



# PRESCRIBED BURN POLICY FOR HELENA OPEN LANDS

## I. BACKGROUND INFORMATION

The Helena Open Lands Management Plan has listed wildfire mitigation through fuels reduction as a major goal. Other goals listed include:

1. Returning the land to a natural state of open land by selectively removing ladder fuels; and
2. Use prescribed fires to reduce unnatural fuel loads.

This plan addresses the prescribed burning of wildland fuels within the Helena Open Space Lands.

Wildland fire was once the most prevalent disturbance in Montana. Before the turn of the century, approximately half of western forests burned every 100 years and stands less than 40 years old made up one third of the forested landscape. Suppression of wildland fire has resulted in high fuel accumulations and a shift in forest stand composition and age structure.

Wildfires occurring under these conditions are far more destructive than normal and are often extremely difficult or impossible to control. An extreme potential exists for property damage, air quality, public health, and visibility impacts caused by wildfires. Prescribed burning is the best tool for taking out underbrush, small trees, and dead wood on a regular basis to mitigate wildfire conditions.

Alternatives to prescribed burning are applicable when fuel reductions are necessary for ecosystem or habitat management, or forest health enhancement. Alternative methods can be used to accomplish effects similar to what burning would accomplish when fire is used to eliminate an undesirable species or dispose of biomass waste. However, alternatives such as mechanical removal of forest biomass, use of grazing animals, and onsite chipping or crushing were believed to interfere with land management objectives for Helena Open Lands.

Alternatives could cause undue soil disturbance or compaction, stimulate weed invasion, impair water quality, or remove material needed for nutrient cycling or small animal habitat. Additionally, mechanical treatments require adequate road access, which is not always available on Open Space Lands.

**The Fuel Modification Plan:** Addressed the main areas of concern where fire is most likely to exhibit more intense and faster moving fires and through the following means:

The creation of fuel breaks by removing all ladder fuels from under the overstory canopy, and pruning the overstory up 15 feet or 1/3 of the live crown whichever is less, leaving the best healthiest young trees at about 15 to 20- foot spacing within openings in the canopy and in the grasslands, and removing only those overstory trees that create a crown spacing conducive to a sustained crown fire. This is generally at least a 10-foot spacing between overstory crowns or as needed to prevent a continuous crown fire. Pruned limbs, cut small trees, and dead and down material have been piled for disposal by burning. These actions have resulted in the following revised fire behavior model:

**Post-Treatment Fuel Description:** Scattered ponderosa pine overstory with at least 10 foot spacing between crowns and no seedling or sapling understory. Seedlings and saplings thinned to about 15 to 20 foot spacing within openings in the overstory canopy.

The prescribed burning of the fuels identified within this plan are designed to eliminate the danger of a catastrophic fire occurring that would endanger emergency response personnel and severely impact the Mount Helena ecosystem. Such a catastrophic fire would also greatly diminish the ability of the public to utilize the park for recreational purposes.

Although burn plans are not required for minor open burning, this policy will result in a boilerplate language for future burns on City property. It will also provide justification / rationale for burning through the public involvement process.

Interagency cooperation is vital in attaining fire management program objectives. The ability of a single agency or department to implement a fire management program is limited without coordination and assistance from other agencies and departments.

## **II. COMPLEXITY LEVEL**

The National Wildfire Coordinating Group (NWCG) **Prescribed Fire Complexity Rating System Guide** is the standard for rating prescribed fire complexity. Determination of the prescribed fire complexity is based on an assessment of risk (the probability or likelihood of an unexpected event or situation occurring), potential consequences, and technical difficulty.

An initial complexity rating and review was conducted during the project development stage to identify items of concern and/or items needing mitigation prior to the final determination of complexity and the final development of the prescribed burn plan. Various assessments of the project were undertaken in the plan development stage, this included several meetings between the various departments and agencies involved as well as site visits.

Under the guidelines of the NWCG Classification System, three prescribed fire complexities are possible (Complex, Intermediate and Non-Complex). Any prescribed fire meeting one of the criteria will be classified at the level indicated regardless of the overall rating.

