PUEBLO MOUNTAIN PARK – PROGRAMMATIC PRESCRIBED FIRE PLAN

ABSTRACT:
21 Element, NWCG compliant burn plan utilizing the 2018 PMS-484 template. Modeling done in Behave 6.0.0.

Prescribed Fire Name**: Pueblo Mountain Park**

Ignition Unit Name: **All Units**

Contents

Prescribed Fire Name**: Pueblo Mountain Park**

Ignition Unit Name: **All Units**

Element 1: Signature Page

PRESCRIBED FIRE PLAN

Prepared By: The Ember Alliance
Name(s): Gabe Donaldson
Qualification/Position: RXB2
_____ _____
Signature *Date*

Technical Reviewer: The Nature Conservancy
Name: Parker Titus
Qualification/Position: RXB2
_____ _____
Signature *Date*

APPROVED BY:

Name: Dave Lasky
Title: Fire Management Officer
_____ _____
Signature *Date*

***Landowner**: City of Pueblo*
Name: Nicholas A. Gradisar
Title: Mayor
_____ _____
Signature *Date*

***Agency Representative**: City of Pueblo*
Name: Barb Huber
Title: Fire Chief
_____ _____
Signature *Date*

Authority Having Jurisdiction
Beulah Fire Protection and Ambulance District
Name: Bryan Ware
Title: Chief
_____ _____
Signature *Date*

Prescribed Fire Name**: Pueblo Mountain Park**

Ignition Unit Name: **All Units**

Element 2A: Agency Administrator Ignition Authorization

Instructions: The Agency Administrator Ignition Authorization must be completed before a prescribed fire can be implemented. If ignition of the prescribed fire is not initiated prior to expiration date determined by the agency administrator, a new authorization will be required.

Prior to signature the agency administrator should discuss the following key items with the fire management officer (FMO) or burn boss. Attach any additional instructions or discussion documentation (optional) to this document.

Key Discussion Items

A.	Has anything changed since the Prescribed Fire Plan was approved or revalidated? *Such as drought or other climate indicators of increased risk, insect activity, new subdivisions/structures, smoke requirements, Complexity Analysis Rating.*
B.	Have compliance requirements and pre-burn considerations been completed? *Such as preparation work, NEPA mitigation requirements, cultural, threatened and endangered species, smoke permits, state burn permits/authorizations.*
C.	Can all of the elements and conditions specified in Prescribed Fire Plan be met? *Such as weather, scheduling, smoke management conditions, suitable prescription window, correct season, staffing and organization, safety considerations, etc.*
D.	Are processes in place to ensure all internal and external notifications and media releases will be completed?
E.	Have key agency staffs been fully briefed about the implementation of this prescribed fire?
F.	Are there circumstances that could affect the successful implementation of the plan? *Such as preparedness level restrictions, resource availability, other prescribed fire or wildfire activity*
G.	Have you communicated your expectations to the Burn Boss and FMO regarding if and when you are to be notified that contingency actions are being taken?
H.	Have you communicated your expectations to the Burn Boss and FMO regarding decisions to declare the prescribed fire a wildfire?

Implementation Recommended by:
FMO or Prescribed Fire Burn Boss Signature:_____ Date:_____

I am authorizing ignition of this prescribed fire between the dates of _____ and _____. It is my expectation that the project will be implemented within this time frame and as discussed and documented and attached to this plan. If the conditions we discussed change during this time frame, it is my expectation you will brief me on the circumstances and an updated authorization will be negotiated if necessary.

Additional Instructions or Discussion Documentation attached (Optional): Yes ☐ No☐

Ignition Authorized by:

Agency Administrator Signature and Title:_____ Date:_____

Prescribed Fire Name**: Pueblo Mountain Park**

Ignition Unit Name: **All Units**

Element 2B: Prescribed Fire Go/No-Go Checklist

Preliminary Questions	**Circle YES or NO**
A. Have conditions in or adjacent to the ignition unit changed, (for example: drought conditions or fuel loadings), which were not considered in the prescription development? If **NO** proceed with the Go/NO-GO Checklist below, if **YES** go to item B.	YES NO
B. Has the prescribed fire plan been reviewed, and an amendment been approved; or has it been determined that no amendment is necessary? If **YES**, proceed with checklist below. If **NO, STOP: Implementation is not allowed. An amendment is needed.**	YES NO
GO/NO-GO Checklist	**Circle YES or NO**
Have ALL permits and clearances been obtained?	YES NO
Have ALL the required notifications been made?	YES NO
Have ALL the pre-burn considerations and preparation work identified in the prescribed fire plan been completed or addressed and checked?	YES NO
Have ALL required current and projected fire weather forecast been obtained and are they favorable?	YES NO
Are ALL prescription parameters met?	YES NO
Are ALL smoke management specifications met?	YES NO
Are ALL planned operations personnel and equipment on-site, available and operational?	YES NO
Has the availability of contingency resources applicable to today's implementation been checked and are they available?	YES NO
Have ALL personnel been briefed on the project objectives, their assignment, safety hazards, escape routes, and safety zones?	YES NO
If all the questions were answered "**YES**" proceed with a test fire. Document the current conditions, location and results. If any questions were answered "**NO**", DO NOT proceed with the test fire: Implementation is not allowed.	
After evaluating the test fire, in your judgment can the prescribed fire be carried out according to the prescribed fire plan and will it meet the planned objective? **Circle: YES or NO**	

Burn Boss Signature:_____Date:_____

Agency Representative (City of Pueblo): _____Date: _____

Jurisdictional Authority (Beulah Fire and Ambulance): _____Date:_____

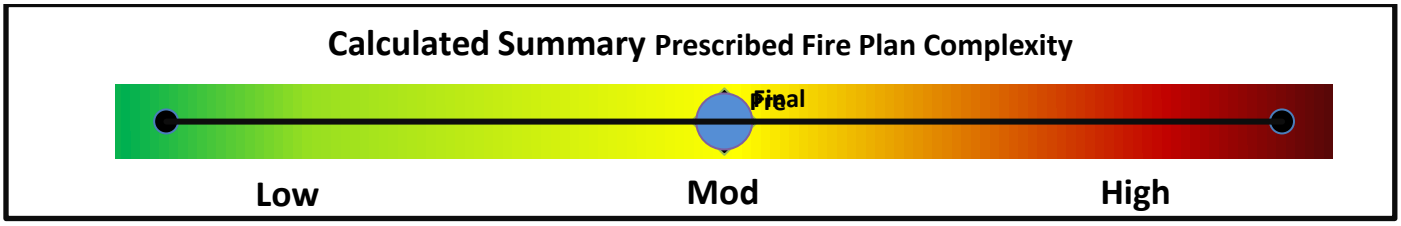
Prescribed Fire Name**: Pueblo Mountain Park**

Ignition Unit Name: **All Units**

Element 3: Complexity Analysis Summary and Final Complexity

Pueblo Mountain Park		Quantity	Significance
Values	On-Site	**Multiple**	**Low**
	Off-Site	**Multiple**	**Mod**
	Public/Political Interest	**Few**	**Low**

Element	Preliminary Risk	Post-Plan Risk	Technical Difficulty	Calculated Rating
Safety	Mod	Mod	Mod	Mod
Fire Behavior	Mod	Mod	Mod	Mod
Resistance to Containment	Mod	Mod	Mod	Mod
Ignition Procedures and Methods	Mod	Mod	Mod	Mod
Prescribed Fire Duration	Mod	Mod	Mod	Mod
Smoke Management	Mod	Mod	Mod	Mod
Number and Dependence of Activities	Mod	Mod	Mod	Mod
Management Organization	Mod	Mod	Mod	Mod
Treatment/Resource Objectives	Mod	Mod	Mod	Mod
Constraints	Mod	Mod	Mod	Mod
Project Logistics	Mod	Mod	Mod	Mod



Prescribed Fire Name**: Pueblo Mountain Park**

Ignition Unit Name: **All Units**

Final Complexity Determination	Final Complexity Determination Rationale
Mod	Safety issues are low and identified risks will be mitigated either through direct action or communication of risks to operational personnel. The units are surrounded by two track roads, handline and hoselays in spots and multiple contingencies exist. Fuels are open stand ponderosa with small pockets of Douglas and white fir with a predominantly Gambel oak understory. Terrain within the units varies, with some units being relatively flat and others having midslope lines with steep chutes. There are multiple ranch structures/infrastructure and several residences within a mile of the burn units. Span of control will be under 4-5 personnel assigned to each single resource boss. RXB2 will oversee the burn organization which may be made up of a Holding Specialist and a Firing Boss or Line Bosses. Adequate resources will be on site. Contingency resources will have a 20-40 minute response time. All threats to natural, cultural, and social resources are low and will be mitigated through planning and proper preparation. Smoke is expected to drift downhill and settle in the Beulah Valley. The area is easily accessible, and operations should last no longer than 2 days. Simple ignition patterns will be used, Ignition operations will be completed in less than 1 operational shift per unit.

Fill out Elements 4 through 21 based on the guidance provided in the *Interagency Prescribed Fire Planning and Implementation Procedures Guide*, PMS 484.

Prescribed Fire Name**: Pueblo Mountain Park**

Ignition Unit Name: **All Units**

Element 4: Description of Prescribed Fire Area

GEOGRAPHIC LOCATION						
County	State	Ownership / Management	Latitude/ Longitude	Total Property Area	Total Unit Area	Other Relevant Info: T/S/R, Quad Map, Drainage
Pueblo	CO	Pueblo / Nature & Wildlife Discovery Center	N 38° 02' 49.7" W 104° 59' 58.3"	611 Acres	204 acres	T 23S R 68W Section 16

Vegetation Types (from *Forest Stewardship Plan* – see map)	**Fuel Models**	**% of Unit Area**	**% Slope**	**Aspect**
Management Unit 1: Ponderosa pine dominate with fir, juniper, gamble oak and grass	TU1, TL8 and GR2	88%	5-10%	East & Northeast
Management Units 2&4: Douglas & sub-alpine (white) fir	TU5, TL8 and GR2	3.2%	10-40+%	Northwest
Management Unit 8: Mountain scrub-lands. Gamble oak dominate with mtn. mahogany, sage brush, bitterbrush & cactus	SH5 and GR2	2.5%	10-40%	Ridgetops, East & Southeast
Segment 26M (no mgt. unit): Cultivated meadow	GR2	6.5%	<5%	Northeast

A. Burn Unit Description

The prescribed fire project area lies entirely within the Pueblo Mountain Park, located in the Wet Mountains on the south flank of the Beulah Valley, in southwestern Pueblo County, Colorado. The Park is owned by the city of Pueblo, located in unincorporated Pueblo County and is in the Beulah Fire Protection and Ambulance District. The Park is managed and maintained by the Nature and Wildlife Discovery Center (a 501c-3) under contract to Pueblo. Its total area is 611 acres, of which 204 acres comprise the prescribed fire project area. It is located 22 miles southwest of Pueblo via Colorado Highway 78 West. It is bordered on the west by the San Isabel National Forest and by private property on the north, east and south flanks. The burn unit is in the South Creek drainage, a sub-watershed of the Saint Charles River and ultimately, the Arkansas River. The Park's natural features, wildland fire hazard and recommendations for mitigation are described in detail in the *PUEBLO MOUNTAIN PARK – FOREST STEWARDSHIP PLAN*, prepared by John Grieve (Colorado State Forest Service, Canon City District) for Pueblo City Parks and Recreation Department, February 2002.

The Park and much of the surrounding area is in the wildland-urban interface, as described in the 2006 Southwestern Pueblo County Community Wildfire Protection Plan (CWPP). Of the 204 acres in the project area, 164 acres have been thinned since 2002, including 101 acres in the 2010-2012 shaded fuel break project. This prescribed fire plan is consistent with the *FOREST STEWARDSHIP PLAN* and *CWPP*.

Topography: The project area is dominated by gentle east to northeast facing slopes (average 8%), with short, steep slopes (40%) found adjacent to northeast flowing drainages leading into South Creek. Elevations within the Park range from 6,540' to 7,400', with most of the project area at 6,600'-6,800'. (See attached Pueblo Mountain Park topographic map.)

Fuels Description: The *FOREST STEWARDSHIP PLAN* divides the Park into eight management units, not including cultivated meadows. (See attached map.) Of those, units 1-5 are forest units and 6-8 are mountain shrub-lands dominated by gamble oak, other shrub species, and mixtures of shrubs and trees. Much of the prescribed fire project area (aka the Treated Area) is in management unit 1, dominated by ponderosa pine with lesser amounts of aspen, Douglas-fir, sub-alpine ("white") fir, rocky mountain juniper and pinyon pine. Grass cover is present over much of the unit and gamble oak is the dominate shrub species. Fingers of management units 2 and 4 (with Douglas-fir the dominate species) and 8 (shrubs dominate) reach into the project area on its west flank.

B. Unit Boundaries

South Creek generally flows year-round within the eastern portion of the project area. Colorado Highway 78 West bounds a portion of the project area's east boundary. There are 4.5 miles of graveled Park road within the project area (see topographic map). The project area has been divided into 28 segments, many of which are bounded by the Park's gravel roads (see Prescribed Fire Plan Map). The actual unit boundaries are defined by the extent of the area in which thinning and hazardous fuels reduction has occurred, beginning in 2002. For much of the area, that boundary is the outer edge of the shaded fuel break established in 2010-2012. Broadcast burning may be applied in many of the 28 map segments. Some segments clearly lend themselves to prescribed fire, some may be more suited to a combination of broadcast burning and pile burning, and it may be determined that some are only suitable for chipping or pile burning due to concerns about control.

C. Adjacent Fuels

Adjacent fuels within the Park consist of the forested and shrub units described in the *FOREST STEWARDSHIP PLAN* and illustrated in the management unit map referenced above. Slope and aspect play a larger role in vegetative type in the western half of the Park, where south aspects are dominated by mountain shrubs (largely gamble oak) and north aspects are dominated by Douglas fir forest. Collectively, the Park's vegetation is much like that of the surrounding land, with extensive ponderosa pine, Douglas fir and sub-alpine fir forest, as well as expanses of gamble oak. Vegetation in those wooded and brushy areas adjacent to the Park is typically overgrown, including that in the western half of the Park and on the San Isabel National Forest.

D. Description of Proximate Values

Multiple values lie within the project area (see 2020 Prescribed Fire Plan Map):

- Horseshoe Lodge is a structure built by the Work Projects Administration (WPA) in the 1930's and currently houses the Nature & Wildlife Discovery Center office, kitchen, dining room, meeting room, dormitory and individual rental units. It is located in map segment 16.
- The Pavilion is a stone structure also built by the WPA in the 1930's. It is used for a variety of public and private events, including the annual Yule Log Festival, weddings and others. It is located in map segment 14.
- Two single family dwellings, used by Park staff, a small shop and several out buildings are located in map segment 11b.

- Approximately 20 picnic sites, a playground, ball park and archery range are also within the project area. These are all day use facilities.
- There are approximately eight miles of trails within the Park. The trailheads for all of these are within the project area.

Additional values lie adjacent to the project area:

There are approximately 135 residences adjacent to and within a one-mile radius of the center of the project area (see map of adjacent area). Of those 135 residences, approximately 72 are within a ½ mile radius of the center of the project area. These numbers are based on addresses, with one residence anticipated per address.

