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

Agenda Prepared: 8/27/2020
Agenda Posted: 8/27/2020
Prior to: 6:00 p.m.

CITY OF CHICO
BIDWELL PARK AND PLAYGROUND COMMISSION (BPPC)

Regular Meeting Agenda
August 31, 2020, 6:00 pm
Remote Meeting via City's WebEx 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 being 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 WebEx platform, by calling into the meeting, or by sending an email to the following email address. ***This meeting will not be televised on Comcast Channel 11.***

*Emailed public comments will be accepted with the subject line **PUBLIC COMMENT ITEM ____, sent to parkpubliccomment@chicoca.gov** during the meeting prior 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.*

WebEx public participants may use the following information to remotely view and participate in the Bidwell Park & Playground Commission meeting online:

Event Name: **BIDWELL PARK & PLAYGROUND COMMISSION MEETING 08-31-2020**
Date/Time: Monday, August 31, 2020 at 6:00 pm

WebEx Event URL : https://chico.webex.com/chico/onstage/g.php?MTID=ead4d2186942913e1522de62fde9e6fa5
Event #: 146 833 5376
Password: BPPC31!

Call-in Number: 1-844-517-1442 Call-in Password: 146 833 5376

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 7/20/20.

3. ITEMS REMOVED FROM CONSENT – IF ANY

4. PUBLIC HEARINGS NONE

5. REGULAR AGENDA

5.1. CONSIDERATION OF COMMENTS RECEIVED ON DRAFT VEGETATIVE FUELS MANAGEMENT PLAN AND FINAL PROPOSED IMPLEMENTATION PROJECTS.

The Bidwell Park & Playground Commission (BPPC) will consider public comments received on the first draft of the Vegetative Fuels Management Plan (VFMP) for Bidwell Park, and City greenways and open

spaces. The BPPC will consider further comments from the BPPC or the public, and final approval of potential implementation projects identified in the Draft VFMP. ***(Report – Linda Herman, Park & Natural Resources Manager)***

Recommendation: The BPPC is requested to provide comments and direction on the Draft VFMP and the proposed future implementation projects.

5.2. UPDATE ON WATER QUALITY TESTING FOR SYCAMORE POOL IN BIDWELL PARK.

Staff will provide an update on a proposed revised policy regarding water quality testing for Sycamore Pool in Lower Bidwell Park. ***(Report – Linda Herman, Park & Natural Resources Manager)***

Recommendation: None this is an informational item only

6. BUSINESS FROM THE FLOOR

Members of the public may address the Commission via WebEx 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 at this meeting on requests made under this section of the agenda.

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 will be needed in order to agendize these items for discussion at a future meeting. If agendized, public comment will be taken at that meeting. Speaker cards will not be accepted for these items.

8.1. By email dated 8/17/20, Commissioner Glatz requests to agendize discussion regarding the following topics at future BPPC meetings over the next 90 days:

8.1.1. Designating all of Bidwell Park as a "playground".
8.1.2. Revise noise ordinance to ban amplified sound in Bidwell and City parks.
8.1.3. Establish Code of Conduct for City parks and greenways.
8.1.4. Providing phone/text number for public to report incidents in the parks and greenways.
8.1.5. Enhancing enforcement with private security and/or Butte County Sheriff's Office.

8.2 Commissioner Haar requests to agendize discussion of the following items at a future BPPC meeting:

8.2.1 Consider developing Lost Park near City Parking Lot 5 as a river walk recreation area or other revenue opportunity.
8.2.2 Addressing potential fire hazards in Lower Bidwell Park, Lindo Channel, and on Humboldt Avenue along Little Chico Creek due to encampments.

9. ADJOURNMENT

Adjourn to the next regular meeting on **9/28/20** at **6:00 p.m.** at a location or format to be determined.

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
JULY 20, 2020 SPECIAL MEETING

1. REGULAR COMMISSION MEETING CALL TO ORDER

1.1 Call to Order

The July 20, 2020 Special Meeting of the Bidwell Park & Playground Commission was called to order by Chair McReynolds at 6:02 p.m.

1.2 Roll Call

Commissioners Present: Moore, Liles; Smith Peters, Glatz, Haar, McReynolds

Commissioners Absent: None

Staff Present: Chris Constantin (Assistant City Manager)
Dani Rogers (Deputy City Clerk)
Linda Herman (Park and Natural Resource Manager)
Richie Bamlet (Urban Forest Manager)
Kimberly Graciano (Management Analyst)
Will Mansfield (Sr. Info. Systems Tech)
Becky Anderson (Office Assistant)

PUBLIC PARTICIPATION: *This meeting was conducted in accordance with Governor Newsom's Executive Order N-29-20. The public was able to view the meeting on Comcast Channel 11 and via streaming video accessible on the City's website.*

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.

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 2/24/20.

A motion was made by Commissioner Smith Peters and seconded by Commissioner Moore to approve the consent agenda.

The motion carried by the following vote:

AYES: Commissioner Moore, Commissioner Liles, Commissioner Smith Peters, Commissioner Glatz, Vice-Chair Haar, Chair McReynolds

NOES: None

3. ITEMS REMOVED FROM CONSENT – None

4. PUBLIC HEARINGS – None

5. REGULAR AGENDA

Commissioner Smith Peters requested to change the agenda order, moving 5.3 Consideration of Options to Reduce Damage to Bidwell Parks and Other City Parks and Greenways up to the 5.2 position.

Vice-Chair Haar made an objection and wanted the order of the agenda to stay as they were on the published agenda to allow for anyone watching online to be able to follow along with the published agenda.

Commissioner Smith Peters rescinded her request.

5.1 UPDATE AND CONSIDERATION OF A DRAFT VEGETATIVE FUELS MANAGEMENT PLAN

The Bidwell Park & Playground Commission (BPPC) received an update on the development of the Draft Vegetative Fuels Management Plan (VFMP) for Bidwell Park, and City greenways and open spaces. The BPPC also considered proposed potential implementation projects identified in the Draft VFMP. Development of the VFMP is funded by a CalFire Community Wildfire Prevention Grant. (***Report – Linda Herman, Park and Natural Resources Manager)***

Chair McReynolds opened the agenda item to the public. Email comments were received prior to the meeting from Woody Elliott, Suzette Welch, and Susan Mