



Public Works Department, Park Division
 965 Fir Street
 Chico, CA 95928
 (530) 896-7800

Agenda Prepared: 4/22/2021
 Agenda Posted: 4/23/2021
 Prior to: 6:00 p.m.

CITY OF CHICO
BIDWELL PARK AND PLAYGROUND COMMISSION (BPPC)
 Regular Meeting Agenda
 April 26, 2021, 6:00 pm
Remote Meeting via Zoom Platform

Materials related to an item on this Agenda are available for public inspection in the Park Division Office at 965 Fir Street, Chico during normal business hours or online at <http://www.chico.ca.us>

PUBLIC PARTICIPATION:

This meeting is conducted in accordance with the Governor’s Executive Order N-29-20. Members of the public may virtually attend the meeting by using the City’s **Zoom** platform. ***This meeting will not be televised on Channel 11.***

*Emailed public comments will be accepted with the subject line **PUBLIC COMMENT ITEM ____**, sent to **parkpubliccomment@chicoca.gov** prior to and during the meeting up to the close of public comment on an item. The public is encouraged not to send more than one email per item and not to comment on numerous items in one email. For any emails received during the meeting, the names of the people submitting the email will be read, but not the email itself. However, emails will become part of the public record and available to the public for review after the meeting.*

Zoom public participants may use the following information to remotely view and participate in the BPPC meeting online:

Meeting Name: **BIDWELL PARK & PLAYGROUND COMMISSION MEETING 4-26-2021**
 Date/Time: Monday, April 26, 2021 at 6:00 pm
 Meeting URL: <https://zoom.us/j/99787874510?pwd=UklnVGJIME9Sa0pnRHRLcUVXSUVhUT09>
 Meeting ID#: 997 8787 4510
 Password: BPPC
 Call-in Number: 1-669-900-6833 or 877 853 5247 (Toll-free) Call-in Password: 228729

1. REGULAR COMMISSION MEETING

- 1.1. Call to Order
- 1.2. Roll Call

2. CONSENT AGENDA

All matters listed under the Consent Agenda are to be considered routine and enacted by one motion.

2.1. APPROVAL OF MEETING MINUTES

Action: Approve minutes of BPPC Meeting held on 3/29/21.

3. ITEMS REMOVED FROM CONSENT – IF ANY

4. PUBLIC HEARINGS NONE

5. REGULAR AGENDA

5.1. PRESENTATION AND CONSIDERATION OF A NEW SIGN FOR THE VERBENA FIELDS KIOSK.

CSU, Chico Community Action Volunteers in Education (CAVE) have been volunteering time with the Mechoopda Tribe of Chico Rancheria to remove invasive vegetation at Verbena Fields, a City-owned natural

Park at 1st and Verbena Avenues. Catherine Carkhuff from CAVE will present their proposal to donate a new sign to replace the existing weathered sign in the kiosk at Verbena Fields. **(Report – Shane Romain, Park Services Coordinator).**

Recommendation: The BPPC is requested to review, comment, and provide a recommendation on the proposed new sign design.

5.2. CONSIDERATION OF A REQUEST FROM THE ALCOHOL ANONYMOUS GOD SQUAD FOR DISCOUNTED PARK FEES TO RESERVE THE COUNCIL RING ON WEEKLY BASIS.

Tanny Johnson from Alcohol Anonymous (AA) God Squad (Applicant) submitted an application to reserve the Council Ring in Lower Bidwell Park on Sundays for their weekly meetings from 5/02/2021 through 10/31/2021 (27 meetings). The meetings are scheduled from 9:00am to 11:00am with approximately 50 members attending each week. Due to the recently approved increased reservation fees, the Applicant is requesting the Commission consider approving a discounted rate for these recurring weekly reservations. **(Report –Linda Herman, P&NRM).**

Recommendation: The BPPC is requested to provide direction on this fee reduction request. The P&NRM also requests, if the Commission approves such a request, that clear guidelines and conditions be established to determine whether or when to apply similar fee discounts to other applicants who may reserve park facilities for recurring dates in the future.

5.3. CONSIDERATION OF PROPOSED AMENDMENTS TO THE PEREGRINE POINT DISC GOLF OPERATING AGREEMENT WITH OUTSIDE RECREATION ADVOCATES, INC (ORAI).

At its 9/28/20 meeting, the Bidwell Park & Playground Commission (BPPC) considered the Natural Resources Committee's recommendation to amend the Peregrine Point Disc Golf (PPDG) Operating Agreement with Outside Recreation Advocates, Inc. (ORAI) to better reflect existing maintenance practices, a revised biological monitoring schedule, and ORAI's capacity to maintain the course. The BPPC will consider Staff's proposed amendments to the Agreement. **(Report –Linda Herman, P&NRM).**

Recommendation: The Park & Natural Resources Manager requests the BPPC recommend City Council approval of the following proposed amendments to the ORAI Agreement .

1. Extending the Agreement term for the remaining 5-year term until 6/30/25.
2. Revising the monitoring survey frequency of Blue Oaks to five (5) years, and the surveys for the Checkerbloom and Knotweed to every three (3) years, all of which to be paid by the City.
3. Requiring ORAI to contribute up to \$5,000 of in-kind volunteer labor or costs of supplies, materials, or services each year to continue to maintain and be stewards of the PPDG course.
4. Revising Exhibit B to the Agreement to include the above proposed amendments and to reflect only the current remaining required monitoring tasks.

5.4. CONSIDERATION OF THE CITYWIDE AREA AND A BIDWELL PARK BURN PLANS.

As one of the deliverables under the CalFire grant for the Vegetative Fuels Management Plan, a Citywide Area Burn Plan and a separate, more specific Burn Plan for Bidwell Park was prepared by the City's consultant Deer Creek Resources. The purpose of the Burn Plans is to provide a framework to help the City determine where, when and how to conduct prescribed burns on city-owned properties if desired in the future. **(Report – Linda Herman, P&NRM).**

Recommendation: The BPPC is requested to review, provide comments, and approve the Burn Plans.

6. BUSINESS FROM THE FLOOR

Members of the public may address the Commission via Zoom or by email at parkpubliccomment@chicoca.gov at this time on any matter not already listed on the agenda, with comments being limited to three minutes or as determined by the Chair. The Committee cannot take any action on requests made under this section of the agenda at this meeting.

7. REPORTS AND COMMUNICATIONS

These items are provided for the Commission's information. Although the Commission may discuss the items, no action can be taken at this meeting. Should the Commission determine that action is required, the item or items may be included for action on a subsequent posted agenda.

7.1 Parks Division Report – Linda Herman, Park and Natural Resources Manager

7.2 Street Tree Division Report – Richie Bamlet, Urban Forest Manager

8. COMMISSIONER REQUESTS

Pursuant to AP&P 10-1, a majority vote of the Commission is needed in order to agendaize these items for discussion at a future meeting. At this meeting, public comment may be taken only whether to agendaize these items. If approved to be agendaized, public comment regarding the items themselves will be taken at a future BPPC meeting.

8.1. By email dated 3/31/21, Commissioner Moore requests to form an Ad-Hoc Committee to discuss increasing revenue for Bidwell Park.

8.2. By email dated 4/19/21, Commissioner Thomas-Petty requests to agendaize discussion of recruitment, retention and remuneration issues for Parks Division employees (specifically Park Rangers), and Urban Forestry/Street Trees Division employees.

8.3. By email dated 4/23/21, Chair Glatz requests to agendaize discussion of the following topics:

8.3.1. Adjusting park closures at different areas of Bidwell Park to reduce vandalism, graffiti. And for public safety.

8.3.2. Creating zero tolerance or enhanced drug free zones in parks, especially around areas where children play.

9. ADJOURNMENT

Adjourn to the next regular meeting on **5/24/21** at **6:00 p.m.** at a location or format to be determined. ***Please note this meeting is not on the last Monday of the month due to the Memorial Day holiday.***



Please contact the Park Division Office at (530) 896-7800 if you require an agenda in an alternative format or if you need to request a disability-related modification or accommodation. This request should be received at least 3 working days prior to the meeting.

CITY OF CHICO
BIDWELL PARK AND PLAYGROUND COMMISSION (BPPC)
MINUTES OF
MARCH 29, 2021 MEETING
Remote Meeting via City's ZOOM Platform

PUBLIC PARTICIPATION: *This meeting was conducted in accordance with the Governor's Executive Order N-29-20. The public was able to view the meeting via the City's Zoom Platform. Public comments were also accepted by email sent to parkpubliccomment@chicoca.gov before and during the meeting, prior to the close of public comment on an item.*

1. REGULAR COMMISSION MEETING

1.1. Call to Order

Meeting called to order by Acting Chair Haar at 6:00 pm.

1.2. Roll Call

Commissioners Present:

Jeff Glatz
Aaron Haar
Garrett Liles
Elaina McReynolds
Anna Moore
Lisa Smith-Peters

Commissioners Absent: None

Staff/Consultants Present:

Erik Gustafson (Public Works Director O&M)
Debbie Presson, (City Clerk)
Linda Herman (Park and Natural Resource Manager)
Richie Bamlet (Urban Forest Manager)
Monica Murdock (Admin Analyst I)
Wolfy Rougle (Butte County Resource Conservation District/City consultant)

2. CONSENT AGENDA

All matters listed under the Consent Agenda are to be considered routine and enacted by one motion.

2.1. APPROVAL OF MEETING MINUTES

Action: Approve minutes of BPPC Special Meeting held on 3/08/21.

Commissioner Smith-Peters requested that the minutes be pulled from the Consent Agenda.

3. ITEMS REMOVED FROM CONSENT – IF ANY

2.1 APPROVAL OF MEETING MINUTES

Commissioner Smith-Peters ask City Clerk Presson whether the Commission's decision to postpone her motion made at the 3/8/21 meeting to require the BPPC to approve all future projects under

the Vegetative Fuels Management Plan under Agenda Item 5.2 in the Minutes was the correct procedure. She also asked whether legal counsel should be consulted on this.

Chair Haar explained to the Clerk that the item was postponed based on his concerns that it could be a violation of the Brown Act since this topic was not specifically noticed to the public on the Agenda. Commissioner Glatz stated his concerns that this motion did not follow the Council process on how Commissioners can agendaize items. However, he and the other the Commissioners agreed to put Commissioner Smith-Peters request and motion on the March 29, 2021 BPPC meeting.

Staff also advised that Commissioner Smith-Peters withdrew her motion after considering the Commission's concerns and since it was agreed her request would be on the next meeting agenda.

A motion was made by Commissioner Glatz and seconded by Commissioner Liles to approve the minutes.

The motion carried by the following vote:

AYES: Commissioner Moore, Commissioner Liles, Commissioner Smith-Peters, Commissioner Glatz, Acting Chair Haar.

NOES: None

4. OFFICIAL CEREMONY

4.1. RECOGNITION OF OUTGOING COMMISSIONERS – *P&NRM Linda Herman*

- ❖ Commissioner and former Chair Elaina McReynolds
- ❖ Commissioner and former Vice-Chair Aaron Haar
- ❖ Commissioner Garrett Liles

Staff thanked the outgoing Commissioners for their service and dedication to the City.

4.2. SWEARING-IN OF NEW COMMISSIONERS – *City Clerk Deborah Presson*

- ❖ Jesse Alexander
- ❖ Jeff Glatz
- ❖ Anjanette Shadley
- ❖ Megan Thomas Petty
- ❖ Nancy Wolfe

The City Clerk officially swore in the new Commissioners.

4.3. SELECTION OF CHAIR AND VICE-CHAIR- *City Clerk Deborah Presson*

Commissioner Thomas Petty nominated Commissioner Glatz as Chair. No other nominations were provided.

Commissioner Glatz was declared Chair by the following vote:

AYES: Commissioner Alexander, Commissioner Shadley, Commissioner Petty, Commissioner Wolfe, Commissioner Moore, Commissioner Glatz.

NOES: Commissioner Smith-Peters

Commissioner Glatz nominated by Commissioner Thomas-Petty to be selected as Vice-Chair and no other Vice-Chair nominations were made.

Commissioner Thomas-Petty was declared Vice-Chair by the following vote:

AYES: Commissioner Alexander, Commissioner Shadley, Commissioner Petty, Commissioner Wolfe, Commissioner Moore, Commissioner Glatz.

NOES: Commissioner Smith-Peters

5. CALL TO ORDER

After swearing in new Commissioners and choosing the Chair and Vice-Chair, the regular BPPC meeting was called to order again by the Chair.Glatz and Roll Call was called.

5.1. Roll Call

Commissioners Present:

- Jeff Glatz
- Anna Moore
- Lise Smith-Peters
- Megan Thomas-Petty
- Anjanette Shadley
- Nancy Wolfe
- Jesse Alexander

Commissioners Absent: None

6. PUBLIC HEARINGS NONE

7. REGULAR AGENDA

7.1. ORIENTATION ON THE COMMISSION'S DUTIES, RESPONSIBILITIES AND THE BROWN ACT.

The City Clerk provided an orientation and training on the Commission's responsibilities, duties, and Brown Act meeting procedures. The Clerk also discussed changes to Administrative Policy & Procedure 10-1 which states that the standing BPPC Committees, except Ad-Hoc Committees, have been discontinued by the City Council and that any new committees must be approved by the Council.

Commissioner Glatz requested the City Clerk explain the process how Commissioners are to request agenda items and how members of the public are to address the Commission during Business from the Floor and not directly to Staff.

Commissioner Smith-Peters asked whether speakers can be allowed to speak longer than 3 minutes and questioned why emails from the public are not read out loud in the meetings. The City Clerk responded that the BPPC is to follow the same meeting procedures as the City Council.

In response to Commissioner Moore's question, the City Clerk said that forming an Ad-Hoc Committees does not require City Council approval but would require BPPC approval.

7.2. COMMISSIONER SMITH-PETERS REQUEST – COMMISSION REVIEW OF VEGETATION PROJECTS.

At its 3/8/21 Special Meeting, the BPPC approved Commissioner Smith-Peters' request to discuss all proposed projects that fall under the program EIR for the Vegetative Fuels Management Plan come before the Commission for prior approval. (**Report –Linda Herman, P&NRM and Commissioner Smith Peters**).

P&NRM Herman provided an overview of her Staff report that outlined the steps and process on how vegetation projects, both those that fall under the scope of the program EIR and any new projects, would be reviewed and considered for implementation in the future.

Commissioner Smith-Peters restated her reasons for wanting to make a motion that all future vegetation projects, including those that may fall under the EIR come before the BPPC for approval.

and it was seconded by Commissioner Moore that all proposed projects come before the Commission before they start.

Commissioners Thomas-Petty, Alexander and Shadley questioned how Smith-Peters request was different from the process provided in the P&NRM report.

Commissioner Glatz questioned whether the BPPC input should be consulted earlier in the review process before Staff does too much work. P&NRM responded her intent was to review the typical vegetation measures performed by the Park Division each year and determine whether they fall under the EIR or whether they will require additional CEQA review and will present that list to the BPPC for approval. Any new projects would come before the BPPC.

Woody Allen provided comments regarding this item during the meeting and via email.

The motion failed (3-4) by the following vote:

AYES: Commissioner Wolfe, Commissioner Moore, Commissioner Smith-Peters

NOES: Commissioner Shadley, Commissioner Alexander, Vice-Chair Thomas-Petty, and Chair Glatz.

Commissioner Shadley made a new motion that the review of vegetation projects follow the procedures and process outlined in the P&NRM report. The motion was seconded by Commissioner Glatz

The motion passed (7-0) by the following vote:

AYES: Commissioner Wolfe, Commissioner Moore, Commissioner Smith-Peters Commissioner Shadley, Commissioner Alexander, Vice-Chair Thomas-Petty, and Chair Glatz.

NOES: None

7.3. REVIEW OF THE PARK AND STREET TREE DIVISION OPERATING AND CAPITAL BUDGETS.

Staff provided a review of the 2020-21 Park Division and Street Tree Division operating and capital project budgets and the 2021-22 budget process. **(Report –Staff).**

Recommendation: None this was an informational item only.

Commissioner Thomas-Petty questioned whether the salary for a Sworn Ranger could be changed to that of a Police Officer.

Commissioner Moore asked how much the new approved park reservation fees had increased revenues and Staff replied that it is too early to tell as reservations were cancelled last year due COVID restrictions. She also stated a need for an Ad-Hoc Committee to address fundraising and revenues.

After hearing the Urban Forest Manager's report regarding the difficulty in hiring qualified tree staff, Commissioners Glatz and Thomas-Petty stated they would like to have a discussion in the future regarding the salaries of City Public Works maintenance staff.

7.4. APPROVAL OF THE 2021 BPPC REGULAR MEETING CALENDAR

The Commission was requested to approve the proposed BPPC regular meeting dates for 2021.

Chair Glatz made a motion and Commissioner Thomas-Petty seconded to approve the proposed BPPC regular meeting dates for 2021.

The motion carried by the following vote:

AYES: Commissioner Moore, Commissioner Shadley, Commissioner Thomas-Petty, Commissioner Alexander, Commissioner Wolfe, Commissioner Smith-Peters and Chair Glatz.

NOES: None

8. BUSINESS FROM THE FLOOR

Members of the public may address the Commission via Zoom or by email at parkpubliccomment@chicoca.gov at this time on any matter not already listed on the agenda, with comments being limited to three minutes or as determined by the Chair. The Committee cannot take any action on requests made under this section of the agenda at this meeting.

Woody Elliott provided comments from Business From the Floor

9. REPORTS AND COMMUNICATIONS

These items are provided for the Commission's information. Although the Commission may discuss the items, no action can be taken at this meeting. Should the Commission determine that action is required, the item or items may be included for action on a subsequent posted agenda.

9.1 Parks Division Report – Linda Herman, Park and Natural Resources Manager

9.2 Street Tree Division Report – Richie Bamlet, Urban Forest Manager

10. ADJOURNMENT

The meeting adjourned at 8:42 p.m. to the next regular meeting on 4/26/21 at 6:00 p.m. at a location or format to be determined.

Date Approved: ___ / ___ / ___

Prepared by:

Monica Murdock, Admin Analyst I

Date

ITEM 5.1 - VERBENA KIOSK SIGN

Welcome to Verbena Fields

SITE HISTORY

This site has a long history of gravel mining, mostly to provide material for building roads. The site was also used for processing gravel. Standing at the kiosk, you can look across Verbena Fields and see how a large crater has been excavated. This topography shows how much material was removed. When it was no longer used to mine gravel, the site was left with an old asphalt road, piles of concrete and a large berm of gravel piled along Sandy Gulch, also known as Lindo Channel. This berm made this part of the channel one of the narrowest sections of Sandy Gulch east of the Esplanade.

PROJECT OVERVIEW

The restoration project included excavating a large portion of the gravel berm along Sandy Gulch, creating a surface water connection between the existing wetland and Sandy Gulch, expanding the existing wetland, installing two structures called bioswales to treat polluted urban runoff, burying old concrete under a raised footpath, removing and recycling all the asphalt on the site and planting the entire site with native plants. Volunteers, including Verbena Fields' neighbors, also helped to remove trash, wire and sheet metal from the site.

NATIVE VEGETATION

This site was originally populated with a mix of native plants (a plant that occurs naturally where it evolved) and non-native plants. Native plants included cottonwoods and willows. Non-native plants included broom, almonds, privets and a mix of annual grasses. The native plantings for this site include wetland species, species that the Mechoopda use for cultural purposes (such as basket making and medicines), and native perennial grasses and wildflowers.

Here are a few native species you may see during your visit to Verbena Fields:

Baccharis salicifolia
Mulefat



Mimulus bicolor
Yellow and White Mimulus



Muhlenbergia rigens
Deer Grass



Artemisia douglasiana
Mugwort



WETLAND EXPANSION

Wetlands are high quality habitats that are very important for wildlife, flood control and water quality. There was an existing wetland on the site before the restoration project. It was connected to Sandy Gulch mainly through groundwater. The restoration replaced a pipe culvert with a 20' bridge and removed some dirt to create a clear surface water connection. The project also dug out low areas and planted them with native plants that are adapted to the soil moisture expected on the restored site. The project increased the wetlands on the site from just over one acre to over three acres.

FLOODPLAIN RESTORATION

Floodplains are the terraced areas alongside creeks that are covered with water during storms. They provide important places for growing riparian (streamside) forests, give places for fish such as salmon to rest and hide from high flows and supply a place for water to spread out, thus reducing flood flows and depositing sediments that cause water pollution. The project excavated the large berm that was left alongside the channel to create these terraced areas and planted them with native species.

WILDLIFE YOU MAY SEE HERE

Verbena Fields is a natural oasis in an urban setting. You may see some of the animals that have adapted to urban life, such as rodents, snakes, skunks and even coyotes. You might also see Swainson's Hawk and songbirds. The threatened spring run Chinook salmon use Sandy Gulch, primarily for juveniles to migrate downstream during high flows out to the Sacramento River.



Oncorhynchus tshawytscha
Chinook Salmon



Bufo boreas
Western Toad



Buteo swainsoni
Swainson's Hawk



Buteo lineatus
Red-Shouldered Hawk



Sceloporus occidentalis
Western Fence Lizard



STORMWATER BIOSWALE

Rainwater running off urban surfaces carries a lot of pollution, including sediments, fertilizers and heavy metals. This project installed treatment systems called bioswales at the end of pipes that carry the urban runoff onto the site. A concrete spreader distributes the water so it flows slowly and shallowly over a gravel area that has been planted with native plants. The runoff drops out soil particles that carry pollutants such as heavy metals and phosphorus (a fertilizer that causes algae to over grow in the water). The plants take up other pollutants such as nitrogen, another fertilizer. Systems such as these use natural processes to clean up human pollution.

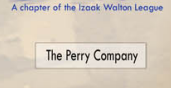
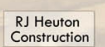
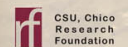
MECHOOPDA MAIDU INDIANS INTERPRETIVE GARDEN

"Nihay Hadem Wetebisin" "We are still here"

The Mechoopda aboriginal territory was vast and encompassed no fewer than 23 villages. Living and surviving on these lands, the Mechoopda practiced their traditions, collected plants, fished or hunted for food and gathered materials used for ceremonials, basket weaving and dance regalia. The Mechoopda's original way of life ended abruptly with the discovery of gold in California, when miners' search for the precious metal drove away game and destroyed fish habitat. The influx of miners and forced assimilation caused many Mechoopda living in Butte County to lose both their lives and land. The Mechoopda were spared by becoming laborers on General John Bidwell's Rancho Del Arroyo Chico. From 1849 until the tribe's termination in 1967, the Mechoopda lived on lands set aside for their use by General Bidwell. The City of Chico was founded on and around the Mechoopda Rancheria. The Mechoopda people will continue work to preserve and protect cultural resources throughout their aboriginal territory. Believing their ancestors continue to guide them, using traditional principles and practices, this legacy embodies the cultural identity, restoration, heritage and preservation of the Mechoopda people. The City of Chico has worked in unison with local Mechoopda Maidu Indians to utilize Verbena Fields as an Interpretive Garden for plants traditionally utilized by the tribe. These plants are located throughout the park and a circle shaped clearing for plant gathering has been provided near the expanded wetlands. The Verbena Fields Interpretive Garden will serve the community as a model of collaboration on the combined strengths needed to preserve, sustain and protect the land. Together we embrace this mutual obligation to honor, protect and steward the land with gratitude.



Funding for this project has been provided in full or in part through an agreement with the State Water Resources Control Board.



ITEM 5.1 - VERBENA KIOSK SIGN



WELCOME TO

VERBENA FIELDS

SITE HISTORY

This site has a long history of gravel mining, mainly to provide material for building roads. The site was also used for processing gravel. Standing at the kiosk, you can look across Verbena Fields and see how a large crater has been excavated. This topography shows how much material was removed.

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PHOTO OR GRAPHIC
(To Be Determined)

PROJECT OVERVIEW

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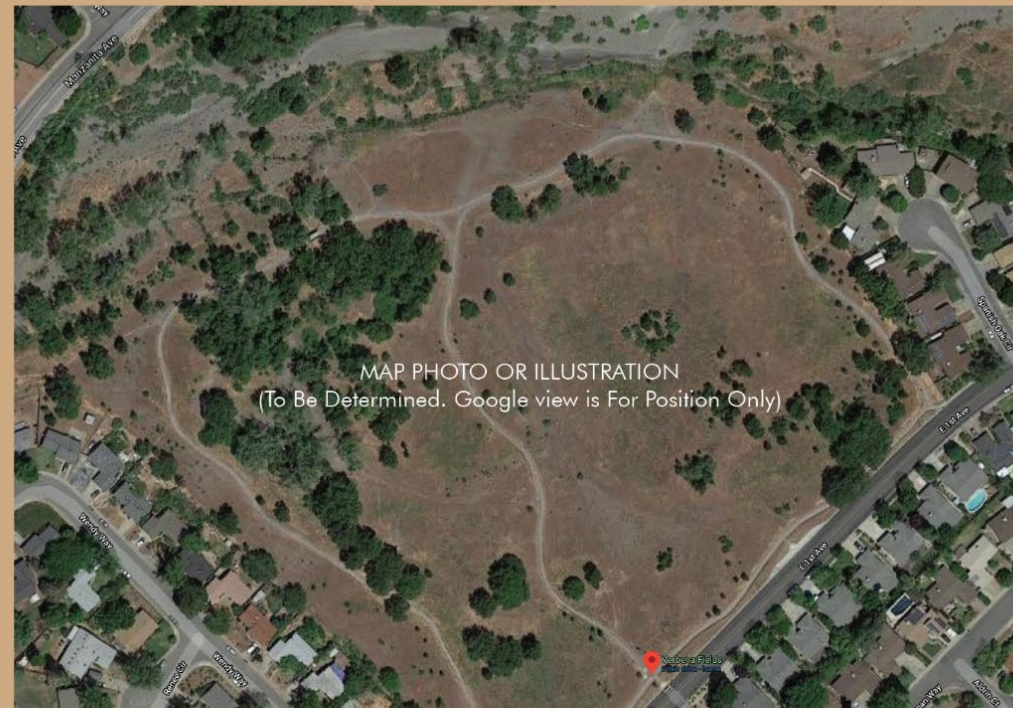
Photo & Description of Native Plant:
#1: Jimsonweed

Photo & Description of Native Plant:
#2: Yerba Santa

Photo & Description of Native Plant:
#3: Redbud

Photo & Description of Native Plant:
#4: Willow

LIST 4 PLANTS UNDER NATIVE VEGETATION.



MAP PHOTO OR ILLUSTRATION
(To Be Determined. Google view is For Position Only)

Aerial view of the Verbena Fields site located in Chico, California.

MECHOOPDA MAIDU INDIANS INTERPRETIVE GARDEN

"Niyah Hadem Wetebisin" "We are still here"

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The Mechoopda people will continue work to preserve and protect cultural resources throughout their aboriginal territory. Believing their ancestors continue to guide them, using traditional principles and practices, this legacy embodies the cultural identity, restoration, heritage, and preservation of the Mechoopda people.

The City of Chico has worked in unison with local Mechoopda Maidu Indians to utilize Verbena Fields as an Interpretive Garden for plants traditionally utilized by the tribe. These plants are located throughout the park, and a circle-shaped clearing for plant gathering has been provided near the expanded wetlands. The Verbena Fields Interpretive Garden will serve the community as a model of collaboration on the combined strengths needed to preserve, sustain, and protect the land. Together we embrace this mutual obligation to honor, protect, and steward the land with gratitude.



Photos supplied from the Dorothy Hill Collection from CSU, Chico.

WETLAND EXPANSION

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WILDLIFE YOU MAY SEE

Verbena Fields is a natural oasis in an urban setting. You may see some of the animals that have adapted to urban life, such as rodents, snakes, skunks, and even coyotes. You might also see Swainson's Hawk and songbirds. The threatened spring-run Chinook Salmon uses Sandy Gulch, primarily for juveniles to migrate downstream during high flows out to the Sacramento River.

PHOTO OR GRAPHIC OF WILDLIFE:
1) Fish, 2) Frog, 3) Salamander, 4) Birds of Prey

STORMWATER BIOSWALE

Rainwater running off urban surfaces carries a lot of pollution, including sediments, fertilizers, and heavy metals. This project installed treatment systems called bioswales at the end of pipes that carry the urban runoff onto the site. A concrete spreader distributes the water, so it flows slowly and shallowly over a gravel area that has been planted with native plants. The runoff drops out soil particles that carry pollutants such as heavy metals and phosphorous (a fertilizer that causes algae to grow in the water). The plants take up other pollutants such as nitrogen, another fertilizer. Systems such as these use natural processes to clean up human pollution.

PHOTO OR GRAPHIC
(To Be Determined)



Funding for this project has been provided in full or in part through an agreement with the State Water Resources Control Boards.





BPPC Staff Report

Meeting Date 04/26/2021

DATE: 4/13/21
 TO: Bidwell Park and Playground Committee (BPPC)
 FROM: Linda Herman, Park & Natural Resources Manager
 SUBJECT: Reservation Permit Application - God Squad-Weekly Alcohol Anonymous (AA) Meetings

REPORT IN BRIEF:

Tanny Johnson from Alcohol Anonymous (AA) God Squad (Applicant) submitted an application (see Attachment 1) to reserve the Council Ring in Lower Bidwell Park on Sundays for their weekly meetings from 5/02/2021 through 10/31/2021 (27 meetings). The meetings are scheduled from 9:00am to 11:00am with approximately 50 members attending each week.

In previous years, the Applicant would have paid City fees in the amount of \$30.00 per day, plus a one-time application fee of \$19.00, a City Risk Management insurance review fee of \$40.00, and a refundable deposit of \$100, totaling \$969 per year for the 27 meetings requested in 2021. With the recently BPPC and City Council approved reservation fee increases, the Applicant is no longer required to pay an application fee, the City insurance review fee, the cost to obtain event insurance outside of the City Fees, nor the deposit. Instead, the Applicant will be charged \$55.00 per day, totaling \$1,485 per year. Less the refundable deposit, this represents a 71% increase in previous year's costs, but does not include the cost to obtain event insurance (see new Fees Schedule in Attachment 2). Due to the increased fees, the Applicant is requesting the Commission consider approving a discounted rate for these recurring weekly reservations.

For the Commission's information, the Park & Natural Resources Manager (P&NRM) advises that:

- The City's park reservation fees have not been increased in many years and are comparable with reservation fees for CARD's and other local park facilities.
- There are several other Applicants, such as Earthbound Skills, who reserve park facilities for recurring events each year.
- Recurring reservations require the same amount of Staff time and resources to prep the reserved area prior to each event as a single reserved event.

Recommendation: The BPPC is requested to provide direction on this fee reduction request. The P&NRM also requests, if the Commission approves such a request, that clear guidelines and conditions be established to determine whether or when to apply similar fee discounts to other applicants who may reserve park facilities for recurring dates in the future.

Event Details

| | |
|--------------------------------|---|
| Date of Application | 3/22/2021 |
| Date of Event | Every Sunday from 5/2/21 to 10/31/21 |
| Time of Event | 9:00 am to 11:00 am |
| Event Name | God Squad AA Meeting |
| Applicant Name | Tanny Johnson for Alcoholics Anonymous |
| Location | Council Ring |
| Description | Weekly Meeting |
| New Event? | <input type="checkbox"/> Yes <input type="checkbox"/> No. Years? 30+ |
| # Participants | Approximately 50 per week |
| Reason for BPPC Consideration? | Event is held for multiple days and Applicant requests discounted reservation fees. |

ATTACHMENTS:

- Attachment 1: Application and Permit for Park Use
- Attachment 2: New Fee Schedule

DISTRIBUTION: Tanny Johnson and Theresa Burleigh



City of Chico
Application & Permit for Park Use
Public Works Department - Park Division

Number of People:

150 or less
 151 or more
 Special Event

SECTION 1 - APPLICATION INFORMATION
 Must be 18 or older to submit an application - Permit fees due upon submittal

This Reservation is not valid until approved by the Park Division

Name of Applicant/Contact Person

 Organization Name (if applicable)

 Home, Organization, or Company Address

 City, State, Zip

 Contact Phone No. Alternate Phone No.

Description of Event (Family BBQ, walk/run)* Additional room at bottom of page

 Day and Date of Event
 From: To:
 Time of Event only No. of People
 From: To:
 (Total time needed for set-up, Event, and clean-up)

 Email Address

Note: Park gates will not remain closed beyond normal opening time for any Event with less than 1,000 people. All races with less than 1,000 people at One Mile must start before 8:30 am. Street closure(s) subject to a separate permit and approval. Use of 50 or 100 amp requires a certified electrician (See Section 2).

Area Requested: (Please check if requested)

- Five Mile Picnic Area** East West
 - BBQ - Pick up key Mon - Fri 8:00 am - 4:30 pm
- Cedar Grove Picnic Area** **Cedar Grove Meadow**
 - Electricity (15 amp) Water
 - Water Electricity (100 amp)
 - Electricity (50 amp)
- Bidwell Bowl Amphitheater**
 - Electricity (15 amp)

- One Mile Picnic/Barbecue Area**
 Sycamore Field not included. Contact CARD to reserve
 - Oak Grove A** **Oak Grove B**
 - Electricity (15 amp)
 - Band Stand (15 amp)
 - BBQ - Pick up key Mon - Fri 8:00 am - 4:30 pm
 Water is available, but no hose bib

Note: Special conditions apply for amplified sound and 100 amp electricity (12R.10.170 CMC).

- City Plaza (Additional fees may apply)**
 - Electricity (15 amp) Electricity (100 amp)
 - Event Restrooms Water
 - Fountain: on off
 - Meter Bags #
- Council Ring**
 - Fire Permit
- Depot Park**
 - Electricity (15 amp)
- Lower Bidwell Park (Public Events only)**

- Children's Playground**
 - Electricity (15 amp) Pick up key Mon - Fri 8:00 am - 4:30 pm
 - Electricity (100 amp)
 - Water
- Picnic Site No. 37 (Redwood Grove)**
- Upper Bidwell Park (Public Events only)**
- Other (Specify):**
- Early Entrance Needed (Public Events only)**

*Additional Description of the Event (if needed)

For Park Ranger Assistance during the Event call 530-897-4900 (Police Department Dispatch).

Office Distribution:

| | | | | | | |
|------------------------|---------------|--------------------|-----------|------|-------------------------|------------|
| Permit File (original) | Park Ranger 1 | Senior Park Ranger | Applicant | BPPC | Cleaning Service | Facilities |
| Park Field Supervisor | Park Ranger 2 | Calendar | 920 Fund | DCBA | Risk Management (email) | CPD |

SECTION 2 - EVENT INFORMATION

Please answer the following questions by checking "yes" or "no"

| | | |
|---|-------------------------------------|-------------------------------------|
| Is this an annual event? If so, how many years have you been holding this event? <input style="width: 150px;" type="text" value="30+"/> | Yes | No |
| | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
| Is there a patron admission, entry, or participant fee(s) required for your event? If fee is charged, how much is the fee? <input style="width: 100px;" type="text"/> | Yes | No |
| | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| Will there be amplified sound/music at the event? (Please see the Noise Conditions for Park Use in Section 4) | Yes | No |
| Specify type (microphone, band, radio, PA system etc.): <input style="width: 150px;" type="text"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| When will amplified sound/music be heard? Time from: <input style="width: 50px;" type="text"/> to: <input style="width: 50px;" type="text"/> | | |
| <i>Note: 50 / 100 amp electrical service requires a certified electrician to operate.</i> | | |
| Will there be an entertainment apparatus anywhere? These are only allowed in certain areas of the park. <i>No water apparatus allowed.</i> | Yes | No |
| Operator to provide proof of insurance to the City Park Division prior to event. | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| <input type="checkbox"/> Bounce house <input type="checkbox"/> Climbing wall <input type="checkbox"/> Ropes course <input type="checkbox"/> Other: <input style="width: 100px;" type="text"/> | | |
| Name of Operator: <input style="width: 200px;" type="text"/> | | |
| Will there be any vendors selling food, merchandise, or services at this event? (no glass or alcohol permitted) | Yes | No |
| If selling food, please describe how it will be prepared at the event: <input style="width: 250px;" type="text"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| <i>Valid permit from Butte County Environmental Health is required for all food vendors and must be on hand.</i> | | |
| Will event require that any part of the Park remain closed beyond the normal time of opening? | Yes | No |
| <i>Note: Park gates will not remain closed beyond normal opening time for any event with less than 1,000 people. All races with less than 1,000 people at One Mile must start before 8:30 am. (Subject to approval by the City Park Division)</i> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| If yes, please state which gates: <input style="width: 50px;" type="text"/> Time of closure: from: <input style="width: 30px;" type="text"/> to: <input style="width: 30px;" type="text"/> | | |
| Will event require overnight storage of property? If yes, how many security or other personnel will be provided? <input style="width: 100px;" type="text"/> | Yes | No |
| | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| Will there be early entrance (before 7 am) into the Park? (An additional fee will be charged) <i>Note: Gate monitors are required at all the entrances and exits for early Park entrance until gates open at 9 am.</i> | Yes | No |
| | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| If yes, when will monitors be at their positions? Time from: <input style="width: 50px;" type="text"/> to: <input style="width: 50px;" type="text"/> | | |
| Portable Restrooms: You are required to rent portable restrooms for events with 200+ participants in the immediate area of the event site which will be available to the public during your event. | Yes | No |
| Restroom company: <input style="width: 150px;" type="text"/> Phone number: <input style="width: 100px;" type="text"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| Location(s) of portable restrooms: <input style="width: 150px;" type="text"/> | | |
| <i>Note: Restrooms shall be removed within 32 hours after conclusion of event.</i> | | |
| Trash and Recycling: As an event organizer, you must properly recycle or dispose of waste during your event and immediately after the event. The area must be returned to a clean condition. For events with 200+ participants, additional trash and recycling cans are required at applicant's cost. <i>Note: Containers shall be removed within 32 hours after conclusion of event.</i> | Yes | No |
| | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| Trash company: <input style="width: 150px;" type="text"/> Phone number: <input style="width: 100px;" type="text"/> | | |
| Will your event include the use of any signs, banners, or decorations? (Please see Conditions for Park Use in Section 4) | Yes | No |
| If yes, please describe type and location: <input style="width: 150px;" type="text"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| <i>Note: All signs and banners shall be free standing and not affixed to trees or Park property.</i> | | |
| Will water be needed during your event? If yes, for what purpose: | Yes | No |
| <i>Please provide your own hose and shut-off nozzle. No hose bib is available at One Mile Recreation Area.</i> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| Is this a walk, run or bike race event? | Yes | No |
| | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| If so, are you using the standard race course? If not, please provide a map. | Yes | No |
| <i>Note: Not using the standard race course requires Bidwell Park & Playground Commission (BPPC) approval.</i> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| One Mile / Sycamore Field: If this is a One Mile reservation, will Sycamore Field be needed? | Yes | No |
| <i>If yes, you will need to contact CARD at 545 Vallombrosa Ave. Chico (530) 895-4711.</i> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| City Plaza Only: Vehicles are not allowed in City Plaza. Loading and unloading must occur from the streets. Meter bags for loading and unloading may be obtained from the City by calling: (530) 896-7800. | | |
| Will vendors be placed on the perimeter sidewalks? | Yes | No |
| <i>If yes, a Vend, Peddler, Hawk permit must be obtained from the Engineering Division at 411 Main Street, Chico (530) 879-6900.</i> | <input type="checkbox"/> | <input type="checkbox"/> |
| Will City street closure(s) be needed? | Yes | No |
| <i>If yes, a separate permit must be obtained from the Engineering Division at 411 Main Street, Chico (530) 879-6900.</i> | <input type="checkbox"/> | <input type="checkbox"/> |

SECTION 3 - PERMIT FEES

Park Reservation Fees for 150 or Fewer People Fees based on venue & not applicable to weddings

| Reservation Locations | Fee | No. of Days | Total |
|--|-------|-------------|-------|
| Bidwell Bowl - Partial Day (5 hours or less) | \$55 | | |
| Bidwell Bowl - Full Day | \$100 | | |
| Cedar Grove Picnic Area - Partial Day (5 hours or less) | \$55 | | |
| Cedar Grove Picnic Area - Full Day | \$75 | | |
| Cedar Grove Meadow - Partial Day (5 hours or less) | \$55 | | |
| Cedar Grove Meadow - Full Day | \$75 | | |
| Children's Playground - Partial Day (5 hours or less) | \$30 | | |
| Children's Playground - Full Day | \$55 | | |
| City Plaza - Partial Day (5 hours or less) | \$55 | | |
| City Plaza - Full Day | \$75 | | |
| Council Ring - Partial Day (5 hours or less) | \$55 | 30 | |
| Council Ring - Full Day | \$75 | | |
| Depot Park - Partial Day (5 hours or less) | \$30 | | |
| Depot Park - Full Day | \$55 | | |
| Five Mile East - Partial Day (5 hours or less) | \$55 | | |
| Five Mile West - Partial Day (5 hours or less) | \$55 | | |
| Five Mile East - Full Day | \$75 | | |
| Five Mile West - Full Day | \$75 | | |
| One Mile Oak Grove A - Partial Day (5 hours or less) | \$55 | | |
| One Mile Oak Grove B - Partial Day (5 hours or less) | \$55 | | |
| One Mile Oak Grove A - Full Day | \$75 | | |
| One Mile Oak Grove B - Full Day | \$75 | | |
| One Mile Oak Grove A & B - Partial Day (5 hours or less) | \$75 | | |
| One Mile Oak Grove A & B - Full Day | \$125 | | |
| Picnic Site No. 37 (Redwood Grove) - Partial Day (5 hours or less) | \$30 | | |
| Picnic Site No. 37 (Redwood Grove) - Full Day | \$55 | | |
| Other Areas** - Partial Day (5 hours or less) | \$30 | | |
| Other Areas** - Full Day | \$55 | | |

**Other Areas Require BPPC Approval

Park Reservation Fees for 151 or more people, or Special Events such as weddings and walks/runs Fees based on number of people

| Description | Fee | | Total |
|---|----------------|--------------|-------|
| Application Processing Fee | \$40 | | |
| Damage Deposit Fee (Refundable) | \$150 | | |
| Event Fees Based on Number of Participants | | | |
| 1 - 150 | \$75 | | |
| 151 - 250 | \$150 | | |
| 251 - 500 | \$230 | | |
| 501 - 1,000 | \$525 | | |
| 1,001 plus (see line below) | \$750 | | |
| | | # over 1001 | |
| \$0.50 per participant exceeding 1001 | \$0.50 | | |
| Additional Fees Applicable to All Reservations | | | |
| Description | Fee | No. of Units | Total |
| Early Entrance Fee (before 7 am) | \$35 / hour | | |
| Events with vendors selling food, beverages, merchandise, or services | \$10 / vendor | | |
| Sound/Electricity (15 amp) | \$15 / day | | |
| Sound/Electricity (50 or 100 amp) | \$35 / day | | |
| City Plaza Additional Restrooms (200 + participants) | \$112.50 / day | | |

| | | |
|--|----------------------------|--|
| Fees due upon submittal of application | Park Fee Total: | |
| Credit Card payment will be assessed a 2.75% convenience fee | Convenience Fee: | |
| Make checks payable to: City of Chico | Total Fee Required: | |

City of Chico Cash Receipt No: Payment Method: Date: Received by: PAGE - 11

SECTION 4 - CONDITIONS FOR PARK USE

You are responsible for knowing the Park Rules. Please observe the following:

| | |
|------------------------|---|
| Alcohol | Alcohol is not permitted in any City Park or Playground. |
| BBQs | Portable BBQs (charcoal or propane only) may only be used next to existing BBQs in Lower Bidwell Park and Five Mile Recreation Areas, no other areas. No BBQs allowed during Red Flag Fire Warning or high wind advisory days. |
| Bicycles | Bicycles must observe all California vehicular codes including one-way streets. Riders are expected to be courteous and yield to equestrian and pedestrian traffic. Helmets must be worn at all times in Upper Park, except when on pavement. Riders must stay on designated trails. Bicycle riding is not allowed in Caper Acres or on the Sycamore pool deck. |
| Bounce Houses | Bounce houses, (except those with water) and other similar non-water play equipment, are only permitted in certain areas with a reservation and upon approval by the Park Division. The operators of this equipment must provide proof of insurance to the Park Division prior to event. Bounce houses are not allowed in Caper Acres. |
| Campfires | No campfires allowed at any time, except by permit and only in the Council Ring. |
| Camping | No overnight camping allowed unless authorized by the Bidwell Park and Playground Commission. Bidwell Park is a day use only park. |
| Clean up | Permittee is required to completely clean up area at the conclusion of event. |
| Damages | Any damage to City property as a result of this event will be repaired at permittee's expense. |
| Dogs | Dogs may be off leash from 5:30 am to 8:30 am in Lower Park. All other times, dogs must be on a leash 6 feet in length or less. Along the north side of Upper Park Road, dogs may be off leash anytime. While off leash, dogs must remain under control via master's voice. Dogs are not allowed in Caper Acres, One Mile or Five Mile swimming areas, or designated swimming holes in Upper Park. |
| Electrical | All power extension cords, sound amplification equipment, and staging to be supplied by permittee. Permittee shall provide "tripping" prevention devices over power cords crossing any pathway. |
| Fishing | Big Chico Creek: Check California Fish and Wildlife Regulations: www.wildlife.ca.gov . Horseshoe Lake: Age 14 and over - license required, catch and release. Under 14 - no license required, catch and keep. |
| Gate Closures | Upper Park gate at Parking Lot E is closed on Sundays, Mondays, during wet periods, and Red Flag Fire Warning days. Gates may be closed for approved special events. For gate opening and closing hours, visit: www.chico.ca.us/park-trails . |
| Glass | No glass containers allowed in any City Park or Playground. |
| Horses | Horses must stay on designated trails. Horses are not allowed in One Mile or Five Mile Recreation Areas. Horses must cross the creek at approved crossings. Safe and courteous riding is the Park standard. |
| Noise | No loud or unusual noises are allowed, including radios and headsets that can be heard over 50 feet away. For music or sound at One Mile Recreation Area, please face all speakers away from Woodland Ave. |
| Park Closures | Lower Park is closed from 11:00 pm to 5:00 am every day, unless directly and actively proceeding to a destination outside of the Park. Upper Park is closed to vehicles at 9:00 pm October - March, and 11:00 pm April - September unless posted otherwise. Park may be closed during Red Flag Fire Warning or high wind advisory days. |
| Signs/ Defacing | Defacing of trees, tables, any park fixtures, open ground, or paved roads/paths with markings, staples, tacks, or signs is prohibited. No pinatas, slack lines, hammocks, or accessories shall be affixed to trees. Only barricades, cones, or self standing devices may be used for these purposes. |
| Smoking | Smoking or vaping is not permitted in any City Park or Playground. |
| Swimming | While in the One Mile swim area, compliance with lifeguards is required for public safety. Pool is open and lifeguards are on duty during summer swim season. |
| Vegetation | No taking, cutting, or injury of any vegetation in the Park is allowed. |
| Vehicle Traffic | <ul style="list-style-type: none"> • While gates are closed, limited use of vehicles to set up for event is permitted. Vehicles must be in compliance with the one-way designation of the roadway, must yield to all other activities (walking, jogging, bicycling, and horseback riding), must travel with flashers on and may not exceed ten (10) miles per hour. • Permittee shall provide adequate signs and supervision to avoid conflicts between vehicles, bicycles, equestrians, and general public. • Only emergency vehicles will be allowed access through the area of South Park Drive which has been closed to motor vehicles. • No vehicles are permitted to travel or park on grass areas. |

SECTION 5 - INSURANCE

(To be determined by Park Division)

INSURANCE REQUIREMENTS ARE APPLICABLE TO ALL EVENTS WHERE:

Insurance Required

Not Required

"There are more than 150 participants"

For Insurance questions for your event, please contact the Risk Management office
(530) 879-7910 or email risk-management@chicoca.gov

For liability coverage purposes, it is the applicant and the City of Chico's intent (hereinafter referred to as the "Parties"), that this permit is a written contract between the Parties.

