection can be attained if a layer of roll roofing is installed over the surface of the roof deck.
3. For complex roof designs where there are junctions between a roof and a wall (e.g., dormers), consider noncombustible siding.
4. The under-eave area should be constructed using a soffited eave design.
5. Both inlet (under-eave) and outlet (roof or gable) vents can be vulnerable to ember entry.
 - Vents should be covered with 1/8- to 1/16-inch noncombustible and corrosion-resistant screening. Vents covered with 1/16-inch screening should be cleaned regularly so that they can perform their moisture management function.
 - Ridge or off-ridge vents are less vulnerable than gable end vents.
 - Use of vents approved by the California Office of the State Fire Marshal Building Materials Listing Program, which have demonstrated a resistance to ember and flame exposures.¹

Exterior Walls

Exterior walls and windows are especially vulnerable when exposed to flames or radiant heat for extended periods, such as from vegetation or neighboring homes that have ignited. Doors and windows can also be vulnerable to wind-blown embers and flames. If there is a home or neighboring building within 30 feet, the potential for radiant heat from that structure—should it ignite—may be enough to ignite siding or break glass in windows, so additional mitigations may be necessary. Key mitigations for exterior walls include:

1. Make sure there is, at a minimum, a 6-inch noncombustible zone at the base of the wall (i.e., between the ground and start of siding).
2. Install multi-pane windows having tempered glass.
3. When vinyl windows are used, make sure single- and double-hung windows include metal reinforcement in interlock members.
4. If there is a home or neighboring building within 30 feet, use ignition-resistant or noncombustible siding and metal shutters.

Decks

Attached decks can ignite from embers landing on top of the deck and from ignited vegetation or materials underneath the deck. An ignited deck provides radiant heat exposure to the home's siding, doors, and windows. Current wildfire codes and standards are inconsistent in their recommendations for decks, but key mitigations for decks include:

1. For deck boards, use noncombustible materials, fire-retardant treated wood, or decking products that meet the requirements of an ignition-resistant material. Non-fire-retardant treated redwood and cedar are vulnerable to ignition from ember exposures. Higher density decking products (e.g., plastic composite or imported tropical hardwood decking products) are less vulnerable to ignition from ember exposures. If used, plastic composite decking products should comply with the requirements of the California Office of the State Fire Marshal Building Materials Listing Program.¹

-
2. To reduce the likelihood of sustained flaming of ignited decking, install deck boards using a 1/4-inch gap between deck boards and install a foil-faced bitumen tape product on the structural support joists.
 3. If an attached deck overhangs a steep slope, particularly with shrub or woodland vegetation that is not on the property or that cannot be maintained, use of a solid surface deck with an enclosed underside is a better option.
 4. Incorporation of a noncombustible zone under the footprint of all attached decks is critical.

Near-Home Landscaping and the Home Ignition Zone

Managing vegetation and other combustible items on the property is important for reducing the energy and potential spread of fire. Regardless of vegetation maintenance and defensible space on the larger property, combustible vegetation and mulch in the near-home, 5-foot area immediately around the home can ignite and allow flames to touch the home. Key mitigations for landscaping include:

1. Follow readily available guidance on creating an effective defensible space on your property in a radius of at least 100 feet from the home (or to the property line).
2. Create a near-home noncombustible zone within 5 feet of the home and under the entire foot print of any attached deck.
3. A noncombustible fence section should be used for 5 to 8 feet where the fence connects to the home.

¹ California Office of the State Fire Marshal Building Materials Listing Program. Available at: http://osfm.fire.ca.gov/strucfireengineer/strucfireengineer_bml





Agenda Item #4.a.

Agenda Item Name:

Swearing-In of New Officers David Adkins, Nathan Roos and Ethan Turner

Presenter:

Debra Funston, Chief of Police

Item Description:

Ceremony to Swear-In Officers David Adkins, Nathan Roos and Ethan Turner

Recommended Action:

N/A

Fiscal Impact:

None - Position in budget

Operational Impact:

None

Prior Board Motions:

N/A

Background Information:

None

Executive Summary:

N/A

Notification Requirements:

N/A

Prepared By:

Alexis Ramirez, Deputy City Clerk

Attachments:

None



Agenda Item #4.b.

Agenda Item Name:

Present Proclamation Recognizing National Police Week

Presenter:

Debra Funston, Chief of Police

Item Description:

National Police Week is recognized May 11-17, 2022

Recommended Action:

No action necessary

Fiscal Impact:

None

Operational Impact:

None

Prior Board Motions:

None

Background Information:

The 60th Anniversary of National Police Week is recognized May 11-17, 2022.

In 1962, President Kennedy proclaimed May 15 as National Peace Officers Memorial Day and the calendar week in which May 15 falls, as National Police Week. Established by a joint resolution of Congress in 1962, National Police Week pays special recognition to those law enforcement officers who have lost their lives in the line of duty for the safety and protection of others.

National Police Week is a collaborative effort of many organizations dedicated to honoring America's law enforcement community.

We recognize National Police Week at this Council meeting because there was not a scheduled Council meeting during the actual event.

Executive Summary:

None

Notification Requirements:

None

Prepared By:

Misty Williams, City Clerk

Attachments:

1. National Police Week Proclamation



City of Rifle Proclamation

60th Anniversary of National Police Week May 11 - 17, 2022

To recognize National Police Week 2022 and to honor the service and sacrifice of those law enforcement officers killed in the line of duty while protecting our communities and safeguarding our democracy.

WHEREAS, there are more than 800,000 law enforcement officers serving in communities across the United States, including the dedicated members of the Rifle Police Department; and

WHEREAS, since the first recorded death in 1786, more than 23,000 law enforcement officers in the United States have made the ultimate sacrifice and been killed in the line of duty; and

WHEREAS, the names of these dedicated public servants are engraved on the walls of the National Law Enforcement Officers Memorial in Washington, DC; and

WHEREAS, 619 new names of fallen heroes are being added to the National Law Enforcement Officers Memorial this spring, including 472 officers killed in 2021 and 147 officers killed in previous years; and

WHEREAS, May 15 is designated as Peace Officers Memorial Day, in honor of all fallen officers and their families and U.S. flags should be flown at half-staff.

Therefore, be it resolved that the City Council of Rifle, Colorado, does recognize the week of May 11 through May 17, 2022, as National Police Week in the City of Rifle, and publicly salutes the service of law enforcement officers in our community and in communities across the nation.

Approved by the City Council at a regular meeting this 18th day of May, 2022.

CITY OF RIFLE

Attest::

By:

City Clerk

Mayor



Agenda Item #6.a.

Agenda Item Name:

Consider Minutes of the May 4, 2022, Regular Meeting

Presenter:

Misty Williams, City Clerk

Item Description:

Consider Minutes of the May 4, 2022, Regular Meeting

Recommended Action:

Move to approve the minutes of the May 4, 2022, City Council Regular Meeting

Fiscal Impact:

N/A

Operational Impact:

N/A

Prior Board Motions:

N/A

Background Information:

N/A

Executive Summary:

Minutes of the May 4, 2022, Regular Meeting

Notification Requirements:

N/A

Prepared By:

Alexis Ramirez, Deputy City Clerk

Attachments:

1. 05.04.2022 DRAFT Minutes



RIFLE CITY COUNCIL

REGULAR MEETING

May 4, 2022

7:00 p.m.

202 Railroad Avenue, Rifle, CO

CALL TO ORDER & ROLL CALL

A regular meeting of the Rifle City Council was called to order at 7:00 p.m. by Mayor Ed Green.

Present at Roll Call:

Mayor Ed Green, Councilor Alicia Gresley, Councilor Joe Carpenter, Councilor Chris Bornholdt, Councilor Sean Strode and Councilor Brian Condie.

Councilor Sean Strode motioned to excuse Councilor Clint Hostettler; seconded by Councilor Chris Bornholdt.

Roll Call: Yes - Alicia Gresley, Joe Carpenter, Sean Strode, Chris Bornholdt, Brian Condie and Ed Green.
No - None.

Others Present:

City Manager Tommy Klein, City Clerk Misty Williams, Deputy City Attorney Joely Denking, Rifle Community Television (RCTV) Michael Churchill, Parks and Recreation Director Tom Whitmore, Planning Director Patrick Waller, Public Works Director Brian Prunty, Virginia Pehrson, Russell Pehrson, Steve Mallizoet, Trish O'Grady, Harold D. Martinez, Paula Stepp, and Doug Winter.

PUBLIC COMMENT

Comment was heard from Trish O'Grady and Russell Pehrson.

CONSENT AGENDA – CONSIDER APPROVING THE FOLLOWING ITEMS:

- A. Consider Minutes of the April 20, 2022, Regular Meeting
- B. Consider Liquor License Renewal for Thai Chili Bistro, Inc dba Thai Chili Bistro
- C. Consider Change of Owner for Thai Chili, Bistro, Inc. dba Thai Chili Bistro
- D. Consider Liquor License Renewal for Rifle Tequila's, Inc dba Tequila's
- E. Consider Proclamation Recognizing Municipal Clerks Week
- F. Consider Approval of Purchase of Water Plant Citric Acid
- G. Consider Purchasing Policy - Ordinance No. 7, Series of 2022 - 2nd Reading
- H. Consider Approving the Sale of City Property Formally Occupied

Councilor Sean Strode moved to approve Consent Agenda Items A, B, C, D, E, F, G, and H; seconded by Councilor Alicia Gresley.

Roll Call: Yes - Alicia Gresley, Brian Condie, Sean Strode, Chris Bornholdt, Joe Carpenter and Ed Green.
No – None.

PRESENTATION

Receive Update from Imperio Mexican Restaurant

Council received update from Imperio Mexican Restaurant Representative Abel Quintero. Abel stated they have installed 38 sound mitigation panels and insulation to empty walls in the building. They have also been monitoring the parking lot maintenance due to the garbage accumulation issues.

Receive Presentation from Middle Colorado Watershed Council

Middle Colorado Watershed Council (MCWC) Representative Doug Winter and Executive Director Paula Stepp provided presentation on upcoming projects. Presentation covered Fire Restoration impacts on downstream communities, flood events, planning for the next watershed changing with the addition of new water quality monitoring, soil moisture monitors and rain gauges, Rifle Island Restoration Partnership, and the River Stop Project.

REGULAR AGENDA

Present Proclamation Recognizing Municipal Clerks Week

Mayor Ed Green read a proclamation recognizing May 1st to May 7th, 2022, as Municipal Clerks Week.

Consider Declaration of Fleet Vehicles as Surplus

Public Works Director Brian Prunty presented request to declare vehicle numbers 0354, 0590, 1703, 1916, 1924, 4016, 40170, and 40230 as surplus so they may be disposed of per City Code Sec. 4-3-130: this declaration is necessary to dispose of these out-of-service vehicles and provides for their being sold at auction. Staff recommends approval of declaration of fleet vehicles as surplus to reduce costs of maintenance and recovers funds for use in future procurement of fleet vehicles.

Councilor Chris Bornholdt moved to approve the vehicle unit numbers 0354, 0590, 1703, 1916, 1924, 4016, 40170, and 40230 as surplus; seconded by Councilor Joe Carpenter.

Roll Call: Yes - Sean Strode, Joe Carpenter, Chris Bornholdt, Brian Condie, Alicia Gresley and Ed Green.

No - None.

Consider Change Order No. 8 to 3rd Street and Railroad Avenue Improvements Contract

Public Works Director Brian Prunty presented explanation for Change Order No. 8 - 3rd Street and Railroad Avenue Improvements Contract. Public Works Director Prunty stated this change order reflects details on the costs associated with materials and the remainder of traffic control management incurred in the process of completion of the 3rd street and railroad avenue improvements (Downtown). While work was previously authorized, winter conditions have just now allowed for completion. Staff recommends approval of Change Order No. 8 for the amount of \$192,556.25.

Councilor Chris Bornholdt moved to approve material costs & additional traffic control management associated with Change Order #8 to the 3rd Street & Railroad Ave. improvements contract for the amount of \$192,556.25; seconded by Council Brian Condie.

Roll Call: Yes - Ed Green, Sean Strode, Alicia Gresley, Chris Bornholdt, Brian Condie and Joe Carpenter.

No – None.

Report to City Manager

Reports were heard from City Manager Tommy Klein and City Clerk Misty Williams.

Comments from Mayor and Council

Comments were heard from Councilor Alicia Gresley, Councilor Sean Strode, Councilor Brian Condie, Councilor Chris Bornholdt and Mayor Ed Green.

Adjournment

Meeting adjourned at 8:31 p.m.

Misty Williams
City Clerk

Ed Green
Mayor



Agenda Item #6.b.

Agenda Item Name:

Consider Buy Back of Cemetery Space

Presenter:

Misty Williams, City Clerk

Item Description:

Mr. Richardson would like to convey the space back to the City of Rifle for the amount originally paid. He purchased the space back in 1974. The cemetery needs more spaces, we recommend buying this space back from the owner at the original purchase price of \$50.

Recommended Action:

Move to approve the purchase of cemetery space, for a total amount of \$50.00.

Fiscal Impact:

None

Operational Impact:

None

Prior Board Motions:

None

Background Information:

Code allows purchase back of grave spaces at original purchase price.

Executive Summary:

Recommend buy back of this space to increase the availability of grave spaces in Rose Hill Cemetery.

Notification Requirements:

None

Prepared By:

Alexis Ramirez, Deputy City Clerk

Attachments:

1. 05-18-22 Conveyance of Cemetery Space



May 6, 2022

Dear Council,

Steven F Richardson is the owner of a space located in Fairy Land, Section B, Block 48, Lot 10, Space 4.

Mr. Richardson would like to convey the space back to the City of Rifle for the amount originally paid. There have been no improvements or burial in the space. He purchased the space in back in 1974 for his deceased granddaughter and she was never placed there.

He paid \$25.00 for the space and \$25.00 for perpetual care.

Kind regards,

A handwritten signature in blue ink that reads "Lynn Miller". The signature is fluid and cursive.

Lynn Miller
Finance/Utilities/Cemetery



ROSE HILL CEMETERY
DEED OF CONVEYANCE

I Steven F. Richardson, whose address is Conroe, TX for
12375 Royal Lake Dr.
the consideration of \$ 50.00 hereby transfers, sells and conveys to:

CITY OF RIFLE

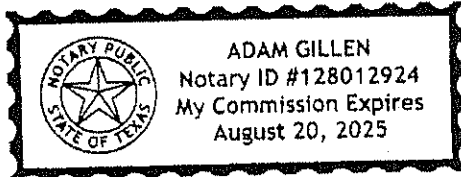
Whose address is 202 Railroad Av, Rifle, CO 81650, Space(s) 4, in Block 48, Lot 10,
of the Rose Hill Cemetery, in the City of Rifle, County of Garfield and State of Colorado, as shown on the
official maps and plats thereof, and warrant the title to the same; and also warrants that the space(s)
have not been used for the burial of any person.

Steven F. Richardson
5-5-22

STATE OF TEXAS)
) SS.
COUNTY OF MONTGOMERY

The foregoing deed was subscribed and sworn to before me this 5th day of May,
2022 by ADAM GILLEN.

Witness my hand and official seal; my commission expires: AUG. 20, 2025



[Signature]
Notary Public

CERTIFICATE OF CONSENT

The consent of the City Council to this transfer was granted and resolution adopted at a regular meeting
held on _____, as required by Section 11-7-60 (11) of the Rifle Municipal Code.

CITY OF RIFLE, COLORADO

(City Seal)

City Manager

CERTIFICATE OF RECORDING

This transfer was duly recorded on the records of the Rose Hill Cemetery on _____, 20__

CITY OF RIFLE, COLORADO

(City Seal)

City Clerk

WARRANTY DEED

No. 1240

... Rose Hill Cemetery ...

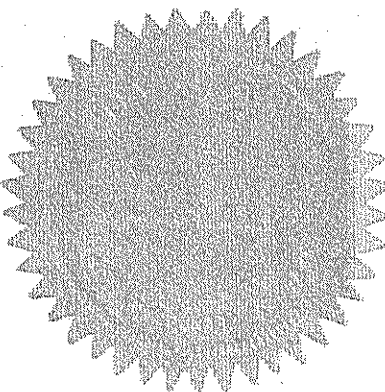
Know all Men by these Presents, That A. J. Van Arsdale Mayor, and Frances McAllister Clerk of the City of Rifle, in the County of Garfield, State of Colorado, in behalf of said town and in consideration of twenty five and no/100 DOLLARS, paid by Steven F. Richardson, of 845 So. Williams, Denver, CO, do hereby grant, bargain, convey, sell and confirm unto the said Steven F. Richardson, his heirs

and assigns forever, space 4 Lot 10 Block 48 in Rose Hill Cemetery, according to the plat on file in the office of the Clerk and Recorder of Garfield County, Colorado. Subject to the rules and regulations of said Cemetery, and to the laws of the State of Colorado, now in force or hereafter to be enacted.

Provided, further: That the above parcel of land is conveyed for the use of sepulture solely, and it is agreed that the above consideration is paid for such use and none other.

In Witness Whereof, The said Mayor and Clerk have hereunto set their hands and caused the seal of the City of Rifle to be affixed hereto, this 22nd day of April A. D. 19 74

Frances McAllister Clerk
A. J. Van Arsdale Mayor



No 938 \$ 25.00
ROSE HILL CEMETERY
PERPETUAL CARE CONTRACT
RIFLE, COLORADO
This is to Certify That Steven F. Richardson
845 South Williams, Denver, Colorado 80209
has paid to the Town of Rifle as per receipt No. 4137
twenty five and no/100 DOLLARS for the perpetual
care of grave section space 4 Lot 10 Block 48

in the Rose Hill Cemetery, a Municipal Cemetery, which sum shall be invested with similar sums by others contributed for a like purpose, the aggregate of such sums to be known as the ROSE HILL CEMETERY PERPETUAL CARE FUND and shall be kept separate and apart from other funds of said Cemetery and of the Town of Rifle, Colorado. The interest or income accruing from said fund on the sums so paid by the above named person shall be used to maintain and care for the above mentioned grave section or sections in conformity with the rules, regulations and ordinances concerning the Rose Hill Cemetery as now or hereafter adopted by the Town of Rifle.

IN TESTIMONY WHEREOF, the Town of Rifle has caused these presents to be signed by the Mayor of the Town of Rifle and attested by the Clerk under

the Seal of the Town this 22nd day of

April A. D. 19 74

A. J. Van Arsdale Mayor

ATTEST: Frances McAllister Clerk



Agenda Item #8.a.

Agenda Item Name:

Receive Presentation from Eco Dwelling LLC. Regarding Rifle Area Development Proposals

Presenter:

Patrick Waller, Planning Director

Item Description:

Eco Dwelling LLC would like feedback from Council on their unit types and development proposals. This is not an official review and all Council feedback is non-binding.

Recommended Action:

No Action Needed

Fiscal Impact:

None

Operational Impact:

The City will see increased maintenance of water, sewer, and road infrastructure.

Prior Board Motions:

None

Background Information:

Both 14th Street Marketplace and 301 West 16th Street have recently been purchased by a developer looking to subdivide both properties and install small manufactured houses. The applicant has not submitted a development application and is looking for feedback from Council regarding this type of development in this location.

Executive Summary:

301 West 16th Street is located within the County and any City development would require annexation of the property. The 14th Street parcels are located within the City and have been previously subdivided with utilities in place. The development of the 14th Street parcels as proposed would require either a rezoning or Conditional Use Permit approval.

Notification Requirements:

None

Prepared By:

Patrick Waller, Planning Director

Attachments:

1. Staff Memo - Eco Dwelling Projects
2. Eco Dwelling Presentation
3. 14th and 16th Street Proposal



MEMORANDUM

To: Honorable Mayor and City Council
From: Patrick Waller, AICP – Planning Director
Date: May 18th 2022
Subject: 14th Street Marketplace and 301 West 16th Street Annexation

Introduction

Both 14th Street Marketplace and 301 West 16th Street have recently been purchased by a developer that is looking to subdivide both properties and install small, locally manufactured housing units. The applicant has not submitted an official development application and is looking for feedback from Council regarding this type of development in this location.

301 West 16th Street is located within the County and any City development would require annexation of the property. The 14th Street parcels are located within the City and have been previously subdivided with utilities in place. The applicant also has development plans for other properties (which they will discuss as part of their presentation); however, these two developments are the closest to applying for subdivision.

Vicinity Map



Development Type

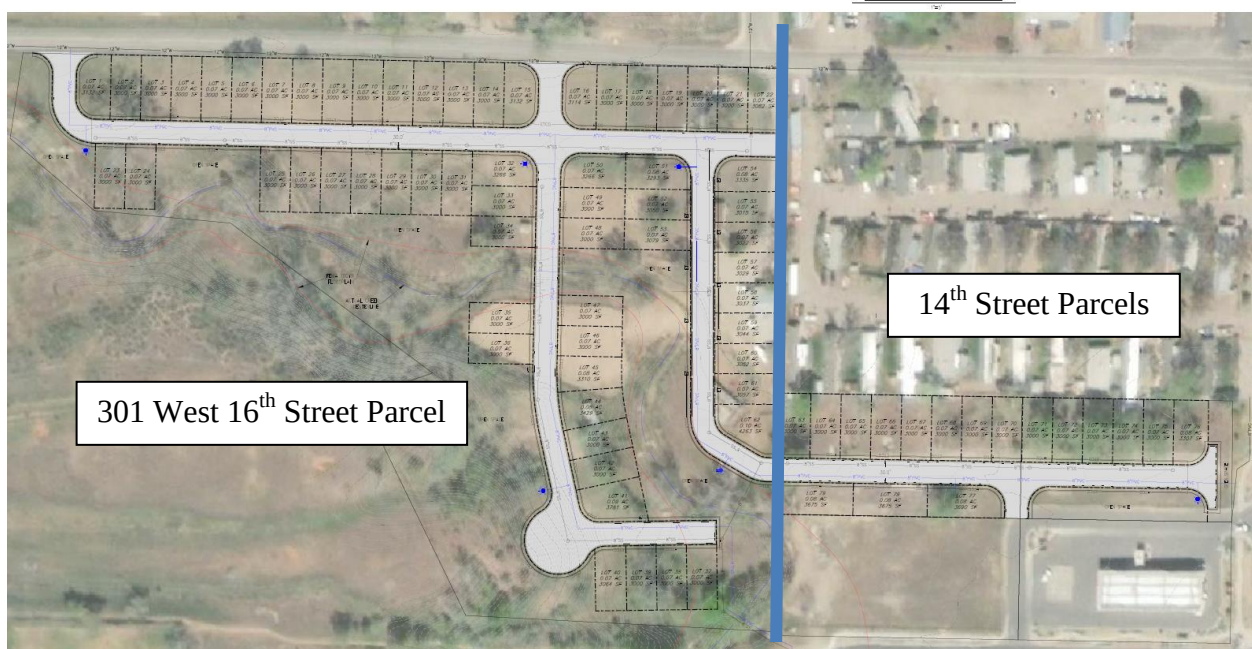
The applicant has recently established a manufactured housing factory in Garfield County, directly to the east of Rifle. Currently, the applicants plan is to construct the approximately 900 square foot units in the factory and then to install the units on 3,000 square foot lots on the proposed parcels. The applicant has provided examples of the design of the units in the Council packet.

Locations and Land Use Process

The two properties require two separate land use processes, but the projects are intended to be connected. The 14th Street parcels are already located within the City of Rifle and have been previously subdivided. Utilities are readily available to serve these lots. However, the parcel has previously been approved for PUD zoning that encouraged mixed-use development and that only allowed for single-family and manufactured home development as a Conditional Use Permit. The proposed development will need to go through either a rezoning process (or a Conditional Use Permit approval) and a subdivision process that would require public hearings and decisions by both Planning Commission and City Council. As proposed, the applicant would like to subdivide the approximately 1.93 acre site into 17 lots.

The 301 West 16th Street Parcel is currently located within Garfield County and will require an annexation process as well as rezoning and subdivision for the development to go forward. All of these processes will require multiple public hearings and decisions by both Planning Commission and City Council. The applicant's proposed layout shows 62 lots over the 9.34 acre site that is also encumbered by floodplain.

Preliminary Subdivision Layout



Comprehensive Plan Designation

14th Street Marketplace

The City of Rifle Comprehensive Plan designates the 14th Street parcels as both High Density Residential (12-30 dwelling units per acre) and Community Commercial, which allows for commercial uses that operate on a larger scale and include higher impact commercial uses such as auto body shops, mini-storage, gas stations, and warehouses. The PUD approved for the parcels allows for single-family residential as a Conditional Use, which requires approval from Planning Commission.

301 West 16th Street

This parcel is located outside of Rifle city limits and is designated by the Comprehensive Plan as Moderate Density Residential (7-15 dwelling units per acre). It does not have a commercial designation. The property is also called out in the Comprehensive Plan as having a “high potential for neighborhood development and is close to Rifle High School, businesses, parks, and services.”

The property is located within the Tier 1 area, meaning it is suitable for annexation and development.

Other Properties

The applicant is also interested in pursuing development on a parcel directly to the east of the Rifle Animal Shelter. This property is annexed, but is zoned for public uses. Any development would require both a rezoning and a subdivision application.

The other parcel that the applicant is interested in developing is located directly to the west of Grand River Hospital. This property is located within the County and would require an annexation process, zoning, and subdivision.

Staff did not provide further analysis on these parcels, since the applicant does not have a preliminary development plan available at this time.

Council Feedback

The applicant is requesting feedback from City Council regarding the proposed subdivisions and unit type. Since the presentation is not a public hearing and development plans are preliminary, all Council feedback is non-binding and if the developer decides to proceed, formal action will be required by City Council and Planning Commission to either approve or deny the project as part of the appropriate land use public hearing process.

Rifle ,Colorado



Eco Dwelling LLC is a company that is focused on providing a definitive, modern and ecological solution to a growing demand for housing for the working population in Rifle.

The demand for housing has become problematic, nationwide, and has left an important sector of Colorado unattended. As a result of this, the schools, hospitals, fire stations, and 'blue-collar' industries in and around Rifle, have been affected by a lack of personnel, due to the inability to access affordable home prices.



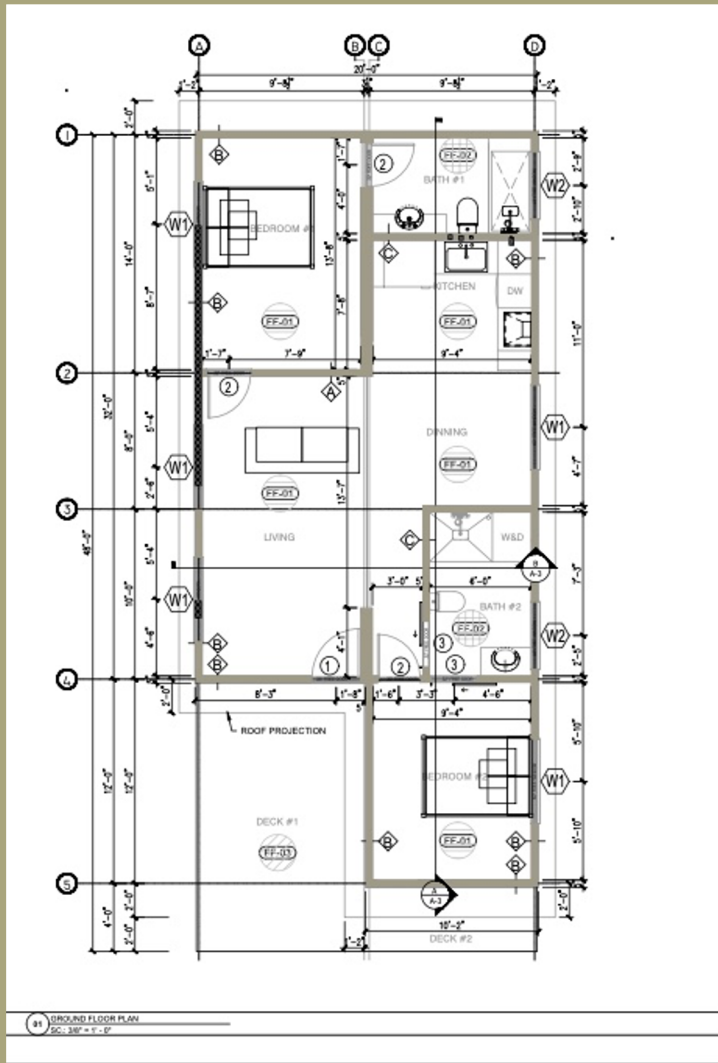
Eco Dwelling identified this serious housing shortage and has developed a solution. As a local company, with a staff and crew of local workers and sub-contractors, we have invested heavily in state-of-the-art technology and training for our employees and have obtained state approval and certification as a 'Modular Home' factory.

Our homes, internally labeled as ED 1, are an ecological and competitively priced product built with the latest technologies



ED-1





ED 1

- Spacious 900 SF
- 2 Bedrooms – 2 Bathrooms
- Green construction
- Mini Split System in each room
- Stainless steel appliances
- Metal Roof
- 14 foot high ceiling
- Comfort details





Siding Options





Siding Options



The ED-1 uses cold-formed steel for its main structure. Each structure uses 100% recycled material to make a 900 sq. ft house. If this house were made of wood, 25 to 30 trees would be used, which is approximately 1 acre of woodland. However, in this steel frame structure, the equivalent of *3 scrapped cars* are used to convert them into steel coils.

The potential environmental impact is significant





Structure





Structure



The entire ED 1 structure is 40% lighter and 50% more resistant than a conventional wood framed house. The spray foam insulation system we use is eco-friendly and approved by the state of Colorado as non-polluting .

As a building material, steel meets the sustainability requirements in standards such as the International Green Construction Code, (and in green building rating systems, like U.S. Green Building Council's Leadership in Energy and Environmental Design (LEED), where steel products can help earn points toward LEED v4 certification.)

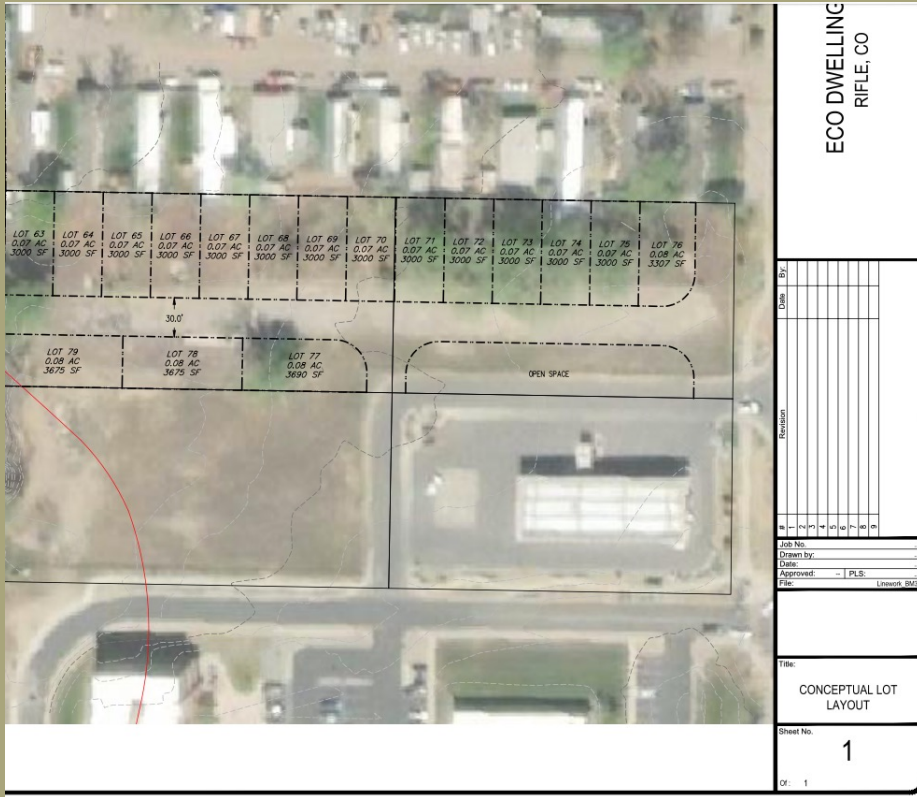
With the ability to withstand temperatures up to 1000 degrees Celsius, steel framing is also extremely fire resistant. Also, light gauge steel can bend without breaking, resulting in it being capable of handling 150 miles per hour winds. Additionally, light gauge steel is designed to withstand up to a category nine earthquake on the Richter scale. These factors all make light gauge steel an extremely safe and viable choice for building



The ED1 was designed for workers, and young families who are just starting out, providing the possibility of acquiring their first home, with land, at an affordable price. The large internal spaces provided by our design makes the feeling of living in the ED1 a more pleasant and comfortable experience.

Combining technology and warmth, the materials and equipment used in this the ED-1 model turn real estate developments into *Green Communities*, helping Rifle become an innovative city, offering its people the opportunity to obtain a green product at an affordable price and, most importantly, they are built by people *from Rifle in Rifle* for the people of Rifle .



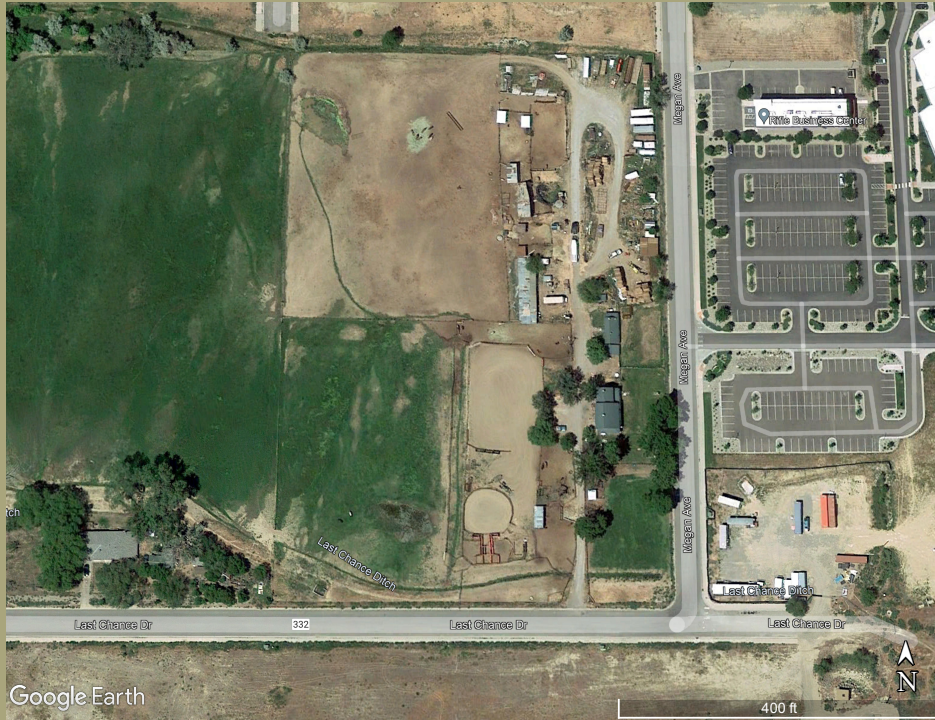


Market Place

- 17 new homes
- 3000+ Sf lots
- Houses include lot ownership
- Centrally located
- Close to schools
- Coming fall 2022

Future Developments



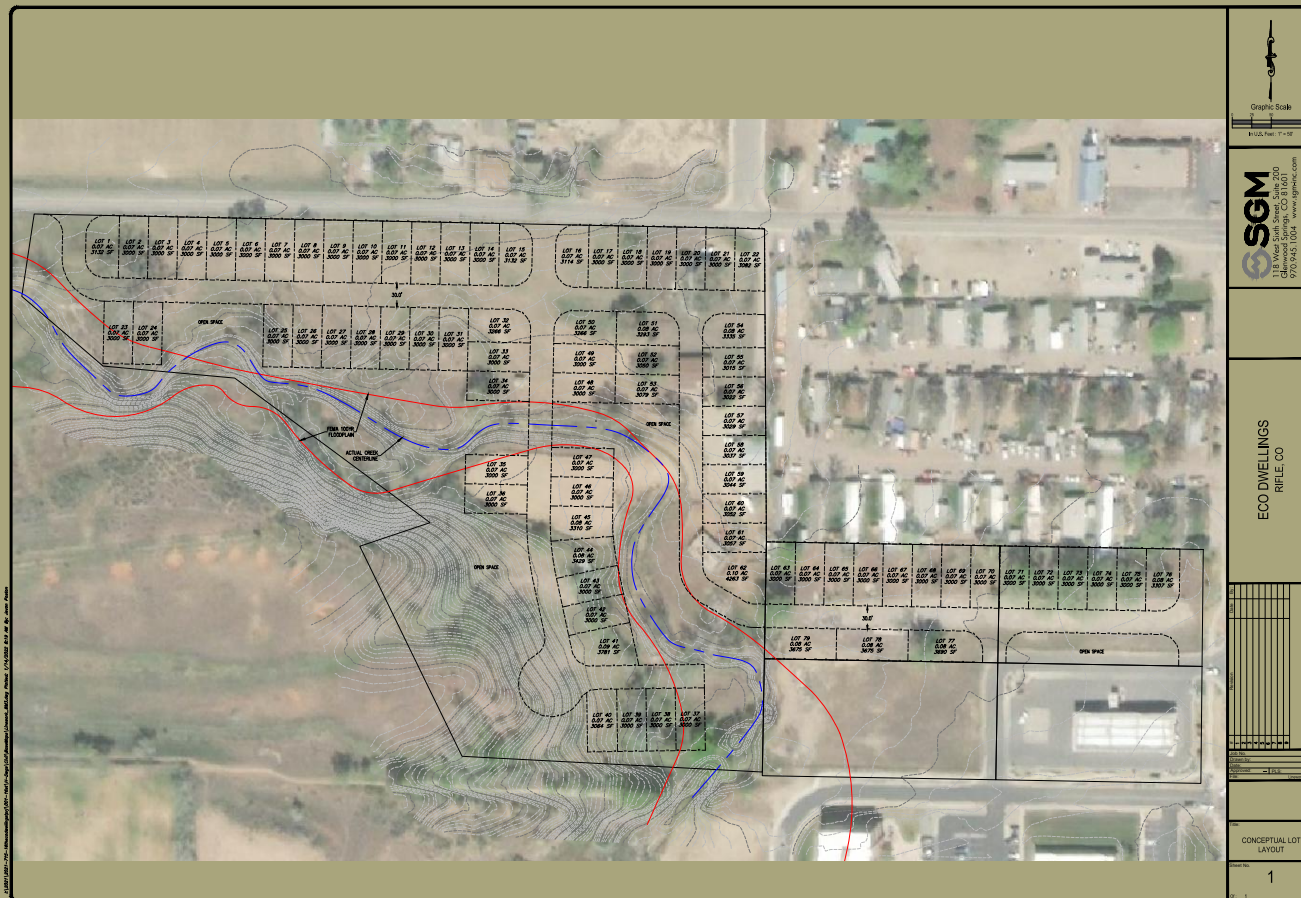


Hospital

- 65 new homes
- 3000+ Sf lots
- Houses include lot ownership
- Centrally located
- Close to schools
- Coming fall 2023

Future Developments





16th street

- 65 + houses
- 3000+ Sf lots
- Centrally located
- Coming 2023/24

Future Developments





Shelter 16th street

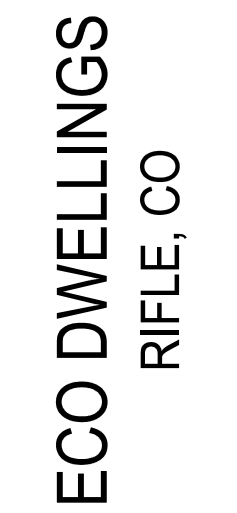
- 58 new homes
- 3000+ Sf lots
- Houses include lot ownership
- Close to schools
- Coming fall 2024

Future Developments



Working for the future of Rifle





Job No.	..
Drawn by:	..
Date:	..
Approved: - PLS:	..
File:	Linework_JSS

Sheet No.

1



Agenda Item #9.a.

Agenda Item Name:

Consider Final Plan and PUD Request for Last Chance Commons

Presenter:

Patrick Waller, Planning Director

Item Description:

The applicant requests approval of a Final Plan and PUD application to subdivide two parcels into 12 single-family residential lots. The proposal includes a request for a PUD that allows smaller setbacks for certain lots and a decrease in the minimum lot size.

Recommended Action:

Recommended motions are included for the specific PUD and Final Plan agenda items.

Fiscal Impact:

Minimal

Operational Impact:

Minimal additional utility maintenance will be required by the City. The applicant will be responsible for maintenance of the driveway accesses.

Prior Board Motions:

None

Background Information:

The applicant requests approval of a Final Plan and PUD Zoning for a development consisting of twelve units on 1.9-acres, currently zoned Community Service (CS).

Executive Summary:

The proposal consists of twelve units on 1.9 acres. The applicant is proposing to use three separate accesses from Last Chance Drive. The proposed lot sizes vary from 9,727 square feet to 5,798 square feet. The PUD requests smaller minimum lot sizes (the zone district requires 6,000 square feet) and decreased Front Yard setbacks on lots 7-12 (the applicant is requesting 5 feet instead of 15 feet).

Notification Requirements:

The applicant was required to mail, publish, and post the property for the PUD request as required by the Rifle Municipal Code.

Prepared By:

Patrick Waller, Planning Director

Attachments:

1. Last Chance Commons - Staff Memo & Exhibits

DEPARTMENT OF PLANNING & DEVELOPMENT

202 Railroad Avenue, Rifle, CO 81650

Phone: 970-665-6490



MEMORANDUM

TO: City of Rifle City Council
FROM: Patrick Waller, Planning Director
DATE: May 18, 2022
SUBJECT: Last Chance Commons – Final Plan and PUD Request
ADDRESS: 493 and 525 Last Chance Drive
CASE #: Final Plan 2022-013
APPLICANT: BEA, Inc. - Property Owner – Brian Stowell, Rep

I. REQUEST AND SUMMARY

The applicant requests approval of a Final Plan and PUD zoning for a development consisting of twelve units on 1.911-acres, currently zoned Community Service (CS).

II. PROJECT MAP

The property consists of Lots 15 and 16 of the Grand River Plaza Subdivision, located south of Airport Road, west of Grand River Hospital and east of Colorado River Fire Rescue Station #43 on the south side of Last Chance Drive.



III. ZONING, LAND USE, AND COMPREHENSIVE PLAN

The Final Plat for Grand River Plaza was recorded in November 2003. It consists of 18 lots ranging from ½ to 1 ½ acres. The majority of the lots along Megan Avenue are part of the Grand River Hospital campus. Along Last Chance Drive, the only developed lot is the fire station on the far west side of the subdivision. Staff has recently received a proposal to develop a warehouse building (which is a use by-right) on the lot between the fire station and the proposed Last Chance Commons development.

The current zoning on the property is Community Service (CS). The applicant is requesting approval of a PUD for relief from the following R.M.C. provisions:

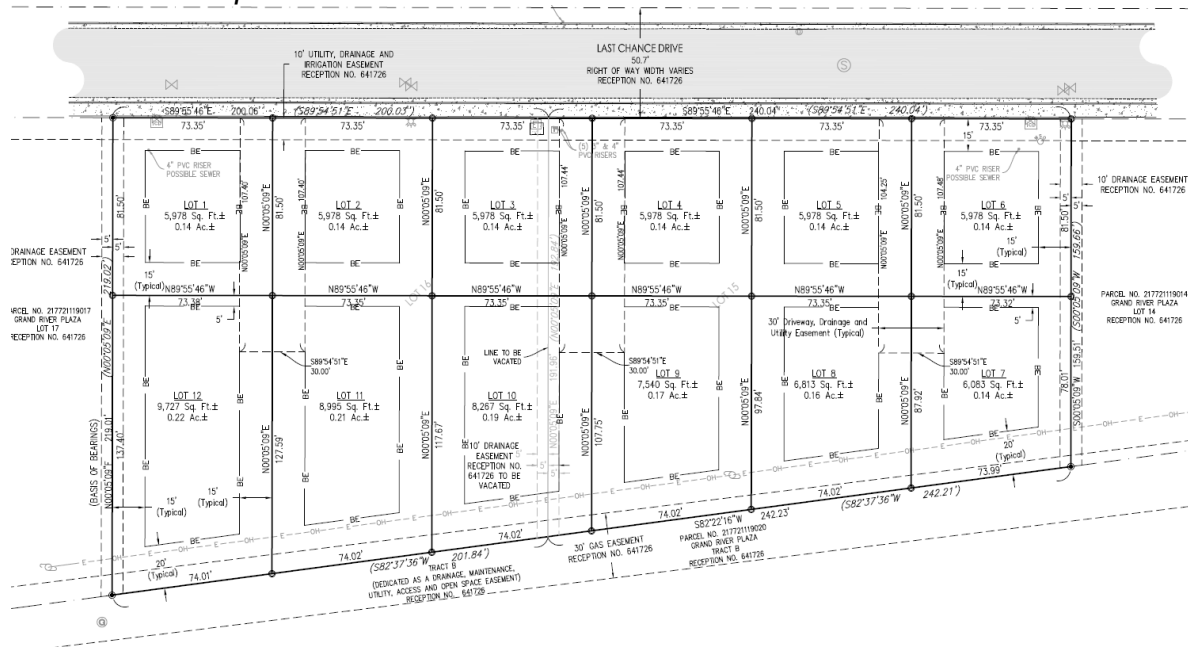
1. Minimum lot size for lots 1-6 is just under the 6,000 square foot residential lot requirement (5,978 square feet is proposed).
2. The applicant is requesting a 5' Front Yard Setback for the rear lots rather than the Code required 15'. This is required because of the steep topography on the rear lots.

The 2019 Comprehensive Plan update shows this property as suitable for high density residential, due to its location near Grand River Hospital and shopping areas along Airport Road, as well as easy transportation access to the rest of Rifle.

IV. PROJECT DESIGN

The proposal, consists of twelve units on 1.9 acres. The applicant is proposing to use three separate accesses from Last Chance Drive. The proposed lot sizes vary from 9,727 square feet to 5,798 square feet. The property has significant slopes at the rear setback that is triggering the PUD setback request.

Final Plat Excerpt



V. REFERRAL COMMENTS

The application was sent out for comments from other City Departments and the City of Rifle's consulting engineer. Comments were received as follows:

Mountain Cross Engineering

- Indicated all issues were addressed from Preliminary Plan review.

Colorado River Fire Rescue

- No comments were received on the application.

City of Rifle GIS

- Standard referral addressing as-built requirements.

Xcel Energy

- No issues were identified.

Planning Department

- Updates required to Final Plat

No other referral comments were received.

VI. STAFF COMMENTS FROM PRELIMINARY PLAN

Easements on Final Plat

The preliminary Final Plat provided by the applicant did not show access and utility easements. These need to be included in the Final Plat submittal.

These items were included on the updated plan set.

Debris Fan

The Final Plat for the Grand River Plaza identified a debris fan and rock fall area to the south of the property. When the property was originally developed, the City of Rifle required that the applicant install and maintain debris flow structures. This resulted in the creation of Tract B, which was dedicated to the HOA for maintenance. Public Works Staff completed a site visit to the debris flow areas and indicated that the drainage structures appear to be functioning and are in good condition. These areas will continue to be maintained by the HOA for the development.

PUD Criteria

The applicant is asking for PUD zoning to address the setback issues on the southern lots as well as a deviation from the minimum lot size. The City of Rifle Municipal Code requires that for a PUD to be approved it should provide benefits to the City. Generally,

the PUD section is written for major projects which will have a substantial impact on the City. Also the request for flexibility is generally more significant.

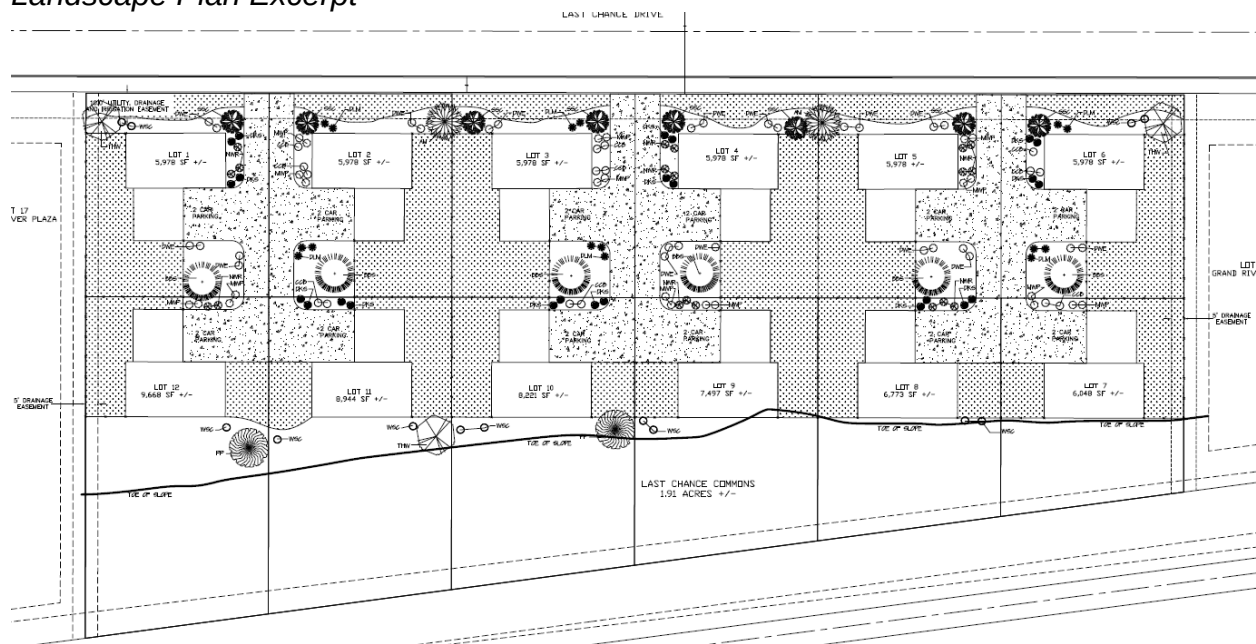
The Rifle Municipal Code requires that for approval of a PUD, the development can provide the following benefits: project design and land use, architecture and design, perimeter criteria, affordable housing, energy efficiency measures, and parks and open space.

There are pedestrian connections along the existing sidewalks that the applicant will maintain. The applicant is not asking for setback changes on the lots that border the City Right-of-Way and the pedestrian environment will be substantially improved by the development.

Staff has noted that the PUD section for architectural and design criteria requires that the same exterior building elevation shall not repeat itself for four consecutive lots. Staff has included this as a suggested condition of approval.

The project will provide needed single family residences and because of the smaller size of the units, the residences will be more affordable than larger homes. Additionally, the increased density and infill will benefit the City by providing more water and sewer users on existing infrastructure. Additionally, while the project is not large enough to dedicate an open space/parks parcel, the developer will be required to pay Parkland Dedication fees. Because the scale of this project is smaller, provides benefits to the City and the applicant is only asking for a small deviation from setbacks and minimum lot size, Staff is supportive of the PUD zoning request.

Landscape Plan Excerpt



Flexibility for Setbacks and Minimum Lot Sizes

The Rifle Municipal Code allows for setback and minimum lot size flexibility provided that the project addresses specific criteria, including sufficient parks and open space, greater diversity of housing types and mixed use, an attractive streetscape and pleasant pedestrian environment, and affordable housing.

Based on the smaller units that the applicant is proposing, the payment of parkland fees, the existing sidewalks for pedestrian connections and the provision of a needed housing type and project in the City, Staff is supportive of the modified setbacks and reduced minimum lot size.

Shared Driveways

The application shows a shared driveway for each of the four lot clusters. This is allowed per Rifle Municipal Code provided that it meets the standards in Section 16-4-140, including that the project shall not create any undue traffic, pedestrian, emergency access, or general access hazards. Referral agency review indicates that the application meets those criteria and Staff is supportive of the access plan. The applicant should supply a copy of the finalized covenants showing that the HOA shall maintain the accesses.