D. Maps–Attach in Appendix A

1. Vicinity (Required)
2. Project/Ignition Unit(s) (Required)
3. Values (Optional): ☐ Included ☒ Not Included
4. Significant or Sensitive Features (Optional): ☐ Included ☒ Not Included
5. Fuels or Fuel Model(s)(Optional): ☒ Included ☐ Not Included
6. Smoke Impact Area (Optional): ☒ Included ☐ Not Included

Prescribed Fire Name**: Pueblo Mountain Park**

Ignition Unit Name: **All Units**

Element 5: Objectives

<table>
<tr><th colspan="5">PROJECT GOALS AND OBJECTIVES</th></tr>
<tr><td colspan="5">MANAGEMENT SUMMARY AND GOALS</td></tr>
<tr><td colspan="5">1. Provide for firefighter and public safety during all burn operations.
2. Strive to concentrate the burn within the surface fuels and minimize torching in conifer species <3ft and taller.
3. Reduce accumulated thatch, shrubs, conifer seedlings and saplings, and reduce dead fuels to minimize the potential for high-severity effects following wildfires.
4. Reintroduce fire as a natural process in the ponderosa pine ecosystem.
5. Provide training opportunities where appropriate based on conditions and staffing.</td></tr>
<tr><td rowspan="5">OBJECTIVES ARE S.M.A.R.T.</td><td rowspan="5">Specific
Measurable
Attainable
Reasonable
Time Related</td><td rowspan="5">Type of burn:
(Check all that apply)</td><td>X</td><td>Ecological Management</td></tr>
<tr><td>X</td><td>Fuels Reduction</td></tr>
<tr><td>X</td><td>Training</td></tr>
<tr><td>X</td><td>Research</td></tr>
<tr><td></td><td>Other – specifically:</td></tr>
<tr><td colspan="5">PRESCRIBED FIRE OBJECTIVES</td></tr>
<tr><td colspan="5">1. Reduce conifer regeneration in ≤3 ft. size class (all species) by at least 5% within 1 year of the burn.
2. Reduce 1-, 10- and 100-hour surface fuels by at least 50% immediately post burn.
3. Limit mortality of all trees taller than 15 ft. to 5% or less within 1 year of burn.
4. Increase native herbaceous vegetative cover by 20% within 2 years of the burn.
5. Curtail the spread of Gambel oak within 2 years of the burn.</td></tr>
<tr><td colspan="5">RESOURCE MANAGEMENT OBJECTIVES</td></tr>
<tr><td colspan="5">1. To reestablish a healthy forest through maintenance of functional ecosystems; restoration and maintenance of forest stands; and control of insects, disease and invasive plants.
2. To maintain a forest that protects water quality and quantity, riparian areas, and wildlife habitat.
3. To manage a forest that provides multiple uses including wildlife habitat, recreation, and educational opportunities.
4. To enhance the forest through thinning, surface and ladder fuels reduction, and reforestation.
5. To be an example of excellent natural resource stewardship through such practices as: erosion control, healthy forest maintenance and wildlife habitat improvements.
6. To involve students and other publics in experiential learning of conservation methods.
7. To meet goals and objectives set forth in the *FOREST STEWARDSHIP PLAN* and *CWPP*.</td></tr>
<tr><td colspan="5">IDENTIFY CONSTRAINTS</td></tr>
<tr><td colspan="5">Grasses and gamble oak litter are the primary carriers of the fire. Their continuity and moisture content will dictate fire spread and, to a large degree, the ability to meet fire objectives. Portions of the prescribed fire planning area include persistent and encroaching stands of gamble oak. It provides surface and ladder fuels that can support fire activity that threatens the watershed. Persistent action is needed to manage gamble oak, including fire, mechanical treatment and perhaps, herbicide application. The potential for smoke impacts to neighboring residences may prompt immediate mop-up activities that would, in turn, limit the consumption of surface fuels targeted in the fire objectives for reduction.</td></tr>
</table>

Prescribed Fire Name**: Pueblo Mountain Park**

Ignition Unit Name: **All Units**

Element 6: Funding

The Frank Lamb Foundation has provided funding to the Nature and Wildlife Discovery Center (NWDC) to support this project. That funding is in the amount of $30,000 spread over three years ($10,000 in each of 2021, 2022, and 2023), which will support fire mitigation efforts in Pueblo Mountain Park. More specifically, it will support a collaborative effort with The Ember Alliance in the planning and facilitation of prescribed burns in the park over these three years. Funding and/or partner in-kind contributions are available to support all phases of project execution including mop-up and post burn checks.

Prescribed Fire Name**: Pueblo Mountain Park**

Ignition Unit Name: **All Units**

Element 7: Prescription

A. Prescription Narrative:

The prescription for burning at Pueblo Mountain Park accounts for the seasonality of burning in Colorado, with a Spring burn window preferred to a Fall. Both seasons will be utilized if conditions allow. Primary objectives of this burn are to manage conifer regeneration, manage oak, and maintain a healthy forest structure with specific objectives outlined in Element 5. Ideally, backing fire will be used throughout the units with a mosaic, dot-firing approach preferred for the interior of units and strip fire along perimeters. Flame lengths that exceed 4' should be considered undesirable whereas a slow backing fire with long-residence time, and minimal to no torching is preferred. Longer flame residence time usually generated by backing fire is desirable for impacting oak bark and cambium layers, potentially setting back or causing mortality of those stems.

B. Prescription and Fuels Parameters:

Fuel Parameters:	**LOW**	**PREFERRED**	**HIGH**	**OUT***
1-Hour Fuel Moisture (%)	**13**	**6-8**	**4**	Sustained 20' winds > 21 without blacklining or other mitigating factors** High 1-hour fuel parameter + one of the following Weather parameters: >21 mph 20-ft winds, 80% PIG.
10-Hour Fuel Moisture (%)	**15**	**8-10**	**6**	
100-Hour Fuel Moisture (%)	**17**	**12**	**8**	
Live Fuel Moisture (%) (Herb/Woody %) Woody value represented by Gambel Oak taken from Red Creek National Fuel Moisture Database (NFDM); Willis Creek is also a representative RAWS station/NFDM site)	**90/90**	**50/70**	**30/60**	
Weather Parameters:				
Air Temperature (F)	55	65	75	--
Probability of Ignition	16	52	71	--
20 ft wind speed (mph)	**0-10**	**10-15**	**15**	21
Mid Flame Wind Speed (mph) [wind adjustment factor .3 applied to 20 ft wind speed]	**0-3**	**3-5**	**5**	Sustained winds exceeding 5mph for 15 or more minutes
Wind Direction(s)	*Refer to smoke permit. An easterly component is preferred from a smoke management perspective, but any direction is suitable.			--

Prescribed Fire Name**: Pueblo Mountain Park**

Ignition Unit Name: **All Units**

BOLD numbers indicate values used in Behave runs when a range of variables existed but all were not modeled.
**Other parameters could include: environmental or fuels conditions that moderate fire behavior, black lines are in place, natural barriers/sparse fuels that would limit fire spread

Fire Behavior			
Fuel Model –TL8 (80%) + GR2 (20%)	**Acceptable Fire Behavior Range**		
	LOW	**PREFERRED**	**HIGH**
Surface fire rate of spread (ch/hr)	2.5	11.8	15
Surface fire flame length (feet)	2.1	4.9	5.6
Scorch height (feet)	5	22	32
Spotting distance (mi)	.1	.2	.2
Probability of ignition (%)	16	52	71

C. Fire Modeling or empirical documentation (or both)

The fire was modeled in Behave 6.0.0 utilizing a combination of TU1, GR1, GR2, TL8 and TU5 to test containment between a broad temperature, wind and moisture spectrum. Douglas fir (PSME) was treated as the spot source species, and while there are small pockets of Douglas and white fir, the carrying fuel composition is primarily grass (20%), and timber litter/duff (80%), with intermittent Gambel oak and large open stands of ponderosa (PIPO) throughout. The project area is 50-75% shaded. In most cases, containment was achieved, and very little residual burning occurs (less than an acre). In the case of cured/dry GR2, containment was not achieved in a continuous fuel setting at low fuel moistures. Additional modeling demonstrated containment in a GR2/TL8 mosaic in the high end of the given prescription. As modeled, resources arrive on scene in short order due to their proximity to the main fire and network of roads throughout the park.

Element 8: Scheduling

A. Implementation Schedule:

Scheduling			
SEASON(S) OF BURN:	Fall, Spring	TIME OF DAY:	Any
EARLIEST DATE:	NA	BLACKLINE PHASE LENGTH:	NA
LATEST DATE:	NA	BURNOUT PHASE LENGTH:	1-2 days

1. Burn window suggested processes:
    a. Day before burn: meet at Horseshoe Lodge parking lot between 1300 and 1330; tour units, refine tactical plans, camp on site.
    b. Day of the burn: morning briefing at 0800 with end-of-shift predicted for 1830, camp on site.
    c. Day after the burn: morning briefing at 0800, depart unit at 1200.
2. Spring burn window is between
    a. March 15th and May 15th
3. Fall burn window is between
    a. September 15th and November 15th

B. Projected Duration:

It is estimated that each burn unit will take less than a day to ignite, patrol and mop-up.

C. Constraints:

Drought, fire restrictions, Pueblo Mountain Park priority events, equipment failure, lack of qualified personnel, Covid-19.

Prescribed Fire Name**: Pueblo Mountain Park**

Ignition Unit Name: **All Units**

Element 9: Pre-burn Considerations and Weather

A. Preparations	
On Site: Project Area	Description
Line to be Constructed/Critical Holding Points	Most units are surrounded by gravel roads, accessible in the spring through the fall and inaccessible during the winter months. Raking portions of the gravel roads may be required. Units bounded by private land may need line construction when it comes time to burn them.
Boundaries, Drop-points, Roads, Access, etc. Identified and Marked as Necessary	Road conditions are of quality surface. In some areas they may be narrow for two apparatus to bypass each other.
Equipment to be pre-positioned (hose lays, tanks, structure wrap, etc)	Portable water tanks may be staged based on the units to be burned. Hose lays to be employed on burn day and through mop-up, if needed.
Special Features to be protected	Certain trees that need to be protected may need lined and/or have adjacent ladder fuels removed. Picnic sites to be considered. Structures mentioned in the complexity analysis.
Hazards	Uneven terrain. Narrow roads. Wildlife. Potential for curious public.
Warning signs placed	Recommend electronic signs along Highway 78W that leads to Beulah. Caution signs along roads leading to the park, as well as in the park near the segments to be burned. These should inform the public of prescribed fire in progress.
Pre-burn Fuel Sampling	Live fuel moistures of grass, brush and conifers should be sampled if possible, using a fuels oven or using reference samples from other sources in the area. National Fuel Moisture Database lists Red Creek fuel sampling site as nearby (approx. 12 miles north of Park, elevation at 5,883 ft.)
Off Site: Administrative	Description
Other	
Method and Frequency for Obtaining Weather and Smoke Management Forecast(s):	
Weather: Spot weather forecasts will be obtained by the burn boss on all ignition days and for the three days following the scheduled burn day, as well as any days thereafter when the fire is still active. A copy of the spot weather forecasts will be included in the IAP or fire report. Weather forecasts will be obtained and distributed (by hard copy or briefing) each day personnel go to the unit for mop-up and patrol. On site weather will be collected during burn operations at a frequency determined by the burn boss.	
Smoke: Smoke management information will be submitted and/or obtained by the burn boss prior to any ignition operations taking place. At burn boss discretion, resources may be assigned to monitor smoke during burn operations. Burn boss will submit required documentation to the Colorado Air Pollution Control Division.	

B. Notifications and Public Relations			
AGENCY	**CONTACT INFORMATION**	**CONTACT/TIMING** (Burn Boss, PIO, Fire Manager, or delegated individual)/P,D,A - Prior to day of burn (P), Day of Burn (D), After completion (A)	**DATE**
DISPATCH CENTERS			
Pueblo Interagency	719-553-1600	Email RX Notification P	

Dispatch Center		Call D, A	
Pueblo County Sheriff's Communications Center	719-583-6250	P, A	
Pueblo City Dispatch Center	719-553-2502	P, A	
AIR QUALITY			
CDPHE-APCD (Colorado State Health permit required)	cdphe_fireapps@state.co.us	P, D, A	
LAW ENFORCEMENT			
Pueblo County Sherriff's Office	Via Pueblo County SO Dispatch	See above under Dispatch Centers	
FIRE DEPARMENTS			
Beulah Fire Protection and Ambulance District, Chief Bryan Ware	719-485-2367 Chief@socolo.net and via Pueblo County SO Dispatch	P, D, A	
Pueblo Fire Department, Chief Barbara Huber	719-553-2830 and via Pueblo City Dispatch	P, D, A	
Rye Fire Protection District, Chief Steve Bennett	719-676-3522/489-2223 and via Pueblo County SO Dispatch	P, D, A	
Pueblo County Sheriff – Emergency Services Bureau, Chief Mark Mears	719-583-6200 Mears@co.pueblo.co.us and via Pueblo County SO Dispatch	P, D, A	
The Ember Alliance			
Gabe Donaldson	970-690-2105 gabe@emberalliance.org	Burn Boss: P, D, A	

Prescribed Fire Name**: Pueblo Mountain Park**

Ignition Unit Name: **All Units**

CO Department of Public Safety – Division of Fire Prevention and Control			
Joe LoBiondo, Battalion Chief South Region	719-275-6853 joseph.lobiondo@state.co.us	Burn Boss 3: P, D &A	
FEDERAL AGENCIES			
USFS, Pike-San Isabel National Forest, San Carlos District, Fire Management Division Chief 3, Dennis Page	719-269-8584 (office) 719-429-2510 (cellphone) dwpage@fs.fed.us and via Pueblo Interagency Dispatch Center	See above under Dispatch Centers	
INDIVIDUALS			
MEDIA			
Jill Laca, Beulah Fire PIO	(719) 850-3422 lacajill@gmail.com	P, D, A	
Pueblo Chieftain	amestas@chieftain.com, city@chieftain.com, jbartolo@chieftain.com, jpompia@chieftain.com, llyons@chieftain.com, rlopez@chieftain.com, ryans@chieftain.com, tharmon@chieftain.com	P, A	
Beulah Newspaper, Greta Hanson Maurer	(719) 485-3881 thebeulahnewspaper@gmail. com	P, A	
Beulahland Communications, Inc.,	719-485-3400	P	

Adria	newsletter@socolo.net		
Greenhorn Valley View	editor@greenhornvalleyview.com	P, A	
KOAA (television)	news@koaa.com, cwinder@koaa.com,	P,A	
KKTV	news@kktv.com	P, A	
KRDO (television & radio)	krdonews@krdo.com, Shannon.brinias@krdo.com	P, A	

C. Partner and Other Notifications

AGENCY	CONTACT INFORMATION	CONTACT/TIMING (Burn Boss, PIO, Fire Manager, or delegated individual)/P,D,A - Prior to day of burn (P), Day of Burn (D), After completion (A)	DATE
TNC			
Parker Titus	303-444-2950 ptitus@tnc.org	P. A	
Rob Addington	raddington@tnc.org	P, A	
PARTNERS			
Nature & Wildlife Discovery Center, Patty Kester	patty@hikeandlearn.org 719-485-4444	P, D, A	
Pine Drive Water District, Ryan Jameson	719-924-3330 ryan@ryanjameson.com	P, D, A	
Beulahland Communications, Inc.	719-485-3400	P, A	
San Isabel Electric Association, Inc.	719-547-2160	P, A	

A. Method and Frequency for Obtaining Weather and Smoke Management Forecast(s):

Spot weather forecasts will be obtained prior to, during and following the burn through closure of the event. On site weather will be conducted at 30–60-minute intervals throughout the shift by the designated Fire Effects Monitor (FEMO).

Smoke will be monitored throughout the day by the Burn Boss and FEMO, and fire operations may adjust cadence and tempo to manage smoke output.

B. Notifications:

Notifications will be made as per chart in 9A and 9B.

Prescribed Fire Name**: Pueblo Mountain Park**

Ignition Unit Name: **All Units**

Element 10: Briefing

A. Briefing Checklist; including, but not limited to: (additional items may be added)

- **Welcome and Introductions -**
- **Burn Unit:**
  - Project Description
  - Ecological Objectives
  - Size
  - Boundaries
  - Containment Lines
  - Water Sources
  - Staging Area
- **Assignments and Organization:**
  - Equipment and Personnel Roll Call
  - Org Chart
  - Chain of Command
  - Holding
  - Firing
  - Mop Up and Patrol
- **Communication**
- **Safety:**
  - PPE
  - Hazards
  - LCES
  - Medical Plan
  - Communicate the appropriate medical response, process, and organization
- **Weather**
- **Anticipated Fire Behavior/Smoke**
- **Media/Public Engagement**
- **Contingencies:**
  - Secondary Control Lines
  - Contingency Resources
  - Back Up Water Sources
  - Values @ Risk
  - WUI Concerns
  - Fire Outside of the Unit Boundaries
- **Escaped Fire/Wildfire Declaration:**
  - Communicate under what circumstances the Burn Boss will declare an escape.
  - Communicate under what circumstances the Burn boss will convert an escape into a wildfire
  - Identify who will be the Escape IC
  - Identify who has response authority
  - Communicate the escape/wildfire organization
- **Questions**
- **Have all resources signed the sign in sheet?**

Prescribed Fire Name**: Pueblo Mountain Park**

Ignition Unit Name: **All Units**

Element 11: Organization and Equipment

A. Personnel and Equipment

Minimum Workforce and Equipment Needed to Conduct Burn							
Positions							
		LOW		**PREFFERED**		**HIGH**	
Position	ICS Code or Unit of Measure	Total Amount	Line Production Rates for Initial Action by Engine Crews in (ch/hr)	Total Amount	Line Production Rates for Initial Action by Engine Crews in (ch/hr)	Total Amount	Line Production Rates for Initial Action by Engine Crews in (ch/hr)
Prescribed Fire Burn Boss	RXB2	1	--	1	--	1	--
Medical Responder	WOFR (or higher)	1	--	1	--	1	--
Ignition Specialist	FIRB	1	--	1	--	1	--
Holding Specialist	STLD/TFLD	1 (SRB/ICT4 okay)	--	1 (SRB/ICT4 okay)	--	1	--
Fire Effects Monitor	FEMO	1	--	1	--	1	--
Engine Boss	ENGB	3	12	3	12	4	12[1]
Ignition Crew	FFT2	3	0	3	0	6	0
Holding Crew and Engine Crewmembers	FFT2	3	0	3	0	6	0
Total Line Production			**36**		**36**		**48**

[1] Line production rate determined by PMS 210 - The Fireline Handbook, page 124, using fire behavior fuel model (FBFM) #2 and #5 with 3 persons per engine and three engine on scene.