### Complexity Determination

The following is the complexity level, which has been designated for this plan:

Complex [ ]      Intermediate [ ]      Non-Complex [x]

If this plan is rated as Complex, the rating is based on:

Management Objectives: [ ]      Risk of Escape: [ ]      Season: [ ]      Private Land: [ ]      Aerial Ignition: [ ]

This project has been rated "low" for risk of escape and "low" for economic, political and social consequences. These ratings reflect the identification of hazards and the mitigation techniques (burn in rain or snow) implemented by the operational management.

**Special Notation:** Although not required by Prescribed Burning Guidelines, this operation will be under the supervision and direction of a qualified Officer in Charge (OIC).

### III. TREATMENT OBJECTIVES

#### A. General:

1. Reduction of hazardous fuels that have been hand piled into individual fuel packages (4' X 4' hand piles) in the specified areas.
2. Hazardous Fuels Treatment activities require a coordinated interagency effort supported by Resource and Fire Management, and to further interagency cooperation and training. All participating departments, agencies, and disciplines will coordinate their respective roles for the planning, implementation, monitoring, and evaluation, reporting, and funding of fuels mitigation and treatment projects.

#### B. Specific:

1. Consume 100 % of the fuel packages (hand piled) in the specified areas.
2. Reduce the fire hazard in the Helena Open Lands Ecosystem.
3. Manage burn to minimize smoke production.

### IV. AREAS OF IMPLEMENTATION

To be determined as needed. These will be identified by maps and identified on daily burn plan.

## **V. OPERATIONAL PERIOD**

### **A. General:**

1. The Operational Period for Prescribed Burn Operations under the scope of this plan will be from September 1, through June 30, The Operational Period may be revised at a latter date to accomplish the objectives of the plan if weather and environmental conditions do not permit burning operations to be conducted during the established operational period.
2. During the Operational Period of October through November, it will be necessary to document ventilation conditions by calling the Ventilation Hotline at (800) 225-6779.
3. During the operational period of December through February, no burning will be conducted as open burning is generally prohibited by state rule. Reference Montana Department of Environmental Quality (DEQ) air quality rule 17.8.606.
4. Prescribed burn operations during the period of March through June 30, will conform to the guidelines applicable to the General Open Burning Season that requires good or excellent ventilation and other conditions as outlined in DEQ air quality rule 17.8.606.

### **B. Specific:**

1. Prescribed burn operations must conform to the Best Available Control Technology (BACT) and other conditions as outlined in DEQ air quality rule 17.8.606.
2. Compliance with all applicable federal, State and Local Air Quality Regulations will be adhered to.

## **VI. DESIRED BURN CONDITIONS**

### **A. Fuel Moisture:**

1. Sufficient adjacent fuel moisture in the form of rain or snow to prevent fire escape.
2. Hand piles should be cured with red needles to ensure complete burn and reduce smoldering to reduce smoke production.
3. Wind speed and direction should be monitored to prevent smoke from blowing into Helena and be less than 20 MPH.

## VII. PUBLIC NOTIFICATION

### A. General:

1. The City of Helena Parks and Recreation Department will be responsible for coordinating all notifications to the public and the news media concerning the Prescribed Burns for Helena Open Lands.

### B. Specific:

1. The City of Helena Parks and Recreation Department will publish a public notice in the Helena Independent Record Newspaper, advising the public that prescribed burn operations are being conducted on Helena Open Lands.
2. Efforts to educate the public concerning the prescribed burn will be conducted by notifying and utilizing the news media to the greatest extent possible.

Copies of the Prescribed Burn Policy for Helena Open Lands will be provided to the following news media organizations:

A. Helena Independent Record Newspaper  
P.O. Box 4249  
Helena, Montana 59604

Telephone: (406) 447-4000 voice  
(406) 447-4052 fax

B. KTVH Television  
100 West Lyndale Avenue  
Helena, Montana 59601

Telephone: (406) 457-1212 voice  
(406) 457-2700 News Room  
(406) 442-5106 fax

3. Copies of the Prescribed Burn Policy for Helena Open Lands will be provided to the Mayor and the members of the City of Helena Commission.
4. Copies of the Prescribed Burn Policy for Helena Open Lands will be provided to the members of the Helena Citizen's Council.
5. Copies of the Prescribed Burn Policy for Helena Open Lands will be available for inspection during normal office hours by interested parties at the following offices of the City of Helena:

A. Parks and Recreation Department

316 N. Park Avenue  
Helena, Montana 59623

Telephone: (406) 447-8463 voice

B. City of Helena Fire Department  
300 Neill Avenue  
Helena, Montana 59601

Telephone: (406) 447-8472 voice  
(406) 447-8467 fax

6. Copies of the Prescribed Burn Plan for Mount Helena will be available for inspection on the City of Helena, Montana Website at:  
<https://www.helenamt.gov/parks/open-lands-and-trails.html>.