Planning Commission Last Chance Drive Parking

Planning Commission added an additional condition requiring that Public Works give input on impacts from truck routes and parking on Last Chance Drive as part of the Final Plat review. Public Works review indicated that based on the location of the driveways and the limited sight distance that would be created by on-street parking; no on-street parking would be allowed on Last Chance Drive at this time.

CITY COUNCIL REVIEW CRITERIA

Pursuant to Section 16-5-280, the City shall consider the following criteria before approving a project (***staff comments shown in bold italics***):

1. Conformance of the proposal with the City of Rifle Municipal Code;

The applicant is following the process described in the R.M.C.

2. The compatibility of the proposal with the character of the surrounding area, including but not limited to the architectural character of the neighborhood, the average lot and building sizes in the neighborhood, and the relative value of the proposed structure to the value of other structures in the neighborhood;

This stretch of Last Chance Drive continues outside city limits as County Road 332. A number of mobile homes are found further west on larger agricultural parcels. Existing residential development, concentrated west of Taugenbaugh

Boulevard, is high density townhouses and apartments. Although the proposed project would be the first new residential development on Last Chance Drive, it is compatible with the zoning (through a PUD approval), Comprehensive Plan and less dense than other nearby residential projects.

3. The desirability for the proposed use in the specific area of the City;

See below under Comprehensive Plan.

4. The potential for adverse environmental effects that might result from the proposed use;

No adverse environmental effects are anticipated.

5. Compatibility of the proposed use and the site (or subdivision) plan with the City of Rifle Comprehensive Plan;

This portion of South Rifle has been identified as suitable for high density residential development, due to its location and quick access to the hospital and commercial outlets.

6. The potential impact of the proposed use upon the value of property and buildings within the surrounding area;

Staff anticipates the development of a vacant area requiring ongoing maintenance with new homes would be an improvement on surrounding property values.

7. Conformance of the proposal with the approval requirements concerning water and sewer tap availability for high volume use requests pursuant to Section 13-4-120 of this Code, if applicable.

Not applicable.

VII. PLANNING COMMISSION RECOMMENDATION

Planning Commission approved the Preliminary Plan for the project and recommended approval of the PUD application to City Council. The conditions of Preliminary Plan have been met. Staff has suggested the following conditions for Final Plan/PUD approval.

- 1) All representations made by the Applicant in the application and during public hearings shall be conditions of approval, unless specifically altered by City Council.
- 2) The applicant shall resolve any outstanding referral comments as part of the submittal of final construction plans to the satisfaction of the City of Rifle.

- 3) Building elevations shall vary for the lots fronting Last Chance Drive. The same building elevation shall not be repeated for four consecutive lots.
- 4) The applicant shall provide required GIS information before the Final Plat is recorded.
- 5) The applicant shall update the final plat as required by Planning Department and the Rifle Municipal Code, prior to the recording of the Final Plat.
- 6) The applicant shall provide a finalized set of Covenants for the property that demonstrates the homeowners association will maintain the access driveways, prior to recording the Final Plat.

DEPARTMENT OF PLANNING & DEVELOPMENT

202 Railroad Avenue, Rifle, CO 81650

Phone: 970-665-6491



May 11, 2022

Brian Stowell
90 Caballo Street
Carbondale, CO 81623

Re: Final Plat Review – Last Chance Commons

After reviewing the above referenced Final Plat, Rifle City Planning has the following comments:

1. The City Engineer Certificate shall be changed to the Public Works Director.
2. A Certificate shall be added for Planning Commission signature.
3. A Plat Note shall be added indicating that the Homeowners Association is responsible for the maintenance of the access drives.
4. The Plat shall include a certificate for Xcel Energy approval.

Sincerely,

Patrick Waller
Planning Director
pwaller@rifleco.org
970-665-6499

Patrick Waller

From: Erica Gentry
Sent: Monday, April 04, 2022 11:32 AM
To: Patrick Waller
Subject: RE: City of Rifle Referral Request - Last Chance Commons Final Plan / PUD

The usual for this please 😊 I'll start giving thought to addressing.

Thanks

E

From: Patrick Waller <pwaller@rifleco.org>
Sent: Friday, April 1, 2022 2:57 PM
To: Tommy Klein <tklein@rifleco.org>; Craig Spaulding <cspaulding@rifleco.org>; Erica Gentry <egentry@rifleco.org>; Brian Prunty <bprunty@rifleco.org>; 'Wakefield, Samantha L' <Samantha.l.wakefield@xcelenergy.com>; 'James S. Neu' <jsn@mountainlawfirm.com>; 'Joely R. Denkinger' <jrd@mountainlawfirm.com>; John Nihiser <JNihiser@rifleco.org>; Robert Burns <rburns@rifleco.org>; Casey Boren <cboren@rifleco.org>; 'Chris@mountaincross-eng.com' <Chris@mountaincross-eng.com>
Subject: City of Rifle Referral Request - Last Chance Commons Final Plan / PUD

Good Afternoon,

The City of Rifle is requesting referral comments for a Final Plan / PUD application for a 12 lot residential subdivision located at 493 and 525 Last Chance Drive. Please review the attached application and let me know if you have any comments by Monday, April 18.

Thanks for your review,

Patrick Waller
City of Rifle Planning Director
970-665-6499
pwaller@rifleco.org

Xcel has no objections, however the Developer needs to be aware that at the time of submitting an application with Xcel the following will be required and could happen:

1. Accurate BTU loads for the new homes will be required.
2. If determined by area engineer that reinforcement is needed to Xcel's gas main to support added loads from subdivision, said reinforcement will be at Developers expense.
3. Reinforcement costs are required to be paid prior to installation.
4. Tariff changes have taken effect as of 10/1/2019 affecting the cost of subdivision lots averaging less than 60'. They will have a standard cost per lot.

Completion of this City/County review approval process does not constitute an application with Xcel Energy for utility installation. Applicant will need to contact Xcel Energy's Builder's Call Line/Engineering Department to request a formal design for the project. **A full set of plans, contractor, and legal owner information is required prior to starting any part of the construction.** Failure to provide required information prior to construction start will result in delays providing utility services to your project. Acceptable meter and/or equipment locations will be determined by Xcel Energy as a part of the design process. **Additional easements may be required depending on final utility design and layout.** Engineering and Construction lead times will vary depending on workloads and material availability. Relocation and/or removal of existing facilities will be made at the applicant's expense and are also subject to lead times referred to above. All Current and future Xcel Energy facilities' must be granted easement.



**MOUNTAIN CROSS
ENGINEERING, INC.**

Civil and Environmental Consulting and Design

April 11, 2022

Mr. Patrick Waller
City of Rifle – Department of Planning & Development
202 Railroad Avenue
Rifle, CO 81650

RE: Final Plan Review for Last Chance Commons: 2022-013

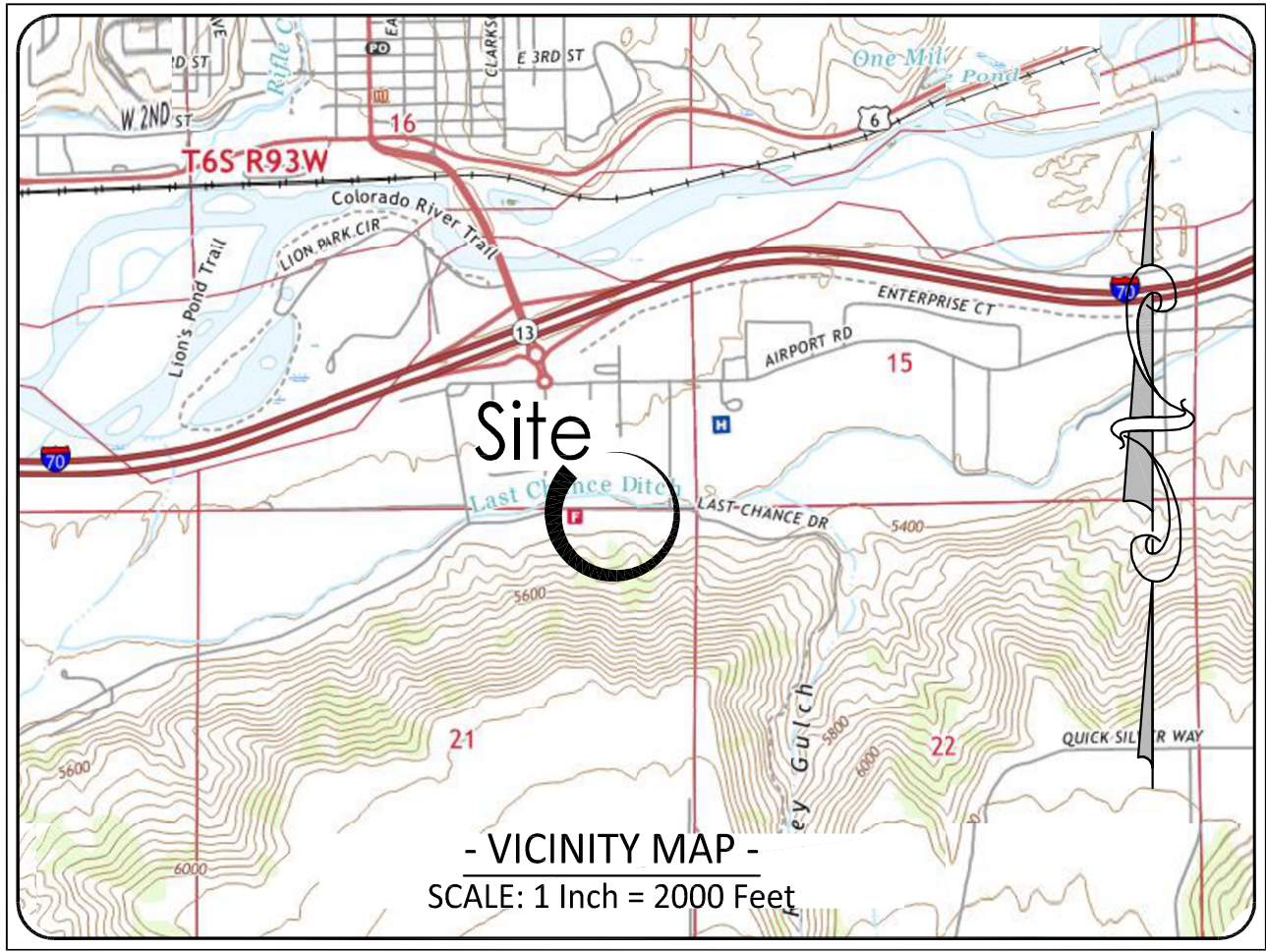
Dear Patrick:

This office has performed a review of the documents provided for the Final Plan of the Last Chance Commons application. The review generated no comments.

Feel free to call if you have any questions or comments.

Sincerely,
Mountain Cross Engineering, Inc.

Chris Hale, PE



Final Plat
Last Chance Commons P.U.D.
Being a Replat of Lots 15 & 16, Grand River Plaza

Situated in the NE 1/4 of Section 21,
Township 6 South, Range 93 West of the 6th P.M.
City of Rifle, Garfield County, Colorado

CERTIFICATE OF OWNERSHIP AND DEDICATION:

Know all by these presents that Last Chance Commons P.U.D. being sole owners, in fee simple of all that real property described as follows:

Lots 15 and 16, Grand River Plaza according to the plat thereof recorded November 26, 2003 under Reception No. 641726, County of Garfield, State of Colorado.

Have by these presents laid out, platted and subdivided the same into the lots shown hereon and designate the same as FINAL PLAT, LAST CHANCE COMMONS P.U.D. and do hereby dedicate those areas designated as Drainage Easements to the City of Rifle and do hereby dedicate those areas designated as Utility Easements to the Public Utilities and do hereby dedicate those areas designated as Driveway Easements to the respective Lot Owners noted hereon.

By: Brian Stowell

STATE OF COLORADO)
COUNTY OF GARFIELD

The foregoing instrument was acknowledged before me this _____ day of _____, 2021 by Brian Stowell; _____ for Last Chance Commons P.U.D.

My commission expires on _____

Witness my hand and official seal.

Notary Public

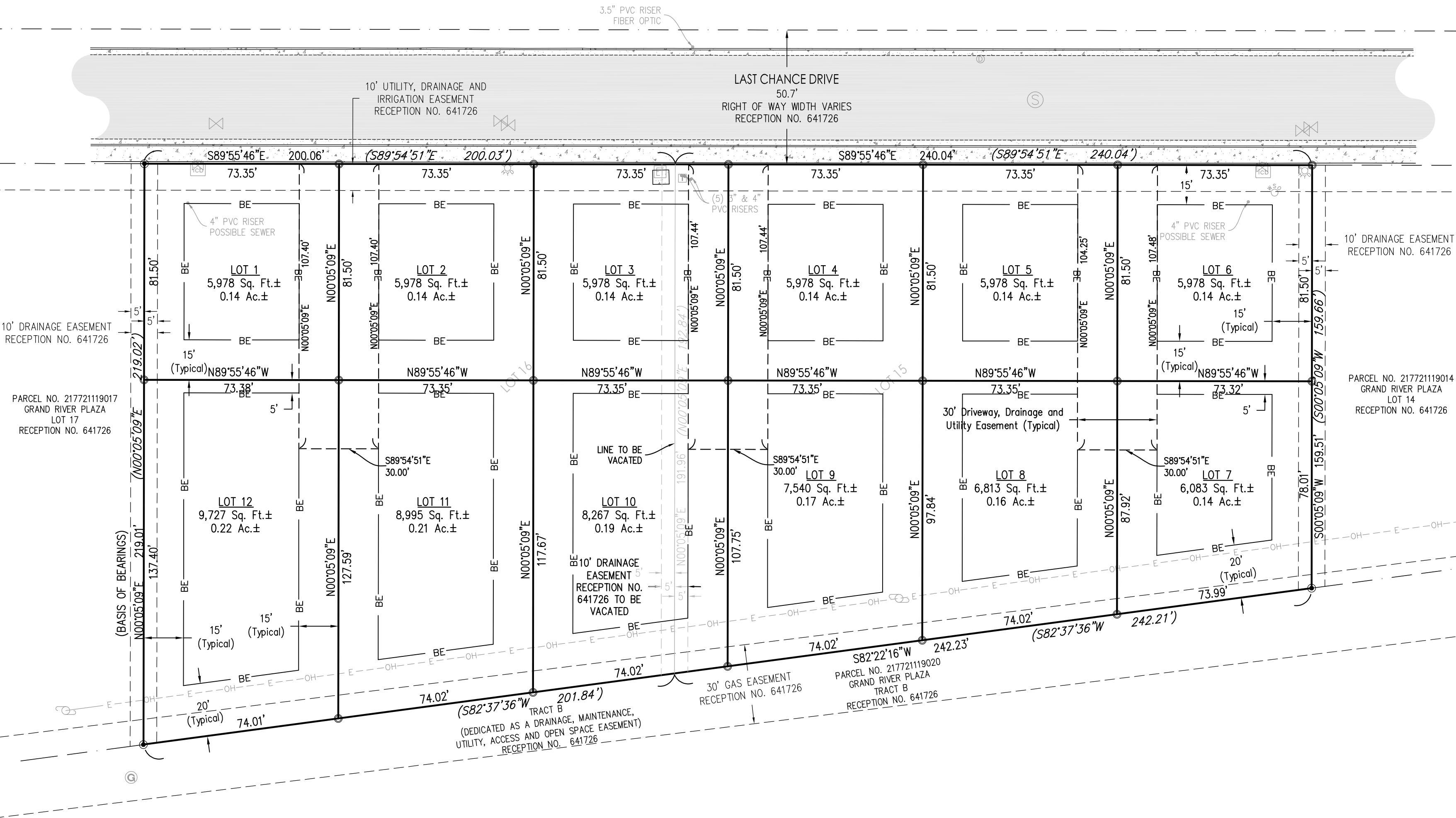
TITLE INSURANCE COMPANY:

Land Title Guarantee Company does hereby certify that they have examined the title to all lands dedicated and shown upon this plat, and title to such lands is in the dedicator free and clear of any liens, taxes, and encumbrances except as follows:

BY: _____ Title Examiner Date: _____

NOTES:

- Basis of Bearings: Bearings shown hereon are based on a bearing of N0°05'09"E on the west line of said Lot 16, between a 1 1/4" orange plastic cap stamped 28643 on 5/8" rebar and a 1 1/4" orange plastic cap stamped 28643 on 5/8" rebar, as shown hereon.
- This map has been prepared pursuant to client request for an Final Plat.
- Date of field survey: June 30, 2021
- Units of linear measurements are displayed in US Survey Feet.
- SGM is not responsible for any changes made to this document after it leaves our possession. Any copy, facsimile, etc., of this document must be compared to the original signed, sealed and dated document to insure the accuracy of the information shown on any such copy, and to insure that no such changes have been made.
- Inconsistencies were observed on said Grand River Plaza plat which prevent the mathematical closure of said Lots 15 and 16. As a result, measured bearings and distances are shown hereon to reflect locations of apparent property corners found during the field survey.
- The property shown hereon is subject to all easements, rights-of-way, building setbacks or other restrictions of record, as such items may affect this property. This survey does not represent a title search by this surveyor to determine ownership or to discover easements or other encumbrances of record. All information pertaining to ownership, easement and other encumbrances of record has been taken from the title insurance commitment issued by Land Title Guarantee Company, Commitment No. ABS63016462-2, having an effective date of June 15, 2021.