Prescribed Fire Name**: Pueblo Mountain Park**

Ignition Unit Name: **All Units**

<table>
<tr><td>Total Personnel</td><td></td><td>14</td><td></td><td>14</td><td></td><td>21</td><td></td></tr>
<tr><td colspan="8">Equipment</td></tr>
<tr><td>Engine</td><td>Type 6</td><td>3</td><td>12</td><td>3</td><td>12</td><td>4</td><td>48</td></tr>
<tr><td>Total Line Production Rate</td><td></td><td>3</td><td>12</td><td></td><td>12</td><td></td><td>36</td></tr>
<tr><td colspan="8">Supplies</td></tr>
<tr><td>Drip Torches</td><td>10</td><td></td><td colspan="5" rowspan="10">Staffing Notes: “Low, Moderate, and High prescription levels shown in Element 7 correspond to the required organization levels above. Under all organization levels the RXB2, FIRB, Holding Specialist, and Lookout are separate positions from the resources listed. Medical Responders, may be a part of the listed engine, holding, or firing resources.

If Engines are serving as pumping platforms in lieu of portable pumps, these engines must be in addition to the required number of engines needed for implementation.</td></tr>
<tr><td>Chainsaws</td><td>2</td><td></td></tr>
<tr><td>Handtools</td><td>All Personnel</td><td></td></tr>
<tr><td>Portable Pumps and/or Engine Pumping Platform</td><td>1 Portable</td><td></td></tr>
<tr><td>Drip Torch Mix</td><td>50 gallons</td><td></td></tr>
<tr><td>Pump Fuel</td><td>50 Gallons</td><td></td></tr>
<tr><td>Portable Water Tank</td><td colspan="2">1</td></tr>
<tr><td>UTV’s (recommended but not required)</td><td colspan="2">2</td></tr>
<tr><td>250’ Progressive hose-lay</td><td colspan="2">250’</td></tr>
<tr><td colspan="8">With Fire Management Officer approval, variations to the above “Minimum” organizational requirements are permissible if safety considerations are mitigated. Additional resources can be added at the burn boss’ discretion. Monitoring and patrol may be overseen by a ICT5/Single Resource Boss as delegated by the RXB2.</td></tr>
</table>

B. Supplies:

In addition to the equipment listed above, all resources are expected to arrive self-sufficient and prepared to either return to quarters or rest overnight on site.

Prescribed Fire Name**: Pueblo Mountain Park**

Ignition Unit Name: **All Units**

Element 12: Communication

A. Radio Frequencies:

SYSTEM	RX FREQ.	RX TONE	TX FREQ.	TX TONE	ASSIGNMENT	REMARKS
BFD TAC 1					Operations	Will get cloned the day before burn
CNTY MAC					Alternate Command	Will get cloned the day before burn
BFD TAC 2					Fire Operations	Will get cloned the day before burn
SIMPLEX 1					Air to Ground	
12 Mile Repeater	158.73000	179.9	156.0300	179.9	TBD	
TNC FIRE	151.6250		151.6250			
VFIRE 22	154.2650		154.2650	156.7		
VFIRE 23	154.2950		154.2950	156.7		
VFIRE 21	154.2800		154.2800	156.7		

If the incident grows beyond the controlled areas, operations will move to Beulah Fire Primary channel for the initial operational period. If a medical emergency occurs, that part of the incident will move communications to Beulah Fire Primary channel.

All responders on the prescribed burn will be working on BFD TAC 1 unless otherwise assigned.

Prescribed Fire Name**: Pueblo Mountain Park**

Ignition Unit Name: **All Units**

Element 13: Public and Personnel Safety, Medical

MEDICAL AID STATION, CLINICS, TRAUMA CENTERS OR HOSPITALS						
NAME OF FACILITY	PHYSICAL ADDRESS	TRAVEL TIME (MINUTES) AIR/GND		PHONE NUMBER	BURN CENTER (Yes/No)	HELIPAD (Yes/No)
Parkview Medical Center	400 West 16th Street Pueblo, Colorado	10	32	719-584-4000	NO	YES

AIR AND GROUND PATIENT TRANSPORTATION			
NAME OF TRANSPORT AGENT	PHYSICAL ADDRESS	PHONE NUMBER	PARAMEDICS (Yes/No)
Beulah Fire Protection and Ambulance District	8675 Central Avenue Beulah, Colorado 81023	719-485-2367 (non-emergency) 911 (emergency)	YES
Flight for Life (air)	1008 Minnequa, Pueblo CO 81004	PCSO Comm Center	YES

MEDICAL EMERGENCY PROCEDURES

The Burn Boss will be immediately notified of any medical emergency. The closest and most qualified medical responder will, per burn boss discretion, take charge of the scene. Operations will be suspended if necessary, and the medical emergency will be treated as an incident within an incident. Depending upon the severity of the injury, the patient's method of evacuation to a treatment facility will be determined by the medical responder in charge.

The Beulah Fire Protection and Ambulance District will have an ALS (Advanced Life Support) unit on site with a paramedic and an EMT who will oversee medical issues as/if they arise. First Aid supplies will be available through this unit.

DIRECTIONS FROM NEAREST MEDICAL FACILITY TO PROJECT VIA GROUND TRANSPORTATION and DIRECTIONS FROM PROJECT AREA TO NEAREST MEDICAL FACILITY

Directions to Parkview Medical Center from the Pueblo Mountain Park:

1. Starting at the main entrance (Pueblo Mountain Park Road) to Pueblo Mountain Park, turn left on Highway 78 West (aka South Pine Drive) and drive 22.6 miles to the intersection with South Pueblo Blvd.
2. Turn left on South Pueblo Blvd and proceed 1.6 miles to the intersection with Thatcher Avenue
3. Turn right on Thatcher Avenue (which becomes Lincoln Avenue then 4th Street) and proceed 3.0 miles to the intersection with North Grand Avenue
4. Turn left on North Grand Avenue and proceed 0.8 miles to the intersection with 16th Street. Parkview Medical Center is on the left at 400 North Grand Avenue.

TOTAL DISTANCE = 28.0 miles ESTIMATED DRIVE TIME = 32 MINUTES

Prescribed Fire Name**: Pueblo Mountain Park**

Ignition Unit Name: **All Units**

LAT/LONG, GROUND CONTACT FREQUENCY OF PROJECT MEDIVAC HELISPOTS					
#1: School Track LATITUDE:	38° 4' 29.67"N	LONGITUDE:	104° 58' 36.922"W	FREQUENCY:	DTR Simplex 1
#2: Beulah Fire Sta. 1 LATITUDE:	38°4’ 38.21”N	LONGITUDE:	104° 58' 24.86"W	FREQUENCY:	DTR Simplex 1
#3: Mtn. Park Ball Field LATITUDE:	38° 2' 42.617"N	LONGITUDE:	105° 0.0' 0.077"W	FREQUENCY:	DTR Simplex 1

Element 14: Test Fire

A. Planned Location:

The test fire location will be determined by the burn boss on the day of ignitions based on weather conditions. A test fire will be conducted prior to making the final "GO/NO-GO" decision. The test fire should be ignited in representative fuels of a suitable location that facilitates ease of holding with a good anchor point in the burn area. The test fire will determine if fire behavior is appropriate, consumption is adequate and smoke dispersal is acceptable. The test fire should be ignited in representative fuels and allowed to burn enough to give the Burn Boss a good idea of ease of ignition, flame lengths, initial flame pulse, and wind impact prior to the start of the main ignition. If the Burn Boss deems the observed or anticipated fire behavior will meet objectives, the Burn Boss will announce to all resources that the prescribed fire will continue. Otherwise, the test fire will be fully suppressed. The Burn Boss will designate the size of the test fire.

B. Test Fire Documentation:

1. Weather conditions on-site (enter observations below)

2. Test fire results (enter observations below)

Prescribed Fire Name**: Pueblo Mountain Park**

Ignition Unit Name: **All Units**

Element 15: Ignition Plan

IGNITION PLAN *Attach appropriate maps, photos, etc.
PREBURN CONSIDERATIONS:
Firebreak preparations: Burn day pre-checks: Pre-checks will be completed prior to burn by the Burn Boss for condition and status of access roads, egress routes, burn fuel staging and safety zones. These will be labeled as needed on the ground with flagging and signs. This will be covered during the briefing and identified on the maps and or aerial photos. L.C.E.S. (Lookouts, Communications, Escape Routes and Safety Zones) will be identified and covered during the briefing and updated as needed throughout the burn operation.
IGNITION PLAN:
Standard Ignition Technique: Prior to the test fire the Burn Boss will brief resources and complete both the Go-No-Go Checklist with the Firing Bosses or Line Bosses, depending on burn organization structure. If a 'NO' response occurs, then ignitions will be delayed/prevented until the 'NO' can be mitigated. Weather data will be taken on site and a spot forecast for this specific site will be requested from the National Weather Service. After review of the SPOT weather forecast, a test fire will be performed downwind and in fuels representing the unit. The Burn Boss will determine if the fire behavior and smoke dispersal are within appropriate and expected ranges, then the burn will proceed. The Firing Bosses or Line Bosses may utilize fuel, topography, weather and ignition techniques to create desired fire behavior to meet the burn's objectives. Backing and flanking fires will primarily be used to buffer containments lines before main ignitions where backing and moderate flanking is acceptable. Burn Boss will notify Pueblo Interagency Dispatch (719) 553-1600 when ignitions begin, cease and with an accomplishments report upon completion.

A. Firing Methods:

Backing fire will be used throughout the units with a mosaic, dot-firing approach preferred for the interior of units and strip fire along perimeters. Flame lengths that exceed 4' should be considered undesirable whereas a slow backing fire with long-residence time, and minimal to no torching is preferred.

B. Devices:

A drip torch or drone with plastic sphere dispenser (psd) should be considered the primary tools to accomplish burn objectives and desired fire effects. Fusees, very pistols, and miscellaneous incendiary devices may be considered as complimentary to increasing production rates but should otherwise be treated as secondary tools or tools utilized for training.

C. Minimum Ignition Staffing:

Ignitions will need to consist of at least a qualified FIRB, 1 FFT1 and 2 FFT2's. Trainees are recommended and encouraged.

Element 16: Holding Plan

HOLDING PLAN
POTENTIAL HOLDING PROBLEMS:
No major holding issues noted at this time.
HOLDING PLAN:
Location of holding resources and instructions: Assignments for holding will be given the day of the burn by the Burn Boss or designated Holding Specialist to allow for changing ignition patterns and resource availability. **Primary Control Lines:** Most of the units are bounded all or in part by roads. Some units will require line construction and/or wet lines to prevent fire from going into segments of the overall plan area not yet scheduled for burning, parts of the Pueblo Mountain Park outside the plan area, the San Isabel National Forest or private lands or drainages the fire is not desired to be in. If wet-lines are planned, they will be established immediately prior to any ignition along established control lines, unless a natural or manmade control line provides a barrier to fire spread such as a gravel road, disked fire break or harvested crop field that has been worked. At least one holding resource such as an engine, ATV/UTV or scout will follow up each ignition to monitor for creeping or spotting of fire outside of control lines. Additional resources, typically a UTV, will continually patrol all lines of the unit extinguishing all smokes within 10 ft. of the line or until otherwise directed by the Burn Boss. **Secondary Control Lines:** Numerous roads, drainages, natural and manmade barriers exist on the property. In addition, fuel model transitions between grass, cultivated meadows, mountain shrub-land, Ponderosa pine and fir (Douglas and white) forest occur, especially between gentle slopes central to the burn plan area and areas of higher relief, in drainages and generally in the western portion of the Park. Those features that will be used as contingency lines should be scouted and communicated to resources on scene prior to ignitions. All units in the park are bound by Highway 78, Archery Range Road, The High Road, The Middle Road and a series of trails and shaded fuel breaks extending north and west. Unit #12, Unit #16, Unit #18 and Unit #19 make up the eastern perimeter and are adjacent to the Highway 78 corridor, while Unit #8, Unit #2, Unit #26M and Unit #20 make up the northern and western edges which lie adjacent to a fuel transition into spruce/fir. Finally, Units 1a, 1b and 1c complete the southern edge with open meadows lying between the southern unit perimeter and Highway 78. Keep in mind that prescribed burning and thinning units differ from the units outlined in the Forest Management Plan and can be found in the Pueblo Mountain Park: 2020 Prescribed Fire Plan Map appendix. **Standard Operating Guidelines for Holding Crews:** Burn Boss will be notified by radio or face to face verbal communication of any and all spot fires and status of containment efforts. If containment becomes too difficult or is a safety risk, ignition firing patterns will be modified to pull heat and intensity off the problem area. If containment continues to fail, ignition will be terminated and will be managed for containment objectives. All available resources will be shifted to initial attack (I/A). **Spot fires:** Holding personnel will monitor and patrol along all containment lines. All personnel will keep watch for slop-overs and spot fires outside of the containment lines of the burn. The Firing Specialist will need to keep in constant communication with the Burn Boss or designated Holding Specialist to ensure that holding resources are not being overwhelmed and spread out too thinly. Spots/slops over containment lines will be sized up and immediately suppressed. Once these spots/slops are contained, ignitions may continue at the discretion of the Burn Boss. Patrols will take place on foot and with vehicles. **Mop Up:** After ignition is completed, crews will immediately begin mop-up actions. Burn boss will establish mop-up standards based on adjacent fuels and expected weather conditions. At a minimum, control lines adjacent to readily available fuels will be cold–trailed and extinguished a minimum of 25 ft. in from the edge. The burn boss will decide

whether a unit needs subsequent monitoring based on current and expected weather. Any heavy fuels near the containment lines will be moved into the burn unit to lessen the chance of the fire escaping. The goal is to allow for consumption of 50% of the 1-, 10-, and 100-hour surface fuels, or more if conditions permit. **Medical Emergency:** In the event of a medical emergency, personnel will immediately notify the Burn Boss. The Burn Boss shall decide at that time whether the medical incident requires holding or stopping the burn. If medical response reduces the effective resources below required levels, ignitions must be stopped as described in ignition techniques. **Escaped Fire:** In the event the Burn Boss declares an escape, see Element 18: Wildfire Declaration
WATER SOURCES: Include backup source of water
One or more portable ponds or tenders will be placed near the unit to be ignited. The number of portable ponds or tenders will be dictated by the unit being ignited. Hydrants, ponds and other water sources in the Pueblo Mountain Park and areas near-by will be identified on the Burn Map and referenced in the pre-burn briefing.
ALLOWABLE AREA OR MAXIMUM MANAGEMENT AREA:
Only units that are planned for ignition

A. General Procedures for Holding:

Holding assignments will be given the day of the burn by the Holding Specialist to allow for changing ignition patterns and resource availability. Good communication between the Burn Boss, the Firing Boss and the Holding Specialist is necessary to ensure that holding resources are not being overwhelmed.

Primary Control Lines: Boundaries for the unit include a combination of roads and constructed hand line reinforced with wet lines where appropriate.

Secondary Control Lines: The area around the prescribed burn unit contains numerous roads, drainages, natural barriers, and fuel model transitions to use as contingency lines. Those that will be used as contingency lines will be scouted and communicated to resources on scene prior to ignitions. (Refer to the Contingency Map, Appendix A.)

Spot Fires: Holding personnel will monitor and patrol along all containment lines during and after ignition operations. All personnel will monitor the unburned area outside the burn unit for slop-overs and spot fires. Spots/slops over containment lines will be sized up and immediately suppressed. The Burn Boss will be notified of all spots/slops and the status of containment efforts. If containment becomes too difficult or is a safety risk, ignition firing patterns will be modified as necessary to aid in containment. If containment continues to fail, ignitions will be terminated and will be managed for containment objectives. Once these spots/slops are contained, ignitions may continue at the Burn Boss' discretion.

Mop-Up: Any heavy fuels near the containment lines will be moved into the burn unit to lessen the chance of the fire escaping. Mop-up may be needed along containment lines to secure the perimeter. Mop-up standards will be identified by the Burn Boss based on current and expected fuels and weather conditions.

B. Critical Holding Points and Actions:

Any fire perimeter that abuts the untreated units to the west ought to be considered a critical holding point, due to the change in adjacent fuel types, arrangement, and composition. Handline constructed on unit 11a runs adjacent to nearby Park residential structures and plumbing the line with a standard progressive hose lay should be considered as an added precaution.

Prescribed Fire Name**: Pueblo Mountain Park**

Ignition Unit Name: **All Units**

C. Minimum Organization or Capabilities Needed:

Please refer to Element 11 for minimum organization and capabilities needed.