Pursuant to the insurance policy related to this permit/written contract, and consistent with the Certificate of Liability Insurance and Additional Insured Endorsements, the Parties hereby attach and incorporate by this reference, the Certificate of Liability Insurance and Additional Insured Endorsements, which are further expressly made a material part of the said permit/written contract between the Parties.

Permittee shall supply, at least two (2) weeks in advance of the scheduled event, a Certificate of Insurance issued by a company licensed to do business in California with a Best's Insurance Guide rating of "B" or better ("A" rated if Company is unlicensed) which provides evidence of comprehensive and general liability coverage in the amount of \$1,000,000 combined single limit; \$2,000,000 aggregate with policy endorsements as follows:

(1) Identification of permit application, identification of event, date of event.

Note: Numbers 2 and 3 below must be separate endorsements:

- (2) The City of Chico, its officers, boards of commissions, and members thereof, its employees and agents are covered as additional insureds as respects to any liability arising out of the activities of the names insured.
- (3) The insurance coverages afforded by this policy shall be primary insurance as respects to the City of Chico, its officers, employees, or agents. Any insurance or self-insurance maintained by the City of Chico, its officers, employees, or agents shall be in excess of the insurance afforded to the named insured by this policy and shall not contribute to it.
- (4) An unqualified statement that "The insurer will provide the City at least ten (10) days prior notice of cancellation or material change in coverage" standard Certificate of Insurance cancellation language is not acceptable.

Please Note: Your reservation may be cancelled if the insurance is not approved at least two weeks prior to the scheduled event.

SECTION 6 - ACCEPTANCE OF CONDITIONS

In signing this Permit, I agree to indemnify and hold the City of Chico and/or the Bidwell Park and Playground Commission free and clear of all claims of damage for injury to persons or property in, upon or about City Parks or Playgrounds, and arising from my use of the Parks and Playgrounds as noted above, and to defend any action against the City of Chico resulting from any such claim, without cost to the City.

*I certify that I have read this application thoroughly, followed any and all instructions, understand its contents, will comply with the attached "Conditions for Park Use" in Section 4, will adhere to any additional conditions set forth by this permit, and supplied true and correct information herein to the best of my knowledge and belief.

DocuSigned by:

Signature of Applicant

March 22, 2021
Date

RETURN THIS FORM TO:

City of Chico - Park Division
Deliver to: 965 Fir Street, Chico, CA 95928
Mail to: PO Box 3420, Chico, CA 95927
email to parkinfo@chicoca.gov

THIS RESERVATION IS NOT VALID UNTIL ALL FEES ARE PAID AND APPROVED BY THE PARK DIVISION.

A copy of the approved permit will be returned to you.

SECTION 7 - AUTHORIZATION

I certify that I have carefully reviewed this application pursuant to Title 12 and 12R of the Chico Municipal Code and hereby recommend this permit be:

- Approved by Director
- Approved by Director subject to listed additional condition(s):
- Denied by Director
- Approved by Bidwell Park & Playground Commission (BPPC)
- Approved by BPPC subject to listed additional condition(s): (see attached conditions)
- Denied by BPPC

Reason for Denial:

Approved by

Date

SECTION 3 - PERMIT FEES

Park Reservation Fees for 150 or Fewer People Based on Venue (Not applicable to weddings)

| Reservation Locations | Fee | No. of Days | Total |
|--|-------|-------------|-------|
| Bidwell Bowl - Partial Day (5 hours or less) | \$55 | | |
| Bidwell Bowl - Full Day | \$100 | | |
| Cedar Grove Picnic Area - Partial Day (5 hours or less) | \$55 | | |
| Cedar Grove Picnic Area - Full Day | \$75 | | |
| Cedar Grove Meadow - Partial Day (5 hours or less) | \$55 | | |
| Cedar Grove Meadow - Full Day | \$75 | | |
| Children's Playground - Partial Day (5 hours or less) | \$30 | | |
| Children's Playground - Full Day | \$55 | | |
| City Plaza - Partial Day (5 hours or less) | \$55 | | |
| City Plaza - Full Day | \$75 | | |
| Council Ring - Partial Day (5 hours or less) | \$55 | | |
| Council Ring - Full Day | \$75 | | |
| Depot Park - Partial Day (5 hours or less) | \$30 | | |
| Depot Park - Full Day | \$55 | | |
| Five Mile East - Partial Day (5 hours or less) | \$55 | | |
| Five Mile West - Partial Day (5 hours or less) | \$55 | | |
| Five Mile East - Full Day | \$75 | | |
| Five Mile West - Full Day | \$75 | | |
| One Mile Oak Grove A - Partial Day (5 hours or less) | \$55 | | |
| One Mile Oak Grove B - Partial Day (5 hours or less) | \$55 | | |
| One Mile Oak Grove A - Full Day | \$75 | | |
| One Mile Oak Grove B - Full Day | \$75 | | |
| One Mile Oak Grove A & B - Partial Day (5 hours or less) | \$75 | | |
| One Mile Oak Grove A & B - Full Day | \$125 | | |
| Picnic Site No. 37 (Redwood Grove) - Partial Day (5 hours or less) | \$30 | | |
| Picnic Site No. 37 (Redwood Grove) - Full Day | \$55 | | |
| Other Areas** - Partial Day (5 hours or less) | \$30 | | |
| Other Areas** - Full Day | \$55 | | |

****Other Areas Require BPPC Approval**

Park Reservation Fees for 151 or more people, or Special Events such as weddings and walks/runs Fees based on number of people

| Description | Fee | No. of Units | Total |
|---|----------------|--------------------|-------|
| Application Processing Fee | \$40 | | |
| Damage Deposit Fee (Refundable) | \$150 | | |
| Event Fees Based on Number of Participants | | | |
| 1 - 150 | \$75 | | |
| 151 - 250 | \$150 | | |
| 251 - 500 | \$230 | | |
| 501 - 1,000 | \$525 | | |
| 1,001 plus (see line below) | \$750 | | |
| | | # over 1001 | |
| \$0.50 per participant exceeding 1001 | \$0.50 | | |
| Additional Fees Applicable to All Reservations | | | |
| Early Entrance Fee (before 7 am) | \$35 / hour | | |
| Events with vendors selling food, beverages, merchandise, or services | \$10 / vendor | | |
| Sound/Electricity (15 amp) | \$15 / day | | |
| Sound/Electricity (50 or 100 amp) | \$35 / day | | |
| City Plaza Additional Restrooms (200 + participants) | \$112.50 / day | | |



DATE: 4/20/21
TO: Bidwell Park & Playground Commission (BPPC)
FROM: Linda Herman, Park & Natural Resources Manager
SUBJECT: CONSIDERATION OF PROPOSED AMENDMENTS TO THE PEREGRINE POINT DISC GOLF OPERATING AGREEMENT WITH OUTSIDE RECREATION ADVOCATES, INC (ORAI).

REPORT IN BRIEF:

At its 9/28/20 meeting, the Bidwell Park & Playground Commission (BPPC) considered the Natural Resources Committee's recommendation to amend the Peregrine Point Disc Golf (PPDG) Operating Agreement with Outside Recreation Advocates, Inc. (ORAI) to better reflect existing maintenance practices, a revised biological monitoring schedule, and ORAI's capacity to maintain the course. The BPPC will consider Staff's proposed amendments to the Agreement.

Recommendation: The Park & Natural Resources Manager requests the BPPC recommend City Council approval of the following proposed amendments to the ORAI Agreement .

1. Extending the Agreement term for the remaining 5-year term until 6/30/25.
2. Revising the monitoring survey frequency of Blue Oaks to five (5) years, and the surveys for the Checkerbloom and Knotweed to every three (3) years, all of which to be paid by the City.
3. Requiring ORAI to contribute up to \$5,000 of in-kind volunteer labor or costs of supplies, materials, or services each year to continue to maintain and be stewards of the PPDG course.
4. Revising Exhibit B to the Agreement to include the above proposed amendments and to reflect only the current remaining required monitoring tasks.

Agreement Amendment No. 1 and an annotated and clean copy of the revised Exhibit B to the Agreement are attached as Attachments 1 and 2 respectively.

FISCAL IMPACT:

The original terms of the current Agreement required annual biological surveys for the Butte County Checkerbloom, Bidwell Knotweed/Wildflowers and impacts on Blue Oaks and other oak trees. While the Agreement states ORAI is to reimburse the City for the annual surveys in an amount not to exceed \$5,000/per year increased each year based on the CPI increase, Exhibit B of the Agreement states that ORAI is to reimburse the City every other year. Based on recent assessments of the need and frequency of continued biological surveys, the City's consultant advised performing surveys every 3-5 years. With anticipated reduced survey costs, Staff is proposing that ORAI provide the equivalent of \$5,000 of volunteer labor and in-kind supplies and materials to maintain the course each year.

BACKGROUND:

In 2010, an Agreement between the City and ORAI, a copy of which is in Exhibit A, was executed to require that the group provide the following:

1. Closure and relocation of the existing disc golf short course (9-holes).
2. Redesign and construction of the long course (18 holes) in compliance with the Peregrine Point Disc Golf and Trailhead Concept Plan in the 2008 Bidwell Park Master Management Plan (BPMMP) update and the associated Mitigation and Monitoring Program (MMMP) measures during construction.
3. Ongoing maintenance of the course and surveying and monitoring of Butte County Checkerbloom, Bidwell Knotweed/Wildflowers, and Blue Oaks pursuant to the MMMP.
4. ORAI reimbursing the City for the costs of the ongoing required MMMP biological surveys.
5. An initial term of 10 years, with up to two 5-year extensions

The City's environmental consultant performed biological studies in 2018 and 2019 of the Checkerbloom, Knotweed, and Blue Oaks at PPDG, which included post Stoney Fire impacts. In their annual reports, the Consultant provided the following observations and recommendations:

Blue Oaks:

- While disc golf activities do result in bark damage, there is no evidence that the overall health of the trees is being significantly impacted by these activities as the average health status of the priority oak trees and the reference oak trees were the same or nearly the same.
- Deducted that since there is no correlation between the tree health status and the amount of disc damage, the continued annual monitoring does not appear to be useful or necessary.
- Recommended continuing to wrap potentially impacted Oak trees with plastic fencing, but not tightly and to use stakes or fence posts to provide space between the wrap and tree trunks.
- Recommended occasional monitoring (i.e. every 5 to 10 years) of just the overall health and of the priority and reference oak trees by a Certified Arborist.

Butte County Checkerbloom (Special Status List 1)

- A few more locations were observed in 2019, but the general distribution of the Butte County Checkerbloom (BCC) within the course remained consistent as in past surveys.
- The majority of the BCC areas showed no evidence of human disturbance, except for trails through two groups (CG4 and CG3).
- There is evidence that a number of racemes are being browsed by wildlife.
- Recommended that the intensive monitoring be reduced to every 3-5 years, and/or be simplified to detecting evidence of disc golf related disturbance within the BCC areas rather than conducting individual plant and stem counts.

Bidwell Knotweed (Special Status List 4)

- Bidwell's knotweed distribution across the course site has remained relatively consistent and variability most likely attributed to response to natural environmental conditions.
- Only a few small portions of the occurrences have showed evidence of human disturbance, noting that the human related impacts are not solely due to disc golf use, and the likely larger percentage of the damage appears to be from the trails used by hikers and mountain bikers.
- Recommended that the intensive monitoring be conducted every 3-5 years or simplified by documenting human disturbance or bare ground in the for mapped patches of Bidwell's knotweed to track the effectiveness of management responses (i.e. increasing signage and making trails more defined etc.).

DISCUSSION:

As part of the last five-year extension, Staff provided updates to the BPPC on 3/26/18, 4/29/19, 2/24/20 and 9/28/20 regarding ORAI's successful compliance with their Agreement. Previously, the BPPC approved the City playing a larger role in helping ORAI manage the PPDG and to complete the work needed on the course, which resulted in the completion of the following outstanding items:

1. Reinstalled mulch destroyed in the Stoney Fire on tees and targets on the course and in other areas.
2. Replaced the basket at Hole 18 that was damaged by Stoney Fire bulldozers
3. Rebuild two benches at Holes 12 and 13 that were destroyed by the Stone Fire.
4. Installed new tree protection measures by wrapping the priority trees with plastic garden fencing rather than the unsuccessful screens and deflective poles.
5. Identified and installed sleeves for alternate basket locations, except for holes 9 and 16, as advised by the City's environmental consultant.
6. Placed native grass waddles and other methods to better delineate desired existing trails and to decommission undesirable trails.
7. Installed split rail fencing around sensitive Bidwell's Knotweed and wildflower areas between Holes 2 and 14, and along the areas between Hole 3 and 4 to discourage off-trail mountain bike use and subsequent soil erosion.
8. Installed informative laminated tee signs on all 18 holes, with permanent ones to be replaced as sponsorships are obtained.
9. Staff worked with ORAI to install trail signs to better direct South Rim users and a new hinged Open/Close sign.

The following table lists the pending tasks that still needed to be completed by ORAI or City Park Staff.

| TASK | STATUS |
|---|---|
| Trail Delineation - Continue the use rice straw wattles and other methods to designate primary trails on the back lower holes and abate rogue trails | Park staff have put brush and other obstacles to try to stop bicyclists from using the trail along the west property line fence and will be using additional wattles to delineate and decommission trails on the back holes. |
| Additional Split Rail Fencing - Work with the Parks Staff to install more split rail to protect sensitive species areas. | Staff mapped the areas to fence off, on hole 7, 14, and 15, but have not had time to install |
| Interpretive Signs and Informative signage | <ul style="list-style-type: none"> a. The kiosk signs for the sensitive species, oak woodlands, course rules, have been redesigned and will be installed in the coming weeks. b. A new pedestal interpretive sign near the fenced wildflower and knotweed field has been designed and will be install over the coming months. c. A new entry Kiosk will be purchased in the 2021-22 fiscal year. |
| Loop Trail – Develop a return loop trail back to the parking lot out of the disc golf play area for hikers and bikers. | No work has been done on this trail. City staff and ORAI will work on this task in FY 2021-22 |
| Parking –gravel the entrance and parking area and place better signage on Hwy 32 entrance. | No work has been done on this trail. Staff and ORAI will work on this task in FY 2021-22. |

In conclusion, since 2010 ORAI has fulfilled all of the pre, during, and post construction requirements and the ongoing mitigation and requirements as stipulated in the PPDG Operating Agreement. They paid for ongoing biological monitoring reports each year from in 2011-2016, even though Exhibit B in the Agreement states that they were to only pay for the surveys every other year. ORAI also continues to be good stewards by maintaining the course and providing education, guidance and direction to their members, as well as non-member disc golfers, bicyclists and hikers, about the rules of the course and the need to protect the Peregrine Point Disc Golf and Trailhead Area.

For these reasons, Staff recommends that the Operating Agreement with ORAI be amended as follows:

1. To extend the Agreement term for the remaining 5-years until 6/30/25.
2. Based on no definitive evidence of significant impacts caused by only disc golfers, that the Agreement be amended to reflect the consultant’s recommendations to change the monitoring frequency of Blue Oaks to five (5) years, and the monitoring of the Checkerbloom and Knotweed to every three (3) years to be paid by the City.
3. In lieu of paying for surveys, that ORAI contribute up to \$5,000 of in-kind volunteer labor or costs of supplies, materials, or services each year to continue to maintain and be stewards of the PPDG.
4. That Exhibit B of the Agreement be revised to reflect the above proposed amendments and also to remove those requirements that have been completed or were not applicable and to only list the remaining monitoring requirements.

Attachments:

Attachment 1: Agreement Amendment No. 1

Attachment 2: Annotated and Clean Copy of Revised Exhibit B

**AMENDMENT NO. 1 TO
AMENDED AGREEMENT FOR ADMINISTRATION OF PARKING AND
BUSINESS IMPROVEMENT AREA
(CITY OF CHICO/DOWNTOWN CHICO BUSINESS ASSOCIATION)**

THIS AMENDMENT NO. 1 is made and entered into this _____ day of _____, 2021, by and between the City of Chico, a municipal corporation of the State of California (“City”), and the Outside Recreation Advocacy, Inc. (Operator), a California nonprofit, tax-exempt corporation (“DCBA”).

WITNESSETH:

WHEREAS, City desires to maintain public use of disc golf activities at the premises in Bidwell Park off Highway 32, more particularly described below;

WHEREAS, Operator desires to construct and maintain the disc golf course in compliance with the Bidwell Park Master Management Plan (BPMMP), and to provide disc golf activities for members and the public;

WHEREAS, on June 18, 2010, City and Operator entered into an Agreement (“Agreement”) for Operator to provide services to maintain the disc golf course in accordance with the mitigation and monitoring requirements on the site; and

WHEREAS, such Agreement was for an initial five-year period terminating on June 17, 2015 with two (2) automatic five-year extension periods;

WHEREAS, on in June 2015 Agreement was extended until June 17, 2020 the City and DCBA have executed Amendments Nos. 1 through 8 to the Amended Agreement; and

WHEREAS, the Operator and the City now desire to extend the agreement for the remaining five years and amend the agreement to better reflect the responsibilities and capabilities of the Operator and the City under the Agreement. .

NOW, THEREFORE, the City and ORAI hereby agree as follows:

1. That Section 12 of the Agreement be amended to read as follows:

12 MITIGATION AND MONITORING REQUIREMENTS

In compliance with the BPMMP, Operator agrees to construct the 18-hole long ~~and 12-hole short disc golf courses~~ at the Disc Golf Facility and conduct all Recreational Activities on premises in accordance with Resolution No. 93-08, entitled, “Resolution of the City of Chico Council of the City of Chico Adopting Findings Regarding Environmental Effects and Adopting a Master Mitigation

Monitoring Program for the Bidwell Park Master Management Plan Update (State Clearinghouse Number 2004102045).” A copy of the MMMP with all requirements is attached as Exhibit B.

Prior to construction and ~~annually~~ **every three (3) years** thereafter, City agrees to collect data pursuant to Mitigation Measure BIO-1B-F, Mitigation Measure BIO-1D-E, and Mitigation Measures BIO-3C-F and -K, required by and in accordance with the MMMP in Exhibit B. ~~However, Operator agrees to reimburse City for costs associated with such data collection in an amount not to exceed five thousand dollars (\$5,000.00). During the initial or any extended term of this Agreement, this “not to exceed amount” shall be increased annually by three percent (3%)~~

2. That Section 14 of the Agreement be amended to read as follows:

14. MAINTENANCE AND REPAIR

Each year, Operator shall, at its sole cost and expense, **provide the equivalent value of up to \$5,000 in supplies, materials, services, and volunteer time each year to** maintain the ~~premises and all disc golf improvements thereon and appurtenances thereto~~ in good repair and in at least as good condition as that in which they were delivered, ordinary wear and tear excepted.

Volunteer time shall be valued at a per hour rate based on the current or revised rate for California set forth at the following website: www.independentsector.org/programs/research/volunteer_time.html. Operator will provide documentation of the equivalent value of such supplies, materials, services, and volunteer time to the City on a quarterly basis.

3. That the following Section 15 of the Agreement be deleted as follows:

15. UTILITIES AND SERVICES

~~During the term of this Agreement, Operator shall be responsible for providing and paying for any electricity or other utilities required on the premises and City shall have no responsibility of any kind for any such utilities. ———~~

4. Exhibit B is hereby superseded and replaced by revised Pages B-1-R1 through B-22-R1 attached hereto and by this reference incorporated into the Agreement.

5. That the term of the Agreement be extended for the remaining five years until June 30, 2025.

6. All other terms and conditions of the Agreement shall remain unchanged and included herein by reference.

IN WITNESS WHEREOF, the parties hereto have executed this Amendment on the day and year written above.

OUTSIDE RECREATION ADVOCACY INC.

CITY OF CHICO

By: Phil Brock
President

By: Mark Orme
City Manager*

*Authorized pursuant to City
Council Minute Order No. 05-10
approve on 4/20/10

APPROVED AS TO FORM:

APPROVED AS TO CONTENT:

Vincent C. Ewing, City Attorney*

Erik Gustafson, Director of Public Works
Operations & Maintenance

*Pursuant to The Charter of the
City of Chico, Section 906(D)

REVIEWED AS TO CONTENT:

Scott Dowell, Administrative Services Director*

*Reviewed by Finance, and Information Systems

ANNOTATED COPY OF REVISED EXHIBIT B

OPERATING AGREEMENT FOR RECREATIONAL SERVICES IN BIDWELL PARK (CITY OF CHICO/OUTSIDE RECREATION ADVOCACY, INC)
EXHIBIT B

Table 1-1: Master Mitigation Monitoring Program for the Bidwell Park Disc Golf/Tailhead Area concept Plan Environmental Impact Report

| Mitigation Measure | Party Responsible for Implementation | Funding Responsibility | Implementation Trigger/Timing/ DATE | Frequency |
|---|--------------------------------------|---|--|---|
| AIR QUALITY | | | | |
| Mitigation Measure AQ-2: Control Short-term Construction Emissions Consistent with BCAQMD guidelines, the following measures shall be implemented to reduce potentially significant effects on air quality resulting from construction related to the Disc Golf/Tailhead Area Concept Plan Project: | OPERATOR/CITY | OPERATOR/CITY | During construction activities | Monitor weekly during construction |
| a. Alternatives to open burning of vegetative material removed from a project site shall be used unless otherwise deemed infeasible by the AQMD. Among suitable alternatives are chipping, mulching, or conversion to biomass fuel; | N/A | N/A | TBD | Monitor weekly during construction |
| b. Adequate and applicable dust control measures (identified in detail below) shall be implemented during all phases of project development and construction as outlined below: | OPERATOR | OPERATOR | During construction activities | Monitor weekly during construction |
| 1. All active construction sites shall be watered at least twice daily. Frequency should be based on the type of operation, soil, and wind exposure. | OPERATOR | OPERATOR | During construction activities — primarily where vehicles are being used | Implement daily; monitor weekly during construction. |
| 2. Chemical soil stabilizers shall be applied to inactive construction areas (disturbed lands within construction projects that are unused for at least four consecutive days). | OPERATOR | OPERATOR | Will review on a case-by-case basis — may not be needed for small sites | Implement as needed; monitor weekly during construction |
| 3. On-site vehicles speeds shall be limited to a speed of 15 mph on unpaved roads. | OPERATOR | OPERATOR | TBD | Implement daily; monitor weekly during construction |
| 4. Land clearing, grading, earth moving or excavation activities shall be suspended when winds exceed 20 miles per hour. | OPERATOR | OPERATOR | TBD | Implement and monitor as needed |
| 5. Non-toxic binders (e.g., latex acrylic copolymer) shall be applied to exposed areas after cut and fill operations and the area shall be hydroseeded. | OPERATOR | OPERATOR (dependent on amount of area) | TBD | Monitor weekly during construction |
| 6. Vegetative ground cover shall be planted in disturbed areas as soon as possible after disturbance. | OPERATOR | OPERATOR | TBD | Implement and monitor one-time after construction |
| 7. Inactive storage piles shall be covered. | OPERATOR | OPERATOR | TBD | Monitor weekly during construction |

OPERATING AGREEMENT FOR RECREATIONAL SERVICES IN BIDWELL PARK (CITY OF CHICO/OUTSIDE RECREATION ADVOCACY, INC)
EXHIBIT B

| Mitigation Measure | Party Responsible for Implementation | Funding Responsibility | Implementation Trigger/Timing/ DATE | Frequency |
|--|--------------------------------------|------------------------|--|---|
| 8. Paved streets adjacent to each project site shall be swept or washed at the end of each day as necessary to remove excessive accumulations of silt and/or mud which may have accumulated as a result of activities on the project site. | OPERATOR | OPERATOR | TBD | Implement daily; monitor weekly during construction |
| 9. A publicly visible sign shall be posted with the telephone number and person to contact regarding dust complaints. This person shall respond and take corrective action within 24 hours if a complaint is received. The telephone number of the BCAQMD shall also be visible to ensure compliance with BCAQMD Rule 201 & 207 (Nuisance and Fugitive Dust Emissions). | OPERATOR | OPERATOR/CITY | TBD | Monitor weekly during construction |
| BIOLOGY | | | | |
| <p>Mitigation Measure BIO-1b: Implement Measures to Protect Butte County Checkerbloom in the Disc Golf/Trailhead Concept Plan Area</p> <p>The following measures shall be implemented to mitigate potential direct and indirect effects on populations of Butte County checkerbloom from implementation of the Disc Golf/Trailhead Area Concept Plan:</p> | OPERATOR/CITY | OPERATOR/CITY | Before ground-disturbing activities and during ongoing operation | See Below |
| a. As provided in Appendix H of the BPMMP, the Disc Golf/Trailhead Area Concept Plan shall be implemented to avoid direct and indirect impacts on known locations of Butte County checkerbloom on the site. All disc golf structures (e.g., tees, targets, fairways) and trails shall be placed a minimum of 50 feet from locations that currently support Butte County checkerbloom wherever possible. Where this cannot be accomplished due to physical site constraints, the buffer may be reduced, but shall remain at a minimum of 25 feet. | OPERATOR | N/A | TBD | Implement during construction; monitor monthly |
| b. Before construction of any facility at the Disc Golf/Trailhead area in the vicinity of known locations of Butte County checkerbloom, exclusionary fencing shall be installed along a 25-foot buffer around the outer perimeter of the occurrence. Exclusionary fencing shall be installed under the guidance of a qualified botanist before commencement of construction to keep workers and equipment from disturbing existing Butte County checkerbloom plants. The fencing shall be kept in place and periodically inspected and repaired, if necessary, for the duration of construction. | OPERATOR | OPERATOR | TBD | Implement prior to construction; monitor monthly during construction. |

OPERATING AGREEMENT FOR RECREATIONAL SERVICES IN BIDWELL PARK (CITY OF CHICO/OUTSIDE RECREATION ADVOCACY, INC)
EXHIBIT B

| Mitigation Measure | Party Responsible for Implementation | Funding Responsibility | Implementation Trigger/Timing/ DATE | Frequency |
|--|---|--|-------------------------------------|--|
| <p>e. The Disc Golf/Trailhead Area Concept Plan shall restrict foot traffic to clearly defined trails and disc golf features. Trails shall be constructed as narrow as possible to avoid degradation of suitable habitat for Butte County checkerbloom (and other special status plant species). Where existing disc golf structures and trails in the vicinity of existing locations of Butte County checkerbloom will be decommissioned, barriers (such as boulders) shall be placed to discourage use of these trails and structures.</p> | <p>OPERATOR with qualified botanist</p> | <p>OPERATOR</p> | <p>TBD</p> | <p>Implement during construction; monitor monthly during construction</p> |
| <p>d. Permanent signage at the trailhead/rest area shall be installed to inform Park users of the presence and sensitivity of Butte County checkerbloom (and other sensitive resources) on the site.</p> | <p>OPERATOR</p> | <p>OPERATOR</p> | <p>TBD</p> | <p>Install after construction; monitor signage annually.</p> |
| <p>e. As provided in Appendix H of the BPMMP, alternate pin locations for Holes 3 and 4 of the long course shall be used from March 1 through July 1 to provide further assurance that potential disturbance of nearby checkerbloom plants during the active growth and blooming period of the plants is minimized.</p> | <p>OPERATOR Clarification – The alternate pin location is for Hole 3. There is an alternate Tee location for Hole 4. For Hole 13, the winter fairway will become the all season fairway unless site conditions dictate require changing tee locations. This item is not referenced.</p> | <p>OPERATOR/CITY</p> | <p>TBD</p> | <p>Implement and monitor annually</p> |
| <p>f. Per Plant Objective O. P-8 of the BPMMP, an adaptive management program shall be implemented that relies on periodic data collection on the distribution of Butte County checkerbloom at the Disc Golf/ Trailhead site. The goal of this adaptive management program shall be to document and monitor changes in the existing population of Butte County checkerbloom over time. The adaptive management plan is intended to address the fact that, notwithstanding the buffers and signage, the CITY cannot guarantee that the use of the park will not disturb Butte County checkerbloom</p> | <p>OPERATOR <u>CITY</u></p> | <p>OPERATOR <u>CITY</u></p> | <p>TBD</p> | <p><u>Visually</u> monitor annually; <u>Conduct surveys if needed every 3 years</u>, develop program as needed</p> |

OPERATING AGREEMENT FOR RECREATIONAL SERVICES IN BIDWELL PARK (CITY OF CHICO/OUTSIDE RECREATION ADVOCACY, INC)
EXHIBIT B

| Mitigation Measure | Party Responsible for Implementation | Funding Responsibility | Implementation Trigger/Timing/ DATE | Frequency |
|---|--|---|--|--|
| <p>g. If data collection indicates a decline in existing populations after implementation of the Disc Golf/Trailhead Area Concept Plan and Plant Objective O. P-8 of the BPMMP, relocation of trails or disc golf structures in the vicinity of these populations, or other management strategies that would benefit the plants based on the data collected, shall be implemented. This strategy would implement Plant Objective O. P-7 and Plant Implementation Strategies and Guidelines I. P-3 and I. P-4 of the BPMMP. The overall goal of the adaptive management strategy shall be the long-term maintenance of the same number and approximate extent of occurrences of Butte County checkerbloom as documented during the 2005 surveys.</p> | <p style="text-align: center;">OPERATOR/CITY</p> | <p style="text-align: center;">OPERATOR to reimburse CITY for surveys of Bidwell's knotweed, wildflower fields (Years 1, 3 and 5 and every other year thereafter - cost est. to be \$2,000 per survey) CITY</p> | <p style="text-align: center;">TBD</p> | <p style="text-align: center;"><u>Visually</u> monitor annually; <u>Conduct surveys if needed every 3 years</u>, develop program as needed</p> |
| <p>Mitigation Measure BIO-1d: Implement Measures to Protect Bidwell's Knotweed at the Disc Golf/Trailhead Area</p> <p>The following measures shall be implemented to mitigate for potential direct and indirect effect to Bidwell's knotweed at the Disc Golf/Trailhead Concept Plan area:</p> | <p style="text-align: center;">OPERATOR/CITY</p> | <p style="text-align: center;">OPERATOR/CITY</p> | <p style="text-align: center;">TBD</p> | <p style="text-align: center;">See below</p> |
| <p>a. The Disc Golf/Trailhead Area Concept Plan shall be implemented to minimize direct and indirect impacts on Bidwell's knotweed habitat on the site. Because Bidwell's knotweed is an annual plant species, population sizes may fluctuate greatly from year to year. Therefore, simply avoiding plants that are present in a given year would not ensure that great numbers of individuals would not be affected in subsequent years. Therefore, a habitat approach shall be taken to minimize impacts on this species. This approach would entail minimizing impacts to wildflower fields, the native plant community that supports Bidwell's knotweed.</p> | <p style="text-align: center;">OPERATOR/CITY of Chico</p> | <p style="text-align: center;">OPERATOR/CITY</p> | <p style="text-align: center;">During construction of Disc Golf/Trailhead Area Plans and during ongoing operation</p> | <p style="text-align: center;">Implement prior to and during construction; monitor weekly during construction</p> |

OPERATING AGREEMENT FOR RECREATIONAL SERVICES IN BIDWELL PARK (CITY OF CHICO/OUTSIDE RECREATION ADVOCACY, INC)
EXHIBIT B

| Mitigation Measure | Party Responsible for Implementation | Funding Responsibility | Implementation Trigger/Timing/ DATE | Frequency |
|--|--------------------------------------|---|-------------------------------------|---|
| <p>b. Consistent with the Disc Golf/Trailhead Area Concept Plan, trails shall generally be placed outside of wildflower fields. The Disc Golf/Trailhead Area Concept Plan shall be implemented to restrict foot traffic to clearly defined trails and disc golf structures. The number of trails dissecting wildflower fields shall be minimized to the fewest number necessary to facilitate reasonable access to the disc golf course and scenic viewpoints, and trails shall be as narrow as possible and have clearly marked edges to reduce widening and discourage users from wandering off the path. Existing trails through wildflower fields that will not be retained as part of the Disc Golf/Trailhead Area Concept Plan shall be decommissioned, and barriers (such as boulders) shall be placed just outside any points where trails enter the wildflower field community to discourage use of these trails.</p> | OPERATOR/CITY | OPERATOR/CITY | TBD | Implement prior to and during construction; monitor monthly during construction |
| <p>e. Exclusionary fencing shall be installed under the guidance of a qualified botanist before commencement of construction to keep workers and equipment from disturbing wildflower field habitat intended for preservation. High priority shall be given to preserving those wildflower field communities that contained Bidwell's knotweed during surveys conducted in 2005.</p> | OPERATOR/CITY | OPERATOR/CITY | TBD | Implement prior to construction; monitor monthly during construction |
| <p>d. Permanent signage at the trailhead/rest area shall be installed to inform Park users of the presence and sensitivity of Bidwell's knotweed and wildflower field habitat and to deter users from disturbing the species.</p> | OPERATOR | OPERATOR | TBD | Implement following construction; monitor signage annually |
| <p>e. Per Plant Objective O. P-8 of the BPMMP, an adaptive management program shall be implemented that relies on periodic data collection on the distribution of Bidwell's knotweed at the Disc Golf/ Trailhead site. The goal of this adaptive management program shall be to document and monitor changes in the existing population of Bidwell's knotweed over time.</p> | CITY | OPERATOR to reimburse CITY for surveys of Bidwell's knotweed, wildflower fields (Years 1, 3 and 5 and every other year thereafter - cost est. to be \$2,000 per survey) CITY | TBD | <u>Visually</u> Monitor annually; <u>Conduct surveys if needed every 3 years</u> , develop program as needed |

OPERATING AGREEMENT FOR RECREATIONAL SERVICES IN BIDWELL PARK (CITY OF CHICO/OUTSIDE RECREATION ADVOCACY, INC)
EXHIBIT B

| Mitigation Measure | Party Responsible for Implementation | Funding Responsibility | Implementation Trigger/Timing/ DATE | Frequency |
|--|--|---|-------------------------------------|--|
| <p>f. If data collection indicates a decline in the number or extent (i.e. square feet) of existing populations after implementation of the Disc Golf/Trailhead Area Concept Plan, relocation of trails or disc golf structures in the vicinity of these populations, or other management strategies that would benefit the plants based on the data collected, shall be implemented. Seasonal and annual variation of the plants in response to environmental conditions such as rainfall shall be taken into consideration when determining if a decline is occurring. This strategy would implement Plant Objective O. P-7 and Plant Implementation Strategies and Guidelines I. P-3 and I. P-4 of the BPMMP.</p> | <p>OPERATOR-<u>CITY</u></p> | <p>OPERATOR to reimburse CITY for surveys of Bidwell's knotweed, wildflower fields (Years 1, 3 and 5 and every other year thereafter - cost est. to be \$2,000 per survey) <u>CITY</u></p> | <p>TBD</p> | <p><u>Visually</u> Monitor annually; <u>Conduct surveys if needed every 3 years</u>, develop program as needed</p> |
| <p>Mitigation Measure BIO-2c: Implement Measures to Protect and Compensate for Loss of Vernal Pool Invertebrate and Western Spadefoot Habitat The CITY shall ensure that the following measures are implemented to avoid, minimize, and mitigate potential project effects on vernal pool invertebrates and western spadefoot:</p> | <p>CITY None exists</p> | <p>CITY None exists</p> | <p>N/A</p> | <p>Implement prior to and during construction; monitor as indicated below</p> |
| <p>a. Before any ground disturbing project activities begin, the CITY shall retain a qualified biologist to identify and map potential habitat in areas that could be affected by the given project. The CITY shall ensure, through coordination with the biologist, that the footprint of project features and construction zones, staging areas, and access routes are designed to avoid direct or indirect effects on suitable habitat for vernal pool invertebrates and western spadefoot to the extent feasible and practicable. In addition to vernal pools, suitable habitat for western spadefoot includes the surrounding grassland matrix.</p> | <p>CITY None exists</p> | <p>CITY None exists</p> | <p>N/A</p> | <p>Implement prior to construction; monitor monthly during construction</p> |