- LEGEND -

- Set 18" Long No. 5 Rebar & 1-1/4" Plastic Cap, LS # 38200
- Found Monument as Described
- Electric Transformer
- Utility Pole
- Telephone Ped
- Water valve
- Fire Hydrant
- Water Shut-off
- Irrigation Cont. Valve
- Irrigation Cont. Box
- Sanitary Sewer Manhole
- Gas Marker
- Storm Manhole
- Overhead Electric Line
- Concrete
- Asphalt paving
- Record Bearing (XX.XX)
- Measured Bearing (XX.XX)

Plat Note: All common area outside the Building Envelope to be dedicated as a Utility and Drainage Easement.

PLANNING DIRECTOR CERTIFICATE OF APPROVAL:

This Plat approved by Rifle Planning Director Pursuant to Rifle Municipal Code Section 16-5-140-(D) this _____ Day of _____, 2021

CITY ENGINEER CERTIFICATE OF APPROVAL:

This Plat approved by Rifle City Engineer this _____ Day of _____, 2021

Rifle City Engineer

CITY COUNCIL CERTIFICATE

This plat approved by city council of the City of Rifle, Garfield County, Colorado this _____ day of _____, A.D. 2021, for filing with the Clerk and Recorder of Garfield County and for conveyance to the City of Rifle of the public dedication shown hereon; subject to the provisions that approval in no way obligates the City of Rifle for financing or construction of improvements on land, streets or easements dedicated to the public except as specifically agreed to by the city council.

SURVEYOR'S CERTIFICATE:

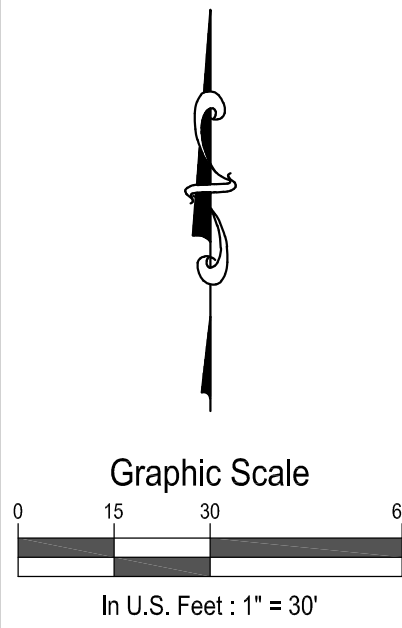
I, Shawn Binion, being a Registered Professional Land Surveyor, licensed in the State of Colorado, do hereby certify that this plat is a true, correct and complete FINAL PLAT LAST CHANCE COMMONS P.U.D. as laid out, platted, dedicated and shown hereon and that such plat was made from an accurate survey of said property by me and under my supervision and correctly shows the dimensions of the lots, easement and streets of said subdivision as the same are staked on the ground in compliance with state regulations governing the subdivision of land.

CLERK AND RECORDERS CERTIFICATION:

This Plat filed for recording in the office of the Clerk and Recorder of Garfield County, Colorado, at _____ O'clock _____ this _____ Day of _____, 2021 and is duly recorded as Reception No. _____

Attest: _____ Clerk and Recorder

By: _____ Deputy



SGM
118 West Sixth Street, Suite 200
Glenwood Springs, CO 81601
970.945.1004 www.sgm-inc.com

Last Chance Commons P.U.D.
493 & 525 Last Chance Drive
Rifle, Colorado

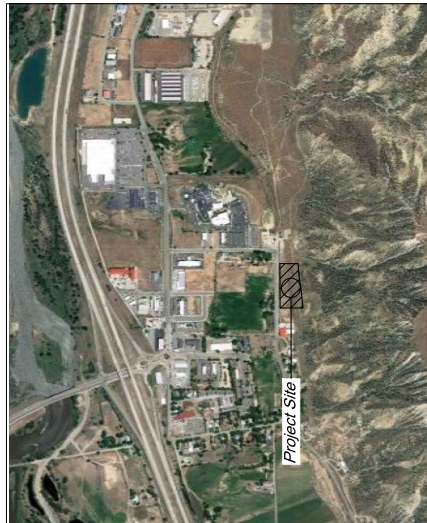
Revision	Date	By:
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Job No. 2021-333.001
Drawn by: JMB
Date: 7/26/2021
Approved: [Signature] PLS: SB
File: LastChanceCommonsPlat011822.JSS

Title: Final Plat
Sheet No. 1
Of: 1

Last Chance Commons

Rifle, CO



Vicinity Map

Scope of Work

CITY OF RIFLE, COLORADO

Mayor
Mayor Pro Tem
Councilors

Preliminary Subdivision Plan
July 30, 2021

118 West Sixth Street, Suite 200
Glenwood Springs, CO 81601
970.945.1004 www.sqm-inc.com

Project Engineer

JEFF SIMONSON
COLORADO PE: 26152

RICK BARTH
COLORADO PE: 36749

MAX WEISS, EI

Owner/Applicant

BEA, Inc.

A Colorado Corporation

Brian Stowell, President

Sheet List Table	
Sheet Number	Sheet Title
C1	Cover Sheet
C2	Legend & Abbreviations
C3	General Notes
C4	Existing Conditions Plan
P1	Preliminary Plan
C5	Site Plan
C6	Grading Plan
C7	Utility Plan
C8	Erosion Control Plan
C9	Water Details
C10	Sewer Details
C11	Site Details
C12	Erosion Control Details



811[®]
Know what's below.
Call before you dig.

Last Chance Commons
Rifle, CO



118 West Sixth Street, Suite 200
Glenwood Springs, CO 81601
970.945.1004 www.sgm-inc.com

[illegible]

GENERAL ROAD NOTES:

1. LINES OF CONSTRUCTION SHALL BE 4" BENDING GRADING LIMITS, BASE OF ALL SLOPES OR TOP OF CUT SLOPES, AND 2" VERTICAL CURVE OF THE CENTERLINE OF UTILITY INSTALLATIONS, BUT NOT BEYOND PAVEMENT LINE OR 10'-0" FROM 3'-0" LINES ON TOP OF SLOPES. STABLE AREAS, RESPECT ALL TREE/VEGETATION PRESERVATION ZONES (FOR TREE SPECIES).
2. TRAFFIC CONTROL REQUIREMENTS:
 - 1.1. ALL WORK SHALL BE DONE IN STRICT ACCORDANCE WITH APPLICABLE SECTIONS OF THE SITE SURVEY, STUDY, CONTRACTOR SHALL FURNISH AND MAINTAIN ALL NECESSARY TRAFFIC CONTROL MEASURES THROUGHOUT THE PROJECT.
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SHALLOW UTILITY NOTES:

1. THE APPROXIMATE LOCATION OF ALL UTILITY INSTALLATIONS, WATER, SEWER, GAS, PHONE, ELECTRIC, CABLE, ETC., ARE SHOWN ON THE DRAWING. THE CONTRACTOR SHALL VERIFY THE LOCATION OF ALL UTILITIES PRIOR TO ANY CONSTRUCTION.
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GENERAL WATER NOTES:

1. ALL WATER MAINS SHALL BE INSTALLED WITH A 4'-1/2" FOOT MINIMUM DEPTH OF COVER. IF GRADE CONDITIONS OCCUR WITH EXISTING UTILITIES, THE CONTRACTOR SHALL PROVIDE ADEQUATE COVER TO MAINTAIN THE MINIMUM DEPTH OF COVER.
2. ALL FITTINGS (BENDS, CROSSES, ELBOWS, VALVES AND TEES) TO HAVE A CONCRETE THROUST BLOCK INSTALLED IN ACCORDANCE WITH THE CITY OF DENVER SPECIFICATIONS. THE THROUST BLOCK SHALL BE INSTALLED IN ACCORDANCE WITH THE CITY OF DENVER SPECIFICATIONS.
3. THE CONTRACTOR SHALL PROVIDE ADEQUATE COVER TO MAINTAIN THE MINIMUM DEPTH OF COVER.
4. ALL FITTINGS SHALL BE CLASS 150 DUCTILE IRON PIPE, FULL PROTECT COATED AND OF MECHANICAL JOINT. THE PIPE SHALL BE CLASS 150 DUCTILE IRON PIPE, FULL PROTECT COATED AND OF MECHANICAL JOINT.
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GENERAL SEWER NOTES:

1. ALL SANITARY SEWER UTILITY WORK SHALL BE COMPLETED IN ACCORDANCE WITH THE CITY OF DENVER STANDARDS AND SPECIFICATIONS.
2. SANITARY SEWER PIPE SHALL BE PVC DSR 35 PIPE.
3. THE CONTRACTOR SHALL PROVIDE ADEQUATE COVER TO MAINTAIN THE MINIMUM DEPTH OF COVER.
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6. THE PIPE SHALL BE CLASS 150 DUCTILE IRON PIPE, FULL PROTECT COATED AND OF MECHANICAL JOINT.
7. THE CONTRACTOR SHALL PROVIDE ADEQUATE COVER TO MAINTAIN THE MINIMUM DEPTH OF COVER.
8. THE PIPE SHALL BE CLASS 150 DUCTILE IRON PIPE, FULL PROTECT COATED AND OF MECHANICAL JOINT.
9. THE CONTRACTOR SHALL PROVIDE ADEQUATE COVER TO MAINTAIN THE MINIMUM DEPTH OF COVER.
10. THE PIPE SHALL BE CLASS 150 DUCTILE IRON PIPE, FULL PROTECT COATED AND OF MECHANICAL JOINT.
11. THE CONTRACTOR SHALL PROVIDE ADEQUATE COVER TO MAINTAIN THE MINIMUM DEPTH OF COVER.
12. THE PIPE SHALL BE CLASS 150 DUCTILE IRON PIPE, FULL PROTECT COATED AND OF MECHANICAL JOINT.
13. THE CONTRACTOR SHALL PROVIDE ADEQUATE COVER TO MAINTAIN THE MINIMUM DEPTH OF COVER.

STORM SEWER NOTES:

1. THE APPROXIMATE LOCATION OF ALL UTILITY INSTALLATIONS, WATER, SEWER, GAS, PHONE, ELECTRIC, CABLE, ETC., ARE SHOWN ON THE DRAWING. THE CONTRACTOR SHALL VERIFY THE LOCATION OF ALL UTILITIES PRIOR TO ANY CONSTRUCTION.
2. ALL WORK SHALL BE DONE IN STRICT ACCORDANCE WITH APPLICABLE SECTIONS OF THE SITE SURVEY, STUDY, CONTRACTOR SHALL FURNISH AND MAINTAIN ALL NECESSARY TRAFFIC CONTROL MEASURES THROUGHOUT THE PROJECT.

LANDSCAPE NOTES:

1. ALL AREAS DISTURBED BY ROAD OR UTILITY CONSTRUCTION OF OVER-LOT GRADING SHALL BE REVEGETATED WITH PERMANENT SEED MIXTURE. PROVIDE FRESH, CLEAN, NEW, 1/4" CHIP SIZE COMPOSTING WITH TURFGRASS FOR PERMANENT AND TEMPORARY AREAS. PROVIDE FRESH, CLEAN, NEW, 1/4" CHIP SIZE COMPOSTING WITH TURFGRASS FOR PERMANENT AND TEMPORARY AREAS. PROVIDE FRESH, CLEAN, NEW, 1/4" CHIP SIZE COMPOSTING WITH TURFGRASS FOR PERMANENT AND TEMPORARY AREAS.
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VEGETATION:

1. HYDROSEEDING WILL OCCUR WHERE THERE ARE NUMEROUS DISTURBED SLOPES AND AREAS OF EXPOSED SOIL. HYDROSEEDING WILL BE COMPLETED IN ACCORDANCE WITH THE CITY OF DENVER STANDARDS AND SPECIFICATIONS.
2. SEEDING MATERIAL IS TO BE USED FOR REVEGETATION OF EXPOSED SOIL. SEEDING MATERIAL IS TO BE USED FOR REVEGETATION OF EXPOSED SOIL. SEEDING MATERIAL IS TO BE USED FOR REVEGETATION OF EXPOSED SOIL.

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8. AMERICAN BLOOMERS	10		
9. AMERICAN BLOOMERS	11		
10. AMERICAN BLOOMERS	12		

UTILITY CONTACT INFORMATION:

ELECTRICAL & GAS UTILITY CONTACT: XCEL ENERGY (970) 625-4500
CABLE TV UTILITY CONTACT: COMCAST CABLE (970) 855-4371.
PHONE UTILITY CONTACT: CENTURIALINK (970) 338-4509.
WATER & SEWER UTILITY CONTACT: CITY OF DENVER (970) 665-6500

118 West Smith Street, Suite 200
Greenwood Springs, CO 81601
970.945.1004 www.sgm-inc.com



Last Chance Commons
Rifle, CO

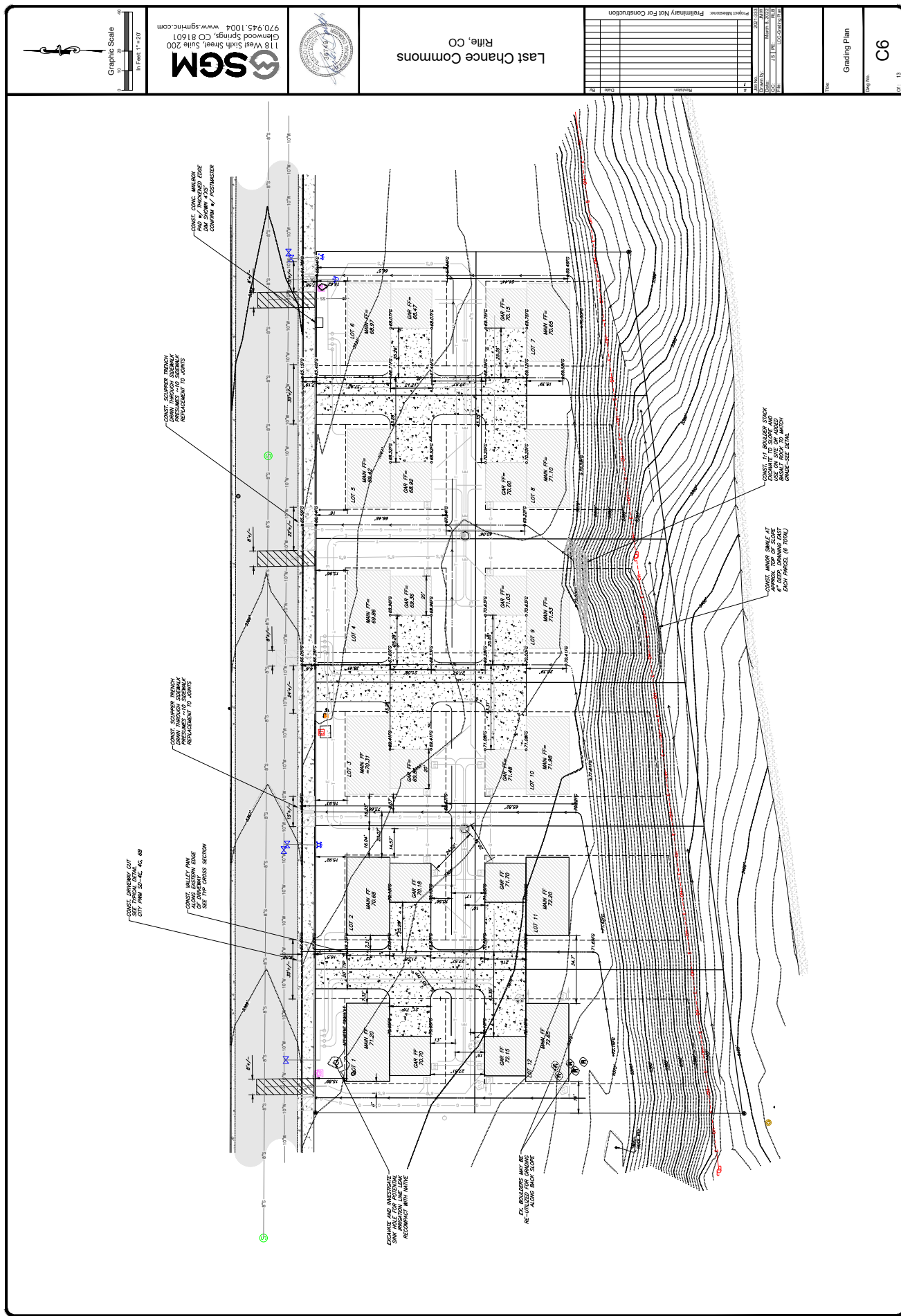
Project Milestones	Start Date	End Date
1. PRELIMINARY DESIGN	10/1/2022	10/31/2022
2. PERMITTING	11/1/2022	11/30/2022
3. CONSTRUCTION	12/1/2022	12/31/2022
4. COMPLETION	1/1/2023	1/31/2023