Prescribed Fire Name**: Pueblo Mountain Park**

Ignition Unit Name: **All Units**

Element 17: Contingency Plan

A. Management Action Points:

The burn boss has the authority and discretion to determine any condition that warrants the need to activate the contingency plan. Conditions under the contingency plan could include the following (this list is not all inclusive);

1. Fire crosses primary control lines and exhibits resistance to control.
2. Fire crosses onto private property not included in the prescribed fire plan.
3. More than three spot fires or slops are ongoing at any one time.
4. Structures are imminently threatened.
5. Fire behavior results in undesirable effects i.e. excessive mortality, undesired impacts to soils.

B. Actions Needed:

Ignitions will be discontinued, and suppression of the uncontrolled fire will occur. Should ignition operations be suspended, the Burn Boss will meet with the Firing Specialist, and Holding Specialist. Ignition operations may resume with consensus from the Burn Boss, Holding Specialist, and Ignition Specialist that operations can safely continue after the threat has been controlled.

C. Contingency Resources and Response Time(s):

Description	**Contact Point Person**	**Contact Method** (phone, radio frequency)	**Availability**	**Response Time** (from time of call to arrival on scene)
Pueblo City Fire Department	Assistant Chief on duty	Pueblo City Dispatch 719-553-2502	24/7	+40 minutes
Pueblo West Fire Department	Shift commander	Pueblo County Comm. 719-583-6250	24/7	+50 Minutes
Rye Fire Protection District	Shift commander	Pueblo County Comm. 719-583-6250	24/7	+60 Minutes
Pueblo Rural Fire Department	Shift commander	Pueblo County Comm. 719-583-6250	24/7	+ 60 Minutes

Prescribed Fire Name**: Pueblo Mountain Park**

Ignition Unit Name: **All Units**

Element 18: Wildfire Declaration

A. Wildfire Declared By:

The Burn Boss is the Incident Commander (IC) for the prescribed burn, as long as the burn remains in prescription. The Burn Boss will declare an escaped fire if any of the following occurs:

1. Fire spots across the primary control line and exhibits resistance to immediate control or containment is unlikely in the same operational period.
2. The Burn Boss determines that structures are threatened.
3. The Burn Boss elects to declare an escape.
4. If any spots or slop-overs spread onto adjacent private property or public land (San Isabel National Forest) not owned by the city of Pueblo, i.e. outside the Pueblo Mountain Park, an escape fire will be declared, a size up will be given to the burn boss and suppression actions will be taken.

If it can be done SAFELY, all ignitions will stop if an escape is declared. Maximum effort will be made to suppress the escape.

B. IC Assignment:

In the event of an escape, the Burn Boss will suspend ignition operations if it can be done safely. The Beulah Fire Protection and Ambulance District (jurisdictional authority) representative who would become the Jurisdictional Incident Commander (IC) in the event of an escape will be identified during the pre-burn briefing. The burn boss and Jurisdictional IC will form a Unified Command. Jurisdictional responsibility for wildfire suppression actions at this site resides with the Beulah Fire Protection and Ambulance District.

The Burn Boss will continue to manage the prescribed fire and release any resources not necessary to the Jurisdictional IC. Objective of Burn Boss will be to control the prescribed fire and if possible, suppress it so all resources can be dedicated to the wildfire suppression response. If off-site resources arrive, they will assimilate with on-site resources and be assigned roles under the Unified Command. All FSG, TEA and contracted resources will remain on scene assisting in suppression efforts until released by the Burn Boss and the Jurisdictional IC.

C. Notifications:

The Burn Boss will notify Pueblo Interagency Dispatch Center, and the Jurisdictional IC will notify Pueblo County Sheriff's Communications Center.

Prescribed Fire Name**: Pueblo Mountain Park**

Ignition Unit Name: **All Units**

Element 19: Smoke Management and Air Quality

A. Compliance: The prescribed fire will follow all state smoke permitting requirements as well as notification requirements of local fire protection districts and the property owner.
B. Permits to be Obtained: CDPHE Smoke Permit
C. Smoke-Sensitive Receptors: Beulah, CO and surrounding homes
D. Potential Impacted Areas: Homes and vehicles along the Highway 78 corridor.
E. Mitigation Strategies and Techniques to Reduce Smoke Impacts: Burning will occur in compliance with CDPHE permit # OTR-21-196
F.

SMOKE MANAGEMENT					
SMOKE PERMIT #	**OTR - 21 - 196**		WIND DIRECTION NEEDED:	ANY	
SMOKE SENSITIVE AREAS POTENTIALLY IMPACTED					
RECEPTOR	DIRECTION	DISTANCE	RECEPTOR	DIRECTION	DISTANCE
Beulah, CO	E	1 mi			
Highway 70	S	Less than ¼ mile			
SMOKE BEHAVIOR *Map of Smoke Sensitive Areas in Appendix A					
See smoke management techniques below					
TRANSPORT WIND AND STABILITY CONDITIONS NEEDED Include location of any smoke sensitive areas and distance from unit.					
NA, no specific transport wind/stability conditions required					
VISIBILITY HAZARDS (ROADS, AIRPORTS, ETC.) AND ACTIONS TO REDUCE HAZARDS					
NA, no major roadways, receptors, etc…should be impacted by smoke regardless of conditions					
RESIDUAL SMOKE ISSUES AND MITIGATION ACTIONS					
NA, no residual smoke should be present. Resources will remain on scene to mop up any smokes after ignitions are completed.					

Prescribed Fire Name**: Pueblo Mountain Park**

Ignition Unit Name: **All Units**

SPECIAL CONSTRAINTS / CONSIDERATIONS
NA
MONITORING REQUIREMENTS
FEMO will stay in close communication with RXB2 to monitor smoke and potential impacts
SMOKE MANAGEMENT TECHNIQUES
1. Ensure compliance with state and local permits, ozone alerts, and favorable forecasted dispersal conditions. 2. Adjust firing patterns and fire behavior intensity to achieve best smoke dispersal. 3. Burn on days when air is unstable for better dispersion. 4. Patrol surrounding roads and neighbors to monitor for smoke impact. 5. Aggressively mop-up periphery of the burn and any fuels producing significant smoke. 6. Discontinue firing operations if: significant negative impacts to receptors is observed or reported or if conditions exceed prescription parameters.

Element 20: Monitoring

Weather will be taken onsite throughout the burn operations to ensure adherence to the prescribed fire prescription and smoke monitoring requirements. This task can be delegated to the FEMO by the Burn Boss.

Smoke monitoring requirements outlined in Smoke Permit will be adhered to.

A. Vegetative and fire behavior monitoring requirements will be as follows:

1. Representative and identifiable sites will be selected for each of the burn segments, with before and after photos taken to record the effects of the prescribed burns. The sites will be selected to illustrate fuel loads, understory herbaceous and shrub vegetation cover, and overstory tree conditions, including burn-related mortality.
2. Fire Behavior and Fire Effects Monitoring: During the burn, basic fire behavior metrics including rates of spread and flame lengths will be recorded by the FEMO or FFT1. Weather variables including air temperature, relative humidity, average and gust wind speeds, and wind direction will be measured at least hourly. Immediately following the burn, percent consumption of fuels will be assessed within the segments burned.

A. Fuels Information Required and Procedures:

Fine dead fuel moisture on the hour from the FEMO and 10-hour fuel moistures the day preceding the burn.

B. Weather Monitoring (Forecasted and Observed) Required and Procedures:

Weather spun and reported pre-test fire (intervals to be determined); every hour on the hour after the test fire, or at greater frequency, if needed.

C. Fire Behavior Monitoring Required and Procedures:

The FEMO will be responsible for assessing the rate of spread, fine-dead fuel moistures, probability of ignition, monitoring the smoke column/s, and taking other fire behavior observations.

D. Monitoring Required to Ensure that Prescribed Fire Plan Objectives are Met:

Because funding is limited, monitoring at the Park will consist of photo points established pre- and post-burn. These pictures will be able to visually represent any regenerative growth, or fuels reduction. If awarded additional funding in the future, ecological monitoring is recommended to help qualify how well objectives are met.

E. Smoke Dispersal Monitoring Required and Procedures:

Smoke will be visually assessed to ensure that the output volume of smoke is not adversely affecting adjacent receptors. When feasible, utilize an FBAN to assist with smoke and fire monitoring. Also, consider using purple air monitors to help create data for future smoke modeling and calibration.

Prescribed Fire Name**: Pueblo Mountain Park**

Ignition Unit Name: **All Units**

Element 21: Post-burn Activities

A. Post-Burn Activities:

1. Develop operations plan for the following day and communicate to resources prior to their departure.
2. If necessary, brief night patrol resources and execute assignment for night operations.
3. Complete After-Action Review (AAR) with burn resources before departure.
4. Make notifications to appropriate agencies and stakeholders that burning and mop-up operations have ceased for the day. Refer to Element 9B: Notification

Prescribed Fire Name**: Pueblo Mountain Park**

Ignition Unit Name: **All Units**

Prescribed Fire Plan Appendices

Appendix A: Maps: Vicinity, Project or Ignition Units (or both), Optional: Significant or Sensitive Features, Fuels or Fuel Model, Smoke Impact Areas

Appendix B: Technical Reviewer Checklist

Appendix C: Complexity Analysis

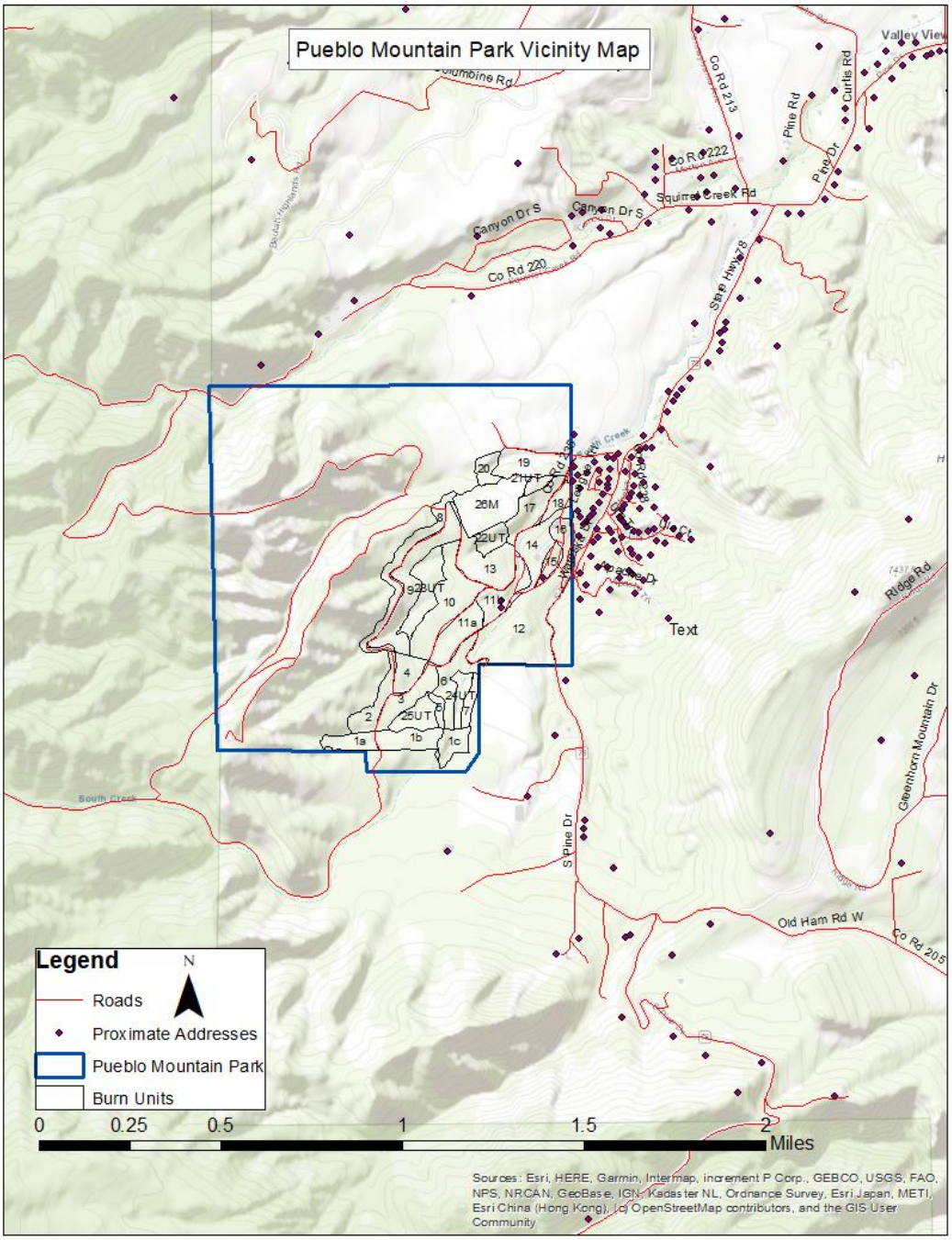
Appendix D: Fire Behavior Modeling Documentation or Empirical Documentation

Appendix F: Smoke Management Plan and Smoke Modeling Documentation (Optional)