OPERATING AGREEMENT FOR RECREATIONAL SERVICES IN BIDWELL PARK (CITY OF CHICO/OUTSIDE RECREATION ADVOCACY, INC)
EXHIBIT B

| Mitigation Measure | Party Responsible for Implementation | Funding Responsibility | Implementation Trigger/Timing/ DATE | Frequency |
|--|--------------------------------------|------------------------|---|---|
| <p>b. If vernal pool invertebrate and western spadefoot habitat cannot be avoided, measures shall be implemented to minimize and mitigate unavoidable effects. Before beginning any ground-disturbing project activities in such habitat, USFWS shall be consulted to identify appropriate measures to minimize and compensate for adverse effects on special status vernal pool invertebrates; DFG shall be consulted to identify measures to minimize and compensate for adverse effects on western spadefoot. Avoidance and minimization measures shall include those described in USFWS's vernal pool crustacean Programmatic Consultation (USFWS 1996a). Minimization measures for vernal pool invertebrates shall include, but would not be limited to, fencing of habitat to be avoided, timing of ground disturbance to correspond with the dry season, conducting worker awareness training, and periodic biological monitoring. Compensation shall include preservation, enhancement, and/or creation of suitable habitat in areas that currently or could in the future support special status.</p> | None exists | None exists | N/A | Implement prior to construction |
| <p>e. Authorization for take of vernal pool invertebrates under ESA shall be obtained if it is determined that implementation of a program component is likely to result in take, despite implementation of avoidance and minimization measures.</p> | CITY -None exists | CITY None exists | N/A | Implement prior to construction |
| <p>d. All other measures developed through informal consultation with USFWS and DFG shall be implemented, as well as any additional measures adopted through a formal permitting process, if applicable.</p> | CITY -None exists | -CITY | N/A | Implement prior to construction; during and after construction; monitor as required |
| <p>Measures to Protect Nesting Raptors and Burrowing Owls The following measures shall be implemented to minimize and mitigate the potential disturbance of nesting raptors and burrowing owls.</p> | See below | See below | See below | See below |
| <p>Mitigation Measure BIO-2d(1): Protect Tree-Nesting Raptors a. Before project construction, it shall be determined whether any construction or tree removal is proposed during the raptor nesting season (February 1 to August 31). If no construction or tree removal will occur during the raptor nesting season, no further mitigation shall be necessary.</p> | OPERATOR/CITY (construction) | OPERATOR/CITY | Before and during construction during the breeding season of tree-nesting raptors | Implement prior to construction |

OPERATING AGREEMENT FOR RECREATIONAL SERVICES IN BIDWELL PARK (CITY OF CHICO/OUTSIDE RECREATION ADVOCACY, INC)
EXHIBIT B

| Mitigation Measure | Party Responsible for Implementation | Funding Responsibility | Implementation Trigger/Timing/ DATE | Frequency |
|---|---------------------------------------|------------------------|---|---------------------------------|
| <p>b. If construction or tree removal is proposed during the raptor nesting season, a focused survey for special-status and common raptor nests shall be conducted by a qualified biologist during the nesting season to identify active nests within 500 feet of the project area. The survey shall be conducted no less than 14 days and no more than 30 days before the beginning of construction or tree removal.</p> | OPERATOR/CITY | OPERATOR/CITY | TBD | Implement prior to construction |
| <p>e. If nesting raptors are found during the focused survey, impacts shall be avoided by establishment of appropriate buffers. No project activity shall commence within the buffer area until a qualified biologist confirms that the nest is no longer active. The DFG guidelines for a 500 foot buffer will be implemented, but the size of the buffer may be adjusted if a qualified biologist determines a greater or lesser buffer would be appropriate and DFG concurs with any determination for a lesser buffer. The CITY shall coordinate with DFG on the appropriate buffer width for each species documented. Monitoring of the nest by a qualified biologist may be required if the activity has potential to adversely affect the nest or disturb the birds using the nest to the point of causing nest failure.</p> | OPERATOR/CITY | OPERATOR/CITY | TBD | Implement during construction |
| <p>Mitigation Measure BIO-2d(2): Protect Peregrine Falcon</p> <p>a. If construction at the Disc Golf/Trailhead Area Concept Plan site is to occur during the peregrine falcon breeding period (generally February 1 to June 30), an appropriate buffer around the southern cliff edge shall be determined by a qualified biologist and construction activities shall be avoided within the buffer zone unless a qualified biologist confirms there is no active nest on the cliff.</p> <p>b. If construction commences between June 30 and February 1, no buffer will be necessary.</p> | No Trees to be removed for disc golf. | OPERATOR | Before and during construction during the breeding season of peregrine falcons known to nest below the South Rim | Implement during construction |
| <p>Mitigation Measure BIO-2f: Implement Measures to Protect Other Special-status Nesting Birds</p> <p>The following measures shall be implemented to minimize and mitigate the potential disturbance of nesting special-status birds (February to August):</p> | OPERATOR – biologist | See below | Before and during construction during the breeding season of yellow warbler, yellow breasted chat, and loggerhead shrike. | Implement during construction |

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|---|--------------------------------------|------------------------|---|---|
| <p>a. The CITY shall design Park Improvement Projects to minimize disturbance and removal of nesting habitat for special-status nesting birds to the extent feasible and practicable. Nesting habitat that cannot be avoided shall be removed during the non-nesting season, to the extent feasible and practicable.</p> | OPERATOR/CITY | OPERATOR/CITY | TBD | Implement during construction |
| <p>b. To avoid potential impacts to active nests of special-status birds, a qualified biologist shall conduct preconstruction surveys to identify active special-status bird nests within 500 feet of construction areas. The survey shall be conducted no more than 10 days before project activities begin. If an active nest is found, an appropriate buffer to minimize impacts shall be determined by a qualified biologist in coordination with DFG. No project activities shall commence within the buffer area until a qualified biologist confirms that the nest is no longer active or the birds are not dependent upon it. The size of the buffer may vary, depending on the nest location, nest stage, and construction activity.</p> | OPERATOR/CITY | OPERATOR/CITY | TBD | Implement prior to construction |
| <p>Mitigation Measure BIO-3c: Implement Measures to Protect Oak Woodland The following measures shall be implemented to mitigate potential impacts on oak woodlands resulting from implementation of the Disc Golf/Trailhead Area Concept Plan:</p> | OPERATOR | OPERATOR | Before and during construction activities within or in the immediate vicinity of oak woodland habitat; ongoing for site management of the Disc Golf/ Trailhead Area Concept | See below |
| <p>a. Where possible, trails, improvements, and facilities shall be constructed outside of oak woodlands. The number of trails dissecting oak woodlands shall be minimized to the fewest number necessary to accomplish the goals of the site-specific Park Improvement Projects. The width of trails through oak woodlands shall be minimized and trails shall have clearly marked edges that discourage trail widening and deter users from straying off the designated trail.</p> | OPERATOR — biologist | OPERATOR | TBD | Implement during construction |
| <p>b. Trails through oak woodlands that are decommissioned as part of a site-specific Park Improvement Project shall be reclaimed using barriers (such as boulders) to discourage continued use of these trails.</p> | OPERATOR/CITY | OPERATOR/CITY | TBD | Implement during and following construction; monitor annually |

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| e. Grading, trenching, equipment storage, and other soil-disturbing or compacting activities shall not occur within the drip lines of oak trees. New structures and impervious surface materials shall not be placed in the drip lines of oaks, except where deemed necessary to reduce the footprint size of trees as part of the proposed Disc Golf/Trailhead Concept Plan and to reduce soil compaction. | OPERATOR | OPERATOR | TBD | Implement during and following construction; monitor monthly during construction |
| d. To ensure that the drip lines of oaks are not disturbed during construction, protective fencing shall be installed, under the guidance of a qualified botanist, certified arborist, or Registered Professional Forester, at least 1 foot beyond the outer edge of the drip lines of all oaks that grow within the construction zones of the site specific Park Improvement Projects, and no project activities shall be allowed within these exclusion zones, unless specifically required as part of project construction. | OPERATOR/CITY | OPERATOR/CITY | TBD | Implement prior to and during construction; monitor monthly during construction |
| e. The oak woodland management guidelines contained in Section 3 of the NRMP (Appendix C of the BPMMP) shall be implemented. These guidelines include recommendations for sustaining oak woodlands, initiating a burning program, and maintaining the oak landscape. | OPERATOR/CITY | OPERATOR/CITY | TBD | During and following construction |
| In addition to the measures outlined above, the following additional measures shall be implemented in connection with development and ongoing maintenance of the proposed Disc Golf/Trailhead Concept Plan to protect oaks and to mitigate for any unavoidable loss resulting from mortality over time. These measures are based on site observations, oak woodland management guidelines provided by DFG, and measure recommended in the tree assessment (Appendix E4): | OPERATOR/CITY | OPERATOR/CITY | TBD | Implement during and following construction |
| f. Any modification to the proposed design and layout of the site shall be subject to the same impact avoidance and minimization criteria as the initial design; | OPERATOR/CITY | OPERATOR/CITY | TBD | Implement during and following construction |

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| g. Information describing the value of native oak trees and the importance of the preservation and protection of oak woodland for wildlife habitat and the aesthetic values of Bidwell Park shall be provided at the informational kiosk at the Disc Golf/Trailhead area site. The information shall discuss the importance of avoiding direct impacts resulting from bark and limb damage as well as indirect effects such as soil compaction/root damage and shall encourage site users to act responsibly and prevent adverse effects. | OPERATOR - CITY | OPERATOR to reimburse CITY for surveys of oaks (Years 1, 3 and 5 and every other year thereafter – cost est. to be \$2,000 per survey) <u>OPERATOR/CITY</u> | TBD | Implement following construction; inspect signage annually |
| h. In cases where disc golf pins are located within groves of oak trees or oak trees are within fairways, measures to protect the tree trunks such as the installation of shielding pole structures shall be implemented. Installation shall be implemented without damage to the root zone, and in a manner that preserves the visual character of the site. | OPERATOR /CITY | OPERATOR/CITY | TBD | Implement during and following construction; monitor annually |
| i. In cases where tees or trails are located within drip lines of oaks or in the immediate vicinity of drip lines, a <u>6.4</u> inch layer of woodchip mulch shall be applied to a 20' radius around the tees and on the trails to minimize soil compaction; this layer shall be maintained on a ongoing basis, as needed, to ensure continued protection of the root zones. | CITY | CITY | TBD | Implement during and following construction; monitor annually |
| j. Periodic monitoring of the oaks at the site shall be conducted to determine if any unavoidable impacts are occurring as a result of site use, in spite of the impact minimization measures. | OPERATOR | OPERATOR- CITY | TBD | Monitor at least twice yearly <u>every 5 years</u> -following construction |
| k. Any unavoidable impacts to oaks resulting from construction, or tree mortality resulting from ongoing use of the site shall be mitigated by replanting oak woodland habitat at the Disc Golf/Trailhead site in areas located outside of the footprint of facilities and trails in areas not currently occupied by other sensitive resources and suitable to support blue oak woodland. | OPERATOR/CITY | OPERATOR/CITY | TBD | Implement as needed after construction |
| l. Oak planting should be from seeds (acorns) or seedlings that are obtained from the local genetic stock and should be of the same species as those targeted for replacement. Replacement ratios shall | OPERATOR/CITY | To be accomplished above B10-3c-f | TBD | Implement and monitor as needed after construction |
| m. Oak plantings shall be protected from browsing, planted on the north and east side of existing trees, and irrigated during the first few years as outlined in the oak assessment (Appendix E4) to | OPERATOR/CITY Relating to disc golf facilities only. | OPERATOR/CITY | TBD | Implement and monitor as needed after construction |

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| n. Replacement plantings shall be monitored for their success for a period of five years or until the desired performance criterion of 5:1 is achieved, whichever is longer. If planting does not succeed, remedial actions such as replanting shall be implemented. | OPERATOR/CITY | OPERATOR/CITY | TBD | Monitor yearly after planting for five years or until success criteria are achieved |
| o. If requested, community/user group stewardship of the plantings shall be allowed to contribute to restoration/revegetation efforts under guidance and supervision by CITY staff. | OPERATOR/CITY | OPERATOR/CITY | TBD | Implement after construction |
| Mitigation Measure BIO-3d: Implement Measures to Protect Wildflower Fields The following measures shall be implemented to minimize potential disturbances to wildflower field communities resulting from implementation of the Disc Golf/Trailhead Area Concept Plan: | OPERATOR/CITY | OPERATOR/CITY | Before and during construction of components of the Disc Golf/ Trailhead Area Concept Plan that occur within the immediate vicinity of wildflower fields | See below |
| a. Mitigation Measure BIO-1d shall be implemented to minimize adverse effects on wildflower fields resulting from implementation of the Disc Golf/Trailhead Area Concept Plan. | OPERATOR/CITY | OPERATOR/CITY | TBD | Implement during construction; monitor as indicated above |
| b. Whenever possible, trail segments, site improvements, facilities and other design features shall be located to minimize impacts to wildflower fields. | CITY of Chico | CITY of Chico | TBD | Implement prior to and during construction; inspect monthly during construction |
| e. Exclusionary fencing shall be installed under the guidance of a qualified botanist before commencement of construction to keep workers and equipment from disturbing wildflower field habitat intended to be preserved on the project sites (some areas may be lost, consistent with site design). | OPERATOR | OPERATOR | TBD | Implement prior to and during construction; inspect monthly during construction |
| d. The number of trails dissecting wildflower fields shall be minimized to the fewest number necessary to accomplish the goals of the site specific Park Improvement Projects. | OPERATOR | OPERATOR | TBD | Implement prior to and during construction |
| e. Trails through wildflower fields shall be as narrow as possible and shall have clearly marked edges that discourage trail widening and deter users from straying off the designated trail. | OPERATOR/CITY | OPERATOR/CITY | TBD | Implement prior to and during construction |

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|--|--|------------------------|--|---|
| f. Existing trails through wildflower fields that will not be retained as part of the site-specific Park Improvement Projects shall be reclaimed using barriers (such as boulders) to discourage use of these trails. If these reclaimed trails fail to revegetate on their own over time, re-seeding may be considered. | OPERATOR/CITY | OPERATOR/CITY | TBD | Prior to, during and after construction; monitor annually |
| g. Permanent signage shall be installed at kiosks located at the Disc Golf/Trailhead Area Concept Plan site to inform Park users of the presence and sensitivity of the wildflower field community and discourage visitors from off-trail use and trampling of vegetation. | OPERATOR | OPERATOR | TBD | Install after construction; monitor annually |
| <p>Mitigation Measure BIO-4: Implement Measures to Protect Jurisdictional Wetlands</p> <p>The following measures shall be implemented to mitigate impacts on waters of the United States:</p> <p>a. Before the implementation of specific components of the Disc Golf/Trailhead Area Concept Plan that occur in the immediate vicinity of wetlands or other waters of the United States, a delineation of waters of the United States, including wetlands, that would be affected by the proposed projects shall be made by qualified biologists through the formal Section 404 wetland delineation process. The delineation shall be submitted to and verified by USACE.</p> | <p>CITY</p> <p>None exists</p> | <p>None exists</p> | <p>Before and concurrent with any component of the Disc Golf/Trailhead Area Concept Plan that involve ground disturbing activities in or near jurisdictional wetlands and/or waters of the state</p> | <p>Implement prior to construction</p> |
| b. If, based on the verified delineation, it is determined that fill of waters of the United States would result from implementation of any of the site-specific Park Improvement | CITY | CITY | N/A | <p>Implement prior to construction</p> <p>N/A</p> |
| c. The acreage of waters of the United States, including wetlands, that would be adversely affected by project construction shall be replaced or restored/enhanced on a "no- | <p>CITY of Chico</p> <p>None Exist</p> | CITY of Chico | N/A | <p>Implement prior to construction</p> <p>N/A</p> |
| d. Purchasing credits at a mitigation bank is the CITY's preferred method of mitigation. | N/A | N/A | N/A | <p>Implement prior to construction</p> <p>N/A</p> |
| e. Concurrently with the CWA Section 404 permit, the CITY shall obtain CWA Section 401 Clean Water Certification from the Central Valley RWQCB before project implementation. | N/A | N/A | N/A | <p>Implement prior to construction</p> <p>N/A</p> |

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|---|--------------------------------------|------------------------|--|--|
| f. The CITY shall also coordinate with the Central Valley RWQCB regarding any wetland features that are not subject to USACE jurisdiction under Section 404 of the CWA, but may be subject to State regulation under the Porter Cologne Act. All conditions required by the RWQCB as part of the Section 401 Water Quality Certification process or Porter Cologne permitting process shall be implemented. | N/A | N/A | N/A | Implement prior to construction N/A |
| CULTURAL RESOURCES | | | | |
| Mitigation Measure CUL-1: Protect Historic and Unique Archaeological Resources from Impacts The CITY shall implement the following mitigation to reduce potential direct impacts on historic and unique archaeological resources: | CITY of Chico | CITY of Chico | During final design of projects and during construction activities | See below |
| a. Consistent with the policies of the BPMMP, a qualified archaeologist shall conduct a cultural resources assessment of the proposed project site during project planning and design. For the Trails Plan, this can be accomplished on a segment by segment basis. | Done | CITY | N/A | This part of the measure has been completed |
| b. If cultural resources are documented in the planning area, they shall be evaluated for their significance. | Done | CITY | N/A | This part of the measure has been completed |
| c. If it has been determined by a qualified archaeologist that a cultural resource is significant, the project shall be designed or redesigned to avoid these cultural resources to the greatest extent feasible. | Done | CITY | N/A | This part of the measure has been completed |
| d. If avoidance of significant sites is not feasible, mitigation in the form of data recovery shall be applied to archaeological sites. | CITY – none known | CITY | TBD | Implement during construction; monitor monthly |

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|---|--------------------------------------|---------------------------------|---------------------------------------|---|
| <p>e. For portions of the Humboldt Wagon Road that cannot be avoided during implementation of the Disc Golf/ Trailhead Concept Plan, impacts would result in destruction of a portion of the route and intrusion of newer elements that would alter the immediate surroundings. As outlined in the management plan (see Jensen, et al. 1996; Table 2), this segment of the road appears significant based upon the associated archaeological deposit (NRHP Criterion D/CRHR Criterion 4), which will not be impacted by construction, and the association of the wagon road with John Bidwell. As currently designed, neither Alternative A nor Alternative B will result in destruction or alteration of the surroundings of the archeological deposit, and would impact only a percentage of the route associated with the original person responsible for its construction, John Bidwell. The surrounding environment of this segment of the route has been previously impacted by construction of a more recent dirt road that parallels the contemporary route of Highway 32, such that the immediate surroundings have been altered from what was present during the historic period. Therefore, because neither alternative would impact the archaeological deposit or substantially impair the significance of the resource as it relates to its association with a person of historic importance (NRHP Criterion B/CRHR Criterion 2), both alternatives would result in less than substantial adverse changes in the significance of this resource.</p> | <p>Will be preserved</p> | <p>CITY</p> | <p>TBD</p> | <p>Implement during construction; monitor monthly</p> |
| <p>f. Mitigation of any adverse changes resulting from direct impacts caused by implementation of the Disc Golf/Trailhead Area Concept Plan shall take the form of interpretive signage presenting an historic overview and the historic importance of the Humboldt route.</p> | <p>CITY if needed</p> | <p>CITY</p> | <p>TBD</p> | <p>Install signage after construction; monitor annually</p> |
| <p>Mitigation Measure CUL-2b: Protect Human Remains from Vandalism and Inadvertent Destruction</p> | <p>CITY</p> | <p>OPERATOR CITY</p> | <p>During construction activities</p> | <p>Implement during construction</p> |

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|---|--------------------------------------|------------------------|-------------------------------------|-------------------------------|
| <p>a. In accordance with the California Health and Safety Code, if human remains are uncovered during ground-disturbing activities related to implementation of the Disc Golf/Trailhead Area Concept Plan Project, all such activities in the vicinity of the find shall be halted immediately and the CITY or the CITY's designated representative shall be notified. The CITY shall immediately notify the county coroner and a qualified professional archaeologist. The coroner shall examine all discoveries of human remains within 48 hours of receiving notice of a discovery on private or state lands (Health and Safety Code Section 7050.5[b]). If the coroner determines that the remains are those of a Native American, he or she shall contact the Native American Heritage Commission (NAHC) by phone within 24 hours of making that determination (Health and Safety Code).</p> | | | | |
| <p>Section 7050[e]). The responsibilities of the CITY for acting upon notification of a discovery of Native American human remains are identified in detail in the California Public Resources Code Section 5097.9. The CITY or its appointed representative (Park Director) and the professional archaeologist shall consult with a Most Likely Descendant (MLD) determined by the NAHC regarding the removal or preservation and avoidance of the remains and determine whether additional burials could be present in the vicinity.</p> | CITY | CITY | During construction activities | Implement during construction |

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| Mitigation Measure | Party Responsible for Implementation | Funding Responsibility | Implementation Trigger/Timing/ DATE | Frequency |
|--|--------------------------------------|--------------------------|---|--|
| HYDROLOGY | | | | |
| <p>Mitigation Measure HYDRO 1b: Comply with Water Quality Standards and Waste Discharge Requirements</p> <p>When required, the CITY shall obtain a General Permit for Discharges of Storm Water associated with Construction Activity (Construction General Permit), which pertains to water pollution resulting from project construction. In compliance with permit requirements, the CITY shall file a Notice of Intent (NOI) with the State Water Resources Control Board (SWRCB) and prepare a Storm Water Pollution Prevention Plan (SWPPP) before commencement of construction activities. The SWPPP will incorporate BMPs to prevent, or reduce to the greatest extent feasible, adverse effects on water quality from erosion and sedimentation. In addition, all new trails shall be designed, constructed, and maintained per the CITY's Trails Manual.</p> | OPERATOR CITY | OPERATOR CITY | Before commencement of construction activities | Implement and monitor as indicated in SWPPP |
| NOISE | | | | |
| <p>Mitigation Measure Noise 1: Construction Related Noise</p> <p>The following measures shall be implemented to mitigate for construction noise control associated with the Disc Golf Trailhead Area Concept Plan Project:</p> | CITY | CITY | During construction of Park Improvement Projects | N/A |
| <p>a. Construction equipment shall be properly maintained and equipped with noise control, such as mufflers, in accordance with manufacturers' specifications</p> | OPERATOR | OPERATOR | TBD | N/A |
| <p>b. Construction activities shall be limited to the hours of 7:00 a.m. - 9:00 p.m., Monday through Saturday, and to 10:00 a.m. - 6:00 p.m. on Sundays and holidays.</p> | OPERATOR | OPERATOR | May vary with approval of CITY | N/A |
| <p>c. Construction equipment shall be arranged to minimize travel adjacent to occupied residences and turned off during prolonged periods of non use.</p> | OPERATOR | OPERATOR | TBD | N/A |

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|---|--------------------------------------|------------------------|--|-----------|
| TRAFFIC | | | | |
| <p>Mitigation Measure Traffic-4: Coordinate with Caltrans</p> <p>a.—To address the potential increase in traffic hazards resulting from implementation of the Disc Golf/Trailhead Area Concept Plan, the CITY shall coordinate with Caltrans to obtain an encroachment permit for construction of the site access and parking lot for the Disc Golf/Trailhead area. As part of the consultation with Caltrans, the CITY shall address the potential need for additional signage and/or a left turning lane to address traffic safety along SR 32. The CITY shall implement any measures deemed necessary by Caltrans as a condition of the encroachment permit or as a result of the consultation on safety.</p> | CITY | CITY | Prior to construction of the Disc Golf/Trailhead Area Concept Plan | N/A |

CLEAN COPY OF REVISED EXHIBIT B

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Table 1-1: Master Mitigation Monitoring Program for the Bidwell Park Disc Golf/Tailhead Area concept Plan Environmental Impact Report

| Mitigation Measure | Party Responsible for Implementation | Funding Responsibility | Implementation Trigger/Timing/ DATE | Frequency |
|--|--|---------------------------------|--|--|
| BIOLOGY | | | | |
| <p>Mitigation Measure BIO-1b: Implement Measures to Protect Butte County Checkerbloom in the Disc Golf/Trailhead Concept Plan Area</p> <p>The following measures shall be implemented to mitigate potential direct and indirect effects on populations of Butte County checkerbloom from implementation of the Disc Golf/Trailhead Area Concept Plan:</p> | OPERATOR/CITY | OPERATOR/CITY | Before ground-disturbing activities and during ongoing operation | See Below |
| <p>d. Permanent signage at the trailhead/rest area shall be installed to inform Park users of the presence and sensitivity of Butte County checkerbloom (and other sensitive resources) on the site.</p> | OPERATOR | OPERATOR | TBD | Install after construction; monitor signage annually. |
| <p>e. As provided in Appendix H of the BPMMP, alternate pin locations for Holes 3 and 4 of the long course shall be used from March 1 through July 1 to provide further assurance that potential disturbance of nearby checkerbloom plants during the active growth and blooming period of the plants is minimized.</p> | <p>OPERATOR</p> <p>Clarification – The alternate pin location is for Hole 3. There is an alternate Tee location for Hole 4. For Hole 13, the winter fairway will become the all season fairway unless site conditions dictate require changing tee locations. This item is not referenced.</p> | OPERATOR/CITY | TBD | Implement and monitor annually |
| <p>f. Per Plant Objective O. P-8 of the BPMMP, an adaptive management program shall be implemented that relies on periodic data collection on the distribution of Butte County checkerbloom at the Disc Golf/ Trailhead site. The goal of this adaptive management program shall be to document and monitor changes in the existing population of Butte County checkerbloom over time. The adaptive management plan is intended to address the fact that, notwithstanding the buffers and signage, the CITY cannot guarantee that the use of the park will not disturb Butte County checkerbloom</p> | OPERATOR <u>CITY</u> | OPERATOR <u>CITY</u> | TBD | <u>Visually</u> monitor annually; <u>Conduct surveys if needed every 3 years</u> , develop program as needed |

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|---|---|---|--|--|
| <p>g. If data collection indicates a decline in existing populations after implementation of the Disc Golf/Trailhead Area Concept Plan and Plant Objective O. P-8 of the BPMMP, relocation of trails or disc golf structures in the vicinity of these populations, or other management strategies that would benefit the plants based on the data collected, shall be implemented. This strategy would implement Plant Objective O. P-7 and Plant Implementation Strategies and Guidelines I. P-3 and I. P-4 of the BPMMP. The overall goal of the adaptive management strategy shall be the long-term maintenance of the same number and approximate extent of occurrences of Butte County checkerbloom as documented during the 2005 surveys.</p> | <p style="text-align: center;">OPERATOR/CITY</p> | <p style="text-align: center;">OPERATOR to reimburse CITY for surveys of Bidwell's knotweed, wildflower fields (Years 1, 3 and 5 and every other year thereafter - cost est. to be \$2,000 per survey) <u>CITY</u></p> | <p style="text-align: center;">TBD</p> | <p style="text-align: center;"><u>Visually</u> monitor annually; <u>Conduct surveys if needed every 3 years</u>, develop program as needed</p> |
| <p>Mitigation Measure BIO-1d: Implement Measures to Protect Bidwell's Knotweed at the Disc Golf/Trailhead Area</p> <p>The following measures shall be implemented to mitigate for potential direct and indirect effect to Bidwell's knotweed at the Disc Golf/Trailhead Concept Plan area:</p> | <p style="text-align: center;">OPERATOR/CITY</p> | <p style="text-align: center;">OPERATOR/CITY</p> | <p style="text-align: center;">TBD</p> | <p style="text-align: center;">See below</p> |
| <p>d. Permanent signage at the trailhead/rest area shall be installed to inform Park users of the presence and sensitivity of Bidwell's knotweed and wildflower field habitat and to deter users from disturbing the species.</p> | <p style="text-align: center;">OPERATOR</p> | <p style="text-align: center;">OPERATOR</p> | <p style="text-align: center;">TBD</p> | <p style="text-align: center;">Implement following construction; monitor signage annually</p> |
| <p>e. Per Plant Objective O. P-8 of the BPMMP, an adaptive management program shall be implemented that relies on periodic data collection on the distribution of Bidwell's knotweed at the Disc Golf/ Trailhead site. The goal of this adaptive management program shall be to document and monitor changes in the existing population of Bidwell's knotweed over time.</p> | <p style="text-align: center;">CITY</p> | <p style="text-align: center;">OPERATOR to reimburse CITY for surveys of Bidwell's knotweed, wildflower fields (Years 1, 3 and 5 and every other year thereafter - cost est. to be \$2,000 per survey) <u>CITY</u></p> | <p style="text-align: center;">TBD</p> | <p style="text-align: center;"><u>Visually</u> Monitor annually; <u>Conduct surveys if needed every 3 years</u>, develop program as needed</p> |

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|--|--------------------------------------|---|---|--|
| <p>f. If data collection indicates a decline in the number or extent (i.e. square feet) of existing populations after implementation of the Disc Golf/Trailhead Area Concept Plan, relocation of trails or disc golf structures in the vicinity of these populations, or other management strategies that would benefit the plants based on the data collected, shall be implemented. Seasonal and annual variation of the plants in response to environmental conditions such as rainfall shall be taken into consideration when determining if a decline is occurring. This strategy would implement Plant Objective O. P-7 and Plant Implementation Strategies and Guidelines I. P-3 and I. P-4 of the BPMMP.</p> | OPERATOR/CITY | <p>OPERATOR to reimburse CITY for surveys of Bidwell's knotweed, wildflower fields (Years 1, 3 and 5 and every other year thereafter - cost est. to be \$2,000 per survey) CITY</p> | TBD | <p><u>Visually Monitor</u> annually; <u>Conduct surveys if needed every 3 years</u>, develop program as needed</p> |
| <p>Mitigation Measure BIO-3c: Implement Measures to Protect Oak Woodland The following measures shall be implemented to mitigate potential impacts on oak woodlands resulting from implementation of the Disc Golf/Trailhead Area Concept Plan:</p> | OPERATOR | OPERATOR | Before and during construction activities within or in the immediate vicinity of oak woodland habitat; ongoing for site management of the Disc Golf/ Trailhead Area Concept | See below |
| <p>b. Trails through oak woodlands that are decommissioned as part of a site-specific Park Improvement Project shall be reclaimed using barriers (such as boulders) to discourage continued use of these trails.</p> | OPERATOR/CITY | OPERATOR/CITY | TBD | Implement during and following construction; monitor annually |
| <p>In addition to the measures outlined above, the following additional measures shall be implemented in connection with development and ongoing maintenance of the proposed Disc Golf/Trailhead Concept Plan to protect oaks and to mitigate for any unavoidable loss resulting from mortality over time. These measures are based on site observations, oak woodland management guidelines provided by DFG, and measure recommended in the tree assessment (Appendix E4):</p> | OPERATOR/CITY | OPERATOR/CITY | TBD | Implement during and following construction |
| <p>f. Any modification to the proposed design and layout of the site shall be subject to the same impact avoidance and minimization criteria as the initial design;</p> | OPERATOR/CITY | OPERATOR/CITY | TBD | Implement during and following construction |

OPERATING AGREEMENT FOR RECREATIONAL SERVICES IN BIDWELL PARK (CITY OF CHICO/OUTSIDE RECREATION ADVOCACY, INC)
EXHIBIT B

| Mitigation Measure | Party Responsible for Implementation | Funding Responsibility | Implementation Trigger/Timing/ DATE | Frequency |
|---|---|---|-------------------------------------|--|
| g. Information describing the value of native oak trees and the importance of the preservation and protection of oak woodland for wildlife habitat and the aesthetic values of Bidwell Park shall be provided at the informational kiosk at the Disc Golf/Trailhead area site. The information shall discuss the importance of avoiding direct impacts resulting from bark and limb damage as well as indirect effects such as soil compaction/root damage and shall encourage site users to act responsibly and prevent adverse effects. | OPERATOR - CITY | OPERATOR to reimburse CITY for surveys of oaks (Years 1, 3 and 5 and every other year thereafter – cost est. to be \$2,000 per survey) <u>OPERATOR/CITY</u> | TBD | Implement following construction; inspect signage annually |
| h. In cases where disc golf pins are located within groves of oak trees or oak trees are within fairways, measures to protect the tree trunks such as the installation of shielding pole structures shall be implemented. Installation shall be implemented without damage to the root zone, and in a manner that preserves the visual character of the site. | OPERATOR /CITY | OPERATOR/CITY | TBD | Implement during and following construction; monitor annually |
| i. In cases where tees or trails are located within drip lines of oaks or in the immediate vicinity of drip lines, a <u>6.4</u> inch layer of woodchip mulch shall be applied to a 20' radius around the tees and on the trails to minimize soil compaction; this layer shall be maintained on a ongoing basis, as needed, to ensure continued protection of the root zones. | CITY | CITY | TBD | Implement during and following construction; monitor annually |
| j. Periodic monitoring of the oaks at the site shall be conducted to determine if any unavoidable impacts are occurring as a result of site use, in spite of the impact minimization measures. | OPERATOR | OPERATOR- CITY | TBD | Monitor at least twice yearly <u>every 5 years</u> -following construction |
| k. Any unavoidable impacts to oaks resulting from construction, or tree mortality resulting from ongoing use of the site shall be mitigated by replanting oak woodland habitat at the Disc Golf/Trailhead site in areas located outside of the footprint of facilities and trails in areas not currently occupied by other sensitive resources and suitable to support blue oak woodland. | OPERATOR/CITY | OPERATOR/CITY | TBD | Implement as needed after construction |
| l. Oak planting should be from seeds (acorns) or seedlings that are obtained from the local genetic stock and should be of the same species as those targeted for replacement. Replacement ratios shall | OPERATOR/CITY | To be accomplished above B10-3c-f | TBD | Implement and monitor as needed after construction |
| m. Oak plantings shall be protected from browsing, planted on the north and east side of existing trees, and irrigated during the first few years as outlined in the oak assessment (Appendix E4) to | OPERATOR/CITY Relating to disc golf facilities only. | OPERATOR/CITY | TBD | Implement and monitor as needed after construction |

OPERATING AGREEMENT FOR RECREATIONAL SERVICES IN BIDWELL PARK (CITY OF CHICO/OUTSIDE RECREATION ADVOCACY, INC)
EXHIBIT B

| Mitigation Measure | Party Responsible for Implementation | Funding Responsibility | Implementation Trigger/Timing/ DATE | Frequency |
|--|--------------------------------------|------------------------|--|---|
| n. Replacement plantings shall be monitored for their success for a period of five years or until the desired performance criterion of 5:1 is achieved, whichever is longer. If planting does not succeed, remedial actions such as replanting shall be implemented. | OPERATOR/CITY | OPERATOR/CITY | TBD | Monitor yearly after planting for five years or until success criteria are achieved |
| o. If requested, community/user group stewardship of the plantings shall be allowed to contribute to restoration/revegetation efforts under guidance and supervision by CITY staff. | OPERATOR/CITY | OPERATOR/CITY | TBD | Implement after construction |
| <p>Mitigation Measure BIO-3d: Implement Measures to Protect Wildflower Fields</p> <p>The following measures shall be implemented to minimize potential disturbances to wildflower field communities resulting from implementation of the Disc Golf/Trailhead Area Concept Plan:</p> | OPERATOR/CITY | OPERATOR/CITY | Before and during construction of components of the Disc Golf/ Trailhead Area Concept Plan that occur within the immediate vicinity of wildflower fields | See below |
| a. Mitigation Measure BIO-1d shall be implemented to minimize adverse effects on wildflower fields resulting from implementation of the Disc Golf/Trailhead Area Concept Plan. | OPERATOR/CITY | OPERATOR/CITY | TBD | Implement during construction; monitor as indicated above |
| f. Existing trails through wildflower fields that will not be retained as part of the site-specific Park Improvement Projects shall be reclaimed using barriers (such as boulders) to discourage use of these trails. If these reclaimed trails fail to revegetate on their own over time, re-seeding may be considered. | OPERATOR/CITY | OPERATOR/CITY | TBD | Prior to, during and after construction; monitor annually |
| g. Permanent signage shall be installed at kiosks located at the Disc Golf/Trailhead Area Concept Plan site to inform Park users of the presence and sensitivity of the wildflower field community and discourage visitors from off-trail use and trampling of vegetation. | OPERATOR | OPERATOR | TBD | Install after construction; monitor annually |



DATE: 4/23/21
TO: Bidwell Park & Playground Commission (BPPC)
FROM: Linda Herman, Park & Natural Resources Manager
SUBJECT: CONSIDERATION OF A CITYWIDE AREA BURN PLAN AND A SPECIFIC FORMAL BIDWELL PARK BURN PLAN.

REPORT IN BRIEF:

As one of the deliverables under the CalFire grant for the Vegetative Fuels Management Plan, a Citywide Area Burn Plan and a separate, more specific Burn Plan for Bidwell Park was prepared by the City's consultant Deer Creek Resources. The purpose of the Burn Plans is to provide a framework to help the City determine where, when and how to conduct prescribed burns on city-owned properties if desired in the future.

Recommendation: The BPPC is requested to review, provide comments, and approve the Burn Plans.

FISCAL IMPACT:

The preparation of these Burn Plans funded by the Community Wildfire Prevention grant from CalFire.

DISCUSSION:

Park planning documents including the Bidwell Park Master Management Plan (2008) and new Vegetative Fuels Management Plan Programmatic EIR (VFMP PEIR, 2021) recognize the importance of expanding the use of prescribed fire. To assist the City in reintroducing prescribed fire on city properties, Deer Creek Resources developed the attached citywide Area Burn Plan entitled "Prescribed Burning Plan for Lands Management by the City of Chico" (Attachment 1), and a more specific Bidwell Park Burn Plan entitled "California Standard Prescribe Burn Plan" (Attachment 2) as companion documents to the VFMP.

Citywide Area Burn Plan:

Potential burn projects can range from wintertime cultural burning on small patches of deer grass, to more intense chaparral burns, such as on the South Rim Trail, that have not had natural fires in the past 50 years. This Plan addresses the following components on how to implement a successful prescribed burning project on any of City-owned properties:

1. Define Project Objectives – Describe specific burn objectives/desired with a description of the project area, and summary of proposed approach.
2. Determine Burn Complexity - use the National Wildfire Coordinating Group's (NWCG) Prescribed Fire Complexity Analysis Guide and process (Appendix A of the Burn Plan).
3. Develop a Burn Prescription- identifies a "recipe" for the weather and fuel conditions a burn should be conducted under to achieve the desired fire effects and goals for each type of burn project.
4. Establish Burn Units - identify and develop control lines using natural barriers to segment burn units.
5. Write a Formal Burn Plan (if needed) – using a Prescribed Fire GO/NO-GO Checklist. A NWCG burn plan template is in Appendix C of the Citywide.

The Plan also categorizes, and maps burn complexity levels from Low-to-High, and provides the following example timeline to help the City prioritize some potential burn projects that could be implemented on Chico parklands. Some of the examples include:

1. Ready: Can Proceed Almost Immediately. Examples include:
 - Burn star thistle, medusahead, and barbed goat grass areas in Middle and Upper Park.
 - Small cultural burns in Verbena Fields and Lower Park.
 - Moderate-complexity burns in oak woodlands areas of Middle Park, north of 5 Mile.
2. Near-Term: May require 1-2 years of planning/surveys/funding development. Examples include:
 - Chaparral and live oak burns on South Rim of Bidwell Park in recently burned areas.
 - Demonstration cultural burns for traditional edible plants in old walnut orchard on Peterson Drive.
 - Develop fire management objectives and preferred suppression tactics for Upper Park
 - Conduct larger burns on Bidwell Ranch and Chico Airport.
3. Medium-Term: Realistically requires 2-5 years of preparation including securing funding and other resources and at least some advance on-the-ground prep work (e.g. brush reduction in some areas). Examples include:
 - Larger understory burns in Lower Park Valley Oak woodlands.
 - Higher-complexity chaparral burns in areas on North side of Big Chico Creek upstream of Parking Lot Q that have not burned in last 50 years.
 - Realign trails or build new trails in locations with high tactical value for wildfire and prescribed fire control. For example, along 10 Mile House Road, Bloody Pin, South Rim, and Live Oak Trail.
4. Long-Term: projects that could be on the to-do list for the next generation of Park Managers:
 - Develop regional fire resiliency (harden structures in Canyon Oaks and other neighboring settlements) and maintain fuels in areas with high hazard using prescribed fire and other methods so wildland fires can be left to burn within large areas of Upper Bidwell Park.

Bidwell Park Burn Plan:

This more specific, comprehensive Bidwell Park Burn Plan was prepared by a NWCG Qualified Burn Boss Type 1, using the methods and tools described above. It breaks down Bidwell Park into seven burn units (209 acres total), and describes the goals and objectives, fuel type, slope, aspect and any Special Features that should be protected and excluded from the burn for each unit. It also provides pre and post burn considerations and activities, a Smoke and Ignition Plan and provides step by step details on how to implement safe and successful burns in all of these units.

In conclusion, both of these plans have been reviewed by CalFire and the Chico Fire Department. Chico Fire provided comments indicating that the plans may be modified where necessary once an action plan is developed, and that they would take the lead roles on all burns within the City limits. The Department also welcomed the opportunity to work with other agencies and City partners, such as Cal Fire, Firestorm, on any future approved burns, including cultural burns with the Mechoopda Tribe and Big Chico Creek Ecological Reserve. All future burning projects, if any, will be reviewed and approved by the BPPC, and will go through the thorough evaluation and planning process outlined in each of these plans.

Attachments:

Attachment 1: Citywide Area Burn Plan

Attachment 2: Bidwell Park Specific Burn Plan

ITEM 5.4 - ATTACHMENT 1

DRAFT

PRESCRIBED BURNING PLAN FOR LANDS MANAGED BY THE CITY OF CHICO

Prepared by Zeke Lunder
Deer Creek Resources, Chico, California
Spring 2021

Overview

California's native vegetation evolved with frequent fires that burned across a wide variety of vegetation types, under many different combinations of weather and fuel conditions. A century of fire suppression has caused great harm to the health and resilience of California's vegetated landscapes, and also, to our collective psyche. A growing disconnection from fire leaves all Californians increasingly traumatized when it appears, often, it seems, at the wrong time, and angry. In the aftermath of the Camp Fire, there is [growing local interest](#) in improving our understanding of fire's rightful place in our wildlands, and in remembering how to use it as one of our primary land management tools.

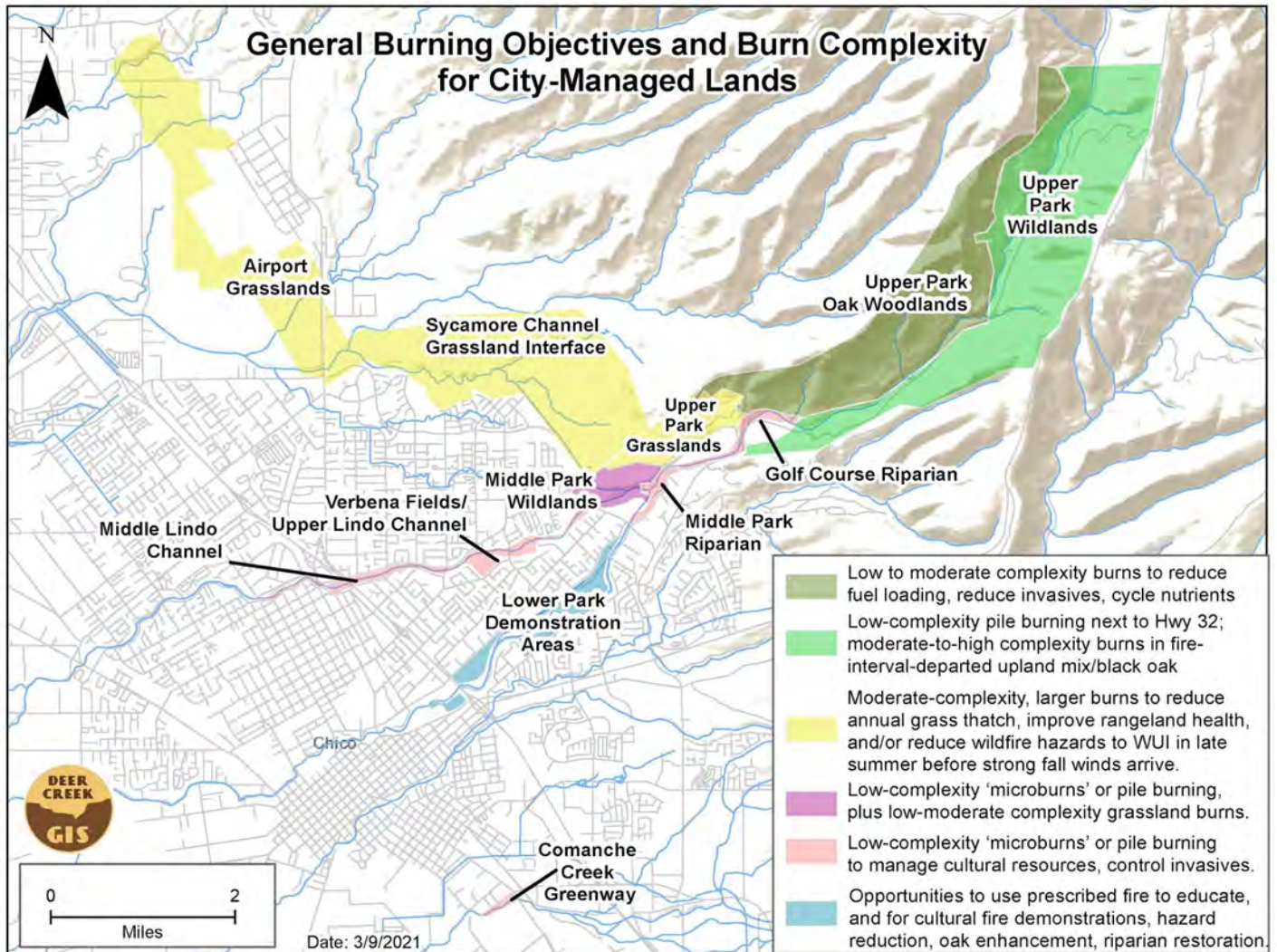
There are a wide variety of opportunities to use managed fires to improve the function, safety, aesthetics, and resiliency of Chico's parklands while also helping educate the general public on fire's many ecological and public-safety benefits. Bidwell Park is a perfect teaching laboratory for fire ecology, with a history of successful prescribed fire use, ample opportunities for safe public viewing of active burns, and many ongoing community-driven land stewardship efforts, including the Park's popular volunteer programs, the Mechoopda Tribe's ongoing Traditional Ecological Knowledge (TEK) work, and the applied fire ecology and wildland management research being carried out by the CSU, Chico Wildland Management students both on City lands and the CSU, Chico Ecological Reserves.

Potential projects range from wintertime cultural burning on small patches of deer grass that are just a couple feet across, to large grassland restoration burns adjacent to the North Rim Trail Parking lot, or more intense chaparral burns on the South Rim that have not had natural fires in the past 50 years.

Existing Park planning documents including the Bidwell Park Master Plan (2008) and Vegetative Fuels Management Plan Programmatic EIR (VFMP PEIR, 2021) recognize the importance of expanding the use of prescribed fire. This document provides a roadmap for meeting these goals. While it provides brief references to prescribed fire science, its primary purpose is to help park managers make decisions on where and when to do it, and how.

ITEM 5.4 - ATTACHMENT 1

General Burning Objectives and Burn Complexity for City-Managed Lands



Upper Park Oak Woodlands - 1,115 acres (total area, not acreage of proposed burns).

Some opportunity for Moderate-complexity rangeland burns to control start thistle, medusahead, and barbed goat grass. Moderate-complexity burns in thicket areas along Park Road, for example between Bear Hole and Salmon Hole Parking Lots. Objectives are to reduce ladder fuels and heavy accumulations of dead and down material to reduce fire severities in these areas during future wildfires. Lower complexity burns could target sunny areas with heavy pine needle fuel loads under large gray pine for winter burns.

Verbenia Fields/Upper Lindo Channel - 66 acres

Low-complexity 'microburns' or pile burning to manage cultural resources and control invasive plants.

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Middle Lindo Channel - 30 acres

Low-complexity 'microburns' or pile burning to manage cultural resources and control invasive plants.

Middle Park Wildlands - 112 acres

Low-moderate complexity grassland restoration burns. Low-complexity 'microburns' or pile burning to manage cultural resources, control invasive plants, or remove 'jackpots' or dead and down oak branches. Secondary objectives are to reduce ladder fuels/improve sightlines into live oak, ceanothus, and poison oak thickets. Consider using burning as a follow-up to mowing, masticating, or grazing in densest areas.

Middle Park Riparian - 34 acres

Low-complexity 'microburns' to manage cultural resources and control invasive plants.

Comanche Creek Greenway - 14 acres

Low-complexity 'microburns' to manage cultural resources and control invasive plants.

Sycamore Channel Grassland Interface - 1,200 acres, mainly in 'Bidwell Ranch', between lower powerlines and Sycamore Channel

Moderate-complexity, larger burns to reduce annual grass thatch and improve rangeland health. Also, potential to use fire on semi-annual basis in late-summer to reduce wildfire hazards posed to WUI near Sycamore Channel before strong fall winds arrive.

Airport Grasslands - 864 acres

Moderate-complexity, larger (100 acres+) burns to reduce thatch and improve rangeland health. Also, potential to use fire on semi-annual basis in late-summer to reduce hazards posed to WUI near Eaton Road before strong fall winds arrive.

Upper Park Grasslands - 207 acres

Moderate-complexity burns of 5-50 acres to improve grassland conditions, especially in areas of heavy star thistle, medusahead, or barbed goat grass.

Upper Park Wildlands - 1,640 acres

Low-complexity pile burning adjacent to Highway 32 and Ten Mile House Road as part of roadside fuel reduction and black oak wildfire resiliency restoration projects.

Moderate to high-complexity broadcast burns of 20-50 acres in areas of dense live oak, gray pine, and chaparral, generally in late fall or midwinter in units defined by south and west-facing aspects between Big Chico Creek and Highway 32, generally burned when north aspects are too wet to burn. Objectives are to reduce fuels after wildfires in areas adjacent to long-term, repeatedly-used bulldozer and hand firelines. Other objectives are to introduce fire into older shrub stands and black oak forests that have not had fire in past 30 years to reduce potential wildfire intensity and create new growth for wildlife browse.

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Golf Course Riparian - 50 acres

Low-complexity 'microburns' to manage cultural resources and control invasive plants

Lower Park Demonstration Burns - 168 acres

Low-complexity 'microburns' and grassland broadcast burns to manage cultural resources, improve valley oak health, educate the public, and control invasive plants.

How to Pull Off a Successful Burning Project

- 1. Define Project Objectives**
- 2. Determine Burn Complexity**
- 3. Develop a Burn Prescription**
- 4. Establish Burn Units**
- 5. Write a Formal Burn Plan (if needed)**
- 6. Burn it**

1. Define Project Objectives

Refer to "General Burning Objectives and Burn Complexity" section, above. Chapter 4 of the City's Vegetative Fuels Management Plan (VFMP) describes the ranges of acceptable fuel loading and thinning standards for each vegetation zone. Also, the Plan addresses unique considerations regarding using fire in each different vegetation type. Refer to Section 4.3.5 'Prescribed Fire and Cultural Burning' in the VFMP. Any burning objectives should be supported by the VFMP and its adopted PEIR document.

Specific burn objectives/desired outcomes should be spelled out in a letter to the Parks Manager along with a description of the project area, and summary of proposed approach. For example: "We propose using matches to burn the dead material out of clumps of deergrass which are surrounded by green grass. Our desired outcome is a reduction of thatch around approximately 10 clumps of deer grass, each approximately 12 inches in diameter". Other objectives might be: "Raise crown base height of live oak to 8 feet and remove 50% of surface litter in areas under large gray pine".

2. Determine Burn Complexity

It is important that conversations around burning address the varying levels of complexity and risk inherent in each different type of burning project. We recommend the City adopt the National Wildfire Coordinating Group's (NWCG) Prescribed Fire Complexity Analysis Guide and process (*Appendix A*) for any projects which use prescribed fire. The Prescribed Fire Complexity Analysis Worksheet tool is a simple [Excel spreadsheet](#) with drop-down menus (*Appendix B*). The burn planner fills out each box, and the worksheet scores the project as Low, Moderate, or High Complexity. Winter 'microburns' are by their nature low-complexity and should be exempt from the Complexity Analysis process. An experienced burn planner or firefighter should determine the resources needed to complete a burning project at each complexity level.

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3. Develop a Burn Prescription

A burn prescription is the 'recipe' for the weather and fuel conditions a burn should be conducted under to achieve the desired fire effects. For example, if the goal of a burning project is to prune up low-hanging dead branches on the trees or brush, or to kill a certain number of the small trees in an area, the prescribed fire needs to have large enough flames to actually reach up to the desired 'scorch height'.

Many of the proposed burning projects in this plan call for very low-intensity fires with flame lengths of less than 2-3 feet. These types of fire behavior can be achieved under very mild, late-fall or mid-winter conditions, and can be safely undertaken with minimal need for specialized equipment. For example, if the objective is to simply remove dead thatch in the grass understory under large oak trees, or to tend to individual plots of bunch grasses, the weather conditions just need to be dry enough that dead grass will burn. These projects can be as simple as a couple people going out with a bucket of water and 2 rakes in the late-evening in the fall or winter and burning a few dozen square feet of dead grass or weeds between two trails.

There are some opportunities to use fire on a larger scale and at higher intensities. For example, to reduce populations of yellow star thistle in grasslands of Upper Park. These types of projects are necessarily more complex, as the fire behavior required to achieve this goal may be much more intense, and the fire might be carried out in the middle of July - requiring several fire engines, a qualified burn boss, and a dozen firefighters.

A burn prescription should, at a minimum, describe the desired weather conditions for burning. For low-complexity microburns or thatch burns taking place in the winter where the target area is surrounded with green grass or trails, the prescription does not need to be overly technical. For example: "We will burn only areas which are surrounded by green grass or trails, not to exceed 800 square feet. We will not burn if the temperature is over 60 degrees or winds are over 2 miles per hour". Any areas which will be burned in declared fire season should have a prescription developed by an experienced burner that includes a range of acceptable 1 and 10 hour fuel moisture levels, relative humidities, temperatures, and probabilities of ignition. As a general rule, probability of ignition should not exceed 70% without written justification (and mitigations) by an experienced person.

4. Establish Burn Units (if applicable)

Burn units should be scouted by experienced burners, in consultation with resource specialists. Control lines should use natural barriers like roads, trails, water bodies, barren areas, or large areas of green grass. Any new soil disturbance should be kept to a minimum. Generally, midslope control lines should be avoided. Important fire control considerations include expected wind direction, the ability to get water to the site and expected fire behavior. Water availability or the lack thereof may not be an issue depending on fuel continuity and expected fire behavior. In some places, especially after winter 'greenup' of annual grasses, control lines may be unnecessary if the objective is to burn areas with heavy loading of thatch and other dead fine fuels.

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Given the difficulty in planning and implementing a burn, planning units should be as large as is practicable/desirable. It can be much easier and safer to burn a well-planned 50-acre project than to do ten 5-acre ones. Having a completed and signed burn plan for a large area gives you flexibility in implementation. Remember, just because the unit is 50 acres doesn't mean you have to burn all of it at a given time.

5. Write a Formal Burn Plan (if needed)

At the discretion of the Parks Manager, low-complexity burning projects (e.g. winter microburns or small thatch-removal burns) may be implemented with just a simple, one-page burn plan, but must follow the steps in the following *Prescribed Fire GO/NO-GO Checklist*. Any other projects which will use fire should have a formal burn plan which is signed by the Park Manager. Refer to the 'Planning Good Fire' paragraphs under Section 4.3.5 of the VFMP. At a minimum, burn plans for moderate or high-complexity burns should include:

1. Signature Page
2. Prescribed Fire GO/NO-GO Checklist
3. Complexity Analysis Summary
4. Description of Prescribed Fire Area and Map
5. Ecological Objectives
6. Prescription: Prescription Narrative and Prescription Parameters
7. Pre-Burn Considerations and Weather
8. Briefing Checklist
9. Organization and Equipment
10. Communications Plan
11. Public and Personnel Safety, Medical Plan
12. Ignition Plan
13. Holding Plan
14. Contingency Plan
15. Wildfire Declaration Plan
16. Smoke Management and Air Quality
17. Fire Effects Monitoring Plan
18. Post-Burn Activities

A NWCG Burn Plan Template is included in *Appendix C* as an example of a thorough burn plan.

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PRESCRIBED FIRE GO/NO GO CHECKLIST FOR LOW COMPLEXITY BURNING PROJECTS

- Have ALL permissions been obtained, including Air Quality permission? YES NO
- Have ALL required notifications been made? YES NO
- Has project area been thoroughly scouted for members of the public? YES NO
- Have signs been posted? YES NO
- Has ALL necessary preparation work been completed? YES NO
- Have ALL required current and projected fire weather forecasts 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 necessary personnel and equipment on-site, available and operational? YES NO
- Are ALL contingency resources 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? YES or NO

Briefing Checklist

- Burn organization and assignments
- Prescribed Fire objectives and prescription
- Description of prescribed fire project area
- Expected weather and fire behavior
- Communications
- Ignition plan
- Holding plan
- Contingency plan and assignments
- Wildfire declaration plan
- Safety and medical plan

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A Vision for the Future of Wildland Fire Management on City-managed Lands

It took many decades of fire suppression for Chico's parklands to reach their present state. It will take more than a few years to restore them to their natural state. Some of the fire restoration projects listed above are safe and easy enough to implement almost immediately, i.e. after light but adequate environmental review. Others require more substantial preparation. In some cases, desired conditions may not be reached for generations. The timeline below is intended to provide a long-range perspective on the relative timing of fire projects in Chico parklands.

Ready: Can Proceed Almost Immediately.

- Burn star thistle, medusahead, and barbed goat grass areas in Middle and Upper Park.
- Small cultural burns in Verbena Fields and Lower Park.
- Moderate-complexity burns in oak woodlands areas of Middle Park, north of 5 Mile.

Near-Term: May require 1-2 years of planning/surveys/funding development

- Chaparral and live oak burns on South Rim of Bidwell Park in recently burned areas.
- Demonstration cultural burns for traditional edible plants in old walnut orchard on Peterson Drive.
- Develop fire management objectives and preferred suppression tactics for Upper Park
- Train park staff to be 'Resource Advisors' during wildfires; [build READ program](#) for Park.
- Develop Park 'Fire Ranger' funding and position to coordinate and manage Park's wildfire hazard mitigation and prescribed burning program.
- Develop Bidwell Park Fire Festival educational program, which includes live prescribed fire demos.
- Develop outreach and messaging programs to prepare public for increased use of fire on City-managed lands.
- Conduct larger burns on Bidwell Ranch and Chico Airport.

Medium-Term: Realistically requires 2-5 years of preparation including securing funding and other resources and at least some advance on-the-ground prep work (e.g. brush reduction in some areas)

- Larger understory burns in Lower Park Valley Oak woodlands.
- Higher-complexity chaparral burns in areas on North side of Big Chico Creek upstream of Parking Lot Q that haven't burned in last 50 years.
- Develop landscape-scale burning projects in conjunction with Big Chico Creek Forest Health Restoration Project, BCCER, and private landowners adjoining Upper Bidwell Park.
- Harden Upper and Middle Park infrastructure (e.g. don't use plastic culverts or wooden signposts), phase-out any synthetic erosion control fabrics or other materials which release toxic smoke when burned.

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- Realign trails or build new trails in locations with high tactical value for wildfire and prescribed fire control. For example, along 10 Mile House Road, Trashline Trail, Red Bud Trail, Cave Trail, Live Oak Trail.
- Phase out use of bulldozers during wildfires in Upper Park, using improved trails, instead.
- Establish Native burning program that can implement cultural burns in Chico Parks with minimal bureaucratic oversight.
- Develop pro-fire curriculum for CUSD, with opportunities for high-school students to participate in hands-on burning workshops.

Long-Term: These projects should be on the to-do list for the next generation of Park managers and may require nimble or sophisticated cross-boundary work as well as significant fuel model changes first.

- Develop regional fire resiliency (harden structures in Canyon Oaks and other neighboring settlements) and maintain fuels in areas with high hazard using prescribed fire and other methods so wildland fires can be left to burn within large areas of Upper Bidwell Park.

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Appendix: Consistency with Applicable Local Plans

The following burning objectives are informed by The Bidwell Park Master Management Plan (2008), which contains the following relevant implementing strategy and objective:

- **I. PF-1.** *The need for and location of prescribed burning and related vegetation management shall be determined to reduce catastrophic fire risk and to enhance habitat quality.*
- **O. Upper-1.** *Manage Upper Park as open space set aside to remain in its natural state.*
- **O. NRMP-8.** *Utilize prescribed fire used as a management tool to protect and enhance habitats and reduce the risk of catastrophic fires within Bidwell Park.*

The Chico 2030 General Plan (City of Chico 2017) contains the following goals:

- **Goal OS-1.** *Protect and conserve native species and habitats.*
- **Goal OS-2.** *Connect the community with a network of protected and maintained open space and creekside greenways.*

The proposed program is consistent with these goals because burning projects will be targeted to protect and conserve native species, ensure sustained or improved habitat function, and maintain the health and condition of the naturally fire-dependent open space and creekside greenways.

- **Goal OS-6** *Provide a healthy and robust urban forest.*

The proposed burning projects are consistent with this goal because reducing unhealthily dense understory in native parklands will increase the resilience of these areas to wildfire, pathogens, and drought.

Tribal Cultural Resources and Traditional Ecological Knowledge

The Mechoopda people are recognized as the first people to inhabit the Chico area and its parks. This original relationship to the land is described through the MOU between the City of Chico and Mechoopda Indian Tribe of Chico Rancheria. The MOU states that Mechoopda are to be consulted prior to the development of new open space or land use plans. The MOU also sets up the framework for cooperative work between the City and the Tribe to streamline processes for consultation. It also sets up a Tribal Technical Advisor for Native American Consultation in the Department of Planning Services for the City.

Because the 2008 MOU was written primarily to support land use planning (e.g., General Plan revisions), it would be beneficial to draft a follow-up MOU that can better address ongoing management activities, such as fire, on City-owned land. Cultural resources law in California has evolved considerably since 2008, so a follow-up MOU could define opportunities for sharing resources and knowledge, designate an individual within the Public Works Department to be a tribal liaison for management projects, and set clear expectations for what constitutes acceptable and effective consultation.

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Between the BPMMP, the 2008 MOU, and the VFMP PEIR, a basic framework has been set up for the City of Chico and the Mechoopda Indian Tribe of Chico Rancheria to consult and work together to best protect cultural resources in the City of Chico and all of its open spaces. Engaging Mechoopda people in the tending of cultural fires will, in the words of the MOU, provide an opportunity for both parties to “work cooperatively to protect, preserve, enhance, mitigate, and manage archaeological sites, traditional cultural properties, and traditional cultural resources, identified within the jurisdiction and sphere of influence of the City” (City-Mechoopda Tribe 2008).

The Bidwell Park Master Management Plan states the following objective under section 3.5.3, PARK RESOURCES:

- **O. P-9.** *Consult with the sovereign Nation of the Mechoopda Indian Tribe of Chico Rancheria regarding the propagation and gathering of native plant resources that are necessary to the continuation of cultural traditions.*

Cultural burning is an essential element in the propagation of culturally-important plants.

Appendix: The Concept of Prescribed Fire Complexity

“The term ‘complexity’ is generally used to characterize something with many parts where those parts interact with each other in multiple ways. In the context of the prescribed fire, complexity refers to the interconnectedness and dependence of the individual elements as they relate to the planning and implementation of the prescribed fire”. (Prescribed Fire Complexity Rating System Guide, National Wildfire Coordinating Group, 2017).

The following Risk Management elements are analyzed in the NWCG worksheet:

- **Safety:** Hazards to personnel and public from planned prescribed fire activities through all phases of the prescribed fire. Safety is always considered for all elements.
- **Fire Behavior:** The difficulty of achieving the desired range of fire intensity, rate of spread and flame lengths to meet the prescribed fire objectives.
- **Resistance to Containment:** The conditions that influence the potential for a prescribed fire to leave the ignition unit or project area and resist containment effort.
- **Ignition Procedures/Methods:** Number and type of ignition devices, patterns, sequencing and/or timing required to safely ignite the prescribed fire and meet the objectives.
- **Prescribed Fire Duration:** The length of time (hours, days or weeks) that active ignition, fire spread, and primary holding operations (critical holding points are secure, transitioning to mop-up and patrol, etc.) are expected to occur in order to fully implement the prescribed fire.
- **Smoke Management:** The actions implemented by prescribed fire personnel directed at reducing the amount of smoke entering populated areas or impacting sensitive sites. Smoke management includes avoiding significant deterioration of air quality and violations of National Ambient Air Quality Standards, and minimizing or eliminating visibility impacts in Class I areas.

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- Number and Dependence of Activities: Number and sequence of activities required to safely implement the prescribed fire and meet objectives through all phases of the project, including logistics, pre and post burn considerations, communication, test fire, ignition and holding operations, contingency actions (if implemented), mop-up and patrol, monitoring, and ensuring firefighter and public safety.
- Management Organization: The organizational capabilities needed to safely achieve objectives specified in the prescribed fire plan. This includes all phases of the prescribed fire until declared out.
- Treatment/Resource Objectives: The degree of difficulty to meet specific, measurable, achievable, realistic, time-sensitive treatment and resource objectives for the prescribed fire.
- Constraints: Conditions or requirements that place sideboards on the prescribed fire plan implementation. Example: Seasonal timing, logistical restrictions, smoke management restrictions, and national preparedness levels four, and five.
- Project Logistics: Facilities, services and supplies

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**National Wildfire
Coordinating Group**



Prescribed Fire Complexity Rating System Guide

PMS 424

July 2017

Prescribed Fire Complexity Rating System Guide

July 2017
PMS 424

The *Prescribed Fire Complexity Rating System Guide* establishes interagency prescribed fire complexity analysis standards. The analysis provides a focused, subjective assessment by qualified prescribed fire burn bosses that is evaluated and approved by Agency Administrators, and provides insight and improves understanding of the significant risks associated with prescribed fire. The analysis:

- Provides decision support that highlights the risk to values associated with prescribed fire implementation.
- Identifies the technical difficulty (complexity) of managing the risk to values.
- Informs the complexity rating determination of high, moderate, or low for a prescribed fire.
- Identifies prescribed fire plan elements that may pose special problems or concerns.

The *Summary and Final Complexity Worksheet*, PMS 424-1, is supplemental to the *Interagency Prescribed Fire Complexity Rating System Guide*, PMS 424. This worksheet is designed to provide a clear summary of the overall complexity of a prescribed fire. The worksheet is located at:

<https://www.nwccg.gov/publications/424-1>.

The National Wildfire Coordinating Group (NWCG) provides national leadership to enable interoperable wildland fire operations among federal, state, tribal, and local partners. NWCG operations standards are interagency by design; they are developed with the intent of universal adoption by the member agencies. However, the decision to adopt and utilize them is made independently by the individual member agencies and communicated through their respective directives systems.

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Summary of Changes

Significant changes to the 2017 *Prescribed Fire Complexity Rating System Guide*, PMS 424, include:

- Clear and concise instructions for completing a prescribed fire complexity analysis.
- New spreadsheet analysis format.
- Preparers identify the number and significance of the on-site, off-site and political values associated with a prescribed fire.
- Elimination of ‘*Consequences*’ as a complexity factor.
- Addition of ‘*Prescribed Fire Duration*’ as a complexity element.
- A commonalities table that identifies common links between the complexity analysis and prescribed fire plan.
- Documentation of where and how risks are going to be mitigated per the prescribed fire plan elements.
- A calculated prescribed fire preliminary and summary complexity rating.
- A printable *Prescribed Fire Complexity Summary Rating* that includes a visual pre and post plan rating scheme.

Introduction

Sound risk management is a foundation for all fire management activities. Risks and uncertainties relating to fire management activities must be understood, analyzed, communicated, and managed as they relate to the cost of either doing or not doing an activity (USDA, USDI, et al, 2009).

The term complexity is generally used to characterize something with many parts where those parts interact with each other in multiple ways. In the context of the prescribed fire complexity analysis, complexity refers to the interconnectedness and dependence of the individual elements as they relate to the planning and implementation of the prescribed fire.

The complexity analysis process for prescribed fire continues to evolve. Originally, it was designed to assist personnel in determining relative complexity and determination of burn boss qualification. This process has been redesigned as a tool that identifies and characterizes risk to identified values and the technical difficulty or complexity of the ‘work’ involved to mitigate impacts to them. Assessing the risk a prescribed fire poses to identified values consists of estimating the probability and severity of adverse impacts. The Complexity Analysis process provides help with:

1. Value Identification.
2. Assessment of Risks to the Values.
3. Assessment of Technical Difficulty in mitigating the Risk to Values.
4. A Final Complexity Determination that identifies the minimum required burn boss qualification level.

A preliminary complexity analysis rating is required early in the prescribed fire plan development. The preliminary complexity analysis encourages early line officer engagement in the identification of values and the assessment of prescribed fire implementation risk to those values. It will help identify potential concerns that may be mitigated during the prescribed fire plan preparation. Local knowledge and judgment are important components of the preliminary complexity analysis.

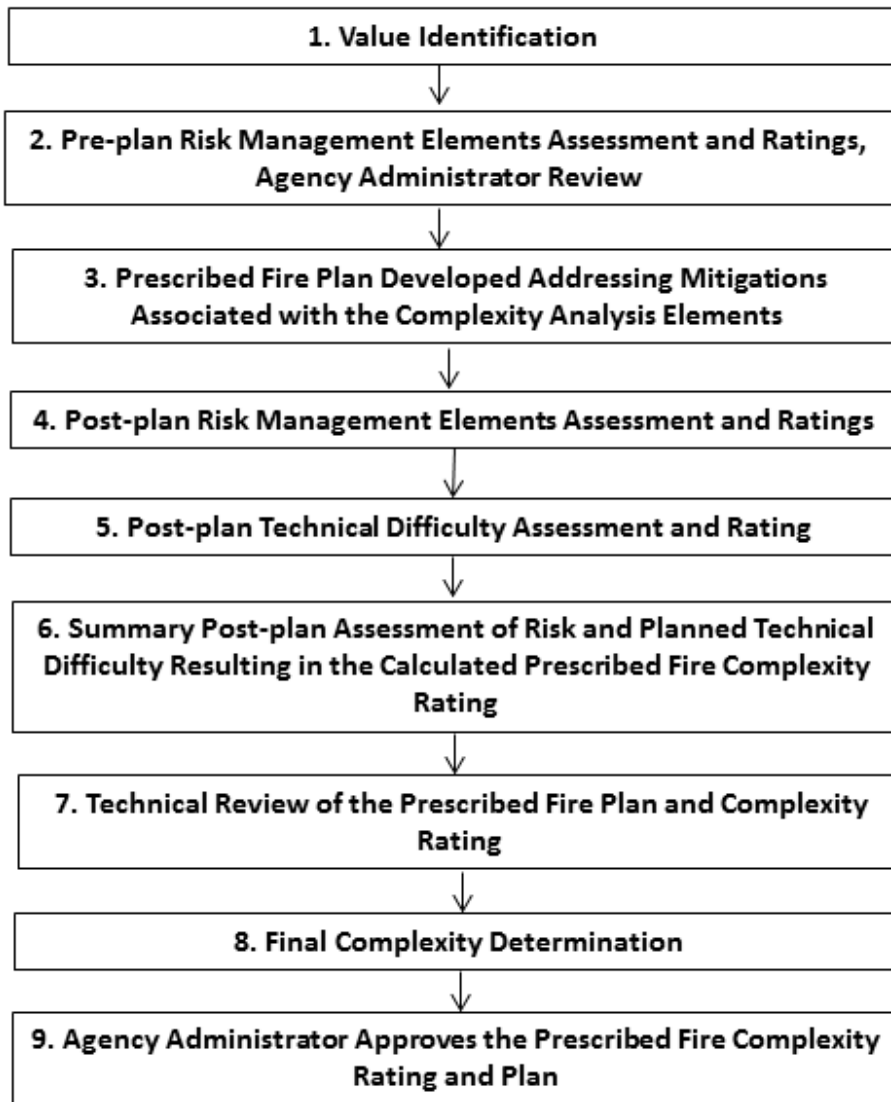
The prescribed fire plan is developed while considering the preliminary risk ratings and incorporating any mitigation actions into the appropriate sections of the prescribed fire plan. Once the prescribed fire plan is near completion, the final complexity analysis and rating is determined. The final complexity

rating, which acknowledges any remaining risk, will be used as the basis for determining the prescribed fire organization and type of prescribed fire burn boss required to successfully implement the prescribed fire plan.

The complexity analysis is initially integrated into the prescribed fire plan in the Assessment of Risk to Values phase. The individual prescribed fire plan elements provide the opportunity to address site-specific mitigation measures that will be employed to mitigate the Risk to Values identified. The Technical Difficulty phase evaluates the complexity of implementing the identified mitigation measures.

Process

The complexity of a prescribed fire is determined through a process as depicted in the following chart:



Analysis and Documentation Format

The analysis is completed in the *Summary and Final Complexity Worksheet*, PMS 424-1, to provide a clear, summary of the overall complexity of a prescribed fire. The worksheet can be found at:

<https://www.nwcg.gov/publications/424-1>.

High, Moderate, or Low rating levels for each complexity analysis element are accessed through drop-

down menus within the worksheet. The summarized pre-plan and post-plan complexity ratings are calculated within the worksheet and plotted on a visual graphic for ease of comparison. To ensure worksheet integrity the worksheet should be electronically 'Saved As' (under the name of the prescribed fire) in the electronic file.

Prescribed Fire Complexity Elements Rating Descriptors

Rating descriptors guide the risk and technical difficulty element rating process. High, Moderate, or Low rating levels are assigned for each of the complexity analysis elements. For each complexity element, descriptors are provided to help determine a rating level. The descriptors are broad enough to capture common situations and assist the preparer in determining the best, most appropriate rating for risks and technical difficulties associated with the values identified in and around the project. The descriptors are not exhaustive; local insight, empirical evidence and site-specific information, guidance, and policies should also be used to assist the prescribed fire plan preparer to determine the appropriate rating.

Step 1: Value Identification

Determining the complexity of a prescribed fire starts with understanding the on-site, off-site, and public and political values associated with the prescribed fire. Values are natural resources, humans and their developments, and public and political (including cultural) features that have inherent worth (significance). The National Environmental Protection Act (NEPA) analysis and or land management plans, documents, inventories, site visits and interdisciplinary (ID) team input provide the information necessary to identify valuable features, their significance and susceptibility to negative impacts from the prescribed fire.

Values may not be equal in significance. A project may have one significant value with considerable social and political ramifications if impacted by the prescribed fire. Another project may have many values associated with it with less significance and fewer ramifications if impacted. Identifying the number and significance of values provides the foundation for identifying and mitigating the risks to the values during the planning process.

A review of the risk elements and their associated descriptors prior to a project site visit may assist with verifying the values and subsequently assessing the risk to them. The values typically do not change through the complexity assessment process unless that value is physically removed from the project area or area of impact.

On the Complexity Values Worksheet, identify the quantity and significance of the On-site, Off-site and Public and Political Interest Values associated with the prescribed fire.

- On-Site Values: Valued resources (human, natural, cultural) located within the project area directly affected by implementation of the prescribed fire.
- Off-Site Values: Valued resources (human, natural, cultural) located outside the project area that may be affected by implementation of the prescribed fire.
- Public and Political Interest: The degree of public and political interest in the implementation and outcome of the prescribed fire.

The following are examples of how these values would be identified in a Values Worksheet:

- On-Site Values: The Agency Administrator (AA) and ID Team identified the following as some of the on-site values: Mexican Spotted Owl habitat (listed species), some merchantable timber (20 acres), and the Snotel site in Jones flat. This list is not all-inclusive of the on-site values. The on-site values for this prescribed fire project can be summarized as: Few in Quantity and Low in Significance. The determinations are reflected in the Values Worksheet.

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- **Off-Site Values:** The AA and ID Team have identified the following as some of the off-site values: One mile to the North of the project area is private commercial timber land. There is merchantable timber surrounding the project area along with Mexican Spotted Owl habitat. This list is not all-inclusive of the off-site values. The off-site values for this prescribed fire project can be summarized as: Few in Quantity and Moderate in Significance. The determinations are reflected in the Values Worksheet.
- **Public/Political Interest Values:** The AA and ID Team have identified the following as some of the Public and Political Interest Values: The public does not frequently visit the project area. Public comments to the NEPA analysis were minimal. Local cooperators (Montana Department of Natural Resource and Conservation) and timber industry are in support of the Project and will likely provide resources. This list is not all-inclusive of the on-site values. The Public and Political Values for this prescribed fire project can be summarized as: Few in Quantity and Few in Significance. The determinations are reflected in the Values Worksheet.

Step 2: Pre-Plan Risk Management Element Assessment and Rating

Step 2a – Pre-Plan Preparation: Risk Management Ratings

On the Complexity Preliminary Risk Worksheet and using the Risk and Technical Difficulty Descriptors as a guide (Appendix A), or by clicking on one of the three ratings in the Preliminary Risk column, rate complexity Elements 1-11 to describe the risk to the values identified in Step 1. Evaluate the elements individually by reading the risk descriptors for each element rating level, and then determine the most appropriate level of risk.

This is the point where local judgment and experience is important to ensure adequate description of risk to the identified values. The descriptors for each level are automatically populated in the associated cell for that element. If a project has unique or site-specific descriptions that affect the Risk to Values, that cannot be evaluated with the rating descriptors provided, they may be identified in the blank cell for each element descriptor in the worksheet.

The following Risk Management elements are analyzed:

- **Safety:** Hazards to personnel and public from planned prescribed fire activities through all phases of the prescribed fire. Safety is always considered for all elements.
- **Fire Behavior:** The difficulty of achieving the desired range of fire intensity, rate of spread and flame lengths to meet the prescribed fire objectives.
- **Resistance to Containment:** The conditions that influence the potential for a prescribed fire to leave the ignition unit or project area and resist containment effort.
- **Ignition Procedures/Methods:** Number and type of ignition devices, patterns, sequencing and/or timing required to safely ignite the prescribed fire and meet the objectives.
- **Prescribed Fire Duration:** The length of time (hours, days or weeks) that active ignition, fire spread, and primary holding operations (critical holding points are secure, transitioning to mop-up and patrol, etc.) are expected to occur in order to fully implement the prescribed fire.
- **Smoke Management:** The actions implemented by prescribed fire personnel directed at reducing the amount of smoke entering populated areas or impacting sensitive sites. Smoke management includes avoiding significant deterioration of air quality and violations of National Ambient Air Quality Standards, and minimizing or eliminating visibility impacts in Class I areas.
- **Number and Dependence of Activities:** Number and sequence of activities required to safely implement the prescribed fire and meet objectives through all phases of the project, including

logistics, pre and post burn considerations, communication, test fire, ignition and holding operations, contingency actions (if implemented), mop-up and patrol, monitoring, and ensuring firefighter and public safety.

- **Management Organization:** The organizational capabilities needed to safely achieve objectives specified in the prescribed fire plan. This includes all phases of the prescribed fire until declared out.
- **Treatment/Resource Objectives:** The degree of difficulty to meet specific, measurable, achievable, realistic, time-sensitive treatment and resource objectives for the prescribed fire.
- **Constraints:** Conditions or requirements that place sideboards on the prescribed fire plan implementation. Example: Seasonal timing, logistical restrictions, smoke management restrictions, and national preparedness levels four, and five.
- **Project Logistics:** Facilities, services and supplies required to support all phases of the prescribed fire (includes access complexity).

Step 2b – Preliminary Prescribed Fire Plan Complexity Analysis Review:

The preliminary risk rating is calculated within the spreadsheet and is displayed as an average of the 11 risk elements ratings. On the Final Complexity Worksheet, the preliminary rating is identified on the calculated summary prescribed fire plan complexity slider bar. Values are not included in the calculations. Once the values are determined, the preliminary risk ratings made, the preliminary complexity rating is calculated within the spreadsheet, it is recommended that the AA be briefed to discuss:

- **Identified Values**—this action can provide the AA the opportunity to review and provide feedback on the identified values.
- **Preliminary Risk Ratings to the Identified Values** —this action can provide an opportunity to discuss the preliminary ratings to better understand the risk to values associated with each element.
- **Preliminary Calculated Complexity Rating**—this action can provide the AA an overview of the risks associated with the prescribed fire and provide for feedback on the prescribed fire preliminary complexity rating.

On the Preliminary Risk Worksheet an additional column is provided to help the preparer identify if a briefing was completed with the AA for each element (Yes, No). It is not required that this occur but is recommended that the AA be engaged in the preliminary rating whenever possible.

If a preliminary risk rating indicates a high complexity for the prescribed fire, consider consulting a high complexity burn boss to help in the continued development of the prescribed fire plan.

Step 3: Develop the Prescribed Fire Plan

When developing the prescribed fire plan, identify the constraining and/or mitigating actions that are planned to manage the project’s risks to values and determine a final complexity rating.

The goal of prescribed fire plan development is to define a prescribed fire treatment that meets objectives while mitigating the Risk to Values to an acceptable level, and considering the Technical Difficulty of managing those risks.

Mitigation measures should be developed in the prescribed fire plan that will lower the higher preliminary risk ratings whenever feasible. In some situations, the rating will stay the same. Apply the adaptive management process by using lessons learned or monitoring reports from other projects to

provide input into prescribed fire plan development.

The complexity analysis and prescribed fire plan elements are not independent. Mitigating the risk of a complexity element through the prescribed fire plan may affect other complexity elements and require additional information or activities to be identified in other prescribed fire plan elements. For example, adding more holding resources in the prescribed fire plan to mitigate risk to an off-site value may increase the risk and technical difficulty related to management organization, number and dependence of activities, logistics, and others.

The Complexity Analysis and Prescribed Fire Plan Elements Commonalities Table (Appendix B) provides an example of common linkages between the complexity analysis and the prescribed fire plan elements. The table can be used as a tool to ensure elements rated in the complexity analysis are addressed in the prescribed fire plan.

Step 4: Post-Plan Risk Management Elements Assessment and Ratings

Step 4a – Re-rate the Risk Management Elements

At the completion of the prescribed fire planning phase, the complexity analysis Risk Management elements are again rated on the Complexity Post-Plan Worksheet under the Post-Plan Risk column to identify if risk was mitigated during the preparation of the prescribed fire plan. The Risk Management element descriptors are once again used to guide the decision process. The elements rating may or may not have changed from the initial rating. One element rating could go up or down based on what was learned in the planning process, i.e. fire behavior was overestimated because the actual fuel loading was less than first considered. Those unique project or site-specific descriptions that affect the Risk to Values are carried over from pre-plan risk determination to the associated blank cell in the worksheet.

Step 4b – Identifying Mitigation

An important part of the post-plan analysis is documenting where and how the risk was managed or mitigated by the prescribed fire plan elements. Mitigation actions developed in the plan are identified on the Complexity Post-Plan Risk Worksheet in the Elements and Actions in the Prescribed Fire Plan that Address Risk Mitigation column. Example: The fire behavior prescription has very specific fuel moisture, environmental parameters, and resulting fire behavior that presents potentially high risk. This was mitigated in the plan by adjusting parameters to meet objectives while moderating the fire behavior. Identify Prescribed Fire Plan Element 7 (Prescription) as the element in the prescribed fire plan where this mitigation is reflected and provide a brief description of the steps taken to mitigate the element rating. If no opportunity for mitigation existed, enter “no opportunity for mitigation” in the cell.

Step 5: Post-Plan Technical Difficulty Rating

Technical Difficulty is the level of skill and effort required to implement the mitigation actions for the identified risk for each element in the prescribed fire plan. These mitigation actions are captured when developing the prescribed fire plan elements. The post-plan technical difficulty rating provides a broad picture of the complexities associated with managing the risk to the values when implementing the prescribed fire plan. Use the Risk and Technical Difficulty Descriptors (Appendix A) or by choosing one of the three ratings in the Technical Difficulty Rating column on the Post-Plan Technical Difficulty Worksheet to describe and rate the technical difficulty for each element.

Those unique project or site-specific descriptions that affect the technical difficulty to mitigate the risks are identified in the associated blank cell under the list of descriptors.

Step 6: Final Calculated Prescribed Fire Complexity Rating

On the Summary and Final Complexity Worksheet, the summary complexity assessment combines the Post-Plan Managed Risk and Technical Difficulty ratings into a calculated complexity rating. This is a recommended complexity rating calculated within the worksheet. The graphic slider bar provides a visual representation of the calculated prescribed fire pre and post-plan summary complexity.

Step 7: Technical Review of the Prescribed Fire Plan and Complexity Analysis

The complexity analysis is reviewed as part of the Prescribed Fire Plan Technical Review process. Every prescribed fire plan must receive a technical review prior to the AA approval. The technical review ensures compliant prescribed fire plan content, as well as an evaluation of the risk and complexity analysis to ensure that the prescribed fire goals and objectives can safely and successfully be achieved. The Technical Reviewer provides concurrence with the calculated final complexity determination and may provide the plan preparer and agency administrator with a recommendation for the final complexity determination.

When technically reviewing the complexity analysis the reviewer should pay attention to how the risk and technical difficulty elements were mitigated in the plan. The Technical Reviewer should ensure adequate mitigation is provided in the prescribed fire plan to justify the pre and post risk ratings.

The Elements Commonalities Table (Appendix B) can be used as a guide. The Technical Reviewer should also ensure that the Technical Difficulty rating for the identified mitigation is appropriate. For qualifications, roles, and responsibilities of the Technical Reviewer and the technical review process, see the *Interagency Prescribed Fire Planning and Implementation Procedures Guide*, PMS 484.

Step 8: Summary and Final Complexity and Rating

On the Summary and Final Complexity Worksheet the calculated rating for each prescribed fire complexity analysis element is shown. The final prescribed fire complexity is manually identified in the Final Complexity Determination box using the drop-down menu. The determination of complexity should be based on the calculated rating, the technical review and an evaluation of how the prescribed fire plan mitigated pre-plan risks to values considering the technical difficulty (complexity) of the required mitigation. Be sure to re-consider the quantity and significance of values identified earlier and shown in the Values box.

The evaluation should be completed after discussion between the AA, local fire management and the prescribed fire plan preparer. If, as a result of the discussion, the AA feels that a higher or lower rating from what is identified in the calculated summary complexity is appropriate and they understand the risks associated with a modified rating, they may make an adjustment and the rationale for the determination is documented in the Final Complexity Determination Rationale cell. If they accept the calculated complexity rating and technical review the determination is documented in the summary rationale box. The rationale will clearly justify the rating for the prescribed fire. At a minimum, complexity analysis elements rated high that cannot be mitigated in the prescribed fire plan must be discussed in the rationale.

The final determination of prescribed fire complexity will be made per agency policy. In most cases the AA is required to make the final determination.

The final complexity determination of high, moderate, or low identifies the required qualification level of a prescribed fire burn boss needed to implement the prescribed fire.

The Summary and Final Complexity Worksheet must be signed and dated by the prescribed fire plan preparer, the technical reviewer, and AA. The signed Summary and Final Complexity Worksheet is

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inserted into the prescribed fire plan as Element 3. On the completed Summary and Final Complexity Worksheet: right click and unprotect worksheet; highlight the entire worksheet area to be copied; right click; click on 'copy'. On the *Prescribed Fire Plan*, Element 3: delete the directions text; right click; choose 'picture' as a paste option; resize as necessary to fit to the page.

An alternate solution is to print the Summary and Final Complexity Worksheet and insert it into the final plan.

The PMS 424-1 Values, Preliminary Risk, Post-Plan Risk, and Post-Plan Technical Difficulty Worksheets are printed and placed as Appendix C in the prescribed fire plan using the same procedures described above.

Retain an electronic copy of the completed worksheet in the electronic file for the project.

Step 9: Agency Administrator Approves the Prescribed Fire Plan

Once the technical review process is complete, the prescribed fire plan preparer and the AA sign the prescribed fire plan per instructions in the *Interagency Prescribed Fire Planning and Implementation Procedures Guide*, PMS 484.

Appendix A. Risk and Technical Difficulty Descriptors

1. Safety

Hazards to personnel and public from planned prescribed fire activities through all phases of the prescribed fire. Safety is always considered for all elements. Safety is also considered in the Risk and Technical Difficulty descriptors of all the elements.

Risk Management

| Low | Moderate | High |
|--|--|--|
| <ul style="list-style-type: none"> • Safety issues and hazards are easily identifiable, addressed in briefings, and managed. • Minimal organization produces little exposure of personnel to hazards. • Adverse impacts to public health and safety are unlikely. • Activities are high frequency/low risk. • Fatigue and exposure to hazards are limited. • Standard safety briefings and attention to Lookouts, Communications, Escape Routes, and Safety Zones (LCES) are sufficient. | <ul style="list-style-type: none"> • 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. | <ul style="list-style-type: none"> • Complex safety issues and significant hazards exist that require special briefings and cautions. • A large organization with multiple branches results in an increase of hazard exposure to personnel. • Adverse impacts to public health and safety are likely without appropriate mitigation. • Several activities are low frequency/high risk. • Fatigue and prolonged exposure to hazards require major consideration and specific mitigation. |

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Technical Difficulty — The degree of skill required by prescribed fire personnel and the relative difficulty of implementing mitigation actions identified in the prescribed fire plan that are directed at minimizing hazards to personnel and the public from environmental or prescribed fire activities through all phases of the prescribed fire.

| Low | Moderate | High |
|---|---|--|
| <ul style="list-style-type: none"> • No special actions are required to mitigate potential minor accidents or injuries identified in the risk assessment/Job Hazard Analysis (JHA). • Safety concerns can be easily mitigated through LCES. • No preparation work or special project design features are required. | <ul style="list-style-type: none"> • 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. | <ul style="list-style-type: none"> • Potential for serious accidents/injuries or multiple accidents/injuries to personnel or public have to be addressed with specific safety briefings. • Unusual number of JHAs or risk assessment elements is required to be analyzed. • A new risk assessment or JHA is required to be developed. • Careful attention to all elements of LCES is required. • Special or unique mitigation efforts are required. • A Safety Officer is recommended. |

2. Fire Behavior

The difficulty of achieving the desired range of fire intensity, rate of spread and flame lengths to meet the prescribed fire objectives.

Risk Management

| Low | Moderate | High |
|---|---|---|
| <ul style="list-style-type: none"> • Terrain is mostly flat or the slope and aspect are uniform, leading to a relatively unvarying fire. • Winds, fuel moisture, microclimate, and other fire conditions are relatively uniform and are not conducive to active fire spread. • Fire behavior is highly predictable. • Fire spread beyond the immediate ignition area(s) is not likely to occur or contribute to any control problems. | <ul style="list-style-type: none"> • 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. | <ul style="list-style-type: none"> • Major variations in the fuel complex are likely to result in more intense fire behavior variations. • Wide variations in fire behavior may present major control challenges. • Terrain encompasses a wide range in slope steepness, abrupt changes in slope, and several directional aspects that lead to widely variable and unpredictable local winds and microclimate differences. • High intensity fire behavior may be expected outside the unit with high rates of spread, torching, possible crown fire runs. • Probability of ignition outside of the unit is high and short and long range spotting can be expected. • Potential fire spread and behavior outside the unit is equal to or greater than inside the unit. |

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Technical Difficulty — What degree of skill is required by prescribed fire personnel for predicting, producing, and sustaining the desired range of fire intensity, rate of spread and flame lengths to meet the prescribed fire objectives? What is the difficulty of maintaining containment of the prescribed fire under required fire behaviors to meet objectives? Are there specific skills or equipment needed for special or unusual ignition devices to produce or sustain desired fire behavior(s) i.e. terra / helitorch, PSD?

| Low | Moderate | High |
|--|---|---|
| <ul style="list-style-type: none"> • Standard fire safety precautions are adequate to ensure personnel safety. • No fire behavior variations are expected and numerous barriers to fire spread exist. • The number, size or likelihood of spot fires and slopovers is minimal and do not require additional suppression resources. • Fire behavior is such that holding forces can easily control possible spot fires and slopovers using direct attack tactics. • No on-site operational fire behavior specialists are required. | <ul style="list-style-type: none"> • 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. | <ul style="list-style-type: none"> • Fire behavior may create unique safety problems or the need for special escape routes or other safety measures. • Fire behavior variations require the use of several fuel models to develop the prescription parameters. • Limited containment opportunities exist. • Fire behavior is such that additional holding resources would be required along with indirect attack tactics. • Systematic fire behavior assessments and calculations are needed by a dedicated skill position. • Fire Behavior Analyst (FBAN) or Long Term Analyst (LTAN) is suggested for short or long duration prescribed fire operations, respectively. • ERTs and SMTs require a strict adherence to the prescription in the Rx plan the extensive contingency planning. |

3. Resistance to Containment

The conditions that influence the potential for a prescribed fire to leave the ignition unit or project area and resist containment efforts.

Risk Management

| Low | Moderate | High |
|---|--|--|
| <ul style="list-style-type: none"> • Ranges from no potential to a likelihood of few mechanisms such as spot fires, slopovers or fire creeping, each comprising small areas that are readily detected, accessed, and controlled by holding resources available on the prescribed fire. • No ladder fuels or concentrations are near critical holding points. • Ignition procedures do not create intense fire behavior. • Probability of ignition in fuels outside the unit is low. • Local drought and or fire danger indices are expected to be low to moderate. | <ul style="list-style-type: none"> • 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. | <ul style="list-style-type: none"> • There is a potential for multiple wildfire mechanisms (spot fires, slopovers, fire creeping etc.) that exceeds the capability of the holding force to detect and suppress. • Fuel concentrations near critical holding points include ladder fuels that challenge holding operations. • Expected fire intensities in the primary fuel type creates potential to challenge standard fire lines. • Probability of ignition in fuels outside the unit is moderate to high. • High dependence on natural fuel breaks to hold the prescribed fire. • Local drought and or fire indices are expected to be high to extreme. |

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Technical Difficulty — The conditions that influence the potential for a prescribed fire to leave the ignition unit or project area and resist containment efforts.

| Low | Moderate | High |
|--|---|--|
| <ul style="list-style-type: none"> • Minimal holding resources are involved in the holding operation. • The burn unit and project area is easily accessible to the holding resources identified in the plan. • Minimal line width required to contain expected fire spread. • Minimal site prep is required. | <ul style="list-style-type: none"> • 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. | <ul style="list-style-type: none"> • Many types of resources are involved in the holding operation. • Several portions of the burn unit and project area are not easily accessible and or some portions are inaccessible to the holding resources. • Expected fire behavior outside the unit requires development of indirect attack plans. • If the prescribed fire leaves the burn unit boundary it will enter a highly restrictive suppression resource area such as wilderness, swamp, unexploded ordinances (UXOs), cultural site that will directly impact on-site holding resource ability to contain the fire. • Extensive site preparation is required. • Expected fire behavior outside of the unit requires extensive contingency planning. |

4. Ignition Procedures/Methods

Number and type of ignition devices, patterns, sequencing and/or timing required to safely ignite the prescribed fire and meet project objectives.

Risk Management

| Low | Moderate | High |
|--|--|---|
| <ul style="list-style-type: none"> • An unexpected or adverse event is unlikely and coordination of firing sequence, patterns and timing is not critical to meet project objectives. • Specific fire intensities or rate of spread (ROS) are not critical for meeting resource objectives. | <ul style="list-style-type: none"> • 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. | <ul style="list-style-type: none"> • Multiple firing devices, firing sequences, patterns, coordination and timing are critical to meet project objectives and reduce the risk of an unexpected adverse event. • Specific fire intensities or ROS are critical for meeting resource objectives. The use of experienced skill sets in supervision and lighting is mandatory for meeting objectives. |

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Technical Difficulty — The skill level(s) of the prescribed fire team to adequately manage the number and type of ignition devices, patterns, sequencing and/or timing required to safely ignite the prescribed fire and meet project objectives.

| Low | Moderate | High |
|--|---|--|
| <ul style="list-style-type: none"> • There is no need for special firing equipment, techniques, or patterns. • Firing procedures are simple and ignition team is small. • Use of only one type of ignition device is planned. • The ignition pattern requires minimal supervision of the lighters to achieve project objectives and manage safety concerns. • Communications are easily maintained with a single tactical frequency. • The entire project area is readily visible to the Firing/Burn Boss. | <ul style="list-style-type: none"> • 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. | <ul style="list-style-type: none"> • The need for multiple special firing equipment or different techniques or firing sequences or patterns has been identified. • Firing procedures are complex and the ignition function may be broken into multiple teams with more than one FIRB is used. • Simultaneous ignitions will occur that require precise timing and communications to insure safety. • Ignition patterns and techniques to manipulate fire behavior are used and require tight control of the lighters to achieve project objectives and manage safety concerns. • Specialized communication equipment and planning (Portable or human repeater) is necessary to direct ignition operations. • More than three tactical frequencies will be used. • Many portions of the project area are not readily visible to the Firing Boss and Burn Boss. |

5. Prescribed Fire Duration

The length of time (hours, days or weeks) that active ignition, fire spread and primary holding operations (critical holding points are secure, transitioning to mop- up and patrol etc.) are expected to occur in order to fully implement the prescribed fire.

Risk Management

| Low | Moderate | High |
|--|--|--|
| <ul style="list-style-type: none"> • Ignition operations should be accomplished within one operational period. • Burn unit is small in size and residual burning is not expected after primary burn out of the unit. • Decrease in seasonal severity is expected. • Short time frame does not require special logistical support. • Mop-up is minimal or none is anticipated/planned. | <ul style="list-style-type: none"> • 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. | <ul style="list-style-type: none"> • Long-term active ignition operations or fire spread is required to meet prescribed fire objectives. • A large amount of residual burning (heavy fuel smoldering, stump holes, etc.) or residual burning over a large area is expected to occur for at least a week after the primary ignition of the unit. • Long term mop-up and patrol with multiple resource types and equipment. • Primary holding phase may exceed reasonably accurate weather predictions. • Prescribed fire depends on accurate weather forecasts beyond over a three-day period. |

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Technical Difficulty — The length of time (hours, days or weeks) that active ignition, fire spread and primary holding operations (critical holding points are secure, transitioning to mop-up and patrol etc.) are expected to occur in order to fully implement the prescribed fire.

| Low | Moderate | High |
|---|--|--|
| <ul style="list-style-type: none"> • Ignition and mop-up operations are usually completed in 1 to 2 operational periods. • Mop-up and patrol is typical with minimal resource and equipment needs. • Standard press release is sufficient for public notification. | <ul style="list-style-type: none"> • 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. | <ul style="list-style-type: none"> • Ignition, mop-up and patrol operations will last longer than 7 days, potentially for weeks. • Management organization will have to be adjusted to account for fire activity. • Multiple resource types and equipment. • Systematic fire behavior assessments and calculations are needed by a dedicated skill position (SOPL, FBAN or LTAN). • Additional dispatch support will be required. • A dedicated PAO will be on-site to field questions from media and public. • MAPs are required that will address how the fire will be managed if unfavorable events occur. • The length of time to complete the project and the size of organization will increase as season progresses. • Close coordination with States Department of Environmental Quality will be needed to ensure that short and long term smoke outputs can be managed and constraints are not exceeded. |

6. Smoke Management

The actions implemented by prescribed fire personnel directed at reducing the amount of smoke entering populated areas or impacting sensitive sites. Includes avoiding significant deterioration of air quality and violations of National Ambient Air Quality Standards (NAAQS), and mitigating human-caused visibility impacts in Class I areas. Reference the NWCG Glossary.

Risk Management

| Low | Moderate | High |
|--|--|--|
| <ul style="list-style-type: none"> • Smoke concerns are generally few or easily mitigated. • Smoke will be short-lived or inconspicuous. • Exposure to smoke by firefighters and the public will be minimal. • Few concerns exist about smoke from nearby communities. | <ul style="list-style-type: none"> • 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. | <ul style="list-style-type: none"> • Conspicuous smoke will be produced creating significant public concern. • The possibility of health and safety issues due to smoke exposure exists. • Strong, widespread social/political concern about smoke is common in the affected area. • High possibility for a NAAQS exceedance violation. • Smoke impacts affect several prescribed fire plan elements. |

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Technical Difficulty — The degree of skill required by prescribed fire personnel and the relative difficulty of implementing the prescribed fire plan actions directed at minimizing the amount of smoke entering populated areas or impacting sensitive sites, avoiding significant deterioration of air quality and violations of NAAQS, and mitigating human-caused visibility impacts in Class I areas.

| Low | Moderate | High |
|--|---|--|
| <ul style="list-style-type: none"> • ERTs and SMTs are simple, routine and straightforward to achieve and will provide desirable smoke management outcomes. • Some limitations may be present in the plan. • Wind and dispersion parameters are not constrained. • No sensitive receptors exist. • Minimal coordination with air quality officials is required. | <ul style="list-style-type: none"> • 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. | <ul style="list-style-type: none"> • Several considerations are needed in the prescribed fire plan in order to balance ERTs and SMTs against prescribed fire objectives. • Must be implemented under multiple specific constraints (specific wind parameters, season, etc.) to prevent impacts to sensitive smoke receptors. • Burn window/opportunities are limited by the required weather/dispersion conditions. • Special coordination with air quality officials is required. • Accelerated mop-up may be planned to reduce smoke impacts. • Some mitigation measures or additional smoke modeling are required to address potential concerns with smoke impacts. • Specific smoke monitoring is required to determine smoke plume heights and directions. . • Forecasts of long term atmospheric stability are required due to duration of the prescribed fire burn. |

7. Number and Dependence of Activities

Number and sequence of activities required to safely implement the prescribed fire and meet objectives through all phases of the project, includes logistics, pre and post burn considerations, communication, test fire, ignition and holding operations, contingency actions (if implemented), mop-up and patrol, monitoring, firefighter and public safety.

Risk Management

| Low | Moderate | High |
|---|---|--|
| <ul style="list-style-type: none"> • Activities are mostly independent from each other. • Coordination of activities is simple and straightforward. • The project does not involve another land management agency or jurisdiction. | <ul style="list-style-type: none"> • 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. | <ul style="list-style-type: none"> • Numerous highly interactive activities are required for project success. • Numerous activities are complex and highly interactive. • High degree of coordination is required to manage prescribed fire implementation. • The project involves other land management agencies or jurisdictions and project completion is dependent on coordinated implementation. • Adjacent lands are excluded due to the lack of support for the prescribed fire treatment. |

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Technical Difficulty — The degree of skill required and the relative difficulty of implementing actions directed at managing and coordinating the number and sequence of activities required to safely implement and meet objectives through all phases of the project. This includes logistics, pre and post burn considerations, communication, test fire, ignition and holding operations, contingency actions (if implemented), mop-up and patrol, monitoring, firefighter and public safety.

| Low | Moderate | High |
|--|--|---|
| <ul style="list-style-type: none"> • Minimal difficulty in coordinating the required activities. • Holding and lighting are loosely dependent on each other. • Coordination problems or communication failures or issues will not affect the completion of the project. • No to very few pre-burn considerations are required. | <ul style="list-style-type: none"> • 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. | <ul style="list-style-type: none"> • Requires a highly skilled team to successfully complete the project. • Continuous coordination and communication is critical to the success of the project. • Requires implementation personnel to be familiar with capabilities of the resources used. • Multiple pre-burn considerations are required to take place before ignition. |

8. Management Organization

The organizational capabilities needed to safely achieve objectives specified in the prescribed fire plan. This includes all phases of the prescribed fire until declared out.

Risk Management

| Low | Moderate | High |
|--|---|--|
| <ul style="list-style-type: none"> • A small number of qualified people are required to implement the prescribed fire. • A single level of supervision is all that is needed (i.e. Burn Boss plus lighters and holders). | <ul style="list-style-type: none"> • 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). | <ul style="list-style-type: none"> • Three levels of supervision may be needed (i.e. Burn Boss, FIRB, Holding Function, plus Squad Leaders and Squads) or multiple teams are needed to cover multiple shifts or a long duration project. • Special skills or supervision required for more than one function (RXB1 suggested). • Large organization increases potential for safety issues. • Considerable pre-burn preparation work is required. |

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Technical Difficulty — What organizational capabilities are needed to safely achieve objectives specified in the prescribed fire plan? This includes all phases of the prescribed fire until declared out.

| Low | Moderate | High |
|---|---|--|
| <ul style="list-style-type: none"> • All team members are available within the local unit and are familiar with local factors affecting project implementation. • Several qualified personnel are available. • The operation is carried out employing a small burn crew. • There is no special pre-burn preparation organization is required. | <ul style="list-style-type: none"> • 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. | <ul style="list-style-type: none"> • Numerous and varied resources require a large team of specialized positions. • The prescribed fire has difficult access, complicated logistics, potentially conflicting objectives, unusual fuel complexes, and is proximate to smoke sensitive/non-attainment areas or wildland urban interface, and/or large scale/long duration. • The Burn Boss and/or two or more primary team members may need to be ordered from outside the local unit and may not be familiar with local factors. • Certain skills and qualified personnel are not available on the local unit. • Protection of values requires the development of special ignition AND holding plans. • Special skills or supervision required for more than one function. An RXB1 is suggested. • Numerous resources required for mop-up and patrol. |

9. Treatment and Resource Objectives

The degree of difficulty to meet specific, measurable, achievable, realistic, time-sensitive prescribed fire treatment and resource objectives for the prescribed fire

Risk Management

| Low | Moderate | High |
|---|---|---|
| <ul style="list-style-type: none"> • Few if any issues are present that hamper meeting treatment resource objectives. • Few or no adverse impacts are expected if resource objectives are not met. • No critical holding points. | <ul style="list-style-type: none"> • 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. | <ul style="list-style-type: none"> • Substantial issues are present that hamper or prevent meeting treatment resource objectives. • Failure to meet objectives may have adverse long term impacts to resources. • Associated resources would be damaged if the prescribed fire did not meet resource objectives. • High intensity fire behavior is required in the unit to meet objectives. • Many critical holding points and considerable pre-burn preparation work is required to meet resource objectives. |

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Technical Difficulty — The degree of difficulty to meet specific, measurable, achievable, realistic, time-sensitive (S.M.A.R.T) prescribed fire treatment and resource objectives. (How big is the ‘just right’ window?)

| Low | Moderate | High |
|--|---|---|
| <ul style="list-style-type: none"> • There are few resource objectives to meet. • Measures to achieve the objectives are easy to complete and there are few or no restrictions on techniques. • There are few or no restrictions on techniques and prescription parameters. • Basic monitoring of fire behavior and weather is needed to determine if prescribed fire objectives are being met. • Many other opportunities will exist to meet objectives in a given year. • Pre-burn site preparation is not required to meet resource objectives. | <ul style="list-style-type: none"> • 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. | <ul style="list-style-type: none"> • There are a high number of resource objectives. • Measures to achieve the objectives are both moderately difficult to highly difficult to achieve and there are restrictions on the techniques. • Extensive monitoring of fire behavior and weather is needed to determine if prescribed fire objectives are being met. • Opportunities to meet objectives are not available every year or may not be achievable without extensive fuels preparation work. • Objectives include changes in several strata of vegetation for ecosystem restoration or hazardous fuels reduction. |

10. Constraints

Conditions or requirements that restrict or limit (place sideboards on) prescribed fire implementation. Example: Seasonal timing, logistical restrictions, smoke management, restrictions at national preparedness levels four and five, etc.

Risk Management

| Low | Moderate | High |
|---|--|---|
| <ul style="list-style-type: none"> Constraints exist with little impact on implementing the prescribed fire or achieving objectives. | <ul style="list-style-type: none"> Constraints exist with some constraints imposing limits on implementing the prescribed fire or achieving objectives. | <ul style="list-style-type: none"> Significant and/or competing constraints exist and impose limits on implementing the prescribed fire or achieving objectives. |

Technical Difficulty— Assesses the level of skills required to adequately plan for and safely execute the prescribed fire within identified constraints while still achieving desired objectives.

| Low | Moderate | High |
|--|---|---|
| <ul style="list-style-type: none"> Constraints are easily accommodated and do not increase the difficulty of completing the project or achieving objectives. Required weather and fuel conditions are locally very common. | <ul style="list-style-type: none"> 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. | <ul style="list-style-type: none"> Constraints are hard to accommodate and significantly increase the difficulty of completing the project or achieving objectives. Windows of opportunity or conditions within prescribed parameters rarely occur in the project area. The length of time to complete the project and the size of organization will need to be increased and project feasibility may be in doubt. |

11. Project Logistics

Facilities, services and supplies required to support all phases of the prescribed fire (includes access complexity).

Risk Management

| Low | Moderate | High |
|--|--|--|
| <ul style="list-style-type: none"> • Minimal logistical support is needed to safely meet prescribed fire objectives. • No special equipment, support or communications needs are required. | <ul style="list-style-type: none"> • 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. | <ul style="list-style-type: none"> • Extensive dedicated logistical support through most phases of the prescribed fire is required to safely meet project objectives. • Large amount of equipment or a communications network is needed that require intensive logistical support. |

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Technical Difficulty — The difficulty and skill required to obtain all required facilities, services and supplies to support all phases of the prescribed fire (includes access into and out of project area).

| Low | Moderate | High |
|---|---|--|
| <ul style="list-style-type: none"> • No specific logistic function is required and the local unit will handle their own support needs. • Project is nearby and easily accessible. • Local cache can supply the needs of the prescribed fire. | <ul style="list-style-type: none"> • 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. • Project duration may require a resupply to ensure successful remote prescribed fire implementation. • Support for meals, sanitation and camping sites may be required to complete the project. • Project is remote with long travel periods. | <ul style="list-style-type: none"> • Project implementation requires a large logistical support operation. • Separate logistical functions or a logistics team is required. • Obtaining the necessary personnel requires at least some additional contacts and does require careful scheduling. • Additional support will be needed for out-of-area personnel. • Scarce supplies/equipment requires extra lead-time to procure. • Support of meals, sanitation and camping sites are required in order to objectives. • Remote locations difficult to access or inaccessible to vehicles. |

Appendix B. Complexity Analysis and Prescribed Fire (RX) Plan Elements Commonalities Example

This crosswalk provides examples of common linkages between the complexity analysis and the prescribed fire plan elements. The crosswalk can be used as a tool to ensure elements rated in the complexity analysis are addressed in the prescribed fire plan. Each individual prescribed fire plan may have slightly different linkages.

RX Fire Plan Elements

| Complexity Guide Elements | 1 Signature Page | 2a AA Ignition Authorization | 2b RX Go/No Go | 3 Complexity Analysis Summary | 4 Description of RX Fire Area | 5 Objectives | 6 Funding | 7 Prescription | 8 Scheduling | 9 Pre-burn considerations and weather | 10 Briefing | 11 Organization and Equipment | 12 Communication | 13 Public and Personnel Safety, medical | 14 Test Fire | 15 Ignition Plan | 16 Holding Plan | 17 Contingency Plan | 18 Wildfire declaration | 19 Smoke Management and Air Quality | 20 Monitoring | 21 Post Burn Activities |
|---|---------------------|---------------------------------|-------------------|----------------------------------|----------------------------------|-----------------|--------------|-------------------|-----------------|--|----------------|----------------------------------|---------------------|--|-----------------|---------------------|--------------------|------------------------|----------------------------|--|------------------|----------------------------|
| 1. Off-Site Values | | | | | H | H | | M | L | H | H | L | | H | | M | H | H | | M | | |
| 2. On-Site Values | | | | | H | H | | H | M | H | H | L | | H | | H | H | H | | | H | |
| 3. Public and Political Interest | | | | | H | M | | L | L | H | | L | H | H | | L | H | H | | H | L | |
| 4. Safety | | | | | L | M | | H | M | H | H | H | H | H | L | H | H | H | | H | L | |
| 5. Fire Behavior | | | | | H | H | | H | H | H | H | H | H | H | H | H | H | H | H | M | M | |
| 6. Resistance to Containment | | | | | M | L | | H | M | L | | H | L | M | H | L | H | H | H | L | L | |
| 7. Ignition Procedures/ Methods | | | | | L | M | | H | L | H | M | H | L | M | L | H | L | L | | M | L | |
| 8. Prescribed Fire Duration | | | | | L | M | | M | L | H | | H | M | M | L | L | H | H | H | H | L | |
| 9. Smoke Management | | | | | M | L | | H | M | H | M | L | M | H | H | H | H | M | | H | H | |
| 10. Number and Dependence of Activities | | | | | L | L | | H | M | H | | H | L | L | L | H | H | L | | L | L | |
| 11. Management Organization | | | | | L | L | | H | L | H | M | H | L | L | L | H | H | M | | L | L | |
| 12. Treatment/ Resource Objectives | | | | | L | H | | H | H | M | | L | L | L | H | H | L | L | | M | H | |
| 13. Constraints | | | | | L | H | | H | H | H | | L | L | L | L | H | H | L | | M | M | |
| 14. Logistics | | | | | L | L | | L | M | H | | H | L | L | L | H | H | M | | L | L | |

* The degree of interaction between the Prescribed Fire Burn Plan and the Complexity Analysis (in most cases) is assessed as Low (L), Moderate (M) or High (H). Blank boxes indicate elements that would generally not require a complexity element rating.

The Prescribed Fire Complexity Rating System Guide is developed and maintained by the Fuels Management Committee, an entity of the National Wildfire Coordinating Group (NWCG).

Previous editions: 2015, 2004, 1995.

While they may still contain current or useful information, previous editions are obsolete. The user of this information is responsible for confirming that they have the most up-to-date version. NWCG is the sole source for this publication.

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NWCG 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.

The Summary and Final Complexity tab is inserted as Element 3 into the Prescribed Fire Plan. The Values, Preliminary Risk, Post-Plan Risk, and Post-Plan Technical Difficult tabs become Appendix C of the Prescribed Fire Plan.

Print Instructions

There are several ways to insert the Summary and Final Complexity sheet into the Prescribed Fire Plan. The following options are possible with standard software such as Adobe Reader and Microsoft Word.

1. PDF: Save documents as PDFs and use the Organize Pages option to insert Element 3 and Appendix C in the appropriate locations. Utilize Fill & Sign option for signatures.
2. Hard Copy: Print all documents and arrange appropriately. Route for hand signature.
3. Image: Save Summary and Final Complexity tab as PDF then export to Image. Under Element 3 in the Prescribed Fire Plan, insert image. Resize as necessary to fit to page. **OR** Highlight content of Summary and Final Complexity tab and copy. In Prescribed Fire Plan, right click where content will be inserted under Element 3 and choose Paste as Picture. Resize as necessary to fit to page. When inserting as an image, either apply a signature to the Excel file first or route for signature as a hard copy.

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| Type the Prescribed Fire Plan Name Here | | Quantity | Significance | Values Description: Describe the identified off-site, on-site, and political values |
|---|---------------------------|----------|--------------|--|
| V a l u e s | On-Site | None | Low | |
| | Off-Site | Multiple | Mod | |
| | Public/Political Interest | Few | High | |

| Element | Preliminary Risk | Risk Rating Descriptors | Agency Administrator/ Preparer Discussion Completed |
|---------------------------------|------------------|---|--|
| Safety | Low | <ul style="list-style-type: none"> • Safety issues and hazards are easily identifiable, addressed in briefings, and managed. • Minimal organization produces little exposure of personnel to hazards. • Adverse impacts to public health and safety are unlikely. • Activities are high frequency/low risk. • Fatigue and exposure to hazards are limited. • Standard safety briefings and attention to Lookouts, Communications, Escape Routes, and Safety Zones (LCES) are sufficient. <p>NOTE: Empty cells will autofit to contents. TIP: Use Alt+Enter to go to a new line in the cell.</p> | No |
| Fire Behavior | Low | <ul style="list-style-type: none"> • Terrain is mostly flat or the slope and aspect are uniform, leading to a relatively unvarying fire. • Winds, fuel moisture, microclimate, and other fire conditions are relatively uniform and are not conducive to active fire spread. • Fire behavior is highly predictable. • Fire spread beyond the immediate ignition area(s) is not likely to occur or contribute to any control problems. | No |
| Resistance to Containment | Low | <ul style="list-style-type: none"> • Ranges from no potential to a likelihood of few mechanisms such as spot fires, slopovers or fire creeping, each comprising small areas that are readily detected, accessed, and controlled by holding resources available on the prescribed fire. • No ladder fuels or concentrations are near critical holding points. • Ignition procedures do not create intense fire behavior. • Probability of ignition in fuels outside the unit is low. • Local drought and or fire danger indices are expected to be low to moderate. | No |
| Ignition Procedures and Methods | Low | <ul style="list-style-type: none"> • An unexpected or adverse event is unlikely and coordination of firing sequence, patterns and timing is not critical to meet project objectives. • Specific fire intensities or rate of spread (ROS) are not critical for meeting resource objectives. | No |

| Element | Preliminary Risk | Risk Rating Descriptors | Agency Administrator/ Preparer Discussion Completed |
|--|------------------|--|--|
| Prescribed Fire Duration | Low | <ul style="list-style-type: none"> • Ignition operations should be accomplished within one operational period. • Burn unit is small in size and residual burning is not expected after primary burn out of the unit. • Decrease in seasonal severity is expected. • Short time frame does not require special logistical support. • Mop-up is minimal or none is anticipated/planned. | No |
| Smoke Management | Low | <ul style="list-style-type: none"> • Smoke concerns are generally few or easily mitigated. • Smoke will be short-lived or inconspicuous. • Exposure to smoke by firefighters and the public will be minimal. • Few concerns exist about smoke from nearby communities. | No |
| Number and Dependence of Activities | Low | <ul style="list-style-type: none"> • Activities are mostly independent from each other. • Coordination of activities is simple and straightforward. • The project does not involve another land management agency or jurisdiction. | No |
| Management Organization | Low | <ul style="list-style-type: none"> • A small number of qualified people are required to implement the prescribed fire. • A single level of supervision is all that is needed (i.e. Burn Boss plus lighters and holders). | No |
| Treatment/ Resource Objectives | Low | <ul style="list-style-type: none"> • Few if any issues are present that hamper meeting treatment resource objectives. • Few or no adverse impacts are expected if resource objectives are not met. • No critical holding points. | No |
| Constraints | Low | <ul style="list-style-type: none"> • Constraints exist with little impact on implementing the prescribed fire or achieving objectives. | No |
| Project Logistics | Low | <ul style="list-style-type: none"> • Minimal logistical support is needed to safely meet prescribed fire objectives. • No special equipment, support or communications needs are required. | No |

ITEM 5.4 ATTACHMENT 1

| Element | Preliminary Risk | Post-Plan Risk | Risk Rating Decriptors | Elements and Actions in the Prescribed Fire Plan that Address Risk Mitigation |
|---------------|------------------|----------------|---|---|
| Safety | Low | High | <ul style="list-style-type: none"> • Complex safety issues and significant hazards exist that require special briefings and cautions. • A large organization with multiple branches results in an increase of hazard exposure to personnel. • Adverse impacts to public health and safety are likely without appropriate mitigation. • Several activities are low frequency/high risk. • Fatigue and prolonged exposure to hazards require major consideration and specific mitigation. <p>NOTE: Empty cells will autofit to contents. TIP: Use Alt+Enter to go to a new line in the cell.</p> | Free Text |
| Fire Behavior | Low | High | <ul style="list-style-type: none"> • Major variations in the fuel complex are likely to result in more intense fire behavior variations. • Wide variations in fire behavior may present major control challenges. • Terrain encompasses a wide range in slope steepness, abrupt changes in slope, and several directional aspects that lead to widely variable and unpredictable local winds and microclimate differences. • High intensity fire behavior may be expected outside the unit with high rates of spread, torching, possible crown fire runs. • Probability of ignition outside of the unit is high and short and long range spotting can be expected. • Potential fire spread and behavior outside the unit is equal to or greater than inside the unit. | Free Text |

ITEM 5.4 ATTACHMENT 1

| Element | Preliminary Risk | Post-Plan Risk | Risk Rating Descriptors | Elements and Actions in the Prescribed Fire Plan that Address Risk Mitigation |
|---------------------------------|------------------|----------------|--|---|
| Resistance to Containment | Low | High | <ul style="list-style-type: none"> • There is a potential for multiple wildfire mechanisms (spot fires, slopovers, fire creeping etc.) that exceeds the capability of the holding force to detect and suppress. • Fuel concentrations near critical holding points include ladder fuels that challenge holding operations. • Expected fire intensities in the primary fuel type creates potential to challenge standard fire lines. • Probability of ignition in fuels outside the unit is moderate to high. • High dependence on natural fuel breaks to hold the prescribed fire. • Local drought and or fire indices are expected to be high to extreme. | Free Text |
| Ignition Procedures and Methods | Low | High | <ul style="list-style-type: none"> • Multiple firing devices, firing sequences, patterns, coordination and timing are critical to meet project objectives and reduce the risk of an unexpected adverse event. • Specific fire intensities or ROS are critical for meeting resource objectives. The use of experienced skill sets in supervision and lighting is mandatory for meeting objectives. | Free Text |

ITEM 5.4 ATTACHMENT 1

| Element | Preliminary Risk | Post-Plan Risk | Risk Rating Decriptors | Elements and Actions in the Prescribed Fire Plan that Address Risk Mitigation |
|-------------------------------------|------------------|----------------|--|---|
| Prescribed Fire Duration | Low | High | <ul style="list-style-type: none"> • Long-term active ignition operations or fire spread is required to meet prescribed fire objectives. • A large amount of residual burning (heavy fuel smoldering, stump holes, etc.) or residual burning over a large area is expected to occur for at least a week after the primary ignition of the unit. • Long term mop-up and patrol with multiple resource types and equipment. • Primary holding phase may exceed reasonably accurate weather predictions. • Prescribed fire depends on accurate weather forecasts beyond over a three-day period. | Free Text |
| Smoke Management | Low | High | <ul style="list-style-type: none"> • Conspicuous smoke will be produced creating significant public concern. • The possibility of health and safety issues due to smoke exposure exists. • Strong, widespread social/political concern about smoke is common in the affected area. • High possibility for a NAAQS exceedance violation. • Smoke impacts affect several prescribed fire plan elements. | Free Text |
| Number and Dependence of Activities | Low | High | <ul style="list-style-type: none"> • Numerous highly interactive activities are required for project success. • Numerous activities are complex and highly interactive. • High degree of coordination is required to manage prescribed fire implementation. • The project involves other land management agencies or jurisdictions and project completion is dependent on coordinated implementation. • Adjacent lands are excluded due to the lack of support for the prescribed fire treatment. | Free Text |

ITEM 5.4 ATTACHMENT 1

| Element | Preliminary Risk | Post-Plan Risk | Risk Rating Descriptors | Elements and Actions in the Prescribed Fire Plan that Address Risk Mitigation |
|--------------------------------|------------------|----------------|---|---|
| Management Organization | Low | High | <ul style="list-style-type: none"> • Three levels of supervision may be needed (i.e. Burn Boss, FIRB, Holding Function, plus Squad Leaders and Squads) or multiple teams are needed to cover multiple shifts or a long duration project. • Special skills or supervision required for more than one function (RXB1 suggested). • Large organization increases potential for safety issues. • Considerable pre-burn preparation work is required. | Free Text |
| Treatment/ Resource Objectives | Low | High | <ul style="list-style-type: none"> • Substantial issues are present that hamper or prevent meeting treatment resource objectives. • Failure to meet objectives may have adverse long term impacts to resources. • Associated resources would be damaged if the prescribed fire did not meet resource objectives. • High intensity fire behavior is required in the unit to meet objectives. • Many critical holding points and considerable pre-burn preparation work is required to meet resource objectives. | Free Text |
| Constraints | Low | High | <ul style="list-style-type: none"> • Significant and/or competing constraints exist and impose limits on implementing the prescribed fire or achieving objectives. | Free Text |
| Project Logistics | Low | High | <ul style="list-style-type: none"> • Extensive dedicated logistical support through most phases of the prescribed fire is required to safely meet project objectives. • Large amount of equipment or a communications network is needed that require intensive logistical support. | Free Text |

ITEM 5.4 ATTACHMENT 1

| Element | Post-Plan Risk | Technical Difficulty | Rating Descriptors |
|---------------------------------|----------------|----------------------|--|
| Safety | High | Low | <ul style="list-style-type: none"> • No special actions are required to mitigate potential minor accidents or injuries identified in the risk assessment/Job Hazard Analysis (JHA). • Safety concerns can be easily mitigated through LCES. • No preparation work or special project design features are required. <p>NOTE: Empty cells will autofit to contents. TIP: Use Alt+Enter to go to a new line in the cell.</p> |
| Fire Behavior | High | Low | <ul style="list-style-type: none"> • Standard fire safety precautions are adequate to ensure personnel safety. • No fire behavior variations are expected and numerous barriers to fire spread exist. • The number, size or likelihood of spot fires and slopovers is minimal and do not require additional suppression resources. • Fire behavior is such that holding forces can easily control possible spot fires and slopovers using direct attack tactics. • No on-site operational fire behavior specialists are required. |
| Resistance to Containment | High | Low | <ul style="list-style-type: none"> • Minimal holding resources are involved in the holding operation. • The burn unit and project area is easily accessible to the holding resources identified in the plan. • Minimal line width required to contain expected fire spread. • Minimal site prep is required. |
| Ignition Procedures and Methods | High | Low | <ul style="list-style-type: none"> • There is no need for special firing equipment, techniques, or patterns. • Firing procedures are simple and ignition team is small. • Use of only one type of ignition device is planned. • The ignition pattern requires minimal supervision of the lighters to achieve project objectives and manage safety concerns. • Communications are easily maintained with a single tactical frequency. • The entire project area is readily visible to the Firing/Burn Boss. |

ITEM 5.4 ATTACHMENT 1

| Element | Post-Plan Risk | Technical Difficulty | Rating Descriptors |
|-------------------------------------|----------------|----------------------|--|
| Prescribed Fire Duration | High | Low | <ul style="list-style-type: none"> • Ignition and mop-up operations are usually completed in 1 to 2 operational periods. • Mop-up and patrol is typical with minimal resource and equipment needs. • Standard press release is sufficient for public notification. |
| Smoke Management | High | Low | <ul style="list-style-type: none"> • ERTs and SMTs are simple, routine and straightforward to achieve and will provide desirable smoke management outcomes. • Some limitations may be present in the plan. • Wind and dispersion parameters are not constrained. • No sensitive receptors exist. • Minimal coordination with air quality officials is required. |
| Number and Dependence of Activities | High | Low | <ul style="list-style-type: none"> • Minimal difficulty in coordinating the required activities. • Holding and lighting are loosely dependent on each other. • Coordination problems or communication failures or issues will not affect the completion of the project. • No to very few pre-burn considerations are required. |
| Management Organization | High | Low | <ul style="list-style-type: none"> • All team members are available within the local unit and are familiar with local factors affecting project implementation. • Several qualified personnel are available. • The operation is carried out employing a small burn crew. • There is no special pre-burn preparation organization is required. |

ITEM 5.4 ATTACHMENT 1

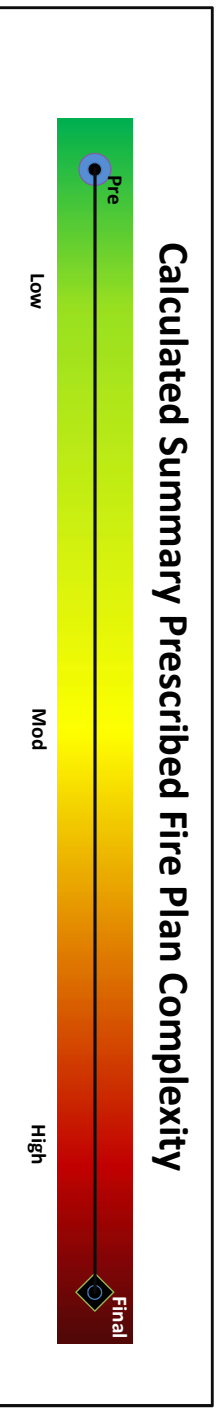
| Element | Post-Plan Risk | Technical Difficulty | Rating Descriptors |
|-----------------------------------|----------------|----------------------|--|
| Treatment/ Resource Objectives | High | Low | <ul style="list-style-type: none"> • There are few resource objectives to meet. • Measures to achieve the objectives are easy to complete and there are few or no restrictions on techniques. • There are few or no restrictions on techniques and prescription parameters. • Basic monitoring of fire behavior and weather is needed to determine if prescribed fire objectives are being met. • Many other opportunities will exist to meet objectives in a given year. • Pre-burn site preparation is not required to meet resource objectives. |
| Constraints | High | Low | <ul style="list-style-type: none"> • Constraints are easily accommodated and do not increase the difficulty of completing the project or achieving objectives. • Required weather and fuel conditions are locally very common. |
| Project Logistics | High | Low | <ul style="list-style-type: none"> • No specific logistic function is required and the local unit will handle their own support needs. • Project is nearby and easily accessible. • Local cache can supply the needs of the prescribed fire. |

ITEM 5.4 - ATTACHMENT 1 NWCG Prescribed Fire Summary and Final Complexity Worksheet, PMS 424-1



| Type the Prescribed | | Quantity | Significance |
|---------------------|---------------------------|----------|--------------|
| Values | On-Site | None | Low |
| | Off-Site | Multiple | Mod |
| | Public/Political Interest | Few | High |

| Element | Preliminary Risk | Post-Plan Risk | Technical Difficulty | Calculated Rating |
|-------------------|------------------|----------------|----------------------|-------------------|
| Safety | Low | High | Low | High |
| Fire Behavior | Low | High | Low | High |
| Containment | Low | High | Low | High |
| Methods | Low | High | Low | High |
| Duration | Low | High | Low | High |
| Smoke Management | Low | High | Low | High |
| Dependence of | Low | High | Low | High |
| Organization | Low | High | Low | High |
| Objectives | Low | High | Low | High |
| Constraints | Low | High | Low | High |
| Project Logistics | Low | High | Low | High |



| Final Complexity Determination | Final Complexity Determination Rationale |
|--------------------------------|---|
| Low | This is a free-flow text box where the prescribed fire plan preparator and Agency Administrator document the rationale for determining the prescribed fire complexity. The rationale will clearly justify the rating for the prescribed fire. At a minimum, it must discuss complexity analysis elements rated high that cannot be mitigated in the prescribed fire plan. |

| Signatures | |
|--|--|
| Rx Burn Plan Preparer's Name _____ Technical Reviewer's Name _____ Agency Administrator's Name _____ | Preparer's Signature _____ Technical Reviewer's Signature _____ Agency Administrator's Signature _____ |
| Date _____ | Date _____ |
| Date _____ | Date _____ |

A publication of the
**National Wildfire
Coordinating Group**



NWCG Prescribed Fire Plan Template

PMS 484-1

MARCH 2018

NWCG Prescribed Fire Plan Template

March 2018
PMS 484-1

The *NWCG Prescribed Fire Plan Template* is supplemental to the *Interagency Prescribed Fire Planning and Implementation Guide*, PMS 484. The plan is the site-specific legal implementation document that provides the agency administrator the information needed to approve the prescribed fire plan and the prescribed fire burn boss the information needed to implement the prescribed fire plan.