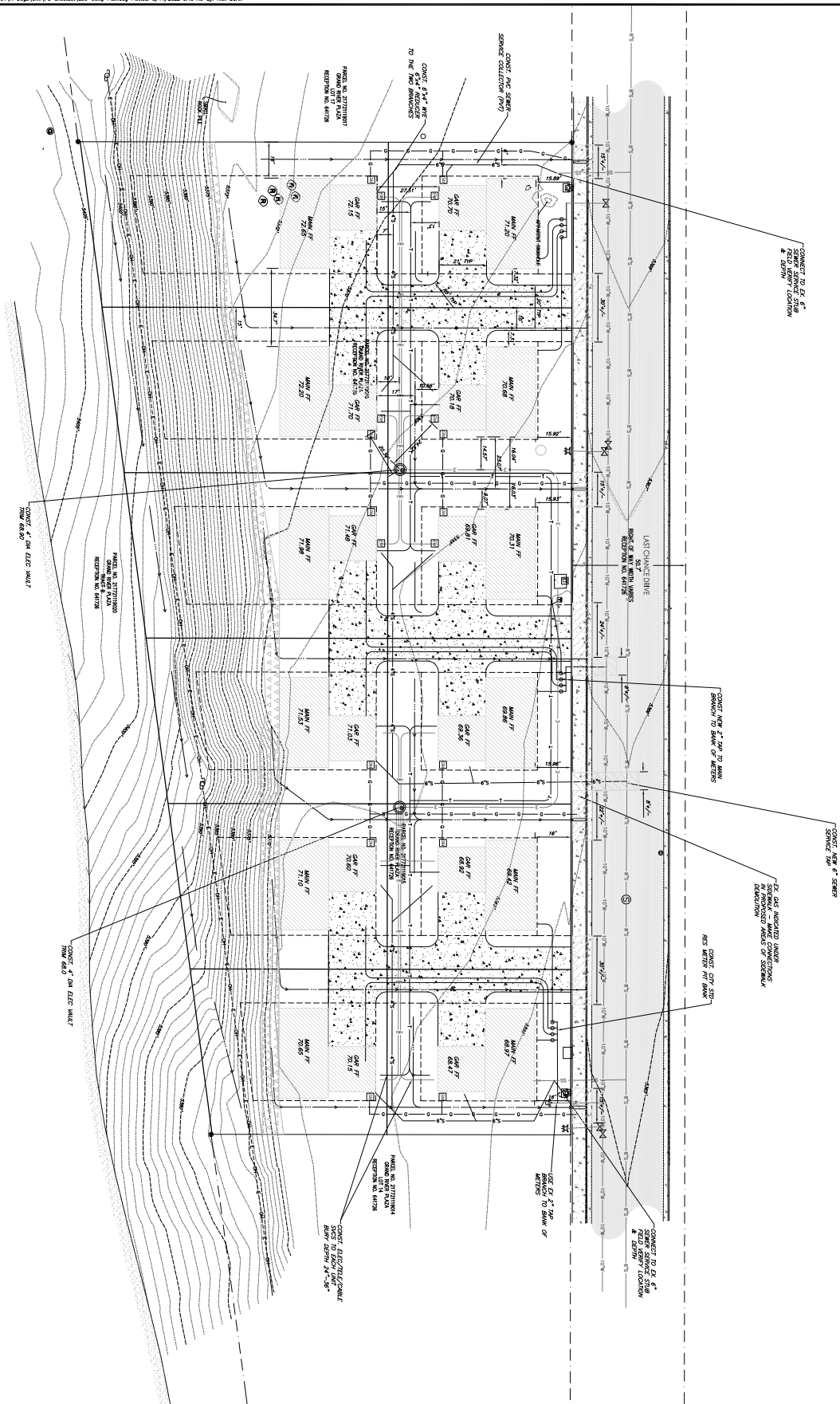
General Notes

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Page 114 of 160







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DATE: 11/15/2023
 DRAWN BY: J. L. S. / J. L. S.
 CHECKED BY: J. L. S. / J. L. S.

Project Milestone: Preliminary Not For Construction

DATE: 11/15/2023
 DRAWN BY: J. L. S. / J. L. S.
 CHECKED BY: J. L. S. / J. L. S.

Project Milestone: Preliminary Not For Construction

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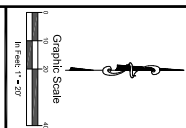
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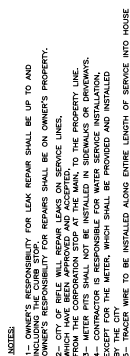
DATE: 11/15/2023
 DRAWN BY: J. L. S. / J. L. S.
 CHECKED BY: J. L. S. / J. L. S.

Last Chance Commons
Rifle, CO



118 West Sixth Street, Suite 200
Glenwood Springs, CO 81601
970.945.1004 www.sgm-inc.com





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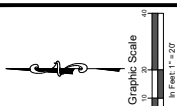
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Job No.	2021-333
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Last Chance Commons
Rifle, CO



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Glenwood Springs, CO 81601
970.945.1004 www.sgm-inc.com

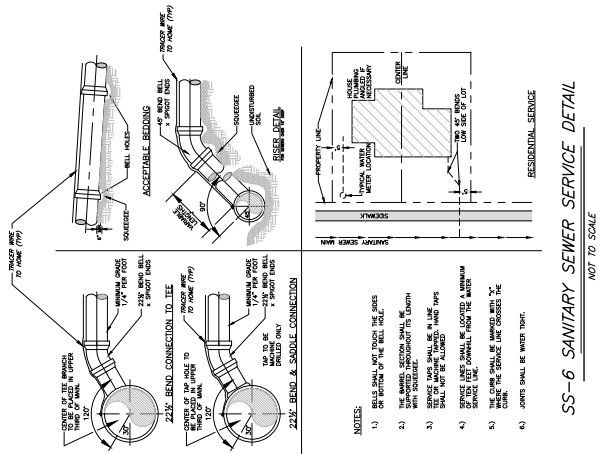
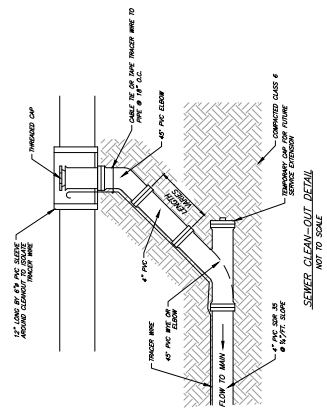


Water Details

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SS-6 SANITARY SEWER SERVICE DETAIL

NOT TO SCALE

RESIDENTIAL SERVICE

- NOTES:
- 1) BENDS SHALL NOT TOUCH THE SIDES OR BOTTOM OF THE WELL HOLES.
 - 2) THE BEND SECTION SHALL BE CONFORMED TO THE SLOPE OF THE MAIN.
 - 3) SERVICE LINES SHALL BE 18 inch PVS SHALL NOT BE ALLOWED.
 - 4) SERVICE LINES SHALL BE LOCATED A MINIMUM 18 inches FROM THE MAIN.
 - 5) THE 18 inch PVS SHALL BE LOCATED WITHIN THE CURB.
 - 6) JOINTS SHALL BE WATER TIGHT.

Graphic Scale
0 10 20
Feet 1"=20'

SGM
118 West 54th Street, Suite 200
Glenwood Springs, CO 81601
970.945.1004 www.sgm-inc.com



Last Chance Commons
Rifle, CO

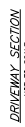
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DATE	2021.03.14
DESIGNED BY	JL
CHECKED BY	JL
IN CHARGE	JL
PROJECT NO.	2021.03.14
LOC.	LOC-2021.03.14

Sheet
Sewer Details

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Agenda Item #9.a.i.

Agenda Item Name:

Consider Request for Community Service PUD Zoning for the Last Chance Commons Subdivision - Ordinance No. 9, Series of 2022 - 1st Reading

Presenter:

Patrick Waller, Planning Director

Item Description:

The applicant requests approval of a Final Plan and PUD application to subdivide two parcels into 12 single-family residential lots. The proposal includes a request for a PUD that allows smaller setbacks for certain lots and a decrease in the minimum lot size.

This item is for the PUD request.

Recommended Action:

Move to Approve Ordinance No. 9 Series of 2022, on first reading as presented, and order it to be published as required by Charter.

Fiscal Impact:

Minimal

Operational Impact:

Minimal additional utility maintenance will be required by the City. The applicant will be responsible for maintenance of the driveway accesses.

Prior Board Motions:

None

Background Information:

The applicant requests approval of a Final Plan and PUD Zoning for a development consisting of twelve units on 1.9-acres, currently zoned Community Service (CS).

Executive Summary:

The proposal consists of twelve units on 1.9 acres. The applicant is proposing to use three separate accesses from Last Chance Drive. The proposed lot sizes vary from 9,727 square feet to 5,798 square feet. The PUD requests smaller minimum lot sizes (the zone district requires 6,000 square feet) and decreased Front Yard setbacks on lots 7-12 (the applicant is requesting 5 feet instead of 15 feet).

Notification Requirements:

The applicant was required to mail, publish, and post the property for the PUD request as required by the Rifle Municipal Code.

Prepared By:

Patrick Waller, Planning Director

Attachments:

1. Ordinance No. 9-Last Chance Commons Rezoning

CITY OF RIFLE, COLORADO
ORDINANCE NO. 9
SERIES OF 2022

AN ORDINANCE OF THE CITY OF RIFLE, COLORADO, REZONING LOTS 15 AND 16, GRAND RIVER PLAZA, FROM COMMUNITY SERVICE BUSINESS DISTRICT (CS) ZONE DISTRICT TO COMMUNITY SERVICE BUSINESS DISTRICT PLANNED UNIT DEVELOPMENT (CS-PUD).

WHEREAS, Brian's Epic Adventures, Inc. applied to rezone Lots 15 and 16, Grand River Plaza, in the City of Rifle, Colorado as shown on the plat thereof recorded with the Garfield County Clerk and Recorder as Reception No. 641726 (the "Property") from Community Service Business (CS) Zone District to Community Service Business District Planned Unit Development (CS -PUD); and

WHEREAS, on February 22, 2022, the City of Rifle Planning and Zoning Commission considered the rezoning application for the Property and, based upon changed circumstances and neighboring zoning, recommended that the Property be rezoned Community Service Business District Planned Unit Development (CS -PUD); and

WHEREAS, the City Council reviewed the rezoning application at its May 18 and June 1, 2022 meetings and agreed with the Planning and Zoning Commission's findings; and

WHEREAS, the City of Rifle Planning and Zoning Commission and the Rifle City Council have held duly noticed public hearings as required by the Rifle Municipal Code ("RMC") and now wish to rezone the Property to Community Service Business District Planned Unit Development (CS -PUD).

NOW, THEREFORE, THE COUNCIL OF THE CITY OF RIFLE, COLORADO, ORDAINS THAT:

Section 1. The aforementioned recitals are hereby fully incorporated herein.

Section 2. The Property is hereby zoned Community Service Business District Planned Unit Development (CS -PUD).

Section 3. Within thirty (30) days after the effective date of this Ordinance, the City Clerk shall incorporate the terms of this Ordinance into the Geographical Information System described in RMC §16-3-20 and shall cause a printed copy of the amendment to the City Zone District Map to be made, which shall be dated and signed by the Mayor and attested to by the City Clerk and which shall bear the seal of the City. The amended Map shall include the number of this Ordinance. The signed original printed copy of the Zoning Map shall be filed with the City Clerk. The Clerk shall also record a certified copy of this Ordinance with the Garfield County Clerk and Recorder. The City staff is further directed to comply with all provisions of the Rifle Land Use Regulations, RMC §16-1-10, *et seq.*, to implement the provisions of this Ordinance.

INTRODUCED on May 18, 2022, read by title, passed on first reading, and ordered published as required by the Charter.

INTRODUCED a second time at a regular meeting of the Council of the City of Rifle, Colorado, held on June 1, 2022, passed without amendment, approved, and ordered published in full as required by the Charter.

DATED this _____ day of _____, 2022.

CITY OF RIFLE, COLORADO

By _____
Mayor

ATTEST:

City Clerk



Agenda Item #9.a.ii.

Agenda Item Name:

Consider Request for Final Plan Approval for Last Chance Commons - Ordinance No. 10, Series of 2022 - 1st Reading and Subdivision Improvements Agreement

Presenter:

Patrick Waller, Planning Director

Item Description:

The applicant requests approval of a Final Plan and PUD application to subdivide two parcels into 12 single-family residential lots. The proposal includes a request for a PUD that allows smaller setbacks for certain lots and a decrease in the minimum lot size.

Recommended Action:

Move to Approve Ordinance No. 10 Series of 2022, on first reading as presented, and order it to be published as required by Charter.

Fiscal Impact:

Minimal

Operational Impact:

Minimal additional utility maintenance will be required by the City. The applicant will be responsible for the maintenance of the driveway accesses.

Prior Board Motions:

None

Background Information:

The applicant requests approval of a Final Plan and PUD Zoning for a development consisting of twelve units on 1.9-acres, currently zoned Community Service (CS).

Executive Summary:

The proposal consists of twelve units on 1.9 acres. The applicant is proposing to use three separate accesses from Last Chance Drive. The proposed lot sizes vary from 9,727 square feet to 5,798 square feet. The PUD requests smaller minimum lot sizes (the zone district requires 6,000 square feet) and decreased Front Yard setbacks on lots 7-12 (the applicant is requesting 5 feet instead of 15 feet).

Notification Requirements:

The applicant was required to mail, publish, and post the property for the PUD request as required by the Rifle Municipal Code.

Prepared By:

Patrick Waller, Planning Director

Attachments:

1. Ordinance No. 10-Last Chance Commons Subdivision
2. SIA-Last Chance Commons

**CITY OF RIFLE, COLORADO
ORDINANCE NO. 10
SERIES OF 2022**

AN ORDINANCE OF THE CITY OF RIFLE, COLORADO, APPROVING A
FINAL SUBDIVISION PLAN AND FINAL SUBDIVISION PLAT FOR LAST
CHANCE COMMONS

WHEREAS, there was filed with the Rifle Planning Department an application for combined Sketch/Preliminary Plan approval for subdivision of property owned by Brian's Epic Adventures, Inc. (hereinafter "Developer"), which property is known as Last Chance Commons and legally described as:

LOTS 15 AND 16,
GRAND RIVER PLAZA,
ACCORDING TO THE PLAT THEREOF,
RECORDED NOVEMBER 26, 2003 UNDER RECEPTION NO. 641726,
COUNTY OF GARFIELD, STATE OF COLORADO.
hereinafter the "Property"); and

WHEREAS, on February 22, 2022, after a duly-noticed public hearing, the City of Rifle Planning Commission approved a combined Sketch/Preliminary Plan for the Property; and

WHEREAS, on May 18, 2022 and June 1, 2022, the Rifle City Council reviewed the Final Subdivision Plan and the Final Subdivision Plat application for the Property and found these documents to be consistent with the approved Sketch/Preliminary Plan, and that all conditions of Sketch/Preliminary Plan approval have been met; and

WHEREAS, the City Council desires to approve the Final Subdivision Plan and Final Subdivision Plat for the Property, subject to all terms and conditions set forth in the Site-Specific Development Plan and Subdivision Improvements Agreement for the Property ("SIA") which SIA is available for inspection at the City Clerk's Office during business hours.

NOW, THEREFORE, THE COUNCIL OF THE CITY OF RIFLE, COLORADO, ORDAINS THAT:

1. The City Council incorporates the foregoing recitals as findings by the City Council.
2. That certain Final Subdivision Plan and Final Subdivision Plat for Last Chance Commons, proposing development of 12 single family homes, is hereby approved subject to the conditions contained in the Rifle Planning Department staff report provided to the City Council and the SIA.
3. The Mayor of the City is hereby authorized to indicate the City Council's approval of the Final Subdivision Plan and Final Subdivision Plat and SIA for the Property by signing the

Final Plat and SIA. A true and correct copy of the Final Plat and SIA for the Property shall be deposited with the City Clerk and shall be available for public inspection at the Clerk's office after being fully executed by the parties.

4. Developer shall comply with all of Developer's representations made in any applications and in statements during the Public Hearings before the Planning Commission and City Council which shall be conditions of approval with which the Developer shall comply. The Developer shall also comply in full with the Rifle Municipal Code and the Public Works Manual requirements.

5. The City Clerk is hereby directed to file one (1) copy of the Final Plat and the original of this Ordinance in the Office of the City Clerk.

6. The City Clerk is hereby further directed to record this Ordinance, the Final Plat, the SIA and any other associated documents in the Office of the Clerk and Recorder of Garfield County, and to file one (1) certified copy of the Final Plat and this Ordinance with the Garfield County Assessor.

7. The City Council's approval of this Final Subdivision Plan and the Final Subdivision Plat for Phase 1 of the Property creates a vested property right pursuant to the Rifle Municipal Code and Article 68 of Title 24, C.R.S., as amended, for a period of three (3) years from the effective date of this Ordinance. As a condition of the granting of such vested right, the Developer shall, at its expense, publish the vested rights notice required by C.R.S. §24-68-103(c) and the Rifle Municipal Code §16-11-10, *et. seq.*, and Developer shall comply with all other procedural requirements set forth therein.

INTRODUCED on May18, 2022, read by title, passed on first reading, and ordered published as required by the Charter.

INTRODUCED a second time at a regular meeting of the Council of the City of Rifle, Colorado, held on June 1, 2022, passed without amendment, approved, and ordered published in full as required by the Charter.

Dated this _____ of _____, 2022.

CITY OF RIFLE, COLORADO

BY: _____
Mayor

City of Rifle, Colorado
Ordinance No. 10, Series of 2022
Page 3 of 3

ATTEST:

City Clerk

**SITE SPECIFIC DEVELOPMENT PLAN AND
SUBDIVISION IMPROVEMENTS AGREEMENT**

LAST CHANCE COMMONS

THIS AGREEMENT made this ____ day of _____, 2022, by and between the CITY OF RIFLE, COLORADO, a home-rule municipality (hereinafter "City") and BRIAN'S EPIC ADVENTURES, INC. (hereinafter "Developer");

W I T N E S S E T H:

WHEREAS, Developer is the owner of certain real property located in the City of Rifle, Colorado, which property is to be known as Last Chance Commons and is further described as:

LOTS 15 AND 16,
GRAND RIVER PLAZA,
ACCORDING TO THE PLAT THEREOF,
RECORDED NOVEMBER 26, 2003 UNDER RECEPTION NO. 641726,
COUNTY OF GARFIELD, STATE OF COLORADO.
hereinafter the "Property"); and

WHEREAS, on May 18, 2022 and June 1, 2022, the City Council of the City of Rifle, after holding all necessary public hearings, approved by appropriate ordinance a Final Plat and Final Subdivision Plan for Last Chance Commons, which Ordinance No. 10, Series of 2022, which is recorded as Reception No. _____ in the Office of the Garfield County Clerk and Recorder; and

WHEREAS, the approvals cited above are contingent upon the express condition that all obligations and duties created by this Agreement are faithfully performed by the Developer.

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

1. Recitals. The foregoing recitals are incorporated herein as material representations and acknowledgments of the parties.

2. Purposes. The purpose of this Agreement is to set forth the terms and conditions to be met by the Developer; to set forth the fees to be paid by the Developer upon subdivision of the Property, and to constitute the Subdivision Improvement Agreement provided for in Sections 16-4-170, 16-5-440(d) and 16-6-180(c)(2) of the Rifle Municipal Code. All terms and conditions contained herein are in addition to all requirements of the Rifle Municipal Code, the City of Rifle Land Use Regulations (Title 16 of the Rifle Municipal Code), and state and federal statutes, and are not intended to supersede any requirements contained therein, except where specifically provided in this Agreement.

3. Reserved.

4. Fees. The following fees shall be paid to the City by the Developer:
 - A. Reimbursement of Costs. The Developer hereby agrees to pay the City the actual costs to the City for engineering, surveying, and legal services rendered in connection with the review of the subdivision of the Property. In addition, the Developer shall reimburse the City for the cost of making corrections or additions to the master copy of the official City map, for the fee for recording the Final Plat and accompanying documents with the County Clerk and Recorder of Garfield County. Developer shall also pay any fee required pursuant to the Rifle Municipal Code. Interest shall be imposed at rate of 1.5% per month on all balances not paid within thirty (30) days of the date of the statement. In addition to any and all remedies available to the City and in the event the City is forced to pursue collection of any amounts due and unpaid under this provision or under this Agreement, the City shall be entitled to collect attorney's fees and costs incurred in said collection efforts in addition to the amount due and unpaid.
 - B. Water and Sewer Taps. Developer, its successors and assigns, shall comply in full with Title 13 of the Rifle Municipal Code regarding tap fees for water and sewer service.
 - C. Water Rights Dedication. Developer shall pay the cash in lieu of the water rights dedication fees as required under RMC Section 13-6-10, *et. seq.* for the Property. For this purpose, prior to the recording of the Final Plat, Developer shall pay the fee then in effect at the rate of one (1) EQR for each lot created by the Plat for which potable water service is to be provided by the City. If there are additional EQRs associated with development of any of the lots, payment shall be due at the time of building permit for such units which raise the total EQRs above the above-referenced calculations. The water rights dedication fee per EQR to be paid will be the fee then in effect by an ordinance of general applicability. Further, the Developer agrees to be bound by any ordinance or resolution of general applicability that modifies these fees.
 - D. Parkland Dedication Fees. The City and Developer agree that the Property is subject to the City parkland dedication requirements set forth in Rifle Municipal Code §§16-1-90 and 16-4-110. Developer shall pay parkland dedication fees then in effect for each unit at the time of building permit application.
 - E. Offsite Street Impact Fees. The City and Developer agree that the Property is subject to offsite street impact fees as set forth in the RMC Section 16-1-100.
5. Specific Conditions. Developer agrees to perform the following conditions:

- A. Representations. All representations of the Developer made in its application and in statements during the public hearings before the Planning Commission and City Council shall be considered conditions of approval with which the Developer shall comply.
 - B. Noxious Weed Control/Maintenance. Developer agrees and acknowledges that it shall, pending and during development of the Property, control the growth of noxious weeds on all parcels within the Property as required by the Rifle Municipal Code, and maintain the Property.
 - C. Privately Maintained Roads Open to the Public. The parties agree and acknowledge that the roads accessing and within the Property shall be open to the public with no gated access, but owned, maintained, repaired and replaced by the homeowners association created for the Property and the City has no obligations for the roads.
6. Pre-Construction Meeting. Developer shall hold a pre-construction meeting between the City Engineer and Public Works Director and the Developer, its engineer and contractor for the purpose of discussing all construction issues that will be required for this project.
7. Public Improvements. All water lines, water facilities, sewer lines, sewer facilities, hydrants, landscaping, water or sewer distribution facilities, drainage structures, gas lines, electrical facilities, cable T.V., telephone lines, utility systems, streets (public and/or private), lighting, landscaping and signage required by this Agreement or shown on the final subdivision plat (the "public improvements") shall be installed and completed at the expense of the Developer.
- A. General Responsibility. All public improvements required by this Agreement and shown on the Final Subdivision Plat submittal, and the estimated costs thereof, are identified on Exhibit A attached hereto. The public improvements shall be constructed in conformance with the plans and specifications submitted by the Developer as part of the Final Plat application and approved by the City Public Works Director or his/her designee, including all supplemental plans and specifications submitted, which plans and specifications are on file at City Hall, the City of Rifle Public Works Manual then in effect, and the utility plan (hereinafter collectively referred to as "Plans and Specifications").
8. Construction Observation and Inspection.
- A. Construction Inspection by Developer. Developer shall be responsible for ensuring that its certified professional engineer provides construction inspection services as necessary to allow Developer's engineer to provide a stamped certification, when improvements are submitted to the City for acceptance, that

the Public Improvements have been constructed in accordance with the Plans and Specifications approved by the City.

- B. Construction Observation by the City. The City shall have the right to make engineering observations at reasonable intervals and at the Developer's expense during construction of the public improvements. Observation, acquiescence in or approval by any engineering inspector of the construction of any physical facilities, at any particular time, shall not constitute City approval of any phase of construction of the public improvements. City approvals shall be made only after completion of construction and in the manner hereinafter set forth. To assist the City in monitoring the installation of the public improvements, a supervisor employed by the Developer's general contractor shall inspect the public improvements on at least a weekly basis, and shall provide the City Public Works Director or his/her designee with supervisor's field and inspection notes relating to the installation of the public improvements which have been reviewed and stamped by a professional engineer. The supervisor shall regularly apprise the City Public Works Director or his/her designee of the status of the work on the public improvements. Further, the Developer at its own expense shall have an approved geotechnical engineer monitor the methods of construction and backfill, to ensure such work is being completed in conformance with the approved plans and specifications, and accepted standards for such work. The geotechnical engineer shall conduct inspections and testing as directed by the City Public Works Director or his/her designee. The City agrees to respond to requests for interim inspections in a timely manner and to respond not later than ten (10) business days after a request for a final inspection. Nothing in this paragraph shall be construed to constitute an acceptance by the City of the Public Improvements, which approval and acceptance shall only occur pursuant to the specific provisions below.

9. Acceptance; Conveyance. Within thirty (30) days of the Acceptance Date, the Developer shall execute a quit-claim deed to the City conveying any interests it has in the public improvements. The Developer shall also execute a bill of sale conveying the public improvements to the City, free and clear of all liens and encumbrances. All public improvements conveyed to the City shall be warranted for a period of twelve (12) months from the Acceptance Date, as provided below.

10. Warranty. Developer shall warrant any and all public improvements and facilities which are conveyed to the City pursuant to this Agreement (i.e. water and sewer facilities and lines, public roads and facilities located on or under public lands and easements) for a period of 12 months from the Acceptance Date. Specifically, but not by way of limitation, Developer shall warrant that:

- A. The title conveyed shall be good and its transfer rightful;

- B. Any and all facilities conveyed shall be free from any security interest or other lien or encumbrance; and
- C. Any and all facilities so conveyed shall be free of any defects in materials or workmanship for a period of one (1) year, as stated above.

11. Performance Guarantee. The total amount of required security for the Public Improvements for the Property are specified on Exhibit A.

- A. In order to secure the construction and installation of the Public Improvements above described for which Developer is responsible, Developer shall furnish the City with a certificate or other evidence in good and sufficient form approved by the City Attorney of an irrevocable letter of credit issued or confirmed by a commercial banking institution authorized to do business and with offices located within the State of Colorado to secure the performance and completion of the Public Improvements required by this Agreement in an amount equal to the estimated costs of said facilities as set forth on Exhibit A. The City shall have the right to review and approve all terms and conditions of the letter of credit prior to recording of the Final Plat; or, in the alternative, delay recording the Final Plat until all Public Improvements are constructed and, if applicable, accepted by the City pursuant to this Agreement.

The original letter of credit shall be delivered to the City prior to the recordation of the Final Plat. This Letter of Credit shall comply in all respects with the Uniform Customs and Practice for Documentary Credits, 1993 Revision, issued by the International Chamber of Commerce, Paris, to the extent it does not conflict with Article 5 of the Colorado Uniform Commercial Code.

- B. In the event the Public Improvements are not constructed or completed within 12 months of the date of this Agreement, the letter of credit shall provide that the funds necessary to complete the Public Improvements shall be put directly into an escrow account under the control of the City Manager and shall be used to complete the Public Improvements called for herein.
- C. Within ten (10) days of timely completion of the Public Improvements, and performance of the conditions and requirements of this Agreement secured by the performance guarantee, and upon the approval of the City Manager, the performance guarantee shall be released to Developer. If the improvements are not completed within the required time, the performance guarantee may be called by the City and the monies may be used to complete the improvements; provided, however, that if such guarantee is not sufficient to pay the actual costs, the Developer shall be responsible for the balance.

- D. The required security for the Public Improvements is the amount mutually agreed upon by the Developer and the City Engineer as set forth above. The parties agree that this amount does not necessarily reflect the City Engineer's estimate of what the actual cost to the City would be if the City were required to fund construction of all of the Public Improvements. In the event the costs of the Public Improvements exceed the amount set forth above, Developer shall be solely responsible for the actual cost. The purpose of Exhibit A is solely to determine the amount of security and shall be revised as necessary to reflect the actual costs, and the performance guarantee required by this SIA shall be adjusted accordingly. No representations are made as to the accuracy of these estimates, and the Developer agrees to pay the actual costs of all such Public Improvements.
- E. The parties expressly agree that the Developer's preparation and submission to the City of "as-built drawings" and a summary of actual construction costs for the Public Improvements to be dedicated to the City--and approval by the City of the as-built drawings and summary--are essential requirements of this Agreement. In the event the Developer fails to provide the as-built drawings and summary to the City thirty (30) days prior to the expiration of the performance guarantee or any extension thereof, such failure shall constitute a breach of this Agreement with regard to the completion of the Public Improvements, damages for which are impossible to ascertain, entitling the City to call upon the performance guarantee in an amount equal to ten (10%) percent of the total amount set forth on Exhibit A, which amount the City may retain as liquidated damages due to Developer's breach. No releases to the letter of credit shall be granted by the City until such as-built drawings are provided and the secured improvements are accepted by the City pursuant to the provisions of this Agreement.

12. Title Policy. Prior to the recordation of the Final Plat for the Property, the Developer shall provide the City a commitment for a title insurance policy, indicating that the Property is free and clear of all encumbrances whatsoever which would impair the use of the Property as proposed by the Final Subdivision Plat. Further, said title commitment, and/or an additional title commitment, shall show that all other property to be dedicated to the City is free and clear of all encumbrances which would make said dedications unacceptable as the City in its sole discretion determines. At the time of recording the Final Plat, the title insurance policy(s) shall be provided to the City, and the premium(s) for the title insurance shall be paid by the Developer. In the event the title commitment(s) reflect encumbrances which would impair the use of the Property as proposed or which would make the public dedications unacceptable, the City shall notify the Developer, who shall cure or otherwise remove or subordinate said encumbrances to the satisfaction of the City prior to the recordation of the Final Plat.

13. Vested Rights. Pursuant to Section 16-11-10, *et. seq.*, of the Rifle Municipal Code, the City and the Developer agree that the City Council's final subdivision plat approval of

Pioneer Mesa Subdivision constitutes the approval of a "Site Specific Development Plan", and no further hearings are required. Pursuant to the approval by the City Council of the Final Plat for the Property, the City will have granted vested property rights for the Property for a period of three (3) years from the effective date of the City ordinance approving this Agreement and the Final Plat upon the condition that the Developer comply with all of the terms and conditions of this Agreement, the Final Plat for the Property, and the development submittal. Such rights shall also be subject to the provisions of Rifle Municipal Code Section 16-11-10, *et. seq.* The Developer shall at its expense publish the vested rights notice required by C.R.S. §24-68-103(1) and Rifle Municipal Code Section 16-11-50.

14. Owners Association; Covenants. The Property shall be subject to an owners association created by the Developer under the laws of the State of Colorado at the time of Final Subdivision Plat recording that sets forth the ownership and maintenance obligations of the private road accessing the Property and all other common elements on the Property.

15. Conditions of Building Permit / Certificate of Occupancy. In addition to all requirements of the Rifle Municipal Code and any requirements imposed by operation of state, federal, or local law, no building permits shall be issued for the Property until:

- A. This SIA has been recorded in the Office of the Garfield County Clerk and Recorder, and a recorded copy is on file in the Office of the City Clerk.
- B. The Final Plat has been recorded in the Office of the Garfield County Clerk and Recorder, and a recorded copy is on file in the Office of the City Clerk.
- C. All public improvements have been accepted, or a performance guarantee to secure all public improvements has been provided in accordance with this SIA.

16. Voluntary Action of Developer. Notwithstanding any provision of the Rifle Municipal Code, the Developer agrees that all terms and conditions of this Agreement, including specifically the payment of fees, the dedication of land, and the completion of off-site infrastructure improvements, are agreed to and constitute the voluntary actions of the Developer.

17. Breach by Developer; City's Remedies. In the event of any default or breach by the Developer of any term, condition, covenant or obligation under this Agreement, the City Council shall be notified immediately. The City may take such action as it deems necessary to protect the public health, safety, and welfare; to protect lot buyers and builders, and to protect the citizens of the City from hardship. The City's remedies include:

- A. The refusal to issue to the Developer any building permit or certificate of occupancy; provided, however, that this remedy shall not be available to the City until after the affidavit described below has been recorded;

- B. The recording with the Garfield County Clerk and Recorder of an affidavit, approved in writing by the City Attorney and signed by the City Manager or his designee, stating that the terms and conditions of this Agreement have been breached by the Developer. At the next regularly scheduled City Council meeting, the City Council shall either approve the filing of said affidavit or direct the City Manager to file an affidavit stating that the default has been cured. Upon the recording of such an affidavit, no further lots or parcels may be sold within the Property until the default has been cured. An affidavit signed by the City Manager or his designee and approved by the City Council stating that the default has been cured shall remove this restriction;
- C. A demand that the security given for the completion of the public improvements be paid or honored;
- D. The refusal to consider further development plans within the Property; and/or
- E. Any other remedy available at law.

Unless necessary to protect the immediate health, safety, and welfare of the City or City residents, the City shall provide the Developer ten (10) days' written notice of its intent to take any action under this paragraph during which ten-day period the Developer may cure the breach described in said notice and prevent further action by the City. Furthermore, unless an affidavit as described in 17(B), above, has been recorded with the Garfield County Clerk and Recorder, any person dealing with the Developer shall be entitled to assume that no default by the Developer has occurred hereunder unless a notice of default has been served upon Developer as described above, in which event Developer shall be expressly responsible for informing any such third party of the claimed default by the City.

18. Assignment. This Agreement may not be assigned by the Developer without the prior written consent of the City, which consent shall not be unreasonably withheld. In the event Developer desires to assign its rights and obligations herein, it shall so notify the City in writing together with the proposed assignee's written agreement to be bound by the terms and conditions contained herein.

19. Indemnification. Developer agrees to indemnify and hold the City harmless from any and all claims or losses of any nature whatsoever incurred by the City resulting from the subdivision of the Property. This indemnification shall include actual attorneys' fees incurred in the event that any party brings an action against the City for any of the approvals described herein. The parties hereto intend not to duplicate any legal services or other costs associated with the defense of any claims against either party described in this section. Therefore, the parties hereto agree to cooperate in full to prevent duplicative expenses incurred as a result of the indemnification herein described.

20. Waiver of Defects. In executing this Agreement, Developer waives all objections it may have concerning defects, if any, in the formalities whereby it is executed, or concerning the power of the City to impose conditions on Developer as set forth herein, and concerning the procedure, substance, and form of the ordinances or resolutions adopting this Agreement.

21. Final Agreement. This Agreement supersedes and controls all prior written and oral agreements and representations of the parties and is the total integrated agreement between the parties.

22. Modifications. This Agreement shall not be amended, except by subsequent written agreement of the parties.

23. Release of Liability. It is expressly understood that the City cannot be legally bound by the representations of any of its officers or agents or their designees except in accordance with the City of Rifle Code and Ordinances and the laws of the State of Colorado, and that Developer, when dealing with the City, acts at its own risk as to any representation or undertaking by the City officers or agents or their designees which is subsequently held unlawful by a court of law.

24. Captions. The captions in this Agreement are inserted only for the purpose of convenient reference and in no way define, limit, or prescribe the scope or intent of this Agreement or any part thereof.

25. Binding Effect. This Agreement shall be binding upon and inure to the benefit of the parties hereto and their respective heirs, successors, and assigns.

26. Invalid Provision. If any provisions of this Agreement shall be determined to be void by any court of competent jurisdiction, then such determination shall not affect any other provision hereof, all of which other provisions shall remain in full force and effect. It is the intention of the parties hereto that, if any provision of this Agreement is capable of two constructions, one of which would render the provision void, and the other of which would render the provision valid, then the provision shall have the meaning which renders it valid.