Prescribed Fire Name**: Pueblo Mountain Park**

Ignition Unit Name: **All Units**

Appendix A: Vicinity Map

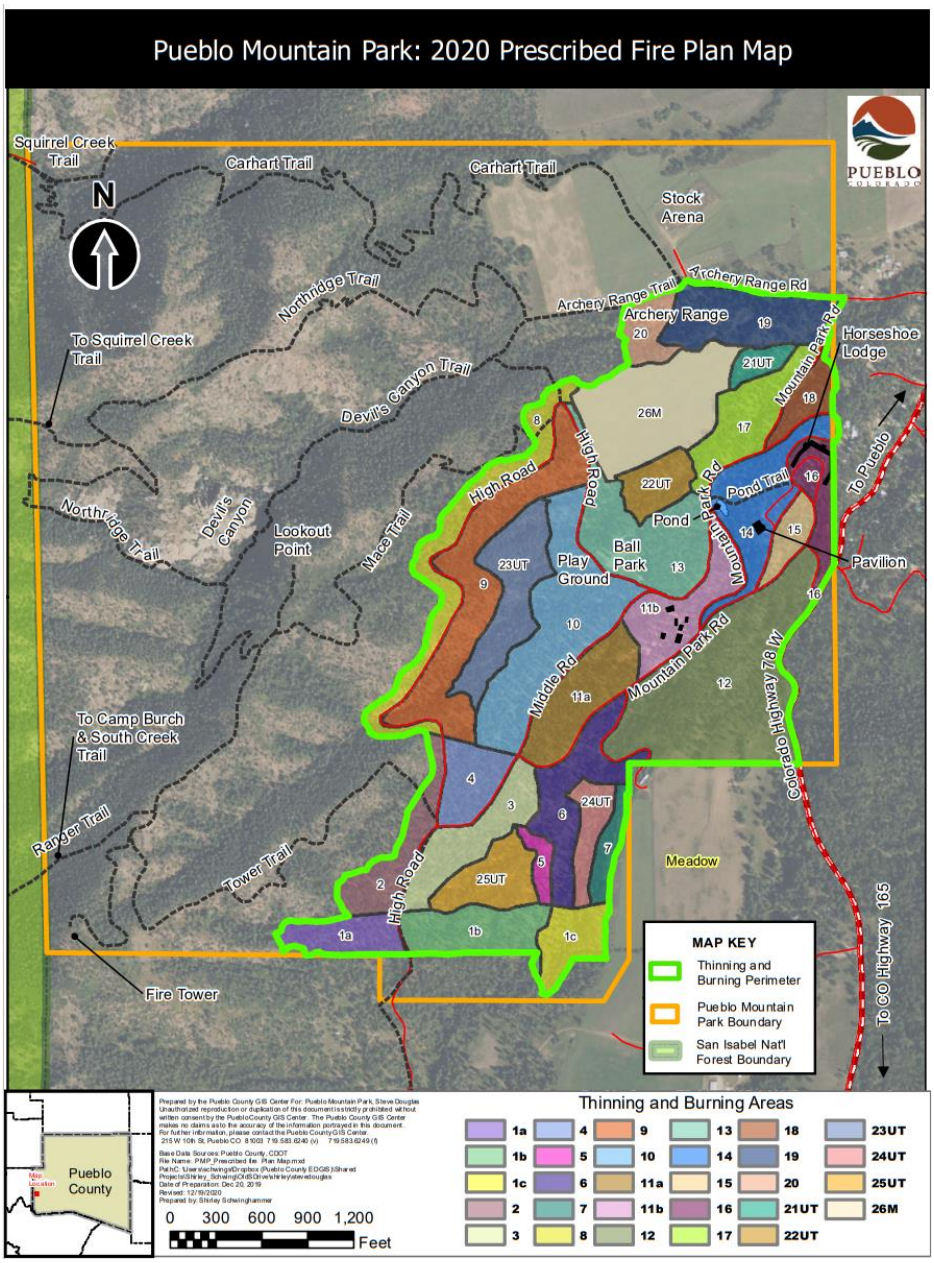


Prescribed Fire Name**: Pueblo Mountain Park**

Ignition Unit Name: **All Units**

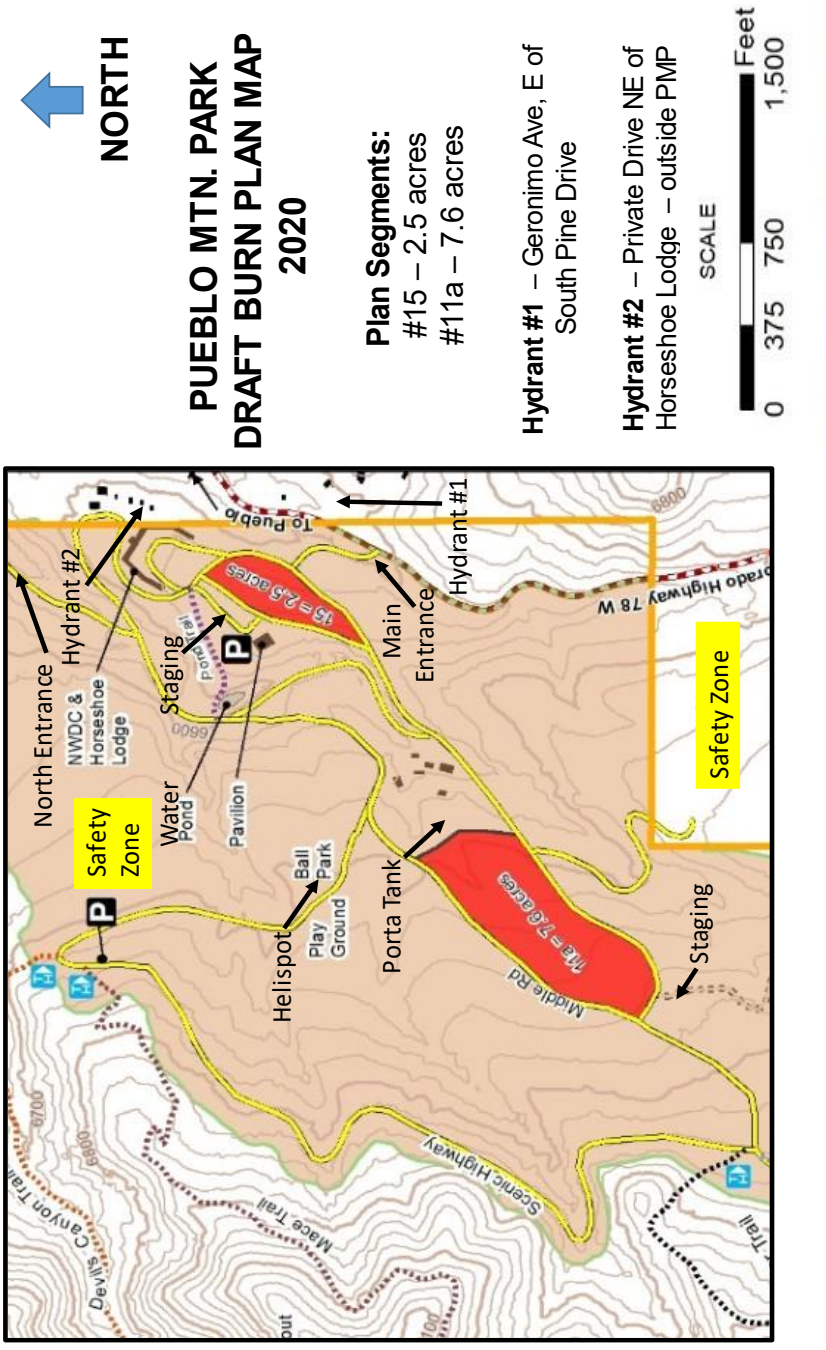
Appendix A: Project (Ignition Units) Maps

Insert your project (ignition unit) map(s) here. Refer to Element 4D in the *Interagency Prescribed Fire Planning and Implementation Procedures Guide*, PMS 484, to fill out this appendix.



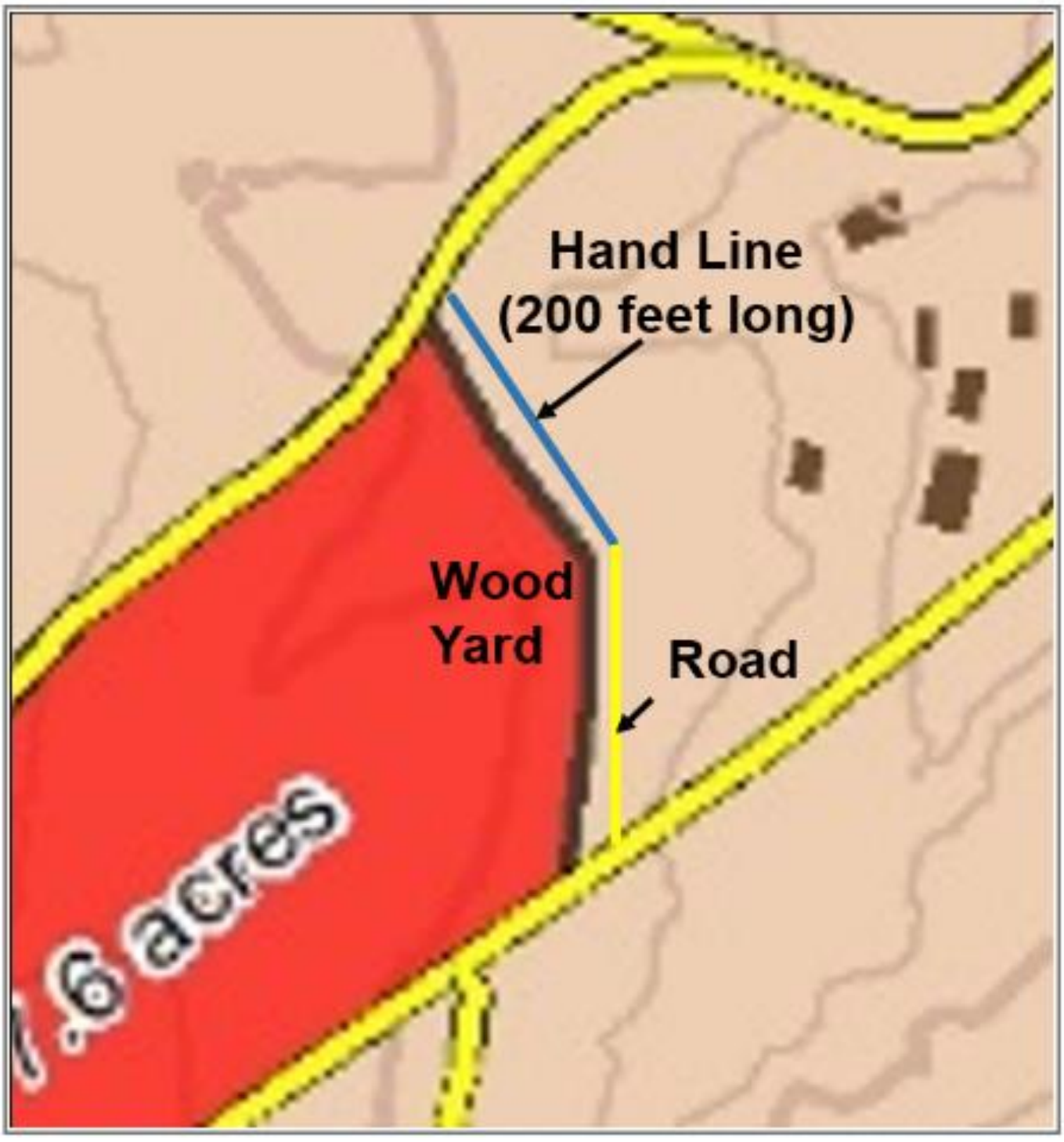
Prescribed Fire Name**: Pueblo Mountain Park**

Ignition Unit Name: **All Units**



Prescribed Fire Name**: Pueblo Mountain Park**

Ignition Unit Name: **All Units**



Prescribed Fire Name**: Pueblo Mountain Park**

Ignition Unit Name: **All Units**

Appendix A: Fuels or Fuel Model: (Optional) Maps

Insert your fuel or fuel model map(s) here. Refer to Element 4D in *the Interagency Prescribed Fire Planning and Implementation Procedures Guide*, PMS 484, to fill out this appendix.

PUEBLO MOUNTAIN PARK: HEALTHY FOREST & WILDLAND FUEL MITIGATION PROJECT – MASTER PLAN SEGMENT NOTES

Total acres treated 2002-2019 = 164.93 and total acres within the prescribed fire planning area = 204.29

NOTE: Additional tree thinning occurred 2013-2016 in the treated area, but records are not sufficient to identify which segments were involved.

SEGMENT 1a – FOREST STEWARDSHIP PLAN MANAGEMENT UNIT 1 – 4.20 acres:
- 2002 – Trees with Mountain Pine Beetle removed
- 2012 – Trees thinned, brush and ladder fuels cut, slash chipped and/or pile burned

SEGMENT 1b – FOREST STEWARDSHIP PLAN MANAGEMENT UNIT 1 – 6.45 acres:
- 2002 – Trees with Mountain Pine Beetle removed
- 2012 – Trees thinned, brush and ladder fuels cut, slash chipped and/or pile burned

SEGMENT 1c – FOREST STEWARDSHIP PLAN MANAGEMENT UNIT 1 – 4.09 acres:
- 2002 – Trees with Mountain Pine Beetle removed
- 2006 – Partially thinned
- 2012 – Trees thinned, brush and ladder fuels cut, slash chipped and/or pile burned

SEGMENT 2 – FOREST STEWARDSHIP PLAN MANAGEMENT UNIT 1 – 5.70 acres:
- 2002 – Trees with Mountain Pine Beetle removed
- 2012 – Trees thinned, brush and ladder fuels cut, slash chipped and/or pile burned
- 2018 – Trees thinned, Gamble Oak cut and slash chipped

SEGMENT 3 – FOREST STEWARDSHIP PLAN MANAGEMENT UNIT 1 – 6.96 acres:
- 2002 – Trees with Mountain Pine Beetle removed
- 2006 - Thinned
- 2012 – Trees thinned, brush and ladder fuels cut, slash chipped and/or pile burned
- 2018 – Trees thinned, Gamble Oak cut and slash chipped
- 2019 – Ips beetle trees cut near the Water Road (east side of this segment) and slash chipped

SEGMENT 4 – FOREST STEWARDSHIP PLAN MANAGEMENT UNIT 1 – 4.54 acres:
- 2002 – Trees with Mountain Pine Beetle removed
- 2012 – Trees thinned, brush and ladder fuels cut, slash chipped and/or pile burned
- 2017 – Garlon Test Plot with trees thinned and Gamble Oak cut and treated

SEGMENT 5 – FOREST STEWARDSHIP PLAN MANAGEMENT UNIT 1 – 1.41 acres:
- 2002 – Trees with Mountain Pine Beetle removed
- 2006 – Thinned
- 2017 – Gamble Oak cut along the Water Road (preserving fire access)

SEGMENT 6 – FOREST STEWARDSHIP PLAN MANAGEMENT UNIT 1 – 7.69 acres:
- 2002 – Trees with Mountain Pine Beetle removed
- 2004 – Partially thinned
- 2006 – Partially thinned
- 2017 – Gamble Oak cut along the Water Road (preserving fire access)
- 2019 – Ips beetle trees cut by the Water Road and slash chipped

SEGMENT 7 – FOREST STEWARDSHIP PLAN MANAGEMENT UNIT 1 – 2.28 acres:
- 2002 – Trees with Mountain Pine Beetle removed
- 2006 – Thinned

SEGMENT 8 – FOREST STEWARDSHIP PLAN MANAGEMENT UNITS 1&2 – 9.04 acres:
2002 – Trees with Mountain Pine Beetle removed
2012 – Trees thinned, brush and ladder fuels cut, most slash chipped and some pile burned

SEGMENT 9 – FOREST STEWARDSHIP PLAN MANAGEMENT UNITS 1&2 – 14.25 acres:
2002 – Trees with Mountain Pine Beetle removed
2012 – Trees thinned, brush and ladder fuels cut, slash chipped and/or pile burned

SEGMENT 10 – FOREST STEWARDSHIP PLAN MANAGEMENT UNIT 1 – 15.72 acres:
2002 – Trees with Mountain Pine Beetle removed
2004 – Partially thinned
2012 – Trees thinned, brush and ladder fuels cut, slash chipped and/or pile burned
2019 – About 200 trees (including some with MPB or dwarf mistletoe) thinned in the north third of this segment by the Middle Road and picnic/playground area, with most slash chipped

SEGMENT 11a – FOREST STEWARDSHIP PLAN MANAGEMENT UNIT 1 – 7.64 acres:
2002 – Trees with Mountain Pine Beetle removed
2004 – Partially thinned
2005 – Partially thinned
2012 – Trees thinned, brush and ladder fuels cut, slash chipped and/or pile burned
2018 or later – Identified as one of two priority areas for prescribed fire pilot burn by TNC
2018 – 2nd Quarter – thinning trees in prep for prescribed burn
2019 – 1st half – trees thinned (including ones with MPB or dwarf mistletoe), with most slash chipped. Identified as one of two priority areas for prescribed fire pilot burn…still in prep for prescribed burn in 2020
2020 – 1st Quarter – cut oak brush, saplings and other ladder fuel in preparation for prescribed burn, perhaps in the week of April 6th, if conditions permit.

SEGMENT 11b – FOREST STEWARDSHIP PLAN MANAGEMENT UNIT 1 – 6.81 acres:
2002 – Trees with Mountain Pine Beetle removed
2004 – Partially thinned
2005 – Partially thinned
2006 - Thinned
2012 – Trees thinned, brush and ladder fuels cut, slash chipped and/or pile burned
2019 – 1st half – trees thinned near the wood yard (including ones with MPB or dwarf mistletoe), with slash chipped and/or piled for burning next winter. 'Still in prep for prescribed burn.

SEGMENT 12 – FOREST STEWARDSHIP PLAN MANAGEMENT UNIT 1 – 24.34 acres:
2002 – Trees with Mountain Pine Beetle removed
2005 – Partially thinned
2006 – Partially thinned
2019 – 1st half – trees thinned along Mountain Park Road (including ones with MPB or dwarf mistletoe), with slash chipped and/or to be piled for burning next winter.

SEGMENT 13 – FOREST STEWARDSHIP PLAN MANAGEMENT UNIT 1 – 11.07 acres:
2002 – Trees with Mountain Pine Beetle removed
2004 – Partially thinned
2005 – Partially thinned
2012 – Trees thinned, brush and ladder fuels cut, slash chipped and/or pile burned
2019 – 1st half – some trees with dwarf mistletoe by the Ball Park picnic area thinned with slash chipped

SEGMENT 14 – FOREST STEWARDSHIP PLAN MANAGEMENT UNIT 1 – 8.63 acres:
2002 – Trees with Mountain Pine Beetle removed
2004 – Partially thinned
2005 – Partially thinned
2019 – Trees by the Pavilion parking lot thinned with slash chipped

SEGMENT 15 – FOREST STEWARDSHIP PLAN MANAGEMENT UNIT 1 – 2.46 acres:
2002 – Trees with Mountain Pine Beetle removed
2005 – Thinned
2020 or later – Identified as one of two priority areas for prescribed fire pilot burn
2020 – 1st Quarter – cut oak brush, saplings and other ladder fuel in preparation for

prescribed burn, perhaps in the week of April 6th, if conditions permit.