## **VIII. PUBLIC SAFETY**

### **A. General:**

1. Public Safety is our first priority. The commitment to and accountability for safety is a joint responsibility of all Fire Fighters, Management Staff, Departments and Agencies involved with the prescribed burn plan.

### **B. Specific:**

1. Prior to ignition, the area will be posted to inform the public that a prescribed fire is in progress.
2. Areas will be checked for members of the public and any unauthorized personnel prior to ignition. If anyone is in burn area, they will be notified of the operation, and directed to move to a safe location.

## **IX. OPERATIONAL NOTIFICATIONS**

### **A. General:**

1. Operational Notifications, designated as Burn Day Contacts, will be made by the Officer in Charge (OIC) to the agencies and departments identified in the following table prior to the commencement of prescribed burning operations.
2. Operational Notifications (Burn Day Contacts) are intended to provide for notification to critical points of contact and as the final authorization to conduct prescribed burn operations at any given point during the operational period of the prescribed burn plan.

<b>Operational Notifications Designated Burn Day Contacts:</b>	<b>Telephone:</b>	<b>E-mail:</b>
<b>Environmental Health Division Lewis and Clark County Health Department</b>	<b>(406) 447-8351</b>	
Helena Interagency Dispatch Center Manager	(406) 444-4242	
<b>Ventilation Hotline</b>	<b>(800) 225-6779</b>	
City of Helena Fire Department	(406) 447-8472	
Helena 9-1-1 Communications Center	(406) 447-8233	<b>zslattery@helenamt.gov</b>
<b>Helena Ranger District</b>	<b>(406) 449-5490</b>	
F.A.A. Control Tower Helena Regional Airport	(406) 449-5761	
City of Helena Parks and Recreation Department	(406) 447-8462	
Deputy Fire Marshal and Special Projects Manager City of Helena Fire Department	(406) 447-8497	
<b>Jon Campbell, Chief of Department City of Helena Fire Department</b>	<b>(406) 447-8472 (406) 431-7665</b>	<b>jcampbell@helenamt.gov</b>
<b>Tim Burton, Interim City of Helena City Manager Approving Authority</b>	<b>(406) 447-8401 (406) 459-5188</b>	<b>tburton@helenamt.gov</b>

**Special Notation:** Those highlighted individuals, agencies, and departments will have the authority to prohibit the commencement of prescribed burn operations.

## **X. ECONOMIC DATA**

Each agency involved in any burn operation will pay their costs.

## **XI. FIRING PLAN**

### **A. Specific:**

1. Ignition will take place during periods of low temperature and high humidity (rain/snow or a long duration rain event). Ignition of hand piles will begin at the top of the prescribed burn area working down the mountain to the end of the prescribed burn area.
2. Crews will burn as many hand piles as they safely can in an eight-hour day. Burn crews will be staffed with adequate personnel. It is anticipated that crews will burn approximately 5 to 10 acres per day.
3. Current and extended forecasts will be monitored through the Forest Service Dispatcher and the Helena Interagency Dispatch Center.

4. Hand piles will be ignited from the outside so as not to burn out the middles. All hand piles will be “chunked” to better meet the desired results of complete burning of materials and to reduce the amount of smoke produced.
5. Drip torches and fusees will be the source of ignition. Fuel mixture for the drip torches will be a 4 to 1 or 3 to 1 ratio using diesel and gasoline.