The *Interagency Prescribed Fire Planning and Implementation Procedures Guide*, PMS 484, establishes national interagency standards for the planning and implementation of prescribed fire. The guide is available at: <https://www.nwcg.gov/publications/484>.

The National Wildfire Coordinating Group (NWCG) provides national leadership to enable interoperable wildland fire operations among federal, state, tribal, territorial, and local partners. NWCG operations standards are interagency by design; they are developed with the intent of universal adoption by the member agencies. However, the decision to adopt and utilize them is made independently by the individual member agencies and communicated through their respective directives systems. PAGE - 107

Prescribed Fire Name: _____

**ITEM 5 APPENDIX C
ELEMENT 1**

Ignition Unit Name: _____

Element 1: Signature Page

PRESCRIBED FIRE PLAN

ADMINISTRATIVE UNIT NAME(S): _____

PRESCRIBED FIRE NAME:

Prescribed Fire Unit (Ignition Unit): _____

PREPARED BY:

Name (print): _____ Qualification/Currency: _____

Signature: _____ Date: _____

TECHNICAL REVIEW BY:

Name (print): _____ Qualification/Currency: _____

Signature: _____ Date: _____

COMPLEXITY RATING: _____

MINIMUM BURN BOSS QUALIFICATION: _____

APPROVED BY:

Name – Agency Administrator (print): _____

Signature – Agency Administrator: _____ Date: _____

Prescribed Fire Name: _____

ITEM 5 APPENDIX A - ITEM 1

Ignition Unit Name: _____

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? <i>Such as drought or other climate indicators of increased risk, insect activity, new subdivisions/structures, smoke requirements, Complexity Analysis Rating.</i> |
| B. Have compliance requirements and pre-burn considerations been completed? <i>Such as preparation work, NEPA mitigation requirements, cultural, threatened and endangered species, smoke permits, state burn permits/authorizations.</i> |
| C. Can all of the elements and conditions specified in Prescribed Fire Plan be met? <i>Such as weather, scheduling, smoke management conditions, suitable prescription window, correct season, staffing and organization, safety considerations, etc.</i> |
| 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? <i>Such as preparedness level restrictions, resource availability, other prescribed fire or wildfire activity</i> |
| 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: _____

ITEM 5 APPENDIX A DOCUMENT 1

Ignition Unit Name: _____

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: _____

Prescribed Fire Name: _____

ITEM 5 APPENDIX C
ATTACHMENT 1

Ignition Unit Name: _____

Element 3: Complexity Analysis Summary and Final Complexity

Replace this page with the signed:
Summary and Final Complexity Worksheet
PMS 424-1

The worksheet is a separate file that needs to be copied and pasted from *Summary and Final Complexity Worksheet*, PMS 424-1. On the completed worksheet; highlight the entire worksheet area to be copied, right click, click on 'copy'. On this page, delete this text, right click, choose 'picture' as a paste option, and resize as necessary to fit to page.

An alternate solution is to print the *Summary and Final Complexity Worksheet*, 424-1, and insert into the final plan.

Prescribed Fire Name: _____

ITEM 5 APPENDIX C ELEMENT 1

Ignition Unit Name: _____

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

Element 4: Description of Prescribed Fire Area

A. Physical Description

1. Location:
2. Size:
3. Topography:
4. Project area:
5. Ignition units:

B. Vegetation/Fuels Description:

1. On-site fuels data:
2. Adjacent fuels data:
3. Percent of vegetative type and fuels model(s):

C. Description of Unique Features, Natural Resources, Values:

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: _____

**ITEM 5 APPENDIX C
ELEMENT 1**

Ignition Unit Name: _____

Element 5: Objectives

A. Resource Objectives:

B. Prescribed Fire Objectives:

Element 6: Funding

A. Cost:

B. Funding Source:

Element 7: Prescription

A. Prescription Narrative:

1. Describe how fire behavior will meet objectives

B. Prescription Parameters:

1. Environmental or fire behavior (or both)
2. Fire Modeling or empirical documentation (or both)

Element 8: Scheduling

A. Implementation Schedule:

1. Ignition Time Frames or Season(s) (or both)

B. Projected Duration:

C. Constraints:

Prescribed Fire Name: _____

ITEM 5 APPENDIX C

Ignition Unit Name: _____

Element 9: Pre-burn Considerations and Weather

A. Considerations:

1. On-site

2. Off-site

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

C. Notifications:

Element 10: Briefing

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

- Burn organization and assignments
- Prescribed Fire objectives and prescription
- Description of prescribed fire project area
- Expected weather and fire behavior
- Communications
- Ignition plan
- Holding plan
- Contingency plan and assignments
- Wildfire declaration
- Safety and medical plan
- Aerial ignition briefing (if aerial ignition devices will be used)

Element 11: Organization and Equipment

A. Positions:

B. Equipment:

C. Supplies:

Element 12: Communication

A. Radio Frequencies:

1. Command frequency(ies):
2. Tactical frequency(ies):
3. Air operations frequency(ies):

B. Telephone Numbers:

Element 13: Public and Personnel Safety, Medical

A. Safety Hazards:

B. Mitigation: Measures Taken to Reduce the Hazards:

C. Emergency Medical Procedures:

D. Emergency Evacuation Methods:

E. Emergency Facilities:

Element 14: Test Fire

A. Planned Location:

B. Test Fire Documentation:

1. Weather conditions on-site
2. Test fire results

Element 15: Ignition Plan

A. Firing Methods:

1. Techniques, sequences and patterns

B. Devices:

C. Minimum Ignition Staffing:

Element 16: Holding Plan

A. General Procedures for Holding:

B. Critical Holding Points and Actions:

C. Minimum Organization or Capabilities Needed:

Element 17: Contingency Plan

Management Action Points or Limits:

(Optional MAP Table Format)

| Management Action Point– Documentation Element | Management Action Point Narrative |
|---|-----------------------------------|
| Designator and Description: | |
| Condition: | |
| Management Intent: | |
| Recommended Action(s) to Consider: | |
| Recommended Resources: | |
| Time Frame: | |
| Describe the consequences of not taking the recommended action(s) (Optional): | |
| Responsibility: | |
| Date Each Action is Initiated (Optional): | |

(if you need to include more MAPs, copy and paste the above template)

B. Actions Needed:

C. Minimum Contingency Resources and Maximum Response Time(s):

Prescribed Fire Name: _____

ITEM 5 APPENDIX C
ATTACHMENT 1

Ignition Unit Name: _____

Element 18: Wildfire Declaration

A. Wildfire Declared By:

B. IC Assignment:

C. Notifications:

D. Extended Attack Actions and Opportunities to Aid in Fire Suppression (Optional):

Element 19: Smoke Management and Air Quality

A. Compliance:

B. Permits to be Obtained:

C. Smoke-Sensitive Receptors:

D. Potential Impacted Areas:

E. Mitigation Strategies and Techniques to Reduce Smoke Impacts:

Prescribed Fire Name: _____

**ITEM 5 APPENDIX C
ELEMENT 1**

Ignition Unit Name: _____

Element 20: Monitoring

A. Fuels Information Required and Procedures:

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

C. Fire Behavior Monitoring Required and Procedures:

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

E. Smoke Dispersal Monitoring Required and Procedures:

Element 21: Post-burn Activities

A. Post-Burn Activities that must be Completed:

Prescribed Fire Name: _____

ITEM 5 APPENDIX 1

Ignition Unit Name: _____

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: Agency-Specific Job Hazard Analysis or Risk Assessment

Appendix E: Fire Behavior Modeling Documentation or Empirical Documentation

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

Prescribed Fire Name: _____

ITEM 5 APPENDIX A

Ignition Unit Name: _____

Appendix A: Vicinity Map

Insert your vicinity maps 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: _____

ITEM 5 APPENDIX A

Ignition Unit Name: _____

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: _____

ITEM 5 APPENDIX 1

Ignition Unit Name: _____

Appendix A: Optional Maps (Fuels, Significant or Sensitive Features/Values, Smoke Receptors, etc.)

Insert your significant or sensitive values and or feature 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: _____

ITEM 5 APPENDIX 1

Ignition Unit Name: _____

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.

Prescribed Fire Name: _____

ITEM 5 APPENDIX 1

Ignition Unit Name: _____

Appendix A: Smoke Impact Areas: (Optional) Maps

Insert your significant or sensitive feature 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: _____

ITEM 5 APPENDIX B

Ignition Unit Name: _____

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 | | |
| 2. A. Agency Administrator Ignition Authorization | | |
| 2. B. Prescribed Fire GO/NO-GO Checklist | | |
| 3. Complexity Analysis Summary | | |
| 4. Description of Prescribed Fire Area | | |
| 5. Objectives | | |
| 6. Funding | | |
| 7. Prescription: Prescription Narrative and Prescription Parameters | | |
| 8. Scheduling | | |
| 9. Pre-Burn Considerations and Weather | | |
| 10. Briefing | | |
| 11. Organization and Equipment | | |
| 12. Communication | | |
| 13. Public and Personnel Safety, Medical | | |
| 14. Test Fire | | |
| 15. Ignition Plan | | |
| 16. Holding Plan | | |
| 17. Contingency Plan | | |
| 18. Wildfire Declaration | | |
| 19. Smoke Management and Air Quality | | |
| 20. Monitoring | | |
| 21. Post-Burn Activities | | |
| Appendix A: Maps | | |
| Appendix C: Complexity Analysis | | |
| Appendix D: Agency-Specific Job Hazard Analysis or Risk Assessment | | |
| Appendix E: Fire Behavior Modeling Documentation or Empirical Documentation | | |
| Appendix F: Smoke Management Plan and Smoke Modeling Documentation (Optional) | | |
| Other | | |

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: _____

Qualification and Currency: _____

Date Signed: _____

Prescribed Fire Name: _____

ITEM 5 APPENDIX C

Ignition Unit Name: _____

Appendix C: Complexity Analysis

Please refer to Element 3: Complexity Analysis Summary in the *Interagency Prescribed Fire Planning and Implementation Procedures Guide*, PMS 484, and the procedures in the *Prescribed Fire Complexity Analysis Rating System Guide*, PMS 424, to fill out this appendix.

Prescribed Fire Name: _____

ITEM 5 APPENDIX D

Ignition Unit Name: _____

Appendix D: Agency-Specific Job Hazard Analysis or Risk Assessment

Please refer to your specific agency guidance to fill out this appendix.

Prescribed Fire Name: _____

ITEM 5 APPENDIX 1

Ignition Unit Name: _____

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.

Prescribed Fire Name: _____

ITEM 5 APPENDIX 1

Ignition Unit Name: _____

Appendix F: Smoke Management Plan and Smoke Modeling Documentation

(OPTIONAL)

Refer to the *NWCG Smoke Management Guide for Prescribed Fire*, PMS 420-2, and Appendix A. Basic Smoke Management Practices in the *Interagency Prescribed Fire Planning and Implementation Procedures Guide*, PMS 484, to fill out this appendix.

The *NWCG Prescribed Fire Plan Template* is developed and maintained by the Fire Use Subcommittee (FUS), under the direction of the Fuels Management Committee (FMC), an entity of the National Wildfire Coordinating Group (NWCG).

Previous editions: 2014.

While they may still contain current or useful information, previous editions are obsolete. The user of this information is responsible for confirming that they have the most up-to-date version. NWCG is the sole source for the publication.

This publication is available electronically at: <https://www.nwcg.gov/publications/484-1>.

Comments or questions regarding the plan should be directed to the appropriate agency representative on the FUS. The roster is available at: <https://www.nwcg.gov/committees/fire-use-subcommittee/roster>.

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California Standard Prescribed Burn Plan



Project Title: Bidwell Park Burn Plan
Prescribed Fire Burn Boss (CARX): NWCG Qualified Burn Boss Type 2 (RXB2)
Author of Plan: Ben Jacobs, NWCG Qualified Burn Boss Type 1 (RXB1)
Agency Having Jurisdiction (AHJ): City of Chico
Property Owner: City of Chico
Date Completed: March 15, 2021

1. Project Area Description

Location and Unit Description: The prescribed burn units are located in Bidwell Park in the City of Chico, Butte County, California. Bidwell Park lies within and east of the city limits. There are seven individual units making up this project. Most of the units are located in the Middle or Upper Parks. Total combined area is 209.3 acres for all units.

The predominant overstory species consist of valley oak (*Quercus lobate*), blue oak (*Q. douglasii*), interior live oak (*Q. wislizeni*), canyon live oak (*Q. chrysolepis*) and gray pine (*Pinus sabiniana*). There may some western sycamore (*Platanus racemosa*) and willows (*Salix spp*) in nearby riparian areas. Shrub species are predominantly buckbrush (*Ceanothus cuneatus*) and poison oak (*Toxicodendron diversilobum*) with small amounts of coffeeberry (*Rhamnus californica*), elderberry (*Sambucus spp*), toyon (*Heteromeles arbutifolia*), and California buckeye (*Aesculus californica*). Overstory and shrub species are mostly limited to the Peterson, Middle Park, and the western portion of the Powerlines #1 units. There are occasionally scattered blue oaks throughout the grassland units.

Understory species consist of native and non-native annual grasses which are the primary carrier fuels in all seven units (see sections below for specific fuel models). There are also three primary invasive species of concern. They are yellow star-thistle (*Centaurea solstitialis*), medusa head (*Taeniatherum caput-medusae*), and barbed goat grass (*Aegilops triuncialis*). These invasive species are present through all seven units.

The surrounding fuels in all directions are similar to fuels inside the unit. Big Chico Creek is located to the south and contains typical riparian area vegetation. All surrounding fuels will support fire spread if cured.

The seven units are as follows (see attached maps in the appendix):

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Peterson

The Peterson unit is bounded on the northwest flank by the Fence Trail, on the southwest flank by a constructed fireline, and on the east flank by Peterson Memorial Way. The unit can be subdivided into three segments using interior trails. This unit has a forested overstory.

Latitude: 39°45'16.91"N / Longitude: -121°47'58.30"W (approximate midpoint of the unit)
Acres: 4.3

| Peterson | Within the Unit | Adjacent to Unit |
|-----------------|---|------------------|
| Fuel type/model | GR4 (104)* Moderate Load, Dry Climate Grass | GR4 (104) |
| Slope | Flat | Flat |
| Aspect | Flat | Flat |

* NOTE: The primary grass fuel model will vary from year to year depending on the amount of rainfall from the previous winter. In a dry year fuels may be best characterized by Scott and Burgan fuel model GR1 (101) or GR2 (102), in a normal year by GR4 (104), and in a wet year by GR7 (107). **FOR THE PURPOSE OF ALL THE UNITS IN THIS BURN PLAN FUEL MODEL GR4 (104) WILL BE USED.** The BEHAVE+ runs in the appendix may need to be revisited if the unit is burned after an exceptionally dry or wet winter.

Special features (inside)

The primary special features inside the unit are mature valley oaks.

Special features (outside)

There is a parking area near the northeast corner outside the unit which experiences high visitation. Any associated wooden features will need to be protected. There is a fence line paralleling the Fence Trail on the northwest flank. This fence could be a potential safety issue in the event firefighters are pinned against it at the same time as an adverse wind shift.

Middle Park

The Middle Park unit is bounded on the north flank by Wildwood Avenue, on the northwest flank by the Wildwood Ave Singletrack (trail), on the southwest and south flanks by the Sycamore Creek Trail (note – these are the trail names found on the Bidwell Park main website), and on the southeast flank by 5 Mile Road. The unit can be subdivided into numerous smaller segments using interior trails. Sycamore Channel parallels most of the south flank and could be used as a secondary line. This unit has a forested overstory.

Latitude: 39°45'51.11"N / Longitude: -121°47'48.38"W (approximate midpoint of the unit)
Acres: 52.8

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| Middle Park | Within the Unit | Adjacent to Unit |
|-----------------|--|------------------|
| Fuel type/model | GR4 (104) Moderate Load, Dry Climate Grass | GR4 (104) |
| Slope | Flat | Flat |
| Aspect | Flat | Flat |

Special features (inside)

The primary special features inside the unit are mature valley oaks and gray pines. Any large logs identified as potential habitat can be retained at the city’s discretion. There is elderberry present within the unit which will need to be protected. There is a significant amount of mature poison oak on both sides of the Sycamore Creek Trail along the southwest flank. Prepping and burning this portion of the perimeter will present a significant hazard to susceptible firefighters.

Special features (outside)

There are two parking areas located adjacent to the unit. Parking Lot A is near the northwest corner and the 5 Mile Parking Area is located on the east flank at the end of 5 Mile Road. Both these parking areas experience high visitation. All sign posts at the western tip and near the parking areas will need to be protected. There are fence lines paralleling the Wildwood Ave Singletrack on the northwest flank and the Sycamore Creek Trail on the southwest flank. These fences could be a potential safety issue in the event firefighters are pinned against them at the same time as an adverse wind shift.

Upper Park #1

The Upper Park #1 unit is bounded on the northwest flank by the Fence Line/North Rim Trail, on the south flank by Wildwood Avenue, and on east flank by the Parking Lot B access road and the North Rim Trail (note – these are the trail names found on the Bidwell Park main website). The northwest and east flanks are connected by an unnamed trail. The unit can be subdivided into numerous smaller segments using interior trails. This is a grassland unit with no overstory.

Latitude: 39°46'3.49"N / Longitude: -121°47'41.22"W (approximate midpoint of the unit)

Acres: 57.3

| Upper Park #1 | Within the Unit | Adjacent to Unit |
|-----------------|--|------------------|
| Fuel type/model | GR4 (104) Moderate Load, Dry Climate Grass | GR4 (104) |
| Slope | Flat | Flat |
| Aspect | Flat | Flat |

Special features (inside)

There are caged small trees (most likely oaks) scattered within the unit. Most of these trees appear to be dead but will need to be confirmed after the deciduous species have leafed

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out. There is a large powerline running through the unit. While caution should always be taken around powerlines, burning is not expected to have an impact due to the light grass fuels underneath. No special prep is needed.

Special features (outside)

Parking Lot B borders the unit on the east flank. There are caged trees, posts, and signposts around the parking lot and turnoff from Wildwood Avenue which will need to be protected. There is a fence line paralleling the Fence Line/North Rim Trail on the northwest flank. This fence could be a potential safety issue in the event firefighters are pinned against it at the same time as an adverse wind shift.

Upper Park #2

The Upper Park #2 unit is bounded on the northwest and northeast flanks by the Middle Trail, on the west flank by the North Rim Trail and Parking Lot B access road, on the south flank by Wildwood Avenue and an exclusion line around the Chico Rod & Gun Club, and on the east flank by an unnamed trail and a small portion of the Upper Trail. The unit can be subdivided into numerous smaller segments using interior trails. This is a grassland unit with no overstory other than sparsely scattered blue oaks. The unit is located at the toe of gentle slope on its north and east flanks.

Latitude: 39°46'12.86"N / Longitude: -121°47'2.85"W (approximate midpoint of the unit)

Acres: 72

| Upper Park #2 | Within the Unit | Adjacent to Unit |
|----------------------|--|---|
| Fuel type/model | GR4 (104) Moderate Load, Dry Climate Grass | Primarily GR4 (104); a stringer oak woodland with gray pines borders a portion of the north flank |
| Slope | Flat | 10% (north and east flanks only) |
| Aspect | Flat | South (north and east flanks only) |

Special features (inside)

There are caged small trees (most likely oaks) scattered within the unit. Most of these trees appear to be dead but will need to be confirmed after the deciduous species have leafed out. Parking Lot D is located within the unit near the southeast corner. There is are sign posts, caged trees, and a large amount of wooden fence surrounding this parking lot which will need to be protected. Farther west along the south flank is Parking Lot C and the Chico Community Observatory within the unit. This entire small complex including all wooden features will need to be protected through exclusion lines where needed. Horseshoe Lake lies within the unit but does not require any special attention.

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Special features (outside)

In between Parking Lots C and D is the Chico Rod & Gun Club immediately outside the unit. This entire area including the main building, outbuildings, and all associated infrastructure will be need to excluded from the unit through an exclusion line. This includes the small forested area west of the complex which contains oaks, pine, and Eucalyptus. Parking Lot B abuts the unit to the west flank. See Upper Park #1 for mitigations in this area. This entire area experiences very high visitation.

Powerlines #1

The three Powerlines units are located farther east and deeper within Upper Bidwell Park. Powerlines #1 is bounded on the north flank by the Lower Trail, the west flank by an unnamed trail, the south flank by Upper Park Road, and the east flank by an unnamed trail. There are very few trails which could be used to subdivide the unit. This is primarily a grassland unit, however the western third has a scattered oak overstory. The unit is located at the toe of gentle to moderate slope on its north flank. Fuels are continuous all the way to the ridgeline.

Latitude: 39°46'20.33"N / Longitude: -121°46'4.34"W (approximate midpoint of the unit)

Acres: 9

| Powerlines #1 | Within the Unit | Adjacent to Unit |
|----------------------|--|---|
| Fuel type/model | GR4 (104) Moderate Load, Dry Climate Grass | Primarily GR4 (104); oak woodland with gray pines borders the south flank |
| Slope | Flat | 10-20% (north flank only) |
| Aspect | Flat | South (north flank only) |

Special features (inside)

There is a patch of blue oak regeneration along the north flank near the northwest corner which should be excluded. There is a large powerline running through the eastern end of the unit. While caution should always be taken around powerlines, burning is not expected to have an impact due to the light grass fuels underneath. No special prep is needed.

Special features (outside)

There are no significant features outside the unit.

Powerlines #2

Powerlines #2 is bounded on the north flank by the Day Camp access road and Parking Lot H, the west flank by an unnamed trail, and the south flank by the Yahi Trail. There are no trails which could be used to subdivide the unit. This is primarily a grassland unit with some scattered oaks on the west side.

Latitude: 39°46'22.15"N / Longitude: -121°45'34.37"W (approximate midpoint of the unit)

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Acres: 0.8

| Powerlines #2 | Within the Unit | Adjacent to Unit |
|----------------------|--|---|
| Fuel type/model | GR4 (104) Moderate Load, Dry Climate Grass | Primarily GR4 (104); surrounded on all flanks by oak woodland with gray pines with pockets of heavy fuels |
| Slope | Flat | Flat |
| Aspect | Flat | Flat |

Special features (inside)

There is elderberry present within the unit which will need to be protected.

Special features (outside)

Any combustible features associated with Parking Log H will need to be protected.

Powerlines #3

Powerlines #3 is bounded on the north flank by the Middle Trail, the west flank by an unnamed trail, the south flank by Upper Park and Fenced Roads, and the east flank by an unnamed trail. There are some trails which could be used to subdivide the unit. This is primarily a grassland unit with some scattered blue oaks throughout the interior. The unit is located at the toe of gentle to moderate slope on its north flank. Fuels are continuous all the way to the ridgeline.

Latitude: 39°46'39.90"N / Longitude: -121°45'14.33"W (approximate midpoint of the unit)

Acres: 13.1

| Powerlines #3 | Within the Unit | Adjacent to Unit |
|----------------------|--|---|
| Fuel type/model | GR4 (104) Moderate Load, Dry Climate Grass | Primarily GR4 (104); a portion of the south flank is surrounded by a stringer of oak woodland with gray pines |
| Slope | 0-10% | 10-20% (north flank only) |
| Aspect | South | South |

Special features (inside)

There may be plastic culverts under the road which if found, will need to be protected.

Special features (outside)

The turnoff to Bear Hole and Parking Lot K is near the southeast corner. There is are porta-potties, posts, signs, and a call box all nearby which will need to be protected.

Prescribed fire goals and objectives

Goals (taken from the 2008 Bidwell Park Master Management Plan and other documents)

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- Utilize prescribed fire as a management tool to protect and enhance habitats and reduce the risk of catastrophic fires within Bidwell Park
- Use moderate-complexity burns to reduce ladder fuels and heavy accumulations of dead and down material to reduce fire severities in these areas during future wildfire.
- Use low-complexity 'microburns' or pile burning to manage cultural resources and control invasive plants.
- Use moderate-complexity, larger burns to reduce annual grass thatch and improve rangeland health.

Objectives

- Provide for firefighter and public safety throughout the operation with daily safety briefings, After Action Reviews, and by following the standard rules of engagement.
- Eradicate and contain the spread of identified invasive species (i.e. – yellow star-thistle, barbed goat grass, and medusa head) within 1-2 years post-burn.
- Reduce one-hour grass fuels by 80-100% immediately post-burn.
- Minimize scorch and mortality to mature oak and pine species.
- Protect all special features within and adjacent to the burn without compromising firefighter safety.
- Provide public information and education to explain the purpose and benefits of prescribed burning throughout the operation.

2. Pre-burn Considerations

Plan for unit preparation

All perimeters of the burn units are surrounded by either roads, official trails, or unofficial trails. The exception to this is the southwest flank of the Peterson unit and the exclusion line around the Chico Rod & Gun Club on the south flank of Upper Park #2.

Pre-burn prep common to all units

- Mow back the grass on the burn side of all perimeters bordered by official and unofficial trails a minimum of six feet.
- Increase mow line width to 10 feet if the perimeter is located at the toe of a slope (Upper Park #2, Powerlines #1 and #3).
- Widen unofficial trails as wide as necessary to hold the unit. **DO NOT DISTURB THE EXISTING TREAD ON OFFICIAL TRAILS UNLESS ABSOLUTELY NECESSARY.**
- Survey all road perimeters to determine the need to mow grass to reduce fireline intensity.
- Mow back the grass a minimum of three feet and construct a mineral soil fireline as wide as necessary around all combustible improvements associated with parking lots and roads. This includes wooden fences, posts, sign posts, etc.

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- Survey each unit for the presence of caged trees. Confirm whether trees are dead or still alive. If alive, mow back the grass a minimum of three feet and construct a mineral soil fireline as wide as necessary to protect trees.
- Prep unit interior trails only if necessary by mowing back the grass on the desired side if the unit will be burned in segments.

Peterson unit specific pre-burn prep

- Mow back the grass six feet minimum and construct a two foot minimum fireline down to mineral soil along the southwest flank from between the Fence Trail and Peterson Memorial Way.
- Survey the unit interior for mature oaks to be protected. Remove and/or mow dead and down fuels away from the base and scatter outside the canopy dripline.
- Survey the unit interior for any habitat logs the City desires to be protected. Prep logs with mow and mineral soil lines as needed.

Middle Park unit specific pre-burn prep

- Survey the unit interior for mature oaks and pines to be protected. Remove and/or mow dead and down fuels away from the base and scatter outside the canopy dripline.
- Survey the unit interior for any habitat logs the City desires to be protected. Prep logs with mow and mineral soil lines as needed.
- Scout the area of significant poison oak along the southwest flank along the Sycamore Creek Trail. Determine if the poison oak can be excluded through a mow and/or mineral soil fireline.
- Survey the unit for elderberry bushes and protect as necessary using mow and/or mineral soil firelines.

Upper Park #1 unit specific pre-burn prep

- Improve or widen the unnamed trail between the northwest and east flanks as wide as necessary.
- Ensure all the wooden fences and other features are prepped and protected around Parking Lot B.

Upper Park #2 unit specific pre-burn prep

- Exclude the Chico Rod & Gun Club complex by mowing back the grass six feet minimum and constructing a two foot minimum fireline down to mineral soil between Parking Lots C and D. This includes the group of trees west of the Club.
- Mow back the grass around the Chico Community Observatory and Parking Lot C to exclude the entire area and associated features from the unit.
- Ensure all the wooden fences and other features are prepped and protected around Parking Lots B and D.

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Powerlines #1 unit specific pre-burn prep

- Survey the west side of the unit interior for mature oaks to be protected. Remove and/or mow dead and down fuels away from the base and scatter outside the canopy dripline.
- Exclude the patch of blue oak regeneration along the north flank using a mow and/or mineral soil fireline.

Powerlines #2 unit specific pre-burn prep

- Survey the unit for elderberry bushes and protect as necessary using mow and/or mineral soil firelines.

Powerlines #3 unit specific pre-burn prep

- Inspect the road for plastic culverts. If found, prep through mow and mineral soil firelines as necessary to protect them from burning.

Water supply

The nearest water sources to all the units are either Big Chico Creek, Sycamore Channel, or Horseshoe Lake. The units closest (< less 200 feet) to Big Chico Creek are Peterson, Middle Park, Powerlines #1, and Powerlines #2. The nearest unit to Horseshoe Lake is Upper Park #2. When it is not possible for engines to draft directly out of these water sources, portable pumps may need to be set up. It may not be feasible for these water sources to supply the entire perimeter around every burn unit. In these cases fold-a-tanks, water pumpkins, or equivalent may need to be set up with portable pumps to supply hoses. This will be at discretion of the Burn Boss.

It may also not be realistic or desired to install a hoselay around all the non-drivable perimeters. Control issues can also be mitigated by mowing perimeters and staging backpack pumps in strategic locations. If there are limitations on hose or pumping equipment, priority should be given to the north flanks of the three units located at the toe of the slope. This includes Upper Park #2, Powerlines #1, and Powerlines #3. Whether or not hoses are installed on any unit will be at the discretion of the Burn Boss.

Unit access

All the units are accessible from drivable roads and trails. The Peterson unit is best accessed by Peterson Memorial Way. Middle Park, Upper Park #1 and #2 are best accessed by Wildwood Avenue, Upper Park Road provides the best access to all three Powerlines units.

All seven units experience high visitation. Warning signs will need to be posted along all access roadways and trails. While roads should remain open (but subject to short term traffic control) during the operation, the City of Chico will need to temporarily close all trails used as perimeters and within the unit interiors. Parking lots may need to be closed during

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the operation to allow access for fire apparatuses. Closure should be relatively short term (less than a day) due the rapid burndown of grass fuels. Closures may be longer on forested units requiring mop-up.

Plan to protect values at risk

See the above sections on unit preparation for specifics on protecting values at risk within the units.

3. Prescription

| Element | Minimum (cool) | Desired | Maximum (hot) |
|------------------------------|-----------------------|----------------|----------------------|
| Temperature (F) | 40 | 70 | 90 |
| Relative Humidity (%) | 15 | 25 | 70 |
| Mid-Flame Wind Speed (mph) | 0 | 4 | 8 |
| Fine Dead Fuel Moisture (%) | 4 | 5 | 12 |
| Probability of Ignition (%)* | 65 | 71 | 78 |

* Probability of Ignition is based on BEHAVE+ run outputs using the minimum, desired, and maximum air temperatures. See BEHAVE+ runs in the appendix for more information.

Wind direction

Any wind with a westerly components is acceptable. No burning will be conducted under east winds or foehn wind events.

Seasonality of burn (Note: this section is in relation to prescribed fire only and does factor in other methods for treating invasive species)

With primary resource objective being the eradication and containment of yellow star-thistle, medusa head, and barbed goat grass, the preferred time of year for ignition is early spring. The optimal window would after annual grasses have cured enough to carry fire and before the target species have gone to seed. While this time of year may not be ideal for all three species, it has proven effective (with successive repeated treatments for up to three years) for yellow star-thistle.

If the spring window is missed, the units can still be burned any other time of year that they are within prescription and fire will carry. Burning is not possible once the grass greens up in the winter.

4. Smoke Management Plan

A smoke management plan will submitted to Butte County Air Quality Management District (BCAQMD) within their specified timeframe prior to burning. Smoke management plans will be through submitted through the Prescribed Fire Information Reporting System (PFIRS) unless otherwise specified by the BCAQMD. The Air District will determine whether each unit needs an individual smok plan or if one plan is good for the entire project.

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The Burn Boss or designee will work with the BCAQMD to obtain the actual burn permit. This process will be started a minimum two weeks prior to the anticipated ignition date. If requested, a copy of the burn plan will be made available to the Air District.

The majority of the numerous smoke sensitive targets are located west and south of the burn. This includes the City of Chico and surrounding areas. The burns are not expected to adversely impact the city when burning under a westerly wind. Relatively small unit sizes, light fuels, and quick burndown will assist with managing smoke.

During ignition a Fire Effects Monitor or Burn Boss designee will monitor and document smoke observations on an as needed basis. Smoke observations will include column direction, estimated mixing height, column color and density, and potential unwanted impacts. Any significant change in smoke emissions or column/plume behavior will be reported to the Burn Boss. This includes impacts to local roadways which may dictate the need for short term traffic control.

5. Ignition Plan

A fully qualified Firing Boss (NWCG or State) will be assigned to the burn. This individual will supervise the overall firing operation including any Firing Team Leaders. The Firing Boss will work directly for the Burn Boss.

Test Fire

Each unit will have a test fire which will be conducted in a location representative of the burn. The test fire will be of adequate size, in representative fuels, and will be conducted to observe fire behavior, smoke column dispersal, and to assess the probability of attaining objectives. The test fire will be within environmental parameters where it can be contained and controlled if necessary.

Wind direction will be the primary factor determining test locations as the units are mostly flat. It is anticipated that test fires will be begun somewhere on the east flank or at the northeast or southeast corners. Exact test fire locations will be determined by the Burn Boss the day of the burn based on environmental conditions.

Firing plan

With a westerly wind component, each unit will generally be fired from east to west into the wind. A blackline will be established after the test burn and will initially proceed slowly into the wind with a backing fire spread off the line. As the blacklining proceeds the Firing Boss will determine when interior ignition can commence. All blacklining will stay ahead of the interior ignition.

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The Firing Boss will decide whether interior burners will employ strips or dots based on desired fire intensity to meet objectives. In the three units with a large amount of mature trees, fire will generally be backed through the units to keep intensities manageable and avoid adverse fire effects such as torching or excessive scorch. In some cases trees will be ring fired if necessary. For the three units located at the toe of the slope, fire will need to be backed carefully off the north flank to attain a sufficient depth before interior ignition can proceed.

All special features such as caged trees will be fired in a way which minimizes the potential for negative fire effects. This will usually be done either with a backing fire spread or through ring firing. Likewise firing around improvements such as the Chico Rod & Gun Club or the Chico Community Observatory complexes will proceed slowly and carefully to ensure these developments are not impacted. Running head fire towards the powerlines should be avoided.

If wind shifts are thought to be a potential problem, additional lighters with drip torches may be pre-positioned or shuttled to strategic staging points around the perimeter to initiate potential contingency firing as necessary. The Firing Boss will ensure good communication takes place between individual igniters and will coordinate with holding resources to ensure the application of fire is manageable.

The primary ignition devices will be drip torches and fuses.

The above firing techniques, sequences, and patterns could change depending on wind direction, other parameters, or at the discretion of the Burn Boss and/or Firing Boss.

Holding plan

A Holding Boss with a minimum qualification (NWCG or State) as a Single Resource Boss (Task Force Leader preferred) will be assigned to the burn. This individual will supervise the overall holding operation including any Engine Captains or Crew Bosses. The Holding Boss will work directly for the Burn Boss.

In general, engine crews will be responsible for holding all drivable roads and protecting any special features adjacent to the unit. The balance of firefighters will be responsible for holding the trails. The City of Chico will determine whether to allow any vehicles to drive off road either through the unit or on trails.

If there is an elaborate water pumping operation, the Holding Boss will usually designate an experienced individual to be in charge of water handling. In smaller operations this may be the Holding Boss him or herself.

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Firing will proceed only as fast as the holders can keep up with it, especially if there are long stretches of road or trail to be blacklined. Water should be treated as a finite resource. Given the grass fuel type, pre-treatment of the green should not be necessary if the unit is fired correctly. All perimeters will be patrolled during the ignition and initial burn down phase of the project. Areas adjacent to the burn will be diligently checked for spot fires as necessary.

The anticipated fire behavior below is based on BEHAVE+ runs attached as an appendix in element 10. Flame length and rate of spread are based on the worst case scenario. Note: fuels and outputs are the same outside the unit as within.

| Anticipated Fire Behavior (head fire) | Flame length (FL) (feet) | Rate of spread (ROS) (chains/hour) |
|--|-------------------------------------|---|
| <i>Within the unit</i> | 2.6 | 17.2 |
| <i>Adjacent to unit</i> | 2.6 | 17.2 |
| Production Rates* | 40 chains/hour | |
| <i>Crews/resources</i> | 10 firefighters @ 4 chains/hour | |

* Production rates are based on 10 firefighters cutting four chains of line per person per hour. These production rates are found in the 2014 Wildland Fire Incident Management Field Guide (PMS-210, pages 121-124) and are based on NFFL fuel model 1. NFFL fuel model 1 crosswalks to Scott and Burgan fuel model GR4 (104) (see Scott and Burgan *Standard Fire Behavior Fuel Models: A Comprehensive Set for Use with Rothermel's Surface Fire Spread Model*, page 13). The burn overhead, firing team, and two engines are not factored into the production rates due to delayed response times and the need to continue holding the burn. See the resource list below and the BEHAVE+ runs in the appendix for more information.

Resources

- 1 – NWCG qualified Burn Boss Type 2 (RXB2)
- 1 – qualified (NWCG or State) Firing Boss (FIRB)
- 1 – Holding Boss, Single Resource Boss qualified (NWCG or State) minimum, Task Force Leader preferred (TFLD)
- 1 – Fire Effects Monitor (FEMO), only if available, not required
- 1 – Firing Team consisting of 1-2 firefighters minimum
- 2 – Wildland Fire Engines, Type 3 preferred but any acceptable
- 10 – additional firefighters for holding
- 1 – Water Tender, only if available, not required

NOTE: These are the minimum amount of resources required to ignite this burn. In rare cases the Burn Boss can elect to have fewer resources onsite if conditions dictate this being acceptable. An example would be burning the Powerlines #2 unit which is less than an acre.

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Equipment and Supplies

- Hose, fittings, pumps, tanks, and other water handling support equipment as determined to be necessary by the Burn Boss
- Backpack pumps as determined to be necessary by the Burn Boss or Holding Boss
- Adequate firing equipment including jerry cans of torch mix, drip torches, and fuses as determined by the Burn Boss or Firing Boss
- Traffic cones, stop/slow paddles, traffic vests
- Hand tools
- Medical gear
- Personal Protective Equipment
- Drinking water (resources will be on their own for food)

Weather Observations and Forecasting

The Burn Boss will ensure that three onsite weather observations are submitted to the National Weather Service the day prior and each day of the burn for a spot weather forecast at the following website: <https://www.weather.gov/spot/request/> Spot weather forecasts will be read at the morning briefings. Feedback will be provided to the National Weather Service on forecast accuracy.

Weather observations will be taken every hour (or more frequently if requested by the Burn Boss) by a Fire Effects Monitor or Burn Boss designee during ignition and burn down. Weather observations will include:

- Temperature
- Relative humidity
- Wind direction and speed
- Probability of ignition
- Any significant cloud cover or buildup such as cumulus
- One-hour fuel moisture

All weather observation will be broadcast over the tactical radio frequency and documented on a unit log.

6. Post-Burn Activities

Mop-up and patrol plan (describe activities, timeframes, and standards):

All burn units will be patrolled until the threat of escape is non-existent. Patrol is not anticipated to last longer than 1-2 days post-burn due to the rapid burndown of grass fuels. Most of the grass units will burn down immediately without a need to conduct much mop-up. The three units with an oak/pine overstory (Peterson, Middle Park, Powerlines #1) will require mop-up of the heavier fuels. It will at the Burn Boss discretion whether interior heavy fuels will be allowed to burn down naturally. This can only be done if they pose no threat of escape.

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If visible smoke is proving to be untenable from a political standpoint, all units will be 100% mopped up prior to firefighters departing at the end of each shift.

Other post-burn activities

The City of Chico will be responsible for ensuring that all desired pre- and post-burn monitoring is completed. This will include post-burn surveys the following winter/spring to monitor the regeneration of three targeted invasive species. Attainment of one-hour fuels reduction objectives can be done through ocular observation the day of the burn. The City of Chico will determine the required level of documentation and post-burn reporting. This is usually done by a Fire Effects Monitor if one is assigned to the burn.

Any soil disturbance for trail enhancement will rehabbed as determined to be necessary. All trash will be picked up and flagging removed after the operation. The Burn Boss will ensure that all equipment is backhauled after there are no threats to the line.

7. Notifications

Pre-Burn Notifications:

Adjacent Landowners

| | |
|--|--|
| Chico City Parks Department | 530-896-7800 |
| Chico Rod & Gun Club | 530-894-4638 |
| Chico Community Observatory | 530-487-4071 |
| Canyon Oaks Country Club | 530-343-2582 |
| Canyon Oaks Homeowners Association | www.hignell.com |
| Bidwell Park Golf Course | 530-891-8417 |
| Western Area Power Administration (Sierra Nevada Region) | 916-353-4416 |
| Pacific Gas & Electric | 800-743-5000 |

Air Quality Management District

| | |
|--|--------------|
| Butte County Air Quality Management District | 530-332-9400 |
|--|--------------|

Fire Agency Having Jurisdiction

| | |
|-----------------------|--------------|
| Chico Fire Department | 530-897-8400 |
|-----------------------|--------------|

Day-of-Burn Notifications:

| | |
|--|--------------|
| CAL FIRE Butte County Emergency Command Center (ECC) | 530-538-7111 |
| CAL FIRE Butte Unit | 530-891-2924 |

Air Quality Management District

| | |
|--|--------------|
| Butte County Air Quality Management District | 530-332-9400 |
|--|--------------|

Other Fire Agency Having Jurisdiction (if applicable):

| | |
|---------------------|--------------|
| CAL FIRE Butte Unit | 530-891-2924 |
|---------------------|--------------|

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Other

| | |
|---|--------------|
| Chico Police Department | 530-897-4900 |
| Chico Enterprise Record | 530-891-1234 |
| Other news outlets as determined by the City of Chico | |

All notifications will be done a minimum two weeks in advance unless otherwise required by the City of Chico. The Burn Boss or designee will work with the appropriate local staff to ensure that all notifications are done in a timely manner.

8. Wildfire Conversion Plan

Person designated to make declaration

The Burn Boss will make the decision whether to declare the burn a wildfire and document this action. Per NWCG interagency policy, the burn must be declared a wildfire if the onsite and contingency resources are unable to contain or confine any spot fires and/or slopovers by the end of the next burn period. If the Chico Fire Department has more stringent requirements for wildfire conversion, then those will be adhered to. The Burn Boss may elect to consult with local fire staff assisting with the burn when making the decision to convert to a wildfire.

Designated Incident Commander in case of wildfire

The Holding Boss will usually lead the suppression actions of spot fires and slopovers under the direction of the Burn Boss as Incident Commander. If the Burn Boss does not have the appropriate qualification for the complexity of the wildfire, a qualified Incident Commander will be ordered.

The Incident Commander will determine if the escape and prescribed burn can be managed as one incident. If they must be managed as two separate incidents, an additional Incident Commander will need to be ordered. Additional resources will be ordered as necessary through the appropriate dispatch center from local fire agencies or from out of the area. The escape will be managed under the Incident Command System.

Person(s) to contact for declaration

The appropriate dispatch office, Chico Fire Department, and CAL FIRE Butte County Unit will be notified as soon as possible if an escape is declared.

| | |
|--|--------------|
| CAL FIRE Butte County Emergency Command Center (ECC) | 530-538-7111 |
| CAL FIRE Butte Unit | 530-891-2924 |
| Chico Fire Department | 530-897-8400 |

Size-up/reporting considerations

The standard fire size-up reporting parameters found in the Incident Pocket Response Guide (IRPG) will be here adhered to. They include:

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- Location and jurisdiction of escape
- Approximate size
- Name of Incident Commander
- Radio frequencies
- Best access route
- Rate of spread
- Fuel type
- Values at risk
- Weather conditions
- Current actions being taken
- Special hazards or concerns
- Additional resource needs

9. Risk Management Activities

Contingency Plan

If holders are experiencing control problems such as spot fires, slopovers, and/or multiple locations being affected, this may trigger activating the contingency plan. Other events which could trigger a contingency activation are:

- Exceeding prescription parameters on the hot end
- Adverse smoke impacts to sensitive targets
- Other reasons as decided by the Burn Boss.

The Burn Boss will make the decision when to activate the contingency plan. The Burn Boss will document this decision and notify the appropriate dispatch office. Activation of the plan does not automatically constitute an escape and conversion to a wildfire.

If the contingency plan is activated due to control problems, the additional resources listed below may be ordered to assist in bringing the perimeter back under control. Ignition will cease at an appropriate cutoff point and the interior burn perimeter will be monitored or suppressed if necessary. All other resources assigned to the burn will be reassigned to either suppression, holding, or patrol duties. After control objectives are achieved, the Burn Boss may elect to release the contingency resource if control is not deemed a problem. The Burn Boss will decide whether or not to continue with the burn.

If the burn is staffed with the minimum resources listed above, the following additional contingency resources will be required.

- 2 Type 3 engines within one hour
- 1 Type 1 or 2 handcrew within one hour

Note: If the burn is staffed with more than the minimum amount of resources, the contingency resources may be considered to be already onsite. In this case, there will be no additional resources required as contingency.

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If the prescription is exceeded on the hot end, the Burn Boss will hold up ignition at a safe stopping point and allow the fire to back on its own. Firing will cease until favorable conditions return. Firing may resume when the unit comes back into prescription at the discretion of the Burn Boss. If the unit is not forecasted to come back into prescription, the Burn Boss may elect to suppress the burn. Another option is to safely finish ignition if the burn is already near completion.

Smoke management impacts should be generally regulated by the light fuels, rapid burndown, pace of burning, and the width of strips. Igniting within a burn window identified by the BCAQMD will enhance transport and dispersion. If smoke becomes a problem, the Burn Boss has several options available, which include:

- Begin ignition in the late morning to time smoke dispersal with increased winds as long as there are no anticipated control problems and the wind is within prescription.
- Cease ignition at an appropriate cutoff point and allow the fire to back through the unit at a slow rate of spread until conditions become favorable.
- Regulate or modify ignition patterns to put less fire on the ground (i.e. – switching from a strip to a dot lighting technique).
- Under extreme circumstances, construct a checkline through the unit if there are no adverse natural resource impacts and allow the fire to burn itself out.

Medical Plan

The Incident Action Plan will have an ICS-206 Medical Plan with all pertinent information.

Emergency medical procedures will be reviewed at the daily briefing. All EMTs will be identified at the briefing and will carry an EMT kit on the fireline. If possible, medical gear such as a backboard and Basic Life Support trauma kit will be accessible on or near the burn area.

All injuries will be reported to the Burn Boss. In the event of a serious injury, the Burn Boss will designate a medical Incident Commander who will supervise the incident within and outside the incident. The basic procedure will be to call 911 and/or the appropriate dispatch office over the command frequency. Ground transport will be the means for evacuating non-life threatening injured personnel. This could include a pack out to the nearest drivable road. The nearest ambulance will come from Chico with response times being relatively quick (< 15 minutes). With the flat terrain and the lack of any significant tree canopy, most of the unit and surrounding areas should be suitable as a potential emergency landing zone.

Communications Plan

The Incident Action Plan will have an ICS-205 Communications Plan with all pertinent information. It is expected there will be a need for up to four frequencies which include:

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- Command
- Tactical (operations, traffic control, etc.)
- Air to Ground
- Calcord (for medical emergencies)

Briefing Checklist

This checklist will include the following at a minimum:

- Burn organization and assignments
- Prescribed Fire objectives and prescription
- Description of prescribed fire project area
- Special considerations and sensitive features
- Expected weather and fire behavior
- Communications
- Ignition plan
- Holding plan
- Contingency plan and assignments
- Wildfire declaration
- Safety and medical plan

Safety Plan

The Incident Action Plan will have an ICS-215A or equivalent safety message with all pertinent information.

Fire Personnel Hazards

All safety hazards associated in the wildland fire environment are present on prescribed burns. The primary hazards affecting personnel are:

- Driving to and from the unit on city roads and working along public roadways
- Rapid rates of spread in fine, flashy grass fuels
- Wind shifts
- Working near fences where egress could be compromised
- Poison oak
- Exposure to unhealthy smoke
- Heat stress and excessive fatigue from high temperatures and/or radiant heat
- Using drip torches
- Lack of experience and/or prior working relationships

Public Hazards

Despite the area being closed during the operation, fire personnel will pay special attention to people who may wander into the area. The primary hazard to the public is:

- Smoke on local roads and trails

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All fireline personnel will wear standard firefighting personal protective equipment, including leather boots, nomex, gloves, hardhat, etc. All fireline personnel will have the appropriate NWCG or State equivalent incident qualifications to function in their positions. A safety briefing will be given at the start of each operational period to identify known hazards. All other safety hazards identified during operations will be communicated and mitigated as soon as possible. Accountability of personnel will be maintained through the appropriate chain of command. It will be the responsibility of each firefighter to understand where their escape routes and safety zones are located. Relevant driving regulations and work/rest guidelines will be adhered to. Fire personnel will conduct After Action Reviews after each shift.

Personnel will drive defensibly to and from the unit on city roads. Fire personnel will be rotated out of the smoke at regular intervals to limit carbon monoxide exposure. This will be a module responsibility. With the exception of igniters working under the Firing Boss, no other fire personnel will enter the burn unit without permission from the Burn Boss. Unsupervised personnel will not be allowed to wander around or away from their assigned work area.

Prescribed fire warning signs will be posted along roadways as necessary advising motorists of potential smoke on the road. Smoke conditions along roadways will be monitored and short term traffic control may be necessary.

10. Other Attachments

- Prescribed Fire go/no-go checklist
- Project and area maps
- NWCG Complexity Analysis
- BEHAVE+ Runs

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PRESCRIBED FIRE GO/NO-GO CHECKLIST (NWCG)

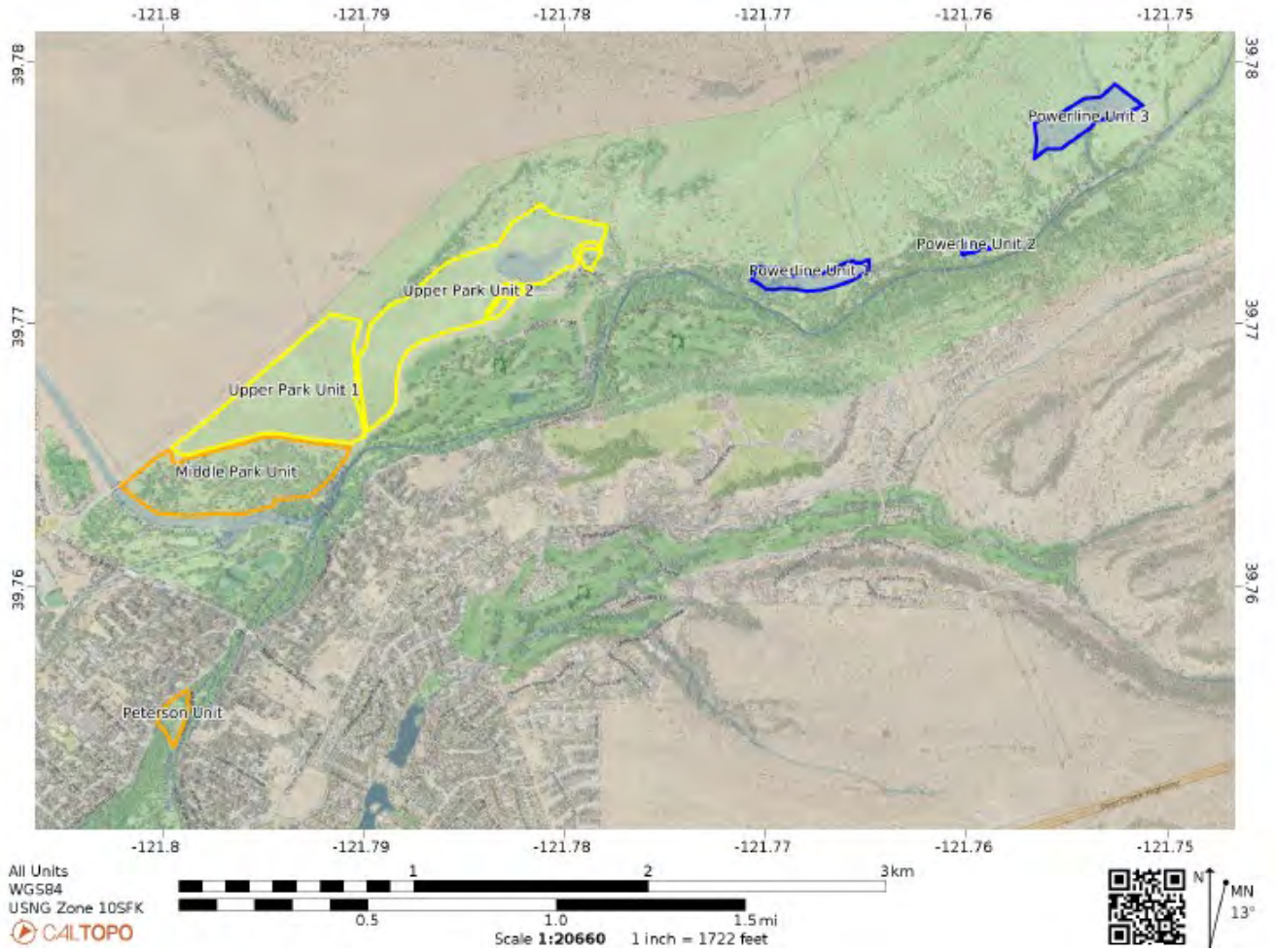
| Preliminary Questions | Circle YES or NO |
|---|------------------|
| A. Have conditions in or adjacent to the ignition unit changed, (for example: drought conditions or fuel loadings), which were not considered in the prescription development? If NO , proceed with the Go/NO-GO Checklist below, if 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 | 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 | 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: _____

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Vicinity Map (All Units)



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Project Maps (Peterson Unit)



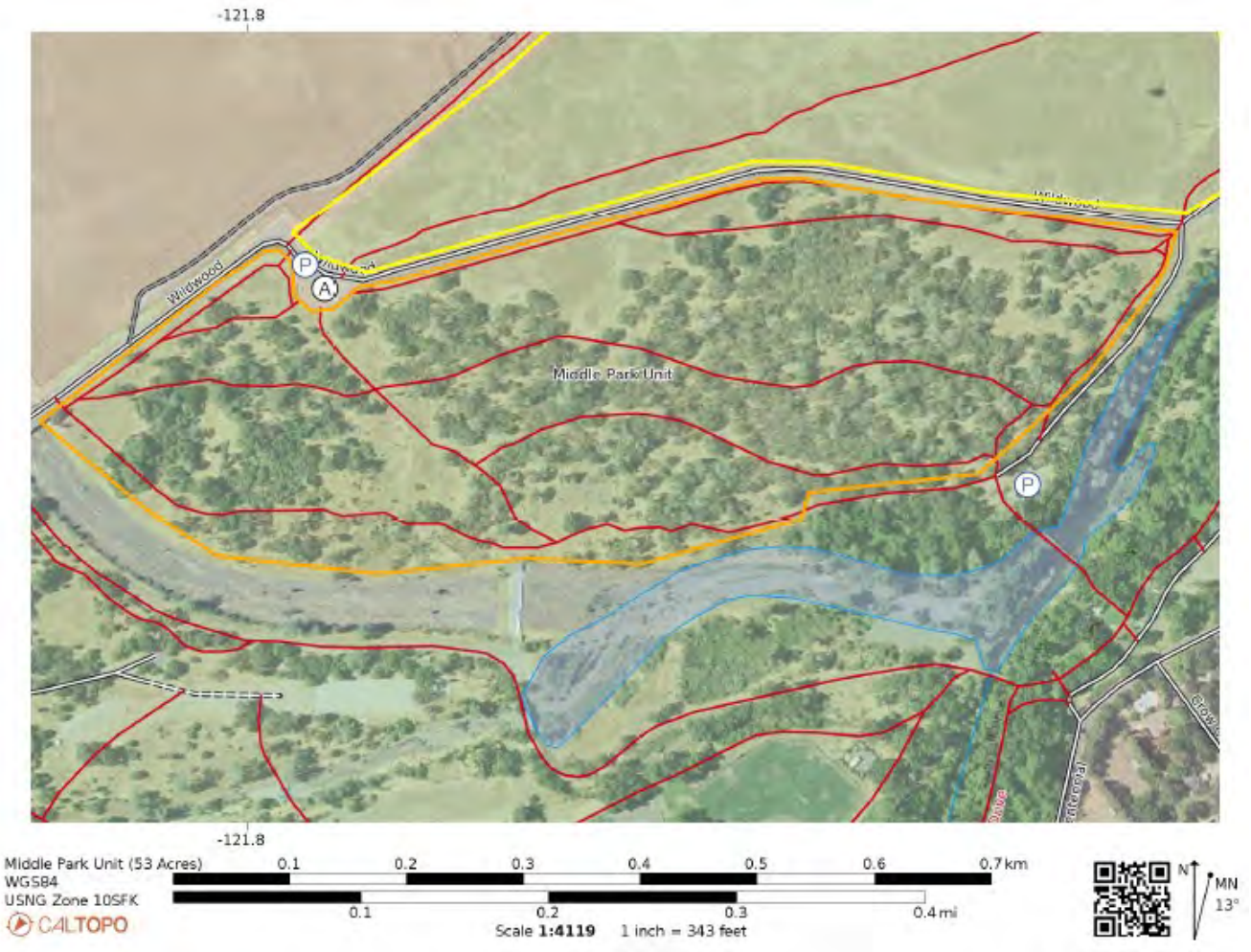
Peterson Unit (4 Acres)
WGS84
USNG Zone 10SPK
CALTPO



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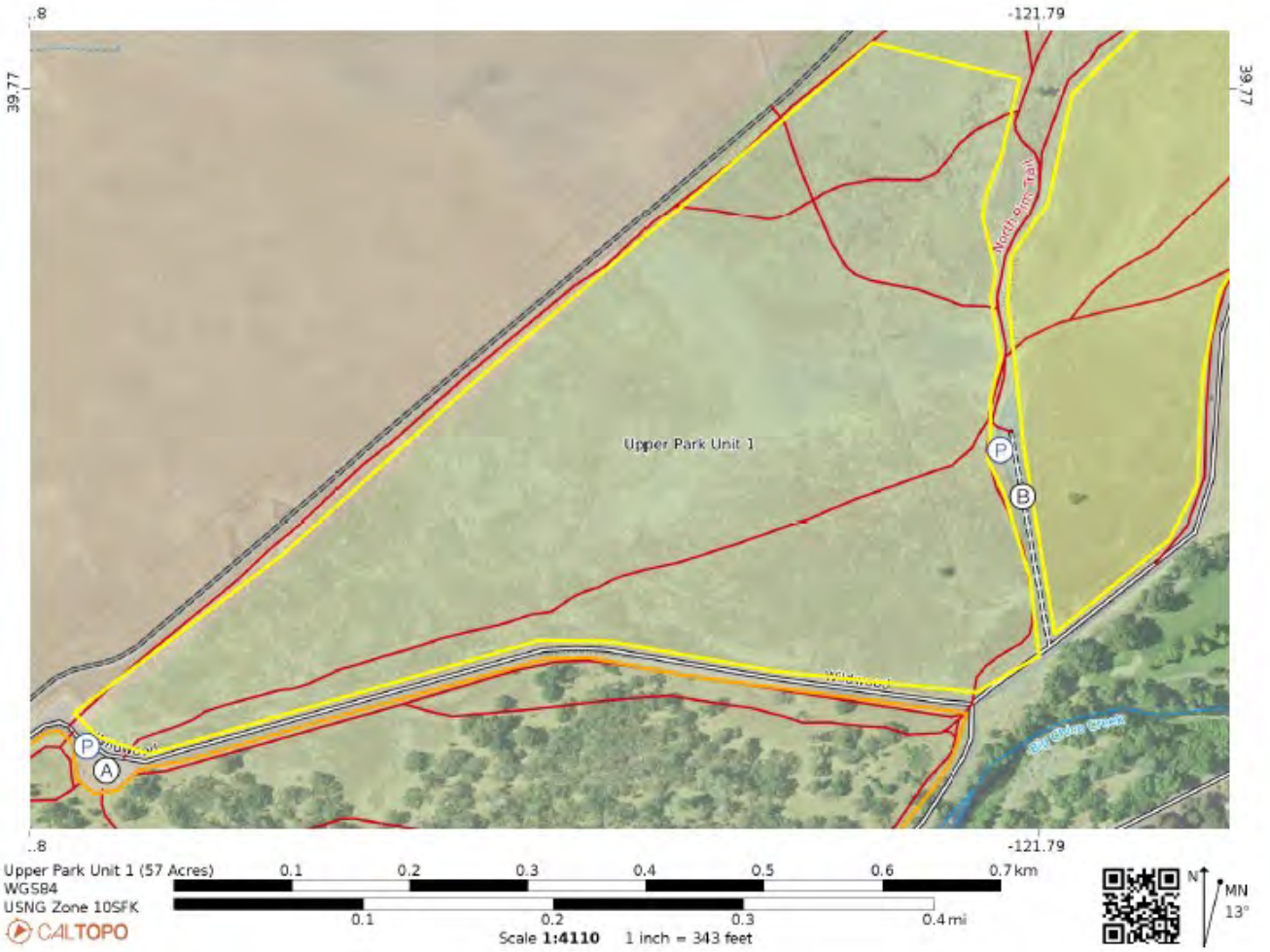
Project Maps (Middle Park Unit)



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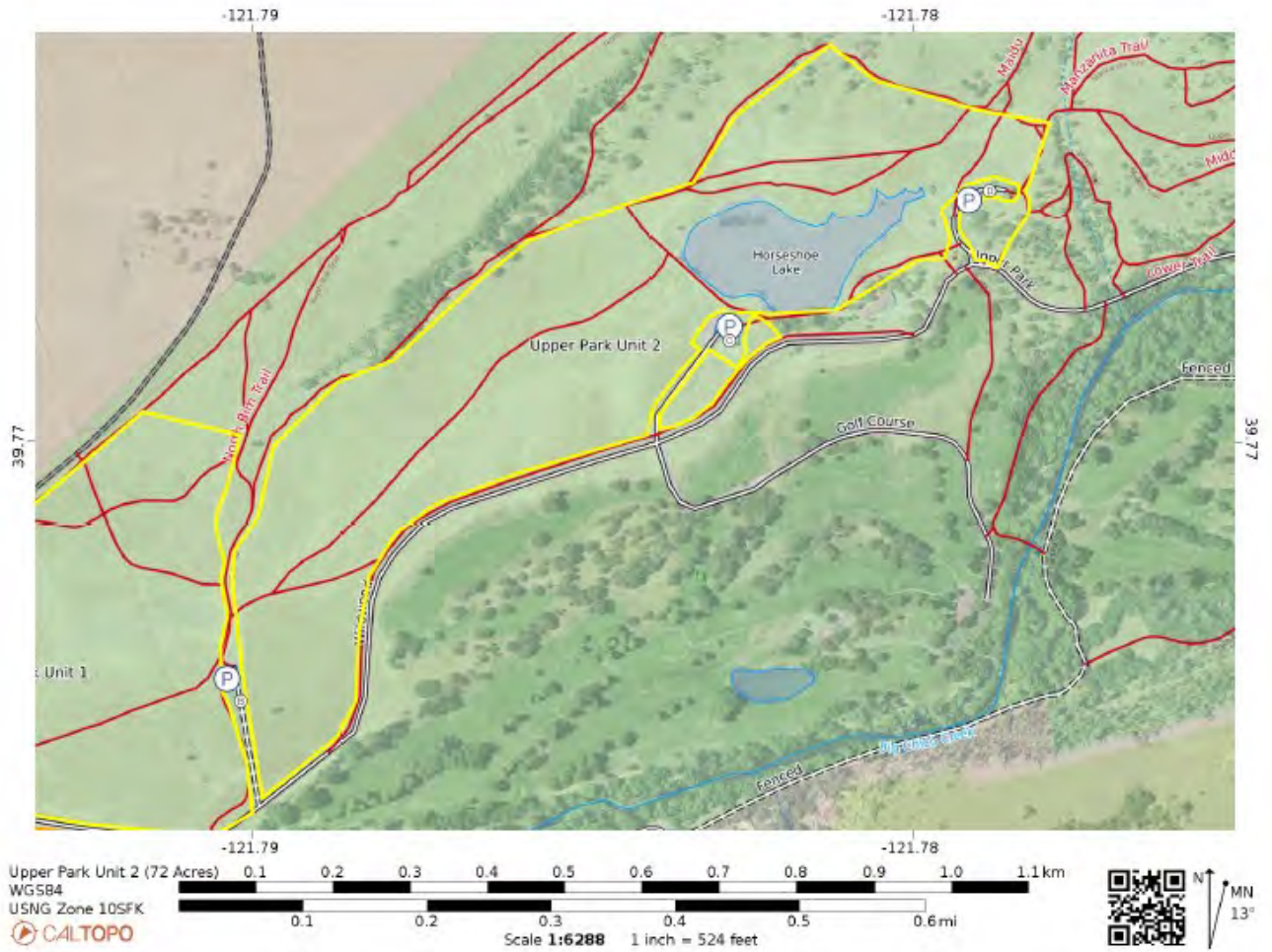
Project Maps (Upper Park #1 Unit)



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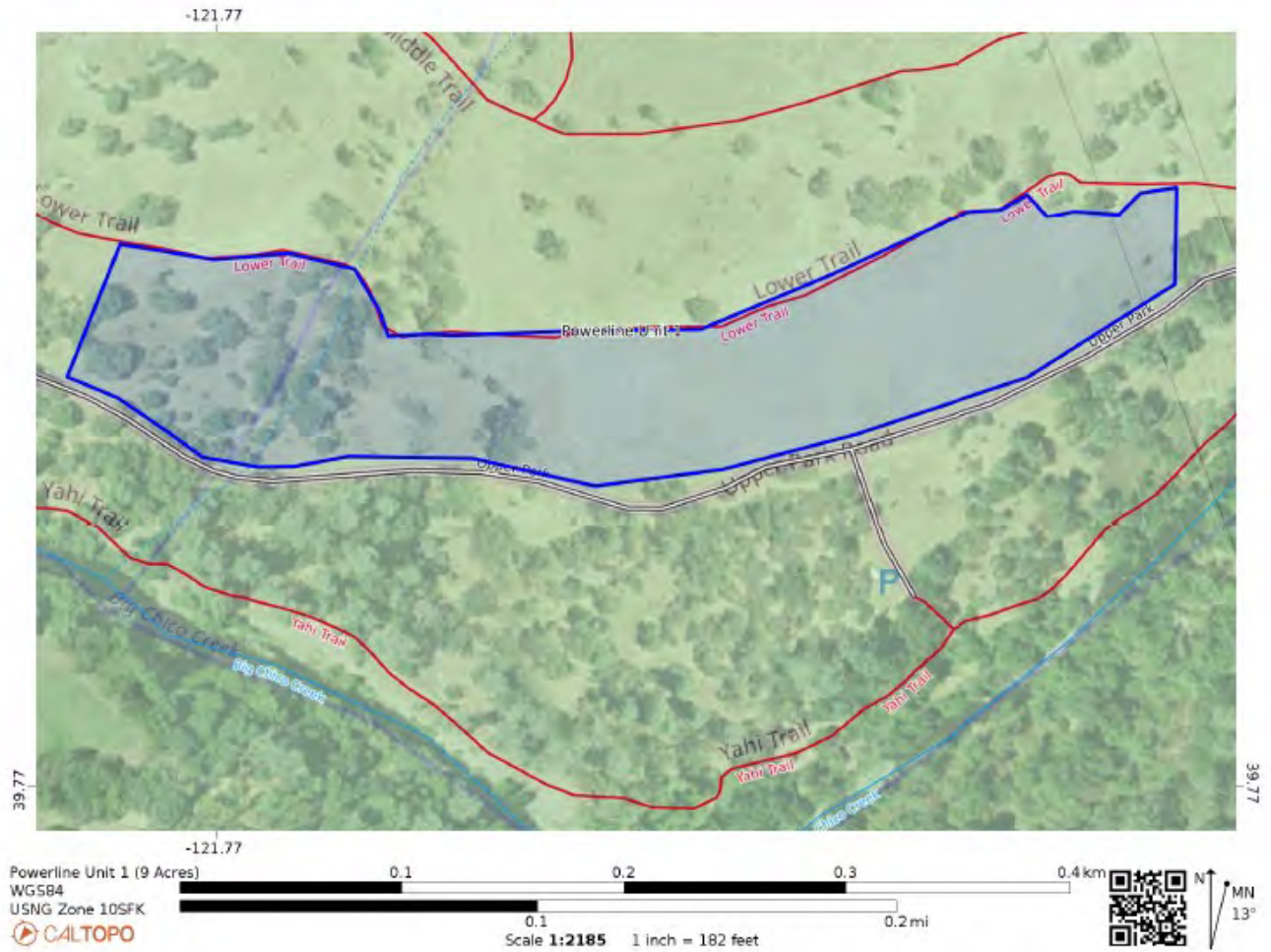
Project Maps (Upper Park #2 Unit)



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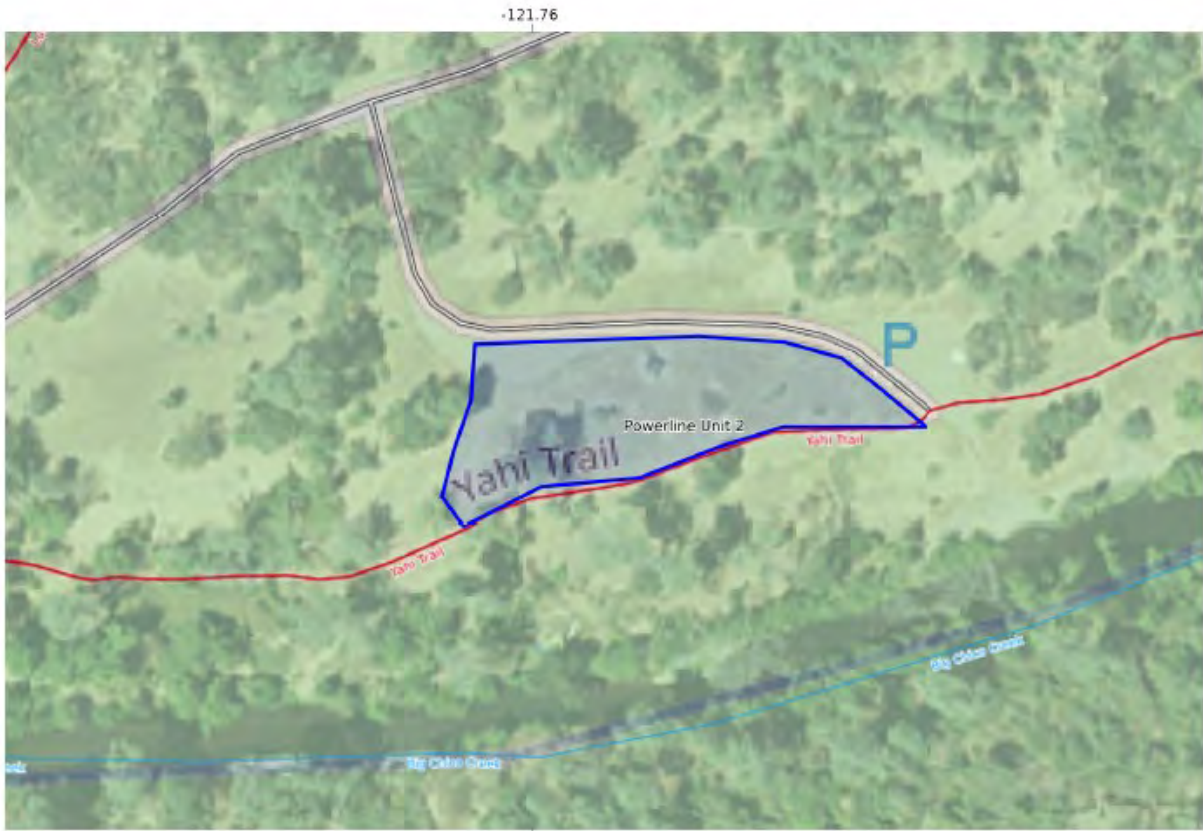
Project Maps (Powerlines #1 Unit)



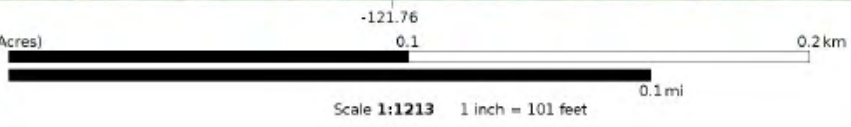
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Project Maps (Powerlines #2 Unit)



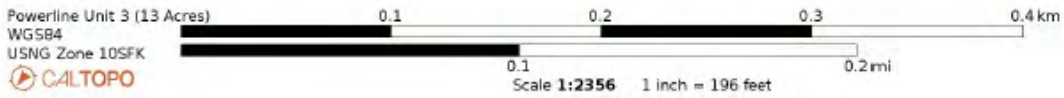
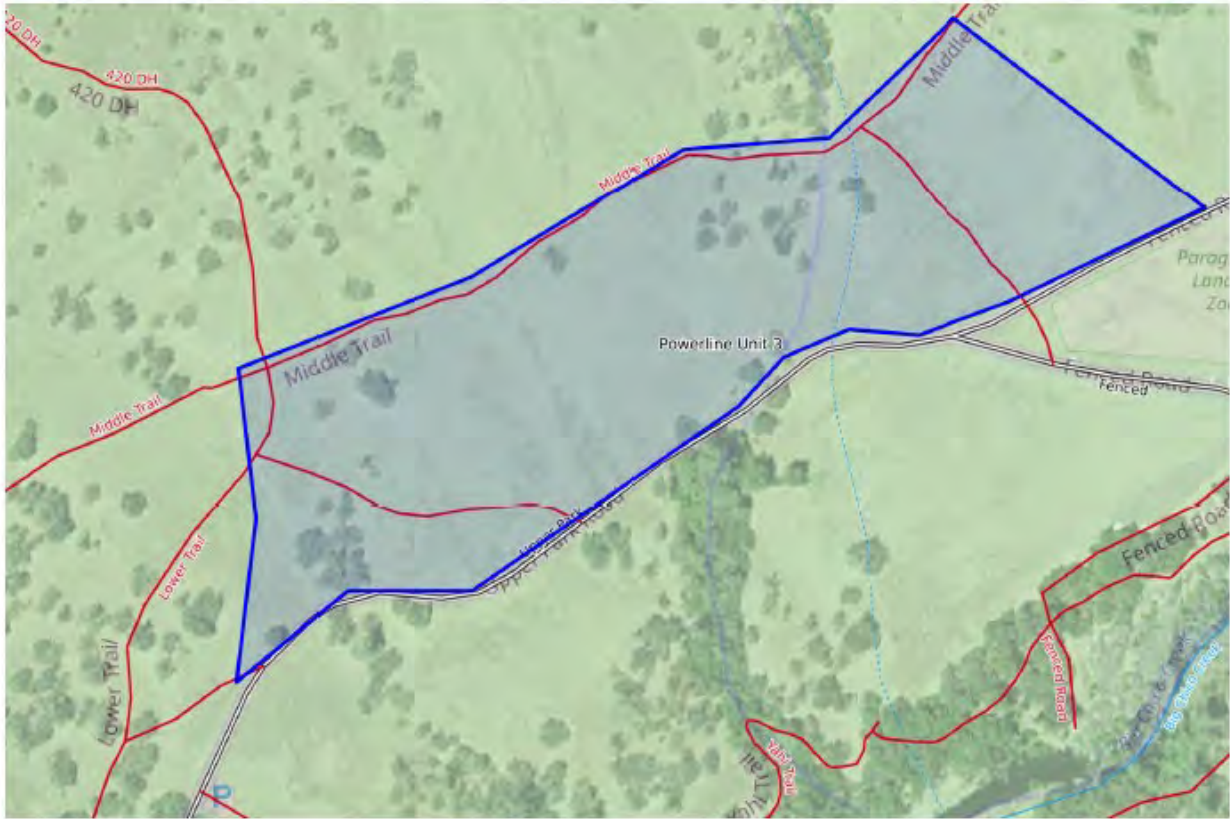
Powerline Unit 2 (.79 Acres)
WGS84
USNG Zone 10SFK
 CALTOPO



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Project Maps (Powerlines #3 Unit)



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NWCG Complexity Analysis Values

| Bidwell Park | | Quantity | Significance | Values Description: Describe the identified off-site, on-site and political values |
|---------------------|---------------------------|---------------------|-----------------|---|
| Values | On-Site | Few | Moderate | The primary onsite values are mature oaks and pine trees, wooden features associated with trails and parking lots, caged trees (which may be dead), and the Chico Community Observatory. |
| | Off-Site | Few | Moderate | The primary offsite values are adjacent fences, parking lots, outhouses, porta-potties, wooden features, and the Chico Rod & Gun Club. |
| | Public/Political Interest | Considerable | High | Due to its close proximity to the city of Chico, recent fire history in the area, and lack of recent prescribed burning in Bidwell Park, the burns are expected to generate significant public/political interest. The smoke will be visible from town and many of its 100,000 residents. |

Preliminary Risk

| Element | Element | Risk Rating Descriptors | Agency Administrator/Preparer Discussion Completed |
|---------|------------|--|--|
| Safety | Mod | <ul style="list-style-type: none"> • 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. <p>The primary safety issue which can affect firefighters is burning in light, flashy fuels which can be very susceptible to wind shifts. Other hazards include driving along city roads, working near fences where egress could be compromised, poison oak, exposure to unhealthy smoke, heat stress and excessive fatigue from high</p> | No |

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| | | temperatures and/or radiant heat. | |
| Fire Behavior | Low | <ul style="list-style-type: none"> • Terrain is mostly flat or the slope and aspect are uniform, leading to a relatively unvarying fire. • Winds, fuel moisture, microclimate, and other fire conditions are relatively uniform and are not conducive to active fire spread. • Fire behavior is highly predictable. • Fire spread beyond the immediate ignition area(s) is not likely to occur or contribute to any control problems. <p>Most of the units are located on flat or very gentle terrain. Fuels are uniformly grass with some oak and pine overstory in three of the units.</p> | No |
| Resistance to Containment | Mod | <ul style="list-style-type: none"> • 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. <p>Fuels in all directions surrounding the unit will support fire spread. While grass typically does not produce a lot of ember cast, it is a very good spot receptacle. Three of the units are located at the toe of the slope with continuous fuels outside the unit to the next ridge.</p> | No |
| Ignition Procedures and Methods | Mod | <ul style="list-style-type: none"> • 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. | No |