SEGMENT 16 – FOREST STEWARDSHIP PLAN MANAGEMENT UNIT 1 – 4.04 acres:
2002 – Trees with Mountain Pine Beetle removed
2004 - Thinned

SEGMENT 17 – FOREST STEWARDSHIP PLAN MANAGEMENT UNIT 1 – 7.03 acres:
2002 – Trees with Mountain Pine Beetle removed
2004 - Thinned
2012 – Trees thinned, brush and ladder fuels cut, slash chipped and/or pile burned

SEGMENT 18 – FOREST STEWARDSHIP PLAN MANAGEMENT UNIT 1 – 2.90 acres:
2002 – Trees with Mountain Pine Beetle removed
2004 - Thinned
2012 – Trees thinned, brush and ladder fuels cut, slash chipped and/or pile burned

SEGMENT 19 – FOREST STEWARDSHIP PLAN MANAGEMENT UNIT 1 – 8.90 acres:
2002 – Trees with Mountain Pine Beetle removed
2012 – Trees thinned, brush and ladder fuels cut, slash chipped and/or pile burned

SEGMENT 20 – FOREST STEWARDSHIP PLAN MANAGEMENT UNITS 1&4 – 2.97 acres:
2002 – Trees with Mountain Pine Beetle removed
2012 – Trees thinned, brush and ladder fuels cut, slash chipped and/or pile burned

SEGMENT 21UT – FOREST STEWARDSHIP PLAN MANAGEMENT UNIT 1 – 1.63 acres:
Through 2019 – Untreated woodland, but subject to future activity

SEGMENT 22UT – FOREST STEWARDSHIP PLAN MANAGEMENT UNIT 1 – 3.54 acres:
Through 2019 – Untreated woodland, but subject to future activity

SEGMENT 23UT – FOREST STEWARDSHIP PLAN MANAGEMENT UNITS 1,2&8–8.40 acres:
Through 2019 – Untreated woodland, but subject to future activity

SEGMENT 24UT – FOREST STEWARDSHIP PLAN MANAGEMENT UNIT 1 – 3.11 acres:
Through 2019 – Untreated riparian area, but subject to future activity

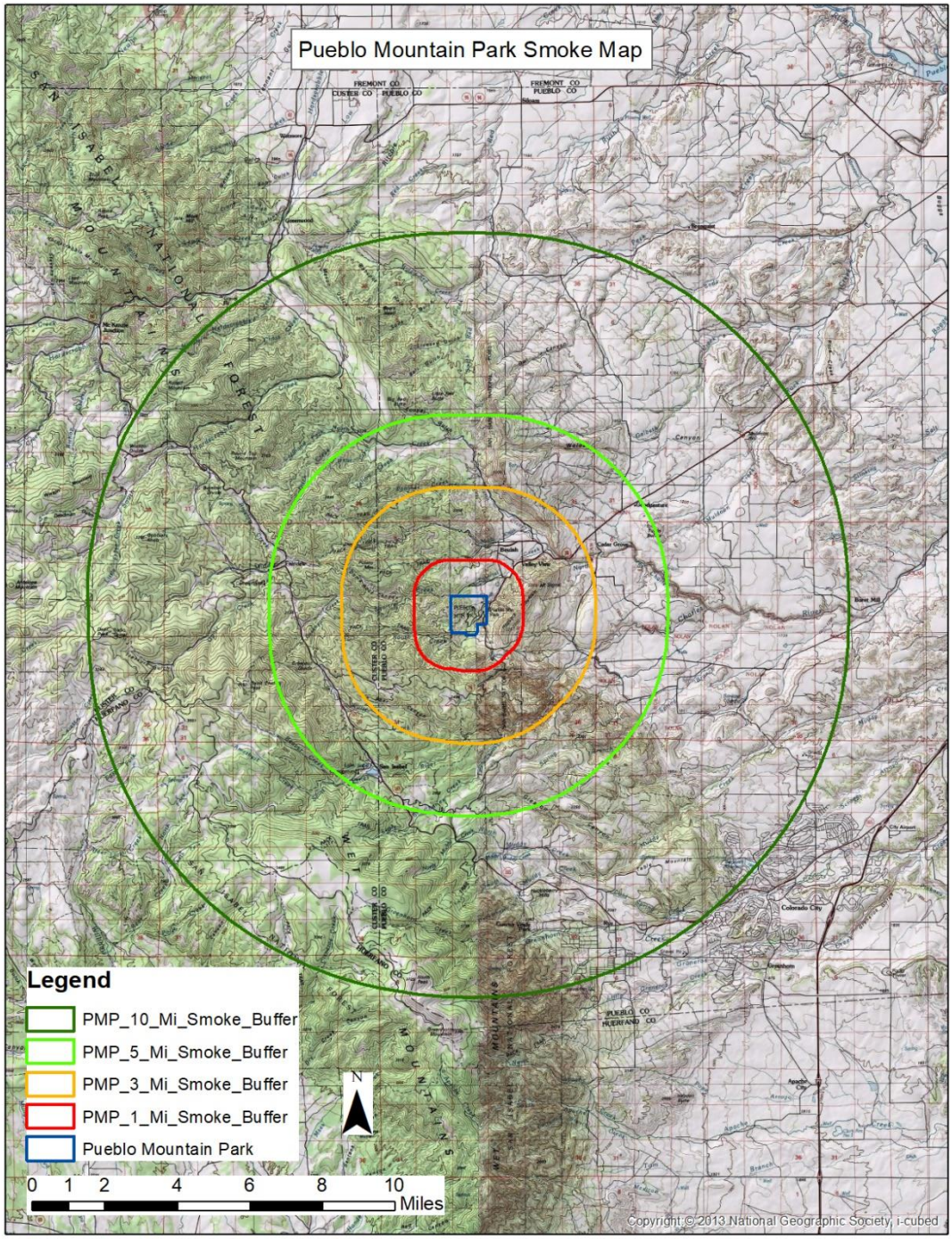
SEGMENT 25UT – FOREST STEWARDSHIP PLAN MANAGEMENT UNIT 1 – 5.20 acres:
Through 2019 – Untreated fir thicket, but subject to future activity

SEGMENT 26M – no FOREST STEWARDSHIP PLAN MANAGEMENT UNIT – 13.29 acres:
Through 2019 – Untreated hay meadow, but subject to future activity

Prescribed Fire Name**: Pueblo Mountain Park**

Ignition Unit Name: **All Units**

Appendix A: Smoke Impact Areas: (Optional) Maps



Appendix B: Technical Reviewer Checklist

Fill out this checklist based on the guidance provided in the Technical Review section in the *Interagency Prescribed Fire Planning and Implementation Procedures Guide*, PMS 484. Rate each element in the following table with an "S" for Satisfactory or "U" for Unsatisfactory. Use Comment field as needed to support the element rating.

PRESCRIBED FIRE PLAN ELEMENTS	RATING	COMMENTS
1. Signature Page	S	
2. A. Agency Administrator Ignition Authorization	S	Who will serve as agency admin?
2. B. Prescribed Fire GO/NO-GO Checklist	S	Recommend identifying nearest RAWS and connecting directly with NWS fire weather forecaster as part of operational check. No need to add these to your checklist, but document if you do utilize for burn.
3. Complexity Analysis Summary	S	
4. Description of Prescribed Fire Area		Question about FM selection
5. Objectives	S	Updated objectives 1 & 6 to reflect tree height rather than DBH. Added 1 constraint.
6. Funding	S	
7. Prescription: Prescription Narrative and Prescription Parameters		Consider removing Live Fuel Moisture from fuel parameters unless this is seen as a critical component for determining in/out of prescription; If you include it, you MUST check it. Suggest adding one additional, more reactive fuel model to help put into perspective higher intensity fire potential both inside and outside of burn units. E.g. TL8 for pondo litter, GS2 for oak/grass
8. Scheduling	U	Conflicting/missing information on winter burn season. See comments in Plan. Adjustments were made to the plan (GD)
9. Pre-Burn Considerations and Weather	S	Some additional content added. Lots of individual notifications listed- if any are not critical, suggest removing from plan (e.g. media outlets)
10. Briefing	S	

PRESCRIBED FIRE PLAN ELEMENTS	RATING	COMMENTS
11. Organization and Equipment	U PT: also see highlight area	Missing line production rates in table for low & moderate conditions New fires were modeled in Behave and new line production rates were added, and table was updated (GD)
12. Communication	U	Missing phone numbers. Any need to update freqs based on emails w/ partners? Comms table was updated/ frequencies were updated and will be cloned locally. GD
13. Public and Personnel Safety, Medical	S	
14. Test Fire	S	Is there a reason why this section is highlighted in the plan?
15. Ignition Plan	S	See comments in burn plan under Element 15
16. Holding Plan	S	See comments in burn plan under Element 16
17. Contingency Plan	S	Recommend deleting couple items- see comments
18. Wildfire Declaration	S	
19. Smoke Management and Air Quality	S	Minor comments in burn plan
20. Monitoring	S	Minor comments in burn plan
21. Post-Burn Activities	S	
Appendix A: Maps	U	Maps provided for this review have unit numbers different than what's in plan. Correct this discrepancy and also be sure to include maps for all burn units. I saw only 2 maps but seems like 4 burn units are under this plan? Discrepancy corrected with additional clarification and maps GD
Appendix C: Complexity Analysis	S	
Appendix D: Agency-Specific Job Hazard Analysis or Risk Assessment	U	Not included in my review package. Delete this item if not required by your organization or state regulations Deleted from burn plan GD

PRESCRIBED FIRE PLAN ELEMENTS	RATING	COMMENTS
Appendix E: Fire Behavior Modeling Documentation or Empirical Documentation	U	Some Behave run inputs do not match what's in the burn plan's weather/fuel conditions (e.g. TU1's high Behave inputs uses values different than what's in the burn plan under high) I did not get a chance to review Behave output for GR2, but make sure those also use same inputs as what's currently in plan. I suggest Behave runs were updated to reflect GR2 (20%) and TL8 (80%) as carrier fuels. PSME used as spot source species, all runs were contained and charts updated in burn plan GD
Appendix F: Smoke Management Plan and Smoke Modeling Documentation (Optional)	NA	Covered in Element 19
Other	NA	

☒ **Approval is recommended** subject to the completion of all requirements listed in the comments section, or on the Prescribed Fire Plan.

☐ **Recommendation for approval is not granted**. Prescribed Fire Plan should be re-submitted for technical review subject to the completion of all requirements listed in the comments section, or on the Prescribed Fire Plan.

Technical Reviewer Signature: Parker Titus (digital signature)

Qualification and Currency: RXB2

Date Signed: 3/22/2021

Prescribed Fire Name**: Pueblo Mountain Park**

Ignition Unit Name: **All Units**

Appendix C: Complexity Analysis

Attached as .xls and in master folder.

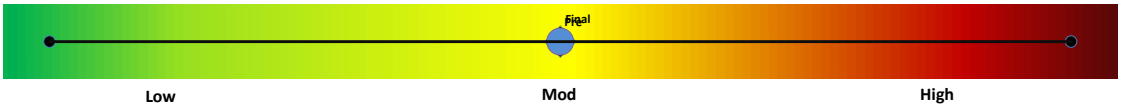
NWCG Prescribed Fire Summary and Final Complexity Worksheet, PMS 424-1

This worksheet is supplemental to the *Prescribed Fire Complexity Rating System Guide*, PMS 424. It is designed to enable effective risk management. The *Interagency Prescribed Fire Planning and Implementation Procedures Guide*, PMS 484, provides further explanation. This becomes Element 3 of the Prescribed Fire Plan.

Pueblo Mountain Park		Quantity	Significance
Values	On-Site	**Multiple**	**Low**
	Off-Site	**Multiple**	**Mod**
	Public/Political Interest	**Few**	**Low**

Element	Preliminary Risk	Post-Plan Risk	Technical Difficulty	Calculated Rating
Safety	Mod	Mod	Mod	Mod
Fire Behavior	Mod	Mod	Mod	Mod
Resistance to Containment	Mod	Mod	Mod	Mod
Ignition Procedures and Methods	Mod	Mod	Mod	Mod
Prescribed Fire Duration	Mod	Mod	Mod	Mod
Smoke Management	Mod	Mod	Mod	Mod
Number and Dependence of Activities	Mod	Mod	Mod	Mod
Management Organization	Mod	Mod	Mod	Mod
Treatment/Resource Objectives	Mod	Mod	Mod	Mod
Constraints	Mod	Mod	Mod	Mod
Project Logistics	Mod	Mod	Mod	Mod

Calculated Summary Prescribed Fire Plan Complexity



Final Complexity Determination	Final Complexity Determination Rationale
Mod	Safety issues are low and identified risks will be mitigated either through direct action or communication of risks to operational personnel. The units are surrounded by two track roads, handline and hoselays in spots and multiple contingencies exist. Fuels are open stand ponderosa with small pockets of Douglas and white fir with a predominatley oak understory. Terrain within the units varies, with some units being relatively flat and others having midslope lines with steep chutes. There are multiple ranch structures/infrastructure and several residences within a mile of the burn units. Span of control will be under 4-5. RXB2 will oversee the burn organization which may be made up of a Holding Specialist and a Firing Boss or Line Bosses. Adequate resources will be on site. Contingency resources will have a 20-40 minute response time. All threats to natural, cultural, and social resources are low and will be mitigated through planning and proper preparation. Smoke is expected to drift downhill and settle in the Beulah Valley. The area is easily accessible, and operations should last no longer than 2 days. Simple ignition patterns will be used, Ignition operations will be completed in 1 operational shift per unit.

Signatures	Rx Burn Plan Preparer's Name:_____ X_____ Date:_____ Preparer Technical Reviewer's Name:_____ X_____ Date:_____ Technical Reviewer Agency Administrator's Name:_____ X_____ Date:_____ Agency Administrator

Element	Post-Plan Risk	Technical Difficulty	Rating Descritors
Safety	Mod	Mod	• Potential serious accidents/injuries or multiple accidents/injuries to personnel or public are mitigated by standard safety briefings and identified in existing risk assessments/JHA. • Special emphasis is needed for some elements of LCES. Some standard preparation work and/or project design features are required.
			Standard briefing formats located in the burn plan, IRPG and existing JHA's or risk assessments should be used to help formulate elements of a thorough safety and operational briefing. It is recommended that safety be emphasized and specific safety concerns be addressed during resource on-boarding and prior to operational engagement. Appointing a "Safety Officer" to the IMT may help ease span of control and allow for more focused briefings and daily risk assessment. Promoting an environment of transparency and open communication may help to alleviate communication barriers and raise safety awareness throughout subsequent shifts. AAR's are highly encouraged in different formats (PLOWS, Chainsaw, etc . . .).
Fire Behavior	Mod	Mod	• Some special provisions for safety are needed to protect personnel. • Fire behavior variations are minimal and do not require multiple fuel models to account for the fire behavior. • At least one barrier or containment opportunity exists. • Fire behavior is such that holding resources may need to use indirect tactics to control some spot fires and slopovers. • Occasional on-site fire behavior assessments or calculations may be needed and can be performed as a collateral duty. • Emission Reduction Techniques (ERTs) and Smoke Management Techniques (SMTs) require a close adherence to the prescription in the Rx plan.
			In extreme circumstances BehavePlus 6.0.0 modeling indicates long flame lengths and quick uphill runs that receive a rapid response and are suppressed in less than half an hour. Spots are not discovered for 6 minutes in the scenario. Perimeter escape sizes vary between .4 acres and 1.5 acres, depending on air temperature and fuel moistures and presume slope/wind alignment in TU5. Flame lengths vary between 7.2 feet and 10.8 feet on the low and high ends of the prescription, respectively. The slope is an average of25% . When slope is reduced to 0%, flame lengths and rates of spread are commensurately reduced by nearly half. Special considerations should be made when conducting burning operations on steeper slopes with potential roll-out threats.
Resistance to Containment	Mod	Mod	• Several types of resources are involved in the holding operation. • Some portions of the burn unit and project area are not easily accessible to the holding resources. • Expected fire behavior outside the unit may require developing indirect attack options. • Areas outside of the project area have specific suppression action constraints or are on other jurisdictional lands that may limit containment efforts. • Some site prep is required. • Expected fire behavior outside of the unit requires moderate contingency planning.
			Fuels in the prescribed fire units are a mosaic comprised of oak (some already treated), open stand ponderosa, a few pockets of Douglas fir and some meadows. Burning is proposed to happen during a spring or fall burn window. Given the mosaic of treatment areas, indirect attack utilizing old burns, ridges and roads is possible, however, direct attack is the preferred option. Where feasible and logical, hoselays should be considered where water delivery isn't available. Lookouts should be utilized to aid in overall situation awareness and safety.
Ignition Procedures and Methods	Mod	Mod	• The need for multiple firing devices, sequences, techniques, or patterns has been identified. • Firing procedures are somewhat complex in at least some portions of the project area and a single Firing Boss (FIRB) is used. • Two different types of ignition devices are planned. • The ignition pattern requires direct control of the lighters to achieve project objectives and manage safety concerns. • Communications may require the use of a command (repeater) and at least two tactical frequencies will be used. • The project area is large but can be observed from high points and terrain and/or distance does not contribute to sequence and timing problems.
			Backing fire with varying flame-lengths and minimal torching is tolerable. Light western winds are preferred with temperatures in the low 50's to low 70's. Units can be treated with several different tools and are easily burned in a standard pattern with drip torches.
Prescribed Fire Duration	Mod	Mod	• Ignition and mop-up operations are usually completed within 3 - 7 operational periods. • Multiple shifts may need staffing (day/night). • Required staffing may affect resource availability for other prescribed fires. • Additional dispatch support may be required. • Standard press release is sufficient for public notification. • The units Public Affairs Office (PAO) is required to be available to field questions from media and public. • Some fire behavior assessment is necessary to identify potential seasonality fire behavior. • Only a few Management action points (MAPs) are needed to identify how the fire will be managed if unfavorable events occur. • The length of time to complete the project and the size of the organization needed may increase. • ERTs and SMTs require daily attention to ensure that smoke constraints are not exceeded.
			Units vary in size and average around 10-12 acres. Fuel loading differs between units, but all units have been previously treated with whole tree removal, pile burning and other maintenance. Mop-up and patrol should be expected tactics to reduce smoke impacts and burn duration. Residual heat on denser units should be expected and addressed as apart of daily and nightly monitoring operations.