## **XII. ENVIRONMENTAL ASSESSMENT AND BURN RESULTS**

### **A. General:**

1. Consequences of this project both in terms of compliance to public health / air quality standards and environmental degradation are minimal. The Helena area is located in Smoke Management Air-shed 6, with the air shed coordinator located at the Helena Interagency Dispatch Center. Meteorological reporting and resulting zone weather forecasts are of high quality and applicability to the Helena area. To date, no air quality exceedances have been monitored in the Helena area or elevated levels of particulate matter attributed to prescribed burning. This trend is anticipated to continue.

Each hand pile is estimated to produce minimal emissions based upon Hardy's 1996 ***Guidelines for Estimating Volume, Biomass, and Smoke Production for Piled Slash (PNW-GTR-364)*** publication (see below). Potential mitigation measures resulting from inadequate smoke dispersion will require procedures as outlined in Section XIII Contingency Plan A (3).

Total Suspended Particulates = 0.77 pounds / hand pile  
PM-10 = 0.56 pounds / hand pile  
PM-2.5 = 0.46 pounds / hand pile

2. An Environmental Assessment was prepared as part of the Project Impact Fuel Modification Plan for Mount Helena City Park. As part of the Environmental Assessment process, the project was reviewed by the following State and Federal government agencies:
  - U.S. Fish and Wildlife Service
  - U.S. Forest Service
  - Federal Emergency Management Agency, Denver, Colorado
  - Montana Department of Natural Resources and Conservation
  - Montana Historic Preservation Office
  - Montana Natural Heritage Program
  - Lewis and Clark County Planning Department
  - Lewis and Clark County Weed District



Based on the information contained in the Environmental Assessment conducted for this project a **Finding of No Significant Impact (FONSI)** has been issued for the project.

B. Specific:

1. Acceptable results will be consumption of 100% of the hand piles in any one day.
2. Acceptable mortality of less than 5% of trees less than 15 feet in height.
3. Acceptable mortality of 0% in trees that are mature.

**XIII. MOP-UP PLAN**

A. General:

1. All burning operations conducted under this plan will comply with "Category 1" Mop-Up Standards. This entails complete mop-up of individual fuel packages (hand piles) and the burn area units on a daily basis with effective periodic daily infrared detection as needed until the specific burn is declared out.

B. Specific:

1. Patrol and monitoring of previously ignited piles will continue until out.
2. A thermal imager infrared detection system will be used to detect any possible hot spots on all hand piles, until a dead-out declaration is made. Hand piles will be checked again the following day as an added safety precaution.

**XIV. AIR QUALITY AND SMOKE MANAGEMENT REQUIREMENTS**

A. General:

1. All proposed prescribed burning would be conducted in accordance with applicable air quality regulations. This plan has been submitted to the Montana Department of Environmental Quality and the Lewis and Clark County Health Department for review and comment.
2. For this project, the pollutant of concern is PM-10 (particulate matter with an aerodynamic diameter of 10 microns and less) and PM-2.5 (particulate matter with an aerodynamic diameter of 2.5 microns and less). The federal and state air quality standards for PM-10 are 150 micrograms per cubic meter ( $\mu\text{g}/\text{m}^3$ ) for a 24-hour period. The federal air quality

standards for PM-2.5 are 35 micrograms per cubic meter ( $\mu\text{g}/\text{m}^3$ ) for a 24-hour period and  $15 \mu\text{g}/\text{m}^3$  annually.

- 3 In March of 1980, the Lewis and Clark City/County Health Department (LCCHD) began air quality monitoring for the protection of public health. These air quality monitors are currently located at Lincoln and Rossiter schools. As a result of elevated particulate levels in the early 1980's, LCCHD began a voluntary residential wood-burning education and monitoring program. In 1986, the Lewis and Clark County Clean Air Ordinance was adopted and the Lewis and Clark Air Quality Protection District was formed to regulate residential wood burning. In January of 2002, Lewis and Clark County amended and adopted the ***Lewis and Clark Outdoor Clean Air Ordinance***.

Over the past years, the air quality in the Helena area can be characterized as 'good'. No exceedances of the 24-hour or annual PM-10 or PM-2.5 standards have been monitored.