27. Governing Law. The laws of the State of Colorado shall govern the validity, performance, and enforcement of this Agreement. Should either party institute legal suit or action for enforcement of any obligation contained herein, it is agreed that the venue of such suit or action shall be in Garfield County, Colorado.

28. Attorneys' Fees; Survival. Should this Agreement become the subject of litigation, the substantially prevailing party shall be entitled to, and the failing party shall pay, all reasonable attorneys' fees, expenses, and court costs. All rights concerning remedies and/or attorneys shall survive any termination of this Agreement.

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

30. Counterparts. This Agreement may be executed in counterparts, each of which shall be deemed an original, and all of which, when taken together, shall be deemed one and the same instrument.

31. Notice. All notices required under this Agreement shall be in writing and shall be hand-delivered or sent by registered or certified mail, return receipt requested, postage prepaid, to the addresses of the parties herein set forth. All notices so given shall be considered effective seventy-two (72) hours after deposit in the United States mail with the proper address as set forth below. Either party by notice so given may change the address to which future notices shall be sent.

Notice to City:

City of Rifle
P. O. Box 1908
Rifle, CO 81650

With copy to:

Karp Neu Hanlon, P.C.
P. O. Drawer 2030
Glenwood Springs, CO 81602

Notice to Developer:

BEA, Inc.
441 Boundary Lane
Carbondale, CO 81623

33. Gender. Whenever the context shall require, the singular number shall include the plural, the plural the singular, and the use of any gender shall be applicable to all genders.

WHEREFORE, the parties hereto have executed duplicate originals of this Agreement on the day and year first written above.

CITY OF RIFLE, COLORADO

By: _____

Mayor

ATTEST:

Clerk

BRIAN’S EPIC ADVENTURES, INC.:

By: _____
Brian Stowell, President

STATE OF COLORADO)
) ss.
COUNTY OF)

Acknowledged, subscribed, and sworn to before me this ____ day of _____,
2022, by Brian Stowell as President of Brian’s Epic Adventures, Inc.

WITNESS my hand and official seal.

My Commission expires: _____.

Notary Public

EXHIBIT A

Cost Estimates

LAST CHANCE COMMONS-PHASE 1 (INFRASTRUCTURE) DEVELOPMENT HARD COSTS	
Mobilization	\$8,000
Survey	\$7,000
Geotechnical	\$6,500
Erosion Control	\$6,650
Rough Grading/Overlot	\$5,500
Concrete Demo	\$3,000
6" Sewer Main	\$48,450
4" Sewer Services	\$39,000
Water Main/Services	\$66,000
Curb & Gutter Prep	\$2,600
Sidewalk Prep	\$6,000
Shared Driveway Prep	\$28,000
Curb & Gutter	\$6,000
4" Sidewalk	\$8,000
6" Sidewalk	\$7,200
Electrical Trenching	\$10,000
Electrical Conduit	\$35,000
Gas Trenching	\$5,000
Shared Driveway Paving	\$46,000
Sanitary	\$275
Waste	\$1,200
	\$345,375
Contingency (8%)	\$27,630
	\$373,005



Agenda Item #10.a.

Agenda Item Name:

Consider Amending Section 10-3-50 of the City of Rifle Municipal Code Setting Forth the Definition of the Municipal Offense of Harassment - Ordinance No. 11, Series of 2022 - 1st Reading

Presenter:

Kathy Pototsky, Court Clerk / PIO

Item Description:

This amendment is to clarify language in the harassment code as well as update the term "telephone" to "phone" to assure that our definitions are keeping up with technological developments.

Recommended Action:

Move to approve Ordinance No. 11, Series of 2022, amending section 10-3-50 of the City of Rifle Municipal Code setting forth the definition of the municipal offense of harassment on first reading as presented and order it to be published as required by Charter.

Fiscal Impact:

none

Operational Impact:

none

Prior Board Motions:

none

Background Information:

Last month, in *People v. Moreno*, the Colorado Supreme Court struck down a section of the state harassment statute (C.R.S 18-9-111) as unconstitutionally vague. The wording in the Rifle Municipal Code's Harassment ordinance (10-3-50) is substantially similar. In an effort to preempt any issues, we are recommending clarifying our wording as well as updating other sections of the same ordinance by changing "telephone" to "phone".

Executive Summary:

n/a

Notification Requirements:

none

Prepared By:

Kathy Pototsky, Court Clerk / PIO

Attachments:

1. Ordinance No. 11-Harassment Text Amendment

CITY OF RIFLE, COLORADO
ORDINANCE NO. 11
SERIES OF 2022

AN ORDINANCE OF THE CITY OF RIFLE, COLORADO AMENDING
SECTION 10-3-50 OF THE CITY OF RIFLE MUNICIPAL CODE SETTING
FORTH THE DEFINITION OF THE MUNICIPAL OFFENSE OF
HARASSMENT

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

WHEREAS, Section 10-3-50 of the City of Rifle Municipal Code (the “Code”) defines the municipal offense of harassment; and

WHEREAS, the Colorado Supreme Court recently interpreted the definition of harassment in Section 18-9-111, C.R.S., and concluded that certain language was unconstitutionally overbroad; and

WHEREAS, the City Council finds and determines that amending the language in Section 10-3-50 of the Code as described herein in light of the Court’s interpretation of the state statute is in the best interest of the public health, safety and welfare of the citizens of Rifle.

NOW, THEREFORE, THE COUNCIL OF THE CITY OF RIFLE, COLORADO, ORDAINS THAT:

1. The foregoing recitals are incorporated by reference as findings and determinations of the City Council.

2. Section 10-3-50 of the Code is hereby amended as follows (deletions shown in ~~striketrough~~, additions shown in double underline):

Sec. 10-3-50. - Harassment.

(a) A person commits harassment if, with intent to harass, annoy or alarm another person, he or she:

(1) Strikes, shoves, kicks or otherwise touches a person or subjects him or her to physical contact;

- (2) In a public place directs obscene language or makes an obscene gesture to or at another person, which is a Class B municipal offense;
 - (3) Follows a person in or about a public place, which is a Class B municipal offense;
 - (4) Directly or indirectly Initiates communication with a person, anonymously or otherwise by ~~telephone~~, phone network, data network, text message, instant message, computer, computer network or computer system, or other interactive electronic medium in a manner intended to ~~harass~~ cause a reasonable person serious emotional distress or threatens bodily injury or property damage, or makes any comment, request, suggestion or proposal by ~~telephone, phone network, data network, text message, instant message, computer, computer network or computer system, or other interactive electronic medium~~ which is obscene, which is a Class B municipal offense;
 - (5) Makes a ~~telephone~~ call or causes a ~~telephone~~ to ring repeatedly, whether or not a conversation ensues, with no purpose of legitimate conversation, which is a Class B municipal offense;
 - (6) Makes repeated communications at inconvenient hours that invade the privacy of another and interfere in the use and enjoyment of another's home or private residence or other private property, which is a Class B municipal offense; or
 - (7) Repeatedly insults, taunts, challenges or makes communications in offensively coarse language to another in a manner likely to provoke a violent or disorderly response, which is a Class B municipal offense.
- (b) Any act prohibited by Paragraph (a)(4) above may be deemed to have occurred or to have been committed at the place at which the ~~telephone~~ call, electronic mail or other electronic communication was either made or received.
- (c) As used in this Section, unless the context otherwise requires, obscene means a patently offensive description of ultimate sexual acts or solicitation to commit ultimate sexual acts, whether or not said ultimate sexual acts are normal or perverted, actual or simulated, including masturbation, cunnilingus, fellatio, anilingus or excretory functions.

INTRODUCED on May 18, 2022 read by title, passed on first reading, and ordered published as required by the Charter.

INTRODUCED a second time at a regular meeting of the Council of the City of Rifle, Colorado held on June 1, 2022, passed without amendment, approved, and ordered published in full as required by the Charter.

DATED this ____ day of _____, 2022.

CITY OF RIFLE, COLORADO

By _____
Mayor

ATTEST:

City Clerk



Agenda Item #10.b.

Agenda Item Name:

Consider Increasing Rose Hill Cemetery Fees

Presenter:

Tom Whitmore, Parks & Recreation Director

Item Description:

Staff have reviewed cemetery fees, and recommend increasing fees for Rose Hill Cemetery. At the April 20, 2022 meeting, City Council directed staff to increase proposed fees for non-resident customers. Updated fee recommendations are attached.

Recommended Action:

Authorize cemetery fees to be increased as presented and authorize the City Attorney to draft changes to the related ordinance.

Fiscal Impact:

Increasing cemetery fees will help offset increasing operational expenses.

Operational Impact:

Finance staff will have a slightly more complicated fee list to interpret as they are working with clients. Legal staff will draft the related ordinance if the proposed fees are approved. Also, guidelines will be established to help clarify qualifications for local and non-local status.

Prior Board Motions:

None

Background Information:

For a number of years, the trend at Rose Hill Cemetery has been toward cremation burials in family plots. Recently there has been an increasing demand for full burials and grave spaces.

Staff has noticed an increase in demand from non-residents.

Adjusting all fees, and increasing charges for non-81650 patrons will help manage demand and potentially increase revenue.

Staff is also working on reconfiguring cemetery space to allow for more burial spaces and planning a site for more columbariums. The current columbarium has 120 niches and we believe that space exists for perhaps a dozen or more columbaria, (1440 niches or more). Columbariums, or columbaria, are planned to occupy spaces where soil conditions do not support burial sites.

Also, we are taking action to make available approximately 449 full burial spaces and delineate 176 smaller "Fairyland" spaces.

Were it not for the years that cremations were prevalent, cemetery capacity would have already been reached. The City will soon need to commit to a direction regarding expanded cemetery operations.

Executive Summary:

None

Notification Requirements:

None

Prepared By:

Misty Williams, City Clerk

Attachments:

1. Cemetery Fees 2022.05.18-1
2. Cemetery Fees 2022.05.18-2
3. Cemetery Fees 2022.05.18-3
4. Cemetery Fees 2022.05.18-4
5. Cemetery Fees 2022.05.18-5

Full Burial			
	Current	Proposed	
		81650	Non-81650
Full space	\$630.00	\$ 900.00	\$ 1,800.00
Open/Close	\$ 342.00	\$ 800.00	\$ 1,600.00
Perpetual Care	\$ 575.00	\$ 650.00	\$ 1,300.00
Holiday/Weekend	\$ 551.00	\$ 600.00	\$ 600.00
	\$ 2,098.00	\$ 2,950.00	\$ 5,300.00

Mausoleum			
	Current	Proposed	
		81650	Non-81650
2 Spaces		\$ 3,000.00	\$ 6,000.00
Open/Close ea.		\$ 350.00	\$ 700.00
Perpetual Care		\$ 650.00	\$ 1,300.00
Holiday Weekend		\$ 600.00	\$ 600.00
		\$ 4,600.00	\$ 8,600.00

Fairyland			
	Current	Proposed	
		81650	Non-81650
Infant space--Fairlyland	\$315.00	\$ 400.00	\$ 800.00
Open/Close	\$ 375.00	\$ 375.00	\$ 475.00
Perpetual Care	\$ 575.00	\$ 650.00	\$ 1,300.00
Holiday/Weekend	\$ 551.00	\$ 600.00	\$ 600.00
	\$ 1,816.00	\$ 2,025.00	\$ 3,175.00

Columbarium Niches--81650					
	Top-Level 5:	Level 4:	Level 3:	Level 2:	Level 1:
Single niche, 81650	\$ 900.00	\$ 900.00	\$ 900.00	\$ 750.00	\$ 750.00
Double niche 81650	\$ 1,600.00	\$ 1,600.00	\$ 1,600.00	\$ 1,400.00	\$ 1,400.00
Place Urn, ea. 81650	\$ 300.00	\$ 300.00	\$ 300.00	\$ 300.00	\$ 300.00
Perpetual Care, ea 81650	\$ 300.00	\$ 300.00	\$ 300.00	\$ 300.00	\$ 300.00
Holiday/Weekend - add. *See note	\$ 600.00	\$ 600.00	\$ 600.00	\$ 600.00	\$ 600.00
single=	\$ 2,100.00	\$ 2,100.00	\$ 2,100.00	\$ 1,950.00	\$ 1,950.00
double=	\$ 2,800.00	\$ 2,800.00	\$ 2,800.00	\$ 2,600.00	\$ 2,600.00

Columbarium Niches--non-81650					
	Top-Level 5:	Level 4:	Level 3:	Level 2:	Level 1:
Single niche, Non-81650	\$ 1,800.00	\$ 1,800.00	\$ 1,800.00	\$ 1,500.00	\$ 1,500.00
Double niche , Non-81650	\$ 3,200.00	\$ 3,200.00	\$ 3,200.00	\$ 2,800.00	\$ 2,800.00
Place Urn, ea. Non-81650	\$ 600.00	\$ 600.00	\$ 600.00	\$ 600.00	\$ 600.00
Perpetual Care non-81650	\$ 600.00	\$ 600.00	\$ 600.00	\$ 600.00	\$ 600.00
Holiday/Weekend - add.					
*See note	\$ 600.00	\$ 600.00	\$ 600.00	\$ 600.00	\$ 600.00
single=	\$ 3,600.00	\$ 3,600.00	\$ 3,600.00	\$ 3,300.00	\$ 3,300.00
double=	\$ 5,000.00	\$ 5,000.00	\$ 5,000.00	\$ 4,600.00	\$ 4,600.00

Total Fees--Examples: *Note: Exact fees are calculated individually at the time of purchase.			
	Current	Proposed	
		81650	Non-81650
Burial-weekday	\$1,547.00	\$ 2,350.00	\$ 4,700.00
Burial - weekend/holiday	\$2,098.00	\$ 2,950.00	\$ 5,300.00
Cremains - weekday	\$1,455.00	\$ 1,500.00	\$ 3,000.00
Cremains - weekend/holiday	\$2,055.00	\$ 2,100.00	\$ 3,600.00
Mausoleum - weekday	\$2,417.00	\$ 4,000.00	\$ 8,000.00
Mausoleum - weekend/holiday	\$3,017.00	\$ 4,600.00	\$ 8,600.00
Columbarium - weekday	\$1,150.00	\$ 2,200.00	\$ 4,400.00
Columbarium - weekend/holiday	\$1,701.00	\$ 2,800.00	\$ 5,000.00
Fairyland	\$1,265.00	\$ 1,425.00	\$ 2,575.00
Fairland - Weekend/Holiday	\$1,865.00	\$ 2,025.00	\$ 3,175.00
Disinterment-Casket/Crypt- No weekend	\$2,500.00	\$2,500.00	\$2,500.00
Re-Interment-Casket/Crypt- No weekend	\$2,500.00	\$2,500.00	\$2,500.00

Assumes space purchase

Assumes space purchase

Row 5 double niche example

Row 5 double niche example



Agenda Item #11.a.

Agenda Item Name:

Report to City Manager

Presenter:

Tommy Klein, City Manager

Item Description:

Staff report on notable tasks completed within the individual departments.

Recommended Action:

No action necessary

Fiscal Impact:

N/A

Operational Impact:

N/A

Prior Board Motions:

N/A

Background Information:

N/A

Executive Summary:

Work Report to City Manager

05/13/2022

Notification Requirements:

N/A

Prepared By:

Alexis Ramirez, Deputy City Clerk

Attachments:

1. Report to City Manager 05.13.2022

WORK REPORT TO CITY MANAGER

05.13.2022

PUBLIC WORKS

- 0.5 MG Airport Water Tank: Currently in bidding phase – ends 5/20/2022; CM/GC contract
- I-70 Exit 90 Gateway Beautification: construction in progress – 10% complete.
- 5th Street and Ute Avenue: moved RFQ Release to June 17, 2022; pursuing Fall DOLA grant opportunity to pursue design and construction – Spring 2023 construction.
- Park Hill retaining wall for City/Frontella property boundary: received no bids; Craig is planning to release to less specialized contractors to general civil contractors; intended new bid release May 25, 2022; projected Award July 7th.
- In-house designs in bidding progress; projected award June 1, 2022:
 - Cemetery Roadway Improvements: Summer Construction (July-August)
 - Airport Road - East Improvements: Summer Construction (June-August)
 - W. 7th Street Repair – between Moki and Mesa Avenues - Summer
 - Re-surface of the 9th Street Bridge - Summer
- 100 Block of W. 2nd Street Rehab: projected design completion – May 27, 2022; projected Bid Award – July 7, 2022

FLEET

- Preparing documents for an Auction of Surplus vehicles; plan development for preparing vehicles and staging with Big Iron Auctions.

OPERATIONS & MAINTENANCE

- Multiple street repairs with hot asphalt
- Preparing Procurement documents for purchase: a track-steer loader, and heavy snowplow truck (dual purpose)
- Ditch maintenance to include culvert jetting
- Preparing estimate for demolishing the Graham Mesa Water Treatment Plant

Two weeks look-ahead

- Development inspection and management of the following:
 - Pioneer Mesa, Phase II
 - North Pasture, Filing VII
 - Wapiti Commons (Habitat for Humanity)
 - I-70 Exit 90 Gateway

PIO

- Continuing updates on website and social media on local issues and citizen concerns.
- Assisted with filming of golf tournament video and filmed another video on downtown parking to demonstrate where you can and can't park downtown.

COURT

- Handled 38 adult cases and 9 juvenile cases on May 4th court day.
- Held 5 telephone hearings with inmates in custody.
- Attended CML Statehouse Report Webinar.
- The jury trial set for May 10th needed to be canceled after the City Prosecutor was injured in a bike accident. She is recovering well and the trial has been rescheduled for June 6th (with a new jury panel in case one specific City Councilman who was on the prior list is wondering!).