Element	Post-Plan Risk	Technical Difficulty	Rating Descritors
Smoke Management	Mod	Mod	• ERTs and SMTs require skilled application of the prescribed fire prescription. • Some considerations are needed in the prescription or ignition portions of the plan to employ ERTs, and SMTs. • Wind parameters are constrained but easy to achieve. • Sensitive receptors exist. • Burn window/opportunities are reduced by the required weather/dispersion conditions. • Normal coordination with air quality officials is required. • Some mitigation measures or additional smoke modeling may be needed to address potential concerns with smoke impacts. • Specific smoke monitoring may be required to determine smoke plume heights and directions. • Rotating project personnel out of dense smoke may be necessary but easy to accomplish. • Daily smoke management forecasts are adequate. Prescribed fire has not been practiced at a meaningful scale in this part of Colorado. Wildfire smoke can be prevalent during the summer months, and wildfire risk reduction is seen as a high priority, and an added benefit to prescribed fire. With the exception of new COVID-19 guidance, smoke management is moderatly complex, with small amounts of smoke expected to impact some homes along the Highway 78 corridor leading into Beulah, CO. Smoke may settle in the Beulah Valley.
Number and Dependence of Activities	Mod	Mod	• Holding and lighting require close coordination and are dependent on each other to prevent spots or slopovers. • Continuous communication is necessary for successful project completion. • Some pre-burn considerations are required before ignition. Upwind, upslope ignition starting points are recommended, with flanks being "drawn" by burn groups or modules into the wind and downslope, creating lower intensity backing fires, and an opportunity to produce head fire, where necessary. Strong communication and coordination will be needed between all personnel, including the holding and firing teams in order to maintain appropriate pacing and tempo. Spot fires and slopovers should prompt a cessation of burning operations, if safe, in order to fully address any external threat to operations.
Management Organization	Mod	Mod	• At least one primary team member may need to come from outside of the local unit and may not be familiar with local factors. • The numbers of qualified personnel available on the local unit are limited. • Special skills or supervision required for one function (RXB2 suggested). • Some pre-burn preparation work may require special organizational planning and/or coordination. • Protection of resource values requires extra considerations when developing certain elements of the prescribed fire plan. • Few resources are required for mop-up and patrol. The management organization could vary between local resources only to a fully organized Training Exchange (TREX) event. Personnel could range between 14 and 21. Some pre-burn preparation of handlines, hoselays, hazard tree felling, legacy tree protection, lookout locations and critical holding points, may be necessary. Mop and patrol is recommended insofar as reducing threats to control lines and mop-up expectations should be communicated in the Burn Plan, the IAP and in the morning briefing.
Treatment/Resource Objectives	Mod	Mod	• There are several resource objectives to meet. • Measures to achieve the objectives are either 1) easy to complete but there are restrictions on the techniques or 2) moderately difficult to complete and there are few or no restrictions on techniques. • Additional monitoring of fire behavior and weather is needed to determine if prescribed fire objectives are being met. • Other opportunities to meet objectives are very limited in a given year. Resource ojectives include top killing oak, reducing 1, 10, and 100 hour fuels and reducing growth of homogoneous stands of regrowth below 2" in diameter. Many complex cultural and historical objectives also exist with respect to other specific flora and fauna that benefit from repeated low/moderate intensity prescribed fires. Treatment and resource objectives will be identified in the Burn Plan, IAP and morning briefing. Consider assigning time for a Resource Advisor to speak more explicitly about specific objectives.
Constraints	Mod	Mod	• Some constraints are not easily accommodated and increase the difficulty of completing the project or achieving objectives. • Some prescribed fire parameters are dependent upon marginal environmental conditions. • The length of time to complete the project and the size of the organization may need to be increased. Local weather is influenced by the Wet Mountains, local topography contributing to diurnal winds and general spring/fall weather trends typical to the south-central area of the Front Range. Ensure that fuels and weather are not outside of operational indices and consider an added element of cross-referencing current conditions against a pocket card, if one exists for this timeframe. Also, consider conducting a Before Action Review (BAR) to ensure that no additional or existing constraints will negatively hinder operations.
			• Project implementation requires a small logistical support operation. • Logistical support may be combined with other functions. • Obtaining some personnel may require additional contacts and advanced scheduling. • Additional support may be needed for out-of-area personnel.

Element	Post-Plan Risk	Technical Difficulty	Rating Descritors
Project Logistics	**Mod**	**Mod**	Logistics can be scaled-up easily to meet varying organizational needs. Typically, staff will be self-sustaining, although other options, like a catered meal, can also be considered.

Element	Preliminary Risk	Post-Plan Risk	Risk Rating Decriptors	Elements and Actions in the RX Fire Plan that Address Risk Mitigation
Safety	Mod	Mod	• Safety issues are pronounced and require detailed briefings, with certain hazards requiring special caution. • A small organization with a single branch results in modest exposure of personnel to hazards. • Adverse impacts to public health and safety are possible. • At least one activity is low frequency/high risk. • Fatigue and extended exposure to hazards are anticipated. Certain parts of the terrain for the burn units can be moderately complex, other areas present a lower risk/ high frequency fire event historically represented by previous forestry treatments. With the exception of rolling material igniting fuels below prescribed fire practitioners, the units are relatively straightforward, well-prepared and feasible for single shift operations. Things to consider (low frequency/high risk): steep/rugged terrain coupled with a potential slopover or spot fire aligning with slope and wind in adjacent douglas fir forest types.	Safety will be discussed each day prior to ignitions as apart of the morning briefing. Additionally, the Medical Plan provides contact information for several medical facilities in the surrounding areas and will be included in the IAP. Helispots and medically trained personnel will be identified in the morning briefings. More "Safety" information can be found in Element 13 of the Burn Plan.
Fire Behavior	Mod	Mod	• Fuels vary within the unit, both in loading and arrangement. • Fire behavior may present control challenges that are easily mitigated. • Medium fuel loadings with some high concentrations are present. • Variable terrain features may significantly affect fire behavior and present moderate ignition and control problems. • Local winds and burning conditions may vary enough to cause shifts in fire behavior that briefly exceed modeled fire behavior and threaten controllability. • Periodic torching can be expected either as isolated points or in limited areas. • Probability of ignition outside of the unit is low and any spotting is expected to be short-range. Fuels are comprised short grass (GR 2, 20%) and ponderosa pine timber litter (TL8) with varying degrees of stand density and some small pockets of Douglas fir. Fire behavior will need to be regulated, in areas, due to fuel loading, composition and slope to reduce head fire. Modeled fire behavior on steep slopes in doug fir demonstrates long surface fire flame lengths and a moderate ROS, should there be material that rolls out and impacts operations. All units have been mechanically treated and are expected to have low/moderate fire intensity.	The preferred weather and fuel parameters will reduce some fire behavior risk; units with Scotch Broom may need to be burned at the higher end of the prescription in order to meet ecological objectives. Ignitions teams will adjust tactics to reduce head fire and unwanted fire effects.
Resistance to Containment	Mod	Mod	• Potential for multiple wildfire mechanisms such as spot fires or slopovers that can propagate at moderate rates of spread but can be held by prompt holding actions. • Some fuel concentrations or ladder fuels exist near critical holding points. • Expected fire intensities in the primary fuel type create little potential to challenge standard fire lines. • The probability of ignition in fuels outside of control lines is low to moderate. • Some dependency on natural fuel breaks to hold the prescribed fire. • Local drought and or fire indices are expected to be moderate to high. Under certain circumstances there is a risk of an ignition from rolling material, which may or may not stay within the unit. In the rare event that material rolls out at a pace that impacts igniters on steep terrain, it could influence tactical pacing and cadence. Overall, because of the diversity of the units and their composition, firing patterns should be tactically adjusted to promote backing fire with adequate residence time to accomplish specific burn objectives.	Seasonality of the planned burns will help reduce the risk of loss of containment; all BEHAVE Plus 6.0.0 models have a "Contain" module with varying surface areas of containment relative to the prescription. Primary control lines will be ridges, rivers, roads, handlines and previously burned units.
Ignition Procedures and Methods	Mod	Mod	• Multiple firing sequences patterns and timing must be coordinated to meet project objectives and reduce the risk of an unexpected or adverse event. • Specific fire intensities or ROS are somewhat critical for meeting resource objectives but are readily attained by placing local skill sets in firing boss positions. All units are small and moderatley complex and can be easily monitored by an active Firing Boss. A small burn organiztion utilizing drip torches as the primary tool, and applying a dot fire technique should accomplish most of the burn objectives.	Unit and subunit ignitions will need to coordinated with an ignition plan that supports backing ground fire, where feasible, and reduces uphill runs. Due to steep/difficult terrain, firing devices such as a very pistol may be used to reduce exposure to firefighters on the interior of units.

Element	Preliminary Risk	Post-Plan Risk	Risk Rating Decriptors	Elements and Actions in the RX Fire Plan that Address Risk Mitigation
Prescribed Fire Duration	Mod	Mod	• Active ignition, fire spread, and patrol is expected to occur for several operational periods. • Some residual burning (heavy fuel smoldering, stump holes, etc.) is expected to occur for several days after the primary burn out of the unit. • Mop-up and patrol is typical with minimal resource and equipment needs. • Primary holding phase is expected to be completed within reasonably predictable local weather forecasts. • The prescribed fire depends on accurate forecasts through three days. Due to the prevalence of water access, timing of burns, unit size, composition of fuels and organization/preparation of the units, mop-up is expected to be minimal and ignition operations are not expected to exceed a single shift per unit. Residual, or hold-over smokes can be easily monitored due to good access around all units.	Units/sub-units identifed in the burn plan do not exceed 200 acres and are manageable single shift burns with numerous control features throughout and adjacent to the units. Water availability is prevalent by way of hydrant or local tender.
Smoke Management	Mod	Mod	• Noticeable smoke will be produced creating at least some public concern. • Short-term health or safety concerns related to smoke exposure may occur if actual weather deviates from forecasted. • Nearby communities are highly conscious of smoke from wildland fire. • Some possibility for a NAAQS exceedance violation. • The prescription or ignition portions of the plan need to consider smoke management. Smoke production is expected to be low, although it may impact structures immediatley adjacent to the Park's boundary. Public meetings and outreach by local fire practitioners and fire protection districts may help ease concerns that the public has. A community meeting or virtual meeting is recommended to help educate adjacent landowners on our ecological and tactical goals.	Seasonal prescribed is not a common practice in the community of Beulah with the exception of winter pile burning. No smoke senstitive individuals have been identified and outreach has been robust and frequent. Additional considerations will need to be made with respect to COVID-19 and and smoke impacts to vulnerable communities.
Number and Dependence of Activities	Mod	Mod	• Several activities depend on achievement of previous or concurrent actions. • Several activities are interactive. • Communication is routine for coordination of activities and project success. • The project involves another land management agency, ownership or jurisdiction but project completion is not dependent on coordinated implementation. • Adjacent ownership supports the implementation of the prescribed fire. A majority of the dependence of activities is centered on logistics, firing and holding tactical needs, and the sequence of unit burning. Communication will be prevalent and may interface across multiple burn units as resources are shared or reassigned.	All burning will occur on City of Pueblo property; burn groups will be parsed into "modules" and follow the Incident Command System for ease of span of control. Activities are not co-dependent and each sub-unit or unit can be treated independently.
Management Organization	Mod	Mod	• Two levels of supervision are needed (i.e. Burn Boss, Ignition Specialist, and/or Holding Specialist, plus lighters and holders). • Special skills or supervision required for one function (RXB2 is suggested). RXB2's are required to lead and facilitate individual burns, where second levels of supervision are necessary to mitigate span-of-control. Second level supervision could include an Ignition Specialist and Holding Specialist or simply a "Line Boss" for each flank being burned.	Management of these burns will follow ICS, and a suggested organization has been included in the burn plan.

Element	Preliminary Risk	Post-Plan Risk	Risk Rating Decriptors	Elements and Actions in the RX Fire Plan that Address Risk Mitigation
Treatment/Resource Objectives	Mod	Mod	• Issues are present that hamper or may prevent meeting treatment resource objectives. • Failure to meet objectives could have short-term adverse impacts. • Associated resources could be damaged if the prescribed fire did not meet resource objectives. • Few critical holding points. Units are well-prepared, with few critical holding points. Because there are adjacent structures, there is a nominal risk of impact to neighboring properties, although many are surrounded with a good fuel and fire break composition around existing homes (roads and meadows).	Objectives for the prescribed fire, suitable prescription ranges, current weather and communications plans will be included in the IAP. Current drought conditions should be considered during the "go/no-go" process and adjacent resources will be re-assessed as apart of the incoming resource tactical inbrief.
Constraints	Mod	Mod	• Constraints exist with some constraints imposing limits on implementing the prescribed fire or achieving objectives. Given the seasonality of the proposed burns, local resources should be available to assist both on implementation and containment, if necessary. Check local preparedeness levels and contingency resource availability prior to operations. Terrain in areas can be steep and rugged and could lead to a slower pace during burning operations to mitigate fatigue and fire behavior.	Specific constraints for this project include "availability of resources due to local fire activity, air quality . . . adverse weather conditions (Element 8)" and steep/rugged terrain. These constraints should be addressed during the "go-no-go" process, and additional consideration should be made if the area is experiencing heightened fire activity or drought.
Project Logistics	Mod	Mod	• Some phases of the prescribed fire may require logistical support in order to safely meet project objectives. • Limited amount of special equipment or communication equipment requiring more intensive logistical support may be needed to complete the project. Given the scope of the overall project, strong logistical support is going to be critical in maintaining operational pace and tempo, while also maintaining a safe, healthy environment for up to 21 firefighters/practitioners. An assigned "Logistics" function will help ease span-of-control while also accomodating the many needs of the organization.	Logistics functions will be covered by the IMT, helping to mitigate any collateral duty or span of control issues for burn modules. The burn will be well supported with communications equipment and functional frequencies.

Element	Preliminary Risk	Risk Rating Descriptors	Agency Administrator/Preparer Discussion Completed
Safety	Mod	• Safety issues are pronounced and require detailed briefings, with certain hazards requiring special caution. • A small organization with a single branch results in modest exposure of personnel to hazards. • Adverse impacts to public health and safety are possible. • At least one activity is low frequency/high risk. • Fatigue and extended exposure to hazards are anticipated. Small chimney's/chutes, steep terrain, rolling material, traffic control, drought awareness and local weather influences on fire behavior are all factors to consider.	Yes
Fire Behavior	Mod	• Fuels vary within the unit, both in loading and arrangement. • Fire behavior may present control challenges that are easily mitigated. • Medium fuel loadings with some high concentrations are present. • Variable terrain features may significantly affect fire behavior and present moderate ignition and control problems. • Local winds and burning conditions may vary enough to cause shifts in fire behavior that briefly exceed modeled fire behavior and threaten controllability. • Periodic torching can be expected either as isolated points or in limited areas. • Probability of ignition outside of the unit is low and any spotting is expected to be short-range. Units are comprised primarily of open stand ponderosa and oak, with intermittent clumps of douglas fir. Fire behavior will vary depending on fuel type. Slopes can be steep and head fire is not an effective behavior to meet resource and safety objectives in most cases.	Yes
Resistance to Containment	Mod	• Potential for multiple wildfire mechanisms such as spot fires or slopovers that can propagate at moderate rates of spread but can be held by prompt holding actions. • Some fuel concentrations or ladder fuels exist near critical holding points. • Expected fire intensities in the primary fuel type create little potential to challenge standard fire lines. • The probability of ignition in fuels outside of control lines is low to moderate. • Some dependency on natural fuel breaks to hold the prescribed fire. • Local drought and or fire indices are expected to be moderate to high. Units are comprised of open stand ponderosa pine, small clumps of douglas and white fir, oak and native grasses with varying fuel loading densities, generalized as 80% TU1 and 20% TU2, modeled in Behave 6.0.0 as TL8 and GR2. All units have been treated with whole tree processing and pile burning and Gambel oak has become prevalent. Adjacent values include homes surrounded by meadows or other control features. Fuels in the surrounding area are continuous and of varied compostion, but tend towards higher elevations and an increase in douglas and white fir.	Yes
Ignition Procedures and Methods	Mod	• Multiple firing sequences patterns and timing must be coordinated to meet project objectives and reduce the risk of an unexpected or adverse event. • Specific fire intensities or ROS are somewhat critical for meeting resource objectives but are readily attained by placing local skill sets in firing boss positions. The units can be steep and uphill runs would adversely effect the burn units. So, backing fire should be considered as the primary igntions tactic. Some units could be treated with a very pistol, but all units can be treated with either drip torches or drones.	Yes
Prescribed Fire Duration	Mod	• Active ignition, fire spread, and patrol is expected to occur for several operational periods. • Some residual burning (heavy fuel smoldering, stump holes, etc.) is expected to occur for several days after the primary burn out of the unit. • Mop-up and patrol is typical with minimal resource and equipment needs. • Primary holding phase is expected to be completed within reasonably predictable local weather forecasts. • The prescribed fire depends on accurate forecasts through three days.	Yes

Element	Preliminary Risk	Risk Rating Descriptors	Agency Administrator/Preparer Discussion Completed
		The units are all relatively small, well-lined, and require minimal prep. Burns are anticipated to take one shift or less, but may remain in monitor status for several days. Accurate forecasts are suggested for at 3 days past an igition day.	