B. Specific:

1. A monitoring plan is required as part of each prescribed fire plan. The requirements established for prescribed fire monitoring include weather conditions before ignition, during the ignition phase, the observed fire behavior, smoke dispersal, and whether fire treatment objectives have been met.
2. All restrictions imposed by the Smoke Monitoring Unit will be fully supported and complied with. The Airshed Coordinator for Airshed #6, in accordance with established procedures and guidelines, will advise the Fire Management Officer (FMO) and the Burn Boss of adverse smoke conditions should they develop.
3. Monitoring of smoke dispersion and any reported impacts will be conducted by the Lewis and Clark County Health Department, Environmental Health Division. The Division Administrator will have the authority to instruct personnel to stop burning. The Environmental Health Division Administrator or her authorized designee will contact the Officer in Charge and the Interagency Coordinating Officer (ICO) by radio or telephone in the event that the determination is made to stop burning operations.

## **XV. POST BURN EVALUATION**

A. General:

1. A Post Burn Analysis will be conducted by the Officer in Charge, in coordination with the Interagency Coordinating Officer; the Lewis and Clark County Health Department, Environmental Health Division

Administrator; the City of Helena Parks and Recreation Department Director; and the Project Impact Manager.

2. The Post Burn Analysis will include:
  - A. A qualitative description of smoke dispersal, quantity, volume, direction, etc.
  - B. Analysis of the effectiveness of operations under the prescribed burn plan.
  - C. Where possible photographs will be used to document burn day procedures and the results and impacts of operations under the prescribed burn plan.

## **XVI. CONTINGENCY PLAN**

### **A. General:**

1. A prescribed fire becomes a wildland fire when the Officer in Charge determines that an escape has, or is likely to occur. Fire outside of the planned perimeter, or outside any planned "Buffer or Allowable Areas," that cannot be contained with the holding forces identified in the Prescribed Burn Plan, is an escaped fire and will be declared a wildland fire.

**Note:** This does not include a fire that crosses the fire line which can be contained by resources on-site. Once a prescribed fire becomes a wildland fire it cannot be returned to prescribed status.

2. Evaluation of the likelihood of an escape fire during burn operations has been determined to be minimal.
3. Operational crews will be equipped to begin fire attack and suppression activities.
4. In the event smoke emissions become unacceptable, operational crews will take actions to minimize and/or eliminate source(s).

### **B. Specific:**

1. Should an escape fire result, U.S. Forest Service personnel will begin an immediate initial attack to suppress the fire.
2. The Fire Management Officer will contact the Helena 9-1-1 Communications Center by radio using the City of Helena Fire Department dispatch frequency and immediately request a 1<sup>st</sup> Alarm Wildland Response from the City of Helena Fire Department.

3. The Officer in Charge will then contact the Helena Interagency Dispatch Center (HIDC) by radio and request additional fire suppression units from the Department of Natural Resources and Conservation (DNRC) and the U.S. Forest Service (USFS).
4. All escaped prescribed fires will receive an administrative review. The level and scope of review will be determined by the injuries, damage, and costs associated with the escape.
5. A prescribed fire that escapes and requires an expenditure of suppression funds or results in property damage, injuries, or fatalities will be investigated.
6. The Officer in Charge is required to initiate an investigation of all escaped prescribed fires in coordination with City of Helena Fire Department, Fire Prevention and Investigation Bureau and in accordance with all applicable standards and regulations including, but not limited to, **Standards for Fire and Aviation Operations 2002** and National Fire Protection Association (NFPA) 921, **Guide for Fire and Explosion Investigations**.

## **XVII. OPERATIONAL SAFETY**

### **A. General:**

1. The safety of Fire Fighters and the public is the number one priority. The goal of the fire safety program is to provide direction and guidance for safe and effective management in all activities. Safety is the responsibility of everyone assigned to the prescribed fire and must be practiced at all operational levels. Every person involved in the prescribed burn project is responsible for identifying safety issues and concerns.

### **B. Specific:**

1. It is the responsibility of each individual participating in the prescribed burn project to let Officer in Charge know if they do not understand their assignment or have a safety concern(s) related to the assignment.
3. Job Hazard Analysis's are completed. A review of these, as well as "tail-gate" sessions, will be held before beginning operations.
4. Nomex clothing, hardhat, gloves, and boots are mandatory for ignition and mop-up of pile burning.

## **XVIII. COMMUNICATIONS**

Communications will be specified by the agency conducting the prescribed burn.