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| | | Ignition procedures are relatively straight forward due to flat terrain and uniform fuels. To meet the invasive species objectives, the burn will need to burn hot. Ignition will need to be carefully managed along the perimeters to minimize the chance of control problems with the use of a backing fire spread. | |
| Prescribed Fire Duration | Low | <ul style="list-style-type: none"> • Ignition operations should be accomplished within one operational period. • Burn unit is small in size and residual burning is not expected after primary burn out of the unit. • Decrease in seasonal severity is expected. • Short time frame does not require special logistical support. • Mop-up is minimal or none is anticipated/planned. <p>Each burn unit should be completed within one operational period. Burndown is expected to be quick in the light fuels, except in the three units with pockets of heavy dead and down fuels. Patrols are not expected to last longer than 1-2 days post-burn</p> | No |
| Smoke Management | Mod | <ul style="list-style-type: none"> • 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. <p>The burn units are not expected to burn up much smoke except right at the time of ignition. Burndown should be quick in the light fuels. Smoke will be visible from the nearby city of Chico.</p> | No |

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| <p>Number and Dependence of Activities</p> | <p>Mod</p> | <ul style="list-style-type: none"> • 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. <p>The burn will require close coordination between the firing and holding functions to ensure fire stays manageable and objectives are met. There will most likely be more than one agency involved in the operation.</p> | <p>No</p> |
| <p>Management Organization</p> | <p>Mod</p> | <ul style="list-style-type: none"> • 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). <p>The burns will require a normal organization with Burn, Firing, and Holding Bosses. Because there hasn't been any recent burning in Bidwell Park, it would be ideal if overhead had experience with prescribed burning in grass. An RXB2 should be adequate for the burns.</p> | <p>No</p> |
| <p>Treatment/Resource Objectives</p> | <p>Mod</p> | <ul style="list-style-type: none"> • 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. <p>To meet treatment objectives for invasive species, the burn will need to be burned hot. There are three critical points where the outside terrain slopes uphill to the ridge.</p> | <p>No</p> |
| <p>Constraints</p> | <p>Low</p> | <ul style="list-style-type: none"> • Constraints exist with little impact on implementing the prescribed fire or achieving objectives. | <p>No</p> |

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| | | <p>There a few constraints impacting the burn other the political will to establish a prescribed fire program in Bidwell Park. Burn windows should be relatively easy to find at the desired time of year for ignition.</p> | |
| <p>Project Logistics</p> | <p>Mod</p> | <ul style="list-style-type: none"> • 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. <p>The biggest logistical challenge will getting water to all parts of the perimeter. This will involve setting up pumping operations either out of Big Chico Creek or Horseshoe Lake, or using port-a-tanks or equivalent. Hoselays could be long to get water to areas far from roadways.</p> | <p>No</p> |

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Post-Plan Risk

| Element | Preliminary Risk | Post-Plan Risk | Risk Rating Descriptors | Elements and Actions in the RX Fire Plan that Address Risk Mitigation |
|---------------|------------------|----------------|---|---|
| Safety | Mod | Mod | <ul style="list-style-type: none"> • 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. <p>Safety issues will be covered at daily operational briefings and a safety message will be part of the IAP. Despite these mitigations, the safety issues are numerous enough where there is no change to risk.</p> | See burn plan elements: 2 Pre-burn Considerations, 5 Ignition Plan, and 9 Safety and Medical, |
| Fire Behavior | Low | Low | <ul style="list-style-type: none"> • Terrain is mostly flat or the slope and aspect are uniform, leading to a relatively unvarying fire. • Winds, fuel moisture, microclimate, and other fire conditions are relatively uniform and are not conducive to active fire spread. • Fire behavior is highly predictable. • Fire spread beyond the immediate ignition area(s) is not likely to occur or contribute to any control problems. | See burn plan elements: 3 Prescription and 5 Ignition Plan. |

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| | | | No change to risk. The unit will be burned under a specific prescription. The preferred ignition pattern will be to back fire into the wind to keep intensities down to where fire is manageable and still meet objectives. | |
| Resistance to Containment | Mod | Low | <ul style="list-style-type: none"> • Ranges from no potential to a likelihood of few mechanisms such as spot fires, slopovers or fire creeping, each comprising small areas that are readily detected, accessed, and controlled by holding resources available on the prescribed fire. • No ladder fuels or concentrations are near critical holding points. • Ignition procedures do not create intense fire behavior. • Probability of ignition in fuels outside the unit is low. • Local drought and or fire danger indices are expected to be low to moderate. | See burn plan elements: 2 Pre-burn Considerations, 5 Ignition/Holding Plan, and 6 Post-Burn Activities. |
| | | | The unit will be carefully fired with a backing fire spread to create a blackline to keep the perimeter secure. Post-burn patrols will continue as long as necessary until threats to the line no longer exist. | |
| Ignition Procedures and Methods | Mod | Mod | <ul style="list-style-type: none"> • 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. | See burn plan element: 5 Ignition Plan. |
| | | | No change to risk. | |

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| <p>Prescribed Fire Duration</p> | <p>Low</p> | <p>Low</p> | <ul style="list-style-type: none"> • Ignition operations should be accomplished within one operational period. • Burn unit is small in size and residual burning is not expected after primary burn out of the unit. • Decrease in seasonal severity is expected. • Short time frame does not require special logistical support. • Mop-up is minimal or none is anticipated/planned. <p>No change to risk.</p> | <p>See burn plan elements: 3 Prescription, 5 Ignition/Holding Plan, and 6 Post-Burn Activities.</p> |
| <p>Smoke Management</p> | <p>Mod</p> | <p>Mod</p> | <ul style="list-style-type: none"> • 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. <p>No change to risk.</p> | <p>See burn plan element: 4 Smoke Management.</p> |
| <p>Number and Dependence of Activities</p> | <p>Mod</p> | <p>Mod</p> | <ul style="list-style-type: none"> • 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. <p>No change to risk.</p> | <p>See burn plan elements: 2 Pre-burn Considerations and 5 Ignition/Holding Plan.</p> |

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| <p>Management Organization</p> | <p>Mod</p> | <p>Mod</p> | <ul style="list-style-type: none"> • 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). <p>No change to risk.</p> | <p>See burn plan element: 5 Ignition/Holding Plan.</p> |
| <p>Treatment/Resource Objectives</p> | <p>Mod</p> | <p>Mod</p> | <ul style="list-style-type: none"> • 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. <p>No change to risk.</p> | <p>See burn plan element: 1 Goals and Objectives.</p> |
| <p>Constraints</p> | <p>Low</p> | <p>Low</p> | <ul style="list-style-type: none"> • Constraints exist with little impact on implementing the prescribed fire or achieving objectives. <p>No change to risk.</p> | <p>See burn plan elements: 3 Seasonality.</p> |
| <p>Project Logistics</p> | <p>Mod</p> | <p>Mod</p> | <ul style="list-style-type: none"> • Minimal logistical support is needed to safely meet prescribed fire objectives. • No special equipment, support or communications needs are required. <p>No change to risk.</p> | <p>See burn plan elements: 2 Pre-burn Considerations and 5 Holding Plan.</p> |

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Post-Plan Technical Difficulty

| Element | Post-Plan Risk | Technical Difficulty | Rating Descriptors |
|---------------|----------------|----------------------|---|
| Safety | Mod | Mod | <ul style="list-style-type: none"> • 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. |
| | | | <p>The numerous safety issues can be mostly mitigated by good safety briefings, maintaining situation awareness, careful and coordinated ignition, adequate burn preparation, etc. All of the units have good road access at some point along their perimeters. An injury on the northwest flanks on Upper Park #1 or #2 may require a pack out. Most the burn areas can function as a landing zone.</p> |
| Fire Behavior | Low | Mod | <ul style="list-style-type: none"> • 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. <p>Fire behavior is expected to be manageable with careful and coordinated ignition. The main concern is whether local resources will have experience burning in grass. There are secondary roads and trails surrounding much of the unit which will aid firefighters with containment opportunities.</p> |

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| | | | |
|--|------------|------------|---|
| <p>Resistance to Containment</p> | <p>Mod</p> | <p>Mod</p> | <ul style="list-style-type: none"> • 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. <p>With good perimeter mowing and other prep, careful and coordinated ignition, and diligent post-burn patrols, control issues can be minimized. Fire north of the three units at the toe of the slope could run all the way to the ridge. While there are few values at risk north of the burns, any type of escape will most likely cause significant political issues.</p> |
| <p>Ignition Procedures and Methods</p> | <p>Mod</p> | <p>Low</p> | <ul style="list-style-type: none"> • There is no need for special firing equipment, techniques, or patterns. • Firing procedures are simple and ignition team is small. • Use of only one type of ignition device is planned. • The ignition pattern requires minimal supervision of the lighters to achieve project objectives and manage safety concerns. • Communications are easily maintained with a single tactical frequency. • The entire project area is readily visible to the Firing/Burn Boss. <p>With predominantly flat terrain and uniform fuels, the ignition procedures are not overly complex. Careful and coordinated blacklining will need to occur on the flanks, especially in the three units at the toe of the slope.</p> |
| <p>Prescribed Fire Duration</p> | <p>Low</p> | <p>Low</p> | <ul style="list-style-type: none"> • Ignition and mop-up operations are usually completed in 1 to 2 operational periods. • Mop-up and patrol is typical with minimal resource and equipment needs. • Standard press release is sufficient for public notification. <p>Each burn unit should be completed on one operational period. Burndown is expected to be quick in the light fuels, except in the three units with pockets of heavy dead and down fuels. Patrols are not expected to last longer than 1-2 days post-burn</p> |

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| | | | |
|--|------------|------------|---|
| <p>Smoke Management</p> | <p>Mod</p> | <p>Mod</p> | <ul style="list-style-type: none"> • 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. |
| | | | <p>With a westerly wind component smoke is not expected to impact any sensitive targets. Smoke production should be relatively light and disperse rapidly to due to the light fuels. Burndown should occur quickly except in heavy fuels which can be mopped up if deemed to be a problem.</p> |
| <p>Number and Dependence of Activities</p> | <p>Mod</p> | <p>Mod</p> | <ul style="list-style-type: none"> • 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. |
| | | | <p>Pre-burn preparation consists mostly of mowing perimeters, prepping onsite values, and possibly setting up and installing lengthy hoselays. The most critical coordination will need to occur when blacklining the units, especially the three which are located at the top of the slope.</p> |

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| | | | |
|--------------------------------------|------------|------------|--|
| <p>Management Organization</p> | <p>Mod</p> | <p>Mod</p> | <ul style="list-style-type: none"> • 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. <p>An experienced RXB2 with qualified and experienced Firing and Holding Bosses will be necessary to execute these burns. Some resources may need to be brought in from out of the area if there is not adequate local experience.</p> |
| <p>Treatment/Resource Objectives</p> | <p>Mod</p> | <p>Mod</p> | <ul style="list-style-type: none"> • 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. <p>Meeting treatment objectives are relatively straight forward. The primary challenge will be to find the proper early season window and burn hot enough to meet the invasive species eradication objectives.</p> |
| <p>Constraints</p> | <p>Low</p> | <p>Low</p> | <ul style="list-style-type: none"> • Constraints are easily accommodated and do not increase the difficulty of completing the project or achieving objectives. • Required weather and fuel conditions are locally very common. <p>The primary challenge will be to find the proper early season window and burn hot enough to meet the invasive species eradication objectives. Otherwise there are no significant constraints.</p> |
| <p>Project Logistics</p> | <p>Mod</p> | <p>Low</p> | <ul style="list-style-type: none"> • No specific logistic function is required and the local unit will handle their own support needs. • Project is nearby and easily accessible. • Local cache can supply the needs of the prescribed fire. |

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| | | | |
|--|--|--|--|
| | | | <p>The burn does not require any unusual equipment. The large amount of hose and other water handling equipment which may be used should be able to be supplied out of local or nearby caches.</p> |
|--|--|--|--|

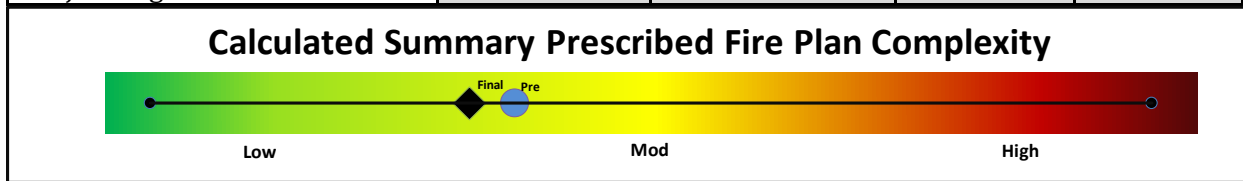
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COMPLEXITY ANALYSIS SUMMARY AND FINAL COMPLEXITY

| | | | |
|--------------|---------------------------|---------------------|--------------|
| Bidwell Park | | Quantity | Significance |
| Values | On-Site | Few | Mod |
| | Off-Site | Few | Mod |
| | Public/Political Interest | Considerable | High |

| Element | Preliminary Risk | Post-Plan Risk | Technical Difficulty | Calculated Rating |
|-------------------------------------|------------------|----------------|----------------------|-------------------|
| Safety | Mod | Mod | Mod | Mod |
| Fire Behavior | Low | Low | Mod | Mod |
| Resistance to Containment | Mod | Low | Mod | Mod |
| Ignition Procedures and Methods | Mod | Low | Low | Low |
| Prescribed Fire Duration | Low | Low | Low | Low |
| 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 | Low | Low | Low | Low |
| Project Logistics | Mod | Low | Low | Low |



| | |
|---------------------------------------|--|
| Final Complexity Determination | Final Complexity Determination Rationale |
| Mod | <p>The primary risks of executing the Bidwell Park units are burning in light, flashy fuels which can spread rapidly and are prone wind shifts. With proper perimeter mowing, careful and coordinated blackline ignition, experienced overhead, and adequate patrols, this risk can mitigated down to a manageable level. Because the City of Chico has not done any recent burning in Bidwell Park, an experienced Burn Boss Type 2 (RXB2) will be necessary to complete these units.</p> |

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| | |
|------------|---|
| Signatures | Rx Burn Plan Preparer's Name: <u>Ben Jacobs</u> X _____ Date: _____ Preparer |
| | Technical Reviewer's Name: _____ X _____ Date: _____ Technical Reviewer |
| | Agency Administrator's Name: _____ X _____ Date: _____ Agency Administrator |

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BEHAVE+ Runs

Note: The attached BEHAVE+ runs are for the worst case scenario (hot end, head fire, maximum wind). For the BEHAVE+ ‘contain’ run, line production rates are based on 10 firefighters working in NFFL fuel model 1. This fuel model crosswalks to Scott and Burgan model GR4 (104). There is no ‘spot’ run as BEHAVE + does not model spotting from a grass fuel type.

The ‘contain’ module of BEHAVE+ was run with the following assumptions. The spot fire would be detected by firefighters while it is still small (0.1 acre), it would take the suppression resources 15 minutes to gather and begin initial attack, suppression resources would use direct or parallel attack, and the suppression action would need to be completed within four hours (before firefighter fatigue would become more of a factor). This is a fairly conservative analysis and represents a worst case scenario. See the element 5 Holding Plan for a discussion on line production rates.

These runs are fuels both inside and outside the unit.

BehavePlus 6.0.0 (Build 626 Beta 3)

Bidwell Park, hot end, head fire

Head Fire

Sat, Mar 13, 2021 at 07:09:34

Input Worksheet

Inputs: SURFACE, CONTAIN

| Input Variables | Units | Input Value(s) |
|-----------------|-------|----------------|
|-----------------|-------|----------------|

Fuel/Vegetation, Surface/Understory

| | | |
|------------|--|-----|
| Fuel Model | | gr4 |
|------------|--|-----|

Fuel Moisture

| | | |
|-------------------------------|---|-----|
| 1-h Fuel Moisture | % | 4 |
| 10-h Fuel Moisture | % | |
| 100-h Fuel Moisture | % | |
| Live Herbaceous Fuel Moisture | % | 100 |
| Live Woody Fuel Moisture | % | |

Weather

| | | |
|-------------------------------|------|---------------|
| Midflame Wind Speed (upslope) | mi/h | 0, 2, 4, 6, 8 |
|-------------------------------|------|---------------|

Terrain

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Slope Steepness % 20

Fire

Fire Size at Report ac 0.1

Suppression

Suppression Tactic Rear

Line Construction Offset ch 0

Resource Line Production Rate ch/h 40

Resource Arrival Time h 0.25

Resource Duration h 4

Notes

Run Option Notes

Maximum effective wind speed limit IS imposed [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 a single resource [CONTAIN]; multiple values can be entered for any input variable.

Head Fire

Results

| Midflame Wind Speed | Surface Fire Rate of Spread | Surface Flame Length | Contain Status | Time from Report | Contained Area | Fireline Constructed |
|---------------------|-----------------------------|----------------------|----------------|------------------|----------------|----------------------|
| mi/h | ch/h | ft | | h | ac | ch |
| 0 | 1.0 | 0.7 | Contained | 0.4 | 0.2 | 4.8 |

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| | | | | | | |
|---|------|-----|-----------|-----|------|-------|
| 2 | 3.7 | 1.3 | Contained | 0.4 | 0.4 | 8.0 |
| 4 | 8.3 | 1.9 | Contained | 0.7 | 1.5 | 16.2 |
| 6 | 14.2 | 2.4 | Contained | 1.4 | 7.2 | 45.0 |
| 8 | 17.2 | 2.6 | Contained | 2.9 | 27.0 | 106.1 |

End

BehavePlus 6.0.0 (Build 626 Beta 3)

Bidwell Park, hot end, head fire

Sat, Mar 13, 2021 at 07:22:16

Input Worksheet

Inputs: IGNITE

| Input Variables | Units | Input Value(s) |
|---------------------------|-------|----------------|
| Fuel Moisture | | |
| 1-h Fuel Moisture | % | 4 |
| Weather | | |
| Air Temperature | oF | 40, 65, 90 |
| Fuel Shading from the Sun | % | 0 |

Notes

Run Option Notes

None

Results

| | |
|----------|--------------------|
| Air Temp | Firebrand Ignition |
| oF | % |
| 40 | 65 |

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| | |
|----|----|
| 65 | 71 |
| 90 | 78 |

End



DATE: April 21, 2021
TO: Bidwell Park and Playground Commission (BPPC)
FROM: Linda Herman, Park and Natural Resources Manager
SUBJECT: Park Division Report

NARRATIVE

1. Updates

- a. Vegetative Fuels Management Plan – The Final EIR and Vegetative Fuels Management Plan was approved by the City Council on 4/6/21 and the final Notice of Determination was filed with the Butte County Clerk and the State Clearing House on 4/13/21. The final grant progress report, deliverables and invoice were sent to CalFire on 4/13/21. The grant project came in under budget, primarily due to not being able to conduct the planned robust public outreach efforts due to COVID-19 restrictions.
- b. Caper Acres Nico Shade Project – A Notice Inviting Bids for the resurfacing and the installation of shade sails in the Nico Dragon play area in Caper Acres was sent out on 4/5/21 with bids due on 4/26/21. A pre-bid conference was held on 4/12/21 but there was a low turnout. For these reasons, the bid due date has been extended until 5/5/21 in hopes of getting more interest from contractors in this project.
- c. 10-Mile House Road Fuel Maintenance Project – The bird surveys for the 10-Mile House Road showed no nesting concerns, so the CA Conservation Crews and the Big Chico Creek Ecological Reserve monitors began the vegetation work on the road on April 20, 2021. The work is anticipated to take a couple of weeks. A press release has been sent and signs have been posted on site to alert hikers and bikers of this work.
- d. Upper Park Road Improvement Project – An Initial Study and a Mitigated Negative Declaration (MND) is being reviewed by City Staff. State Water Board Staff conducted a site visit of the project area on 4/17/21. The Technical Advisory Committee (TAC) are putting the final touches on the construction bid plans and specifications.
- e. South Park and Petersen Drives – Staff has requested funding in the 2021-22 City Budget process to repair and resurface Petersen and South Park Drives in Lower Bidwell Park. The City's Engineering Department will begin developing the initial scope and plans for the project.

2. Maintenance Program

GENERAL -Staff provides on a need and time basis the cleaning and safety inspections of all recreation areas including grounds, playgrounds, picnic sites, roads and paths, coupled with the weekend cleaning and re-supplying of all open park restrooms. Maintenance and repair of park fixtures, daily opening of gates, posting reservations, unauthorized camp clean up and the constant removal of graffiti from all park infrastructure.

- a. Lower Park: Routine Maintenance, (down limbs. Vandalism repair, etc.) Staff has repaired, tested and brought on line the irrigation systems at all Lower and Middle Park locations. Staff is furiously flail mowing road sides, wildland areas, and hiking, horse riding and bike trails in Lower and Middle Park.
- b. Middle Park: Routine maintenance, plus see Lower Park regarding mowing.
- c. Upper Park Routine Maintenance. Staff is continuing install additional trail signage and regrade parking lots as time permits
- d. Green way Parks: Weed eating trails and routine maintenance. Mowing will begin soon.

- e. Upcoming projects: Sycamore pool prep for the summer season, Grade remaining parking lots, Spring turf program. Install new park rule signs, Nico Dragon demolition, PAR course install

3. Volunteer and Donor Program

- a. Chico Spring Clean Day- Over 400 people have registered to participate in the Chico Spring Clean Day!
- b. Volunteer Program Donation – Target Department Store donated a \$250.00 gift in support of the PALS Volunteers. Approximately 30 Target employees will be participating in the Chico Spring Clean Day.
- c. Upcoming Volunteer Opportunities
 - i. Volunteer Calendar – To find out about upcoming volunteer events please [CLICK HERE](#) or visit <https://www.chico.ca.us/post/volunteer-calendar>

MONTHLY SUMMARY TABLES

Table 1. Monthly Volunteer Hours

| Parks and Greenway -PALS- (Partners, Ambassadors, Leaders & Stewards) Volunteer Activities, March 2021 | | | | | | | |
|---|---------------------------|-----------------------|------------------------|--------------------|---|------------------|-----------------|
| Date | Location | Partner/Agency | # of Volunteers | Hrs. Worked | # of Vols Xs Hrs. = Total Hrs. | Task | Leader |
| Various | Chico Parks and Greenways | PALS | 109 | N/A | 1152 | Park Ambassadors | Shane Romain |
| 3/5/2021 | Comanche Creek | FOCCG | 3 | 3 | 9 | Gen Cleanup | Liz Stewart |
| 3/5/2021 | Lower Park | PALS | 6 | 3 | 18 | Veg Mgmt | Linda Calbreath |
| 3/5/2021 | Vevena Fields | CAVE | 14 | 3 | 42 | Veg Mgmt | Cathryn Carkuff |
| 3/6/2021 | Comanche Creek | FOCCG | 4 | 3 | 12 | Veg Mgmt | Emily Alma |
| 3/6/2021 | Lower Park | CAVE | 9 | 3 | 18 | Veg Mgmt | Shane Romain |
| 3/12/2021 | Vevena Fields | CAVE | 15 | 3 | 45 | Veg Mgmt | Cathryn Carkuff |
| 3/13/2021 | Lower Park | CAVE | 7 | 21 | 18 | Veg Mgmt | Shane Romain |
| 3/19/2021 | Vevena Fields | CAVE | 9 | 3 | 27 | Veg Mgmt | Cathryn Carkuff |
| 3/19/2021 | Comanche Creek | FOCCG | 3 | 3 | 9 | Gen Cleanup | Liz Stewart |
| 3/20/2021 | Lower Park | PALS | 5 | 3 | 15 | Veg Mgmt | Kevin Seeger |
| 3/26/2021 | Vevena Fields | CAVE | 14 | 3 | 42 | Veg Mgmt | Cathryn Carkuff |
| 3/27/2021 | Comanche Creek | FOCCG | 4 | 3 | 12 | Veg Mgmt | Emily Alma |
| 3/27/2021 | Upper Park | Trailworks | 7 | 3 | 21 | Trails | Thad Walker |
| 3/31/2021 | Lower Park | CAVE | 14 | 3 | 42 | Veg Mgmt | Shane Romain |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | TOTAL HRS. | 1482 | | |

Photographs



Figure 1 Caesar Chavez Day Photo by Jason Halley



Figure 2 Caesar Chavez Day Photo by Jason Halley



Figure 3 New park rules sign



Figure 4 Cub Scouts exploring Upper Park



Figure 5 Gift card donation from Target dept. store



DATE: 04/22/21
TO: Bidwell Park and Playground Commission (BPPC)
FROM: Richie Bamlet, Urban Forest Manager
SUBJECT: Street Trees Division Report

NARRATIVE

1. Updates

- a. A consultant for the Urban Forest Master Plan and Canopy Cover analysis contract has been selected. A contract is being finalized.
- b. Applications have been received for job vacancies in Tree Division and are being reviewed. The vacancy for a Senior Maintenance Worker is still open for applications.
- c. City of Chico has been designated a Tree City USA for the 37th year in a row.

2. Planning/Monitoring

- a. Damage Reports – There were two damage report sent to Risk management in March. The claims related to branch drop onto vehicles and property.

3. Planning and Building Development

- a. UFM reviewed many development plan reviews in the Trakit permitting system. Field inspections were also done. Landscape comments from Public Works included Tree Protection Zone violations, species choices, tree removal mitigation calculations and the requirement to remove nursery canes on planted trees.

4. Miscellaneous

- a. City of Chico has been designated a Tree City USA for the 37th year in a row. Chico was also awarded the Growth Award for the fourth year in a row. The annual Arbor Day Proclamation is scheduled to be heard at the May 4th City Council meeting.
- b. The new Wednesday volunteer group continued in March planting trees in various neighborhoods. See photo 1. So far, the volunteer group has planted 25 shade trees in 2021.
- c. Tree Division made the request to keep all tree related City fee schedules for FY 21/22 unchanged from FY 20/21. The most commonly utilized fee is the Tree Preservation in lieu mitigation fee. This fee funds mitigation tree plantings.
- d. Public Works continues to accept citizen requests for free shade trees ahead of the next community tree planting event in November 2021. Residents wishing to have a free shade tree planted should contact Butte Environmental Council at urbanforest@becnet.org or call (530) 891 6424

5. Maintenance

a. The City contractor West Coast Arborists continued with tree pruning operations. Tree work at Park Avenue started at Midway and is moving towards Main St, ahead of an Engineering Capital road widening project scheduled to start in summer 2021.

b. Tree division cleaned up a number of damaged trees from vehicle accidents. See photo 2 of a destroyed tree on Park Ave.

c. Tree Division successfully worked with Development Engineering and a local plumbing company to repair an old sewer and save a nearby tree. See photo 3 showing efforts to bore under the tree roots to install a replacement sewer lateral.

d. The total number of shade trees planted January to March (Q1_2021) is 145. This is from a combined effort from partners Butte Environmental Council, Chico Rotary and Wednesday community volunteers.

e. City tree watering operations continued in April. Watering operations are now full-time until the rains return. Recent tree plantings are divided into four watering zones. The fifth day is spent giving a proportion of older trees a monthly deep watering. See Figure 1 showing the four watering zones. The current bandwidth for City tree watering is now at full capacity. Subsequent tree planting requests can only be accommodated if the requester agrees to water the tree until established.

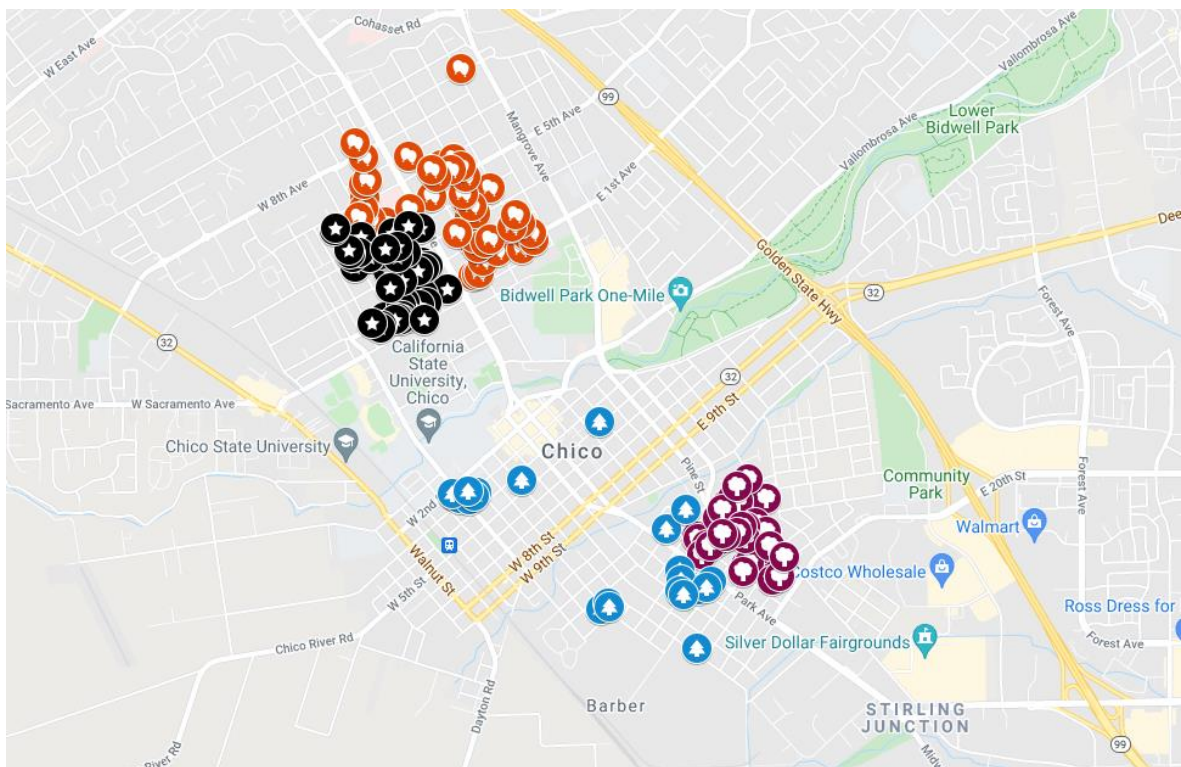


Figure 1. New shade tree watering routes.

f. Tree trimming along Mission ranch is completed. The large London plane trees have been cleaned of deadwood, reduced back from buildings and pruned for improved structure. See photo 4

6. Outreach, Training and Education

- a. Tree Division was featured in Enjoy! Magazine. The story was titled “Deep roots” and is available to read online in the April issue.
- b. UFM attended various training's on topics including operational risk, pesticide legislation, master plan development and carbon sequestration in the landscape,
- d. Staff continued training on TreeKeeper 8, the new software for managing the new tree inventory.
- e. As part of a community outreach initiative, Tree Division delivered free wood mulch to various organizations including Chico State Farm, Oak Way Community gardens and Parkview elementary vegetable garden. See photo 5 of mulch drop at Oak Way Community gardens that was in preparation of a community gardening event April 17
- f. Public Works supported the development of the new Rotary park located off Ceres Ave in north Chico. March 27th, Almost one hundred Rotary members volunteered to plant trees and install landscaping at the new neighborhood park. See photos 6, 7 and 8.

7. Street Tree Supervisor Report

The Street Tree Supervisors monthly summary data tables for March is included below:

MONTHLY SUMMARY TABLES

Table 1






| Category | Staff Hours | % of Total | % Change from Last Month | Trend |
|---------------------|-------------|------------|--------------------------|---|
| Tree Crew Hours | | | | |
| 1. Safety | 65 | 9.6% | 64.7% |  |
| 2. Tree Work | 567.5 | 84.1% | 92.9% |  |
| 3. Special Projects | 15 | 2.2% | 65.2% |  |
| 4. Admin Time/Other | 27 | 4.0% | 24.1% |  |
| Monthly Totals | 674.5 | 100.0% | 79.7% |  |

Table 2

| Item | Values | % Change from Last Month | Trend |
|-----------------------------|----------|--------------------------|-------|
| 5. Productivity | | | |
| Calls | | | |
| Call Outs | 57 | 150.0% | ▣▣▣ |
| Service Requests: Submitted | 0 | - | |
| Service Requests: Completed | 66 | 111.9% | ▣▣▣ |
| Sub Total | 0 | - | |
| Trees | | | |
| Planted: Trees | 30 | 250.0% | ▣▣ |
| Pruned | 316 | 119.2% | ▣▣▣ |
| Removed: Trees (smaller) | 0 | - | |
| Removed: Stumps | 0 | - | |
| Removed: Trees | 18 | 257.1% | ▣▣▣ |
| Sub Total | 364 | 128.2% | ▣▣▣ |
| Tree Permits (#) | | | |
| Submitted | 7 | 87.5% | ▣▣▣ |
| Approved | 6 | 200.0% | ▣▣▣ |
| Denied | 1 | 100.0% | ▣▣ |
| Total | 14 | 116.7% | ▣▣▣ |
| 6. Contracts | | | |
| Expenditures (\$) | \$ 6,400 | - | ▣▣▣ |
| Trees (#) | | | |
| Planted | 0 | - | |
| Pruned | 0 | - | ▣ |
| Removed: Trees (smaller) | 0 | 0.0% | |
| Removed: Stumps | 1 | - | ▣▣▣ |
| Removed: Trees | 0 | 0.0% | ▣ |
| Routine Maintenance | 0 | - | |
| Total | 1 | - | ▣▣▣ |

8. Upcoming Issues/Miscellaneous:

a. The RFP for the development of an Urban Forest Master Plan and Community Canopy analysis has been awarded. The Master plan will provide a road map to outline the future vision and development of urban green space within the City. It is anticipated to start developing lists of agencies and groups to invite to stakeholder meetings. The initial kickoff meeting is tentatively scheduled for May.

b. Tree Division is preparing for a “Parktastic” Arbor Day event at Parkview STEM elementary school 4/30. Four separate classes of students will participate and a total of seven trees will be planted. See photos 9 and 10. Student sessions are designed to be educational, informative and fun!

c. Tree Division, in conjunction with the Landscape Supervisor is developing a plan to prioritize rejuvenation of various medians in main arterial ROW corridors around town. Tree issues have been identified in the new inventory database. See Figure 2 below showing location of necessary tree removals, stump grinding and re-planting. There are 158 locations.

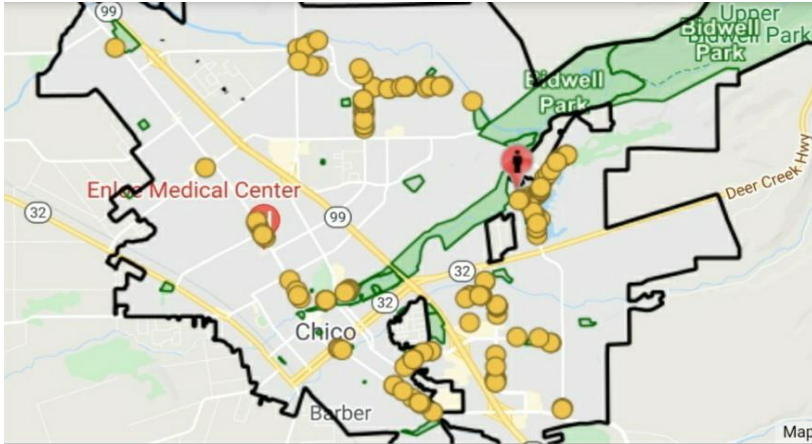


Figure 2. Yellow dots indicate tree replacement issues in median right-of-way for main arterial corridors.

d. Tree Division is working on an air pollution reduction grant opportunity with non-profit partner Butte Environmental Council. The Butte County Air Quality Management District is accepting proposals ranging from \$500 to \$15,000. It is anticipated this opportunity will help augment reforestation efforts in Disadvantaged communities within Chico.

e. A summer employment opportunity for a grant funded Urban Forest Coordinator intern has been offered to a CSU Parks and Natural resources student. An orientation is scheduled for May 12. The intern will focus on community outreach for Urban Forest Master Plan development as well as residential shade tree signups.

PHOTOGRAPHS



Photo 1: Wednesday volunteers on E 3rd Ave planting community shade trees. Julie Nilsson and Danielle Alexich. 4/21/21

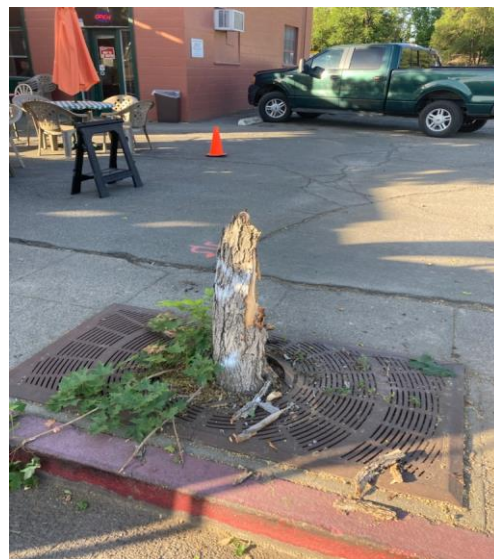


Photo 2: Tree destroyed in vehicle accident. Park ave. 4/21/21



Photo 3: Sewer lateral repair on Wall St. Replacement pipe was placed under tree roots in the trench. Roots were not cut.

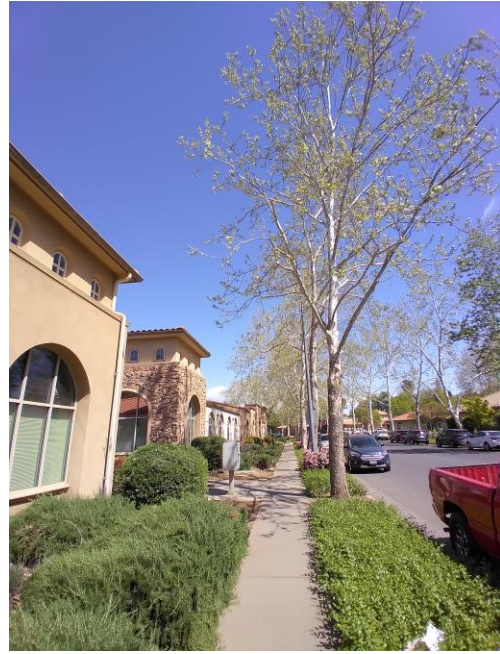


Photo 4: Mission ranch tree pruning.



Photo 5. Mulch drop at Oak way Community Garden April 17th.



Photo 6. CARD employee Luke Pyle demonstrates creation of temporary deep watering device with a 5-gallon bucket and a drill. 3/27/21



Photo 7. Rotary club members busy planting trees.
Rotary park 3/27/21



Photo 8. CARD employees at the temporary tree nursery. Rotary park 3/27/21.



Photo 9. Parkview elementary STEM school. Tree planting locations selected for Arbor Day school event.
Veg garden- Orange/ Apple/ Kumquat
School wing #1 – 2 Autumn Blaze maple trees
Room #18-21 – 2 Tupelo trees



Photo 10: Prizes for student participants.

From: [Anna Moore](#)
To: [Linda Herman](#)
Subject: Agenda Item: Ad Hoc Committee
Date: Wednesday, March 31, 2021 10:46:42 AM

ATTENTION: This message originated from outside **City of Chico**. Please exercise judgment before opening attachments, clicking on links, or replying.

Hi Linda--

I'd like to form a committee focused on increasing revenue for Bidwell Park: ideas I have are

- a development director hire for the parks staff (salaried or contracted--now that we have more hires on the ground, a position that would guarantee consistent yearly revenue seems apt)
- a foundation
- an endowment

Of course more ideas would emerge from committee work. The committee would go for say 6-9 months and then bring ideas to the BPPC.

Please agendaize a vote to discuss this on the next BPPC agenda; if you could reply to let me know you received this, I'd appreciate it.

Thank you.

--Anna B. Moore

Linda Herman

From: Megan Thomas Petty <meganthomaspetty@gmail.com>
Sent: Monday, April 19, 2021 9:56 AM
To: Linda Herman
Subject: BPPC Agenda Item

ATTENTION: This message originated from outside **City of Chico**. Please exercise judgment before opening attachments, clicking on links, or replying.

Hi again, Linda,

This is my first time attempting to agendize an item. I hope it is in time for the next meeting, but if not, I guess we can wait until May. If I need to send it to someone else besides you, please let me know, and sorry for the bother. I'm not even sure whether this item is within the purview of the Park Commission, but I do want to try and do our part to help hire and retain and properly compensate more Park Rangers and Urban Forestry employees, if this is currently an issue; and at least bring this issue to the Council's attention, which is probably already on their radar.

Agenda Item for April 26, 2021 BPPC Meeting:

Discussion of recruitment, retention and remuneration issues for Parks Department Employees (specifically Park Rangers) and Urban Forestry/Street Trees Division Employees.

Thank you, Linda, and have a great week . . .

Megan

From: [Old River Road](#)
To: [Linda Herman](#)
Subject: BPPC Agenda
Date: Friday, April 23, 2021 9:18:36 AM

ATTENTION: This message originated from outside **City of Chico**. Please exercise judgment before opening attachments, clicking on links, or replying.

Hi Linda:

I would like to request that we look at adding 2 items to our next meeting agenda:

- 1) Park Closure Times - I would like to discuss adjusting park closures at different areas of the Park to be more inline with reducing the vandalism, graffiti, public safety, camping, etc
- 2) Drug Free / Zero Tolerance - I would like to discuss looking at how we can create zero tolerance or enhanced drug free zones in our parks, especially around areas where our children play

Thank you,

Jeff

Jeffrey Glatz
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