Element	Preliminary Risk	Risk Rating Descriptors	Agency Administrator/Preparer Discussion Completed
Smoke Management	Mod	• Noticeable smoke will be produced creating at least some public concern. • Short-term health or safety concerns related to smoke exposure may occur if actual weather deviates from forecasted. • Nearby communities are highly conscious of smoke from wildland fire. • Some possibility for a NAAQS exceedance violation. • The prescription or ignition portions of the plan need to consider smoke management. Smoke-Sensitive Receptors include the community of Beulah and adjacent homes to the Park. Smoke will likely drift and disipate in the Beulah Valley, and smoke production should be relatively low.	Yes
Number and Dependence of Activities	Mod	• Several activities depend on achievement of previous or concurrent actions. • Several activities are interactive. • Communication is routine for coordination of activities and project success. • The project involves another land management agency, ownership or jurisdiction but project completion is not dependent on coordinated implementation. • Adjacent ownership supports the implementation of the prescribed fire. Units are well anchored by roads, hoselays and handlines. Ownership is City of Pueblo. Coordination of activies and project success is rooted in sound internal and external communication. Broadcast RX fire is a new endeavor for this part of Colorado, but well supported by the local fire protection districts and emergency service personnel.	Yes
Management Organization	Mod	• Two levels of supervision are needed (i.e. Burn Boss, Ignition Specialist, and/or Holding Specialist, plus lighters and holders). • Special skills or supervision required for one function (RXB2 is suggested). Management should be tiered utilzing the ICS. It is anticipated that management organizations per unit will require two levels of supervision.	Yes
Treatment/Resource Objectives	Mod	• Issues are present that hamper or may prevent meeting treatment resource objectives. • Failure to meet objectives could have short-term adverse impacts. • Associated resources could be damaged if the prescribed fire did not meet resource objectives. • Few critical holding points. General goals of the prescribed fire project include oak management, improved forest stand structure. Additional benefits to the project include several opportunities for training and wildfire risk reduction to the neighboring homes and community of Beulah. Barriers to success on this project include balancing culturual and ecological objectives with those of private landowners, painting an accurate picture of anticiapted and desired fire effects, accounting for drought impacts to the fuels, and undesireable fire effects in any unit, which may include running/head/crown fire in doug fir, or too low of fire intesity to blister trees in the oak units. It is recommended that some form of both pre and post-fire monitoring occur to aid in future decision making.	Yes
Constraints	Mod	• Constraints exist with some constraints imposing limits on implementing the prescribed fire or achieving objectives. Some constraints to consider are: traffic control and smoke impacts to local roads, steep terrain with rolling material, local weather influences, COVID-19 impacts, and availability of local resources.	Yes

Element	Preliminary Risk	Risk Rating Descriptors	Agency Administrator/Preparer Discussion Completed
Project Logistics	Mod	• Some phases of the prescribed fire may require logistical support in order to safely meet project objectives. • Limited amount of special equipment or communication equipment requiring more intensive logistical support may be needed to complete the project. Per unit logistics are straightforward and require some on-site tactical decision making. Depending on the scale of the organization, logistics should be able to scale commensurately utilizing the ICS system.	Yes

Pueblo Mountain Park		Quantity	Significance	Values Description: Describe the identified off-site, on-site and political values
Values	On-Site	**Multiple**	**Low**	Many signifigant cultural and ecological resources are present throughout the units, however, many of these resources will benefit from the application of prescribed fire.
	Off-Site	**Multiple**	**Mod**	The community of Beulah, CO lies within a mile of the burn unit, and structures are immediately adjacent to the park with the highest concentration of homes being South and East of the Puelo Mountain Park boundary. Units will be burned under conditions that allow for a slow moving ground fire, with nominal risk of escape and no modeled issues with swift containment of spots and slop-overs.
	Public/Political Interest	**Few**	**Low**	Pueblo Mountain Parks is a 611 acre park with 220 treated acres, and lies adjacent to Highway 78, a thoroughfare for residents of the small community of Beulah, CO. Smoke may increase traffic to the area and 911 calls.

Prescribed Fire Name**: Pueblo Mountain Park**

Ignition Unit Name: **All Units**

Appendix E: Fire Behavior Modeling Documentation or Empirical Documentation

Refer to Element 7: Prescription, in the *Interagency Prescribed Fire Planning and Implementation Procedures Guide*, PMS 484, to fill out this appendix.

Attached as .pdf in master folder.

Inputs: SURFACE, SIZE, CONTAIN, SPOT, SCORCH, IGNITE

Description		Pueblo Mountain Park - HIGH

Fuel/Vegetation, Surface/Understory

First Fuel Model		TL8
Second Fuel Model		GR2
First Fuel Model Coverage	%	80

Fuel/Vegetation, Overstory

Downwind Canopy Height	ft	80
Downwind Canopy Cover		Open
Torching Tree Height	ft	20
Spot Tree Species		PSME
D.B.H.	in	6

Fuel Moisture

1-h Fuel Moisture	%	4
10-h Fuel Moisture	%	6
100-h Fuel Moisture	%	8
Live Herbaceous Fuel Moisture	%	30
Live Woody Fuel Moisture	%	60

Weather

20-ft Wind Speed (upslope)	mi/h	15
Wind Adjustment Factor		.3
Air Temperature	oF	75
Fuel Shading from the Sun	%	50

Terrain

Slope Steepness	%	25
Ridge-to-Valley Elevation Difference	ft	200
Ridge-to-Valley Horizontal Distance	mi	.5
Spotting Source Location		VB

Fire

Number of Torching Trees		3
Elapsed Time	h	.1

Suppression

Suppression Tactic		Head
Line Construction Offset	ch	0
Resource Name		E1, E1, E3
Resource Line Production Rate	ch/h	12, 12, 12

(continued on next page)

Input Worksheet (continued)

Resource Arrival Time	h	.1, .2, .3
Resource Duration	h	12, 12, 12

Run Option Notes

Maximum effective wind speed limit IS imposed [SURFACE].

Two fuel model weighting method: two-dimensional spread [SURFACE].

Fire spread is in the HEADING direction only [SURFACE].

Wind is blowing upslope [SURFACE].

Wind and spread directions are degrees clockwise from upslope [SURFACE].

Direction of the wind vector is the direction the wind is pushing the fire [SURFACE].

Suppression input is for multiple resources [CONTAIN];
for each resource, identified by a Resource Name, a single value
is specified for each resource item (line production rates, etc).

Output Variables

Surface Fire Rate of Spread (ch/h) [SURFACE]

Surface Fire Flame Length (ft) [SURFACE]

Surface Fire Area (ac) [SIZE]

Surface Fire Perimeter (ch) [SIZE]

Fire Area at Initial Attack (ac) [CONTAIN]

Fire Perimeter at Initial Attack (ch) [CONTAIN]

Contain Status [CONTAIN]

Time from Report (h) [CONTAIN]

Contained Area (ac) [CONTAIN]

Fireline Constructed (ch) [CONTAIN]

Number of Resources Used [CONTAIN]

Spot Dist from Torching Trees (mi) [SPOT]

Scorch Height (ft) [SCORCH]

Probability of Ignition from a Firebrand (%) [IGNITE]

Notes

REFERENCE PMS-210; 3 FIREFIGHTERS PER ENGINE; FBFM 5

Pueblo Mountain Park - HIGH

Head Fire

Surface Fire Rate of Spread	15.0	ch/h
Surface Fire Flame Length	5.6	ft
Surface Fire Area	0.1	ac
Surface Fire Perimeter	4	ch
Fire Area at Initial Attack	0.4	ac
Fire Perimeter at Initial Attack	7.5	ch
Contain Status	Contained	
Time from Report	0.8	h
Contained Area	2.5	ac
Fireline Constructed	24.9	ch
Number of Resources Used	3	
Spot Dist from Torching Trees	0.2	mi
Scorch Height	32	ft
Probability of Ignition from a Firebrand	71	%

Discrete Variable Codes Used
Pueblo Mountain Park - HIGH

First Fuel Model
- tl8 — Long-needle litter (S) (188)

Second Fuel Model
- gr2 — Low load, dry climate grass (D) (102)

Downwind Canopy Cover
- Open — Open

Spot Tree Species
- PSME — Pseudotsuga menziesii (Douglas-fir)

Spotting Source Location
- VB — Valley Bottom

Suppression Tactic
- Head — Head Attack

Inputs: SURFACE, SIZE, CONTAIN, SPOT, SCORCH, IGNITE

Description		Pueblo Mountain Park - Preferred

Fuel/Vegetation, Surface/Understory

First Fuel Model		TL8
Second Fuel Model		GR2
First Fuel Model Coverage	%	80

Fuel/Vegetation, Overstory

Downwind Canopy Height	ft	80
Downwind Canopy Cover		Open
Torching Tree Height	ft	20
Spot Tree Species		PSME
D.B.H.	in	6

Fuel Moisture

1-h Fuel Moisture	%	6
10-h Fuel Moisture	%	8
100-h Fuel Moisture	%	10
Live Herbaceous Fuel Moisture	%	50
Live Woody Fuel Moisture	%	70

Weather

20-ft Wind Speed (upslope)	mi/h	15
Wind Adjustment Factor		.3
Air Temperature	oF	65
Fuel Shading from the Sun	%	50

Terrain

Slope Steepness	%	25
Ridge-to-Valley Elevation Difference	ft	200
Ridge-to-Valley Horizontal Distance	mi	.5
Spotting Source Location		VB

Fire

Number of Torching Trees		3
Elapsed Time	h	.1

Suppression

Suppression Tactic		Head
Line Construction Offset	ch	0
Resource Name		E1, E1, E3
Resource Line Production Rate	ch/h	12, 12, 12

(continued on next page)

Input Worksheet (continued)

Resource Arrival Time	h	.1, .2, .3
Resource Duration	h	12, 12, 12

Run Option Notes

Maximum effective wind speed limit IS imposed [SURFACE].

Two fuel model weighting method: two-dimensional spread [SURFACE].

Fire spread is in the HEADING direction only [SURFACE].

Wind is blowing upslope [SURFACE].

Wind and spread directions are degrees clockwise from upslope [SURFACE].

Direction of the wind vector is the direction the wind is pushing the fire [SURFACE].

Suppression input is for multiple resources [CONTAIN];
for each resource, identified by a Resource Name, a single value
is specified for each resource item (line production rates, etc).

Output Variables

Surface Fire Rate of Spread (ch/h) [SURFACE]

Surface Fire Flame Length (ft) [SURFACE]

Surface Fire Area (ac) [SIZE]

Surface Fire Perimeter (ch) [SIZE]

Fire Area at Initial Attack (ac) [CONTAIN]

Fire Perimeter at Initial Attack (ch) [CONTAIN]

Contain Status [CONTAIN]

Time from Report (h) [CONTAIN]

Contained Area (ac) [CONTAIN]

Fireline Constructed (ch) [CONTAIN]

Number of Resources Used [CONTAIN]

Spot Dist from Torching Trees (mi) [SPOT]

Scorch Height (ft) [SCORCH]

Probability of Ignition from a Firebrand (%) [IGNITE]

Notes

REFERENCE PMS-210; 3 FIREFIGHTERS PER ENGINE; FBFM 5

Pueblo Mountain Park - Preferred

Head Fire

Surface Fire Rate of Spread	11.8	ch/h
Surface Fire Flame Length	4.9	ft
Surface Fire Area	0.1	ac
Surface Fire Perimeter	3	ch
Fire Area at Initial Attack	0.2	ac
Fire Perimeter at Initial Attack	5.9	ch
Contain Status	Contained	
Time from Report	0.6	h
Contained Area	1.0	ac
Fireline Constructed	14.6	ch
Number of Resources Used	3	
Spot Dist from Torching Trees	0.2	mi
Scorch Height	22	ft
Probability of Ignition from a Firebrand	52	%

Discrete Variable Codes Used
Pueblo Mountain Park - Preferred

First Fuel Model
tl8 Long-needle litter (S) (188)

Second Fuel Model
gr2 Low load, dry climate grass (D) (102)

Downwind Canopy Cover
Open Open

Spot Tree Species
PSME Pseudotsuga menziesii (Douglas-fir)

Spotting Source Location
VB Valley Bottom

Suppression Tactic
Head Head Attack

Inputs: SURFACE, SIZE, CONTAIN, SPOT, SCORCH, IGNITE

Description		Pueblo Mountain Park - LOw

Fuel/Vegetation, Surface/Understory

First Fuel Model		TL8
Second Fuel Model		GR2
First Fuel Model Coverage	%	80

Fuel/Vegetation, Overstory

Downwind Canopy Height	ft	80
Downwind Canopy Cover		Open
Torching Tree Height	ft	20
Spot Tree Species		PSME
D.B.H.	in	6

Fuel Moisture

1-h Fuel Moisture	%	13
10-h Fuel Moisture	%	15
100-h Fuel Moisture	%	17
Live Herbaceous Fuel Moisture	%	90
Live Woody Fuel Moisture	%	90

Weather

20-ft Wind Speed (upslope)	mi/h	10
Wind Adjustment Factor		.3
Air Temperature	oF	55
Fuel Shading from the Sun	%	50

Terrain

Slope Steepness	%	25
Ridge-to-Valley Elevation Difference	ft	200
Ridge-to-Valley Horizontal Distance	mi	.5
Spotting Source Location		VB

Fire

Number of Torching Trees		3
Elapsed Time	h	.1

Suppression

Suppression Tactic		Head
Line Construction Offset	ch	0
Resource Name		E1, E1, E3
Resource Line Production Rate	ch/h	12, 12, 12

(continued on next page)

Input Worksheet (continued)

Resource Arrival Time	h	.1, .2, .3
Resource Duration	h	12, 12, 12

Run Option Notes

Maximum effective wind speed limit IS imposed [SURFACE].

Two fuel model weighting method: two-dimensional spread [SURFACE].

Fire spread is in the HEADING direction only [SURFACE].

Wind is blowing upslope [SURFACE].

Wind and spread directions are degrees clockwise from upslope [SURFACE].

Direction of the wind vector is the direction the wind is pushing the fire [SURFACE].

Suppression input is for multiple resources [CONTAIN];
for each resource, identified by a Resource Name, a single value
is specified for each resource item (line production rates, etc).

Output Variables

Surface Fire Rate of Spread (ch/h) [SURFACE]

Surface Fire Flame Length (ft) [SURFACE]

Surface Fire Area (ac) [SIZE]

Surface Fire Perimeter (ch) [SIZE]

Fire Area at Initial Attack (ac) [CONTAIN]

Fire Perimeter at Initial Attack (ch) [CONTAIN]

Contain Status [CONTAIN]

Time from Report (h) [CONTAIN]

Contained Area (ac) [CONTAIN]

Fireline Constructed (ch) [CONTAIN]

Number of Resources Used [CONTAIN]

Spot Dist from Torching Trees (mi) [SPOT]

Scorch Height (ft) [SCORCH]

Probability of Ignition from a Firebrand (%) [IGNITE]

Notes

REFERENCE PMS-210; 3 FIREFIGHTERS PER ENGINE; FBFM 5

Pueblo Mountain Park - LOw

Head Fire

Surface Fire Rate of Spread	2.5	ch/h
Surface Fire Flame Length	2.1	ft
Surface Fire Area	0.0	ac
Surface Fire Perimeter	1	ch
Fire Area at Initial Attack	0.0	ac
Fire Perimeter at Initial Attack	1.4	ch
Contain Status	Contained	
Time from Report	0.2	h
Contained Area	0.0	ac
Fireline Constructed	1.6	ch
Number of Resources Used	2	
Spot Dist from Torching Trees	0.1	mi
Scorch Height	5	ft
Probability of Ignition from a Firebrand	16	%

Discrete Variable Codes Used
Pueblo Mountain Park - LOw

First Fuel Model

tl8	Long-needle litter (S) (188)

Second Fuel Model

gr2	Low load, dry climate grass (D) (102)

Downwind Canopy Cover

Open	Open

Spot Tree Species

PSME	Pseudotsuga menziesii (Douglas-fir)

Spotting Source Location

VB	Valley Bottom

Suppression Tactic

Head	Head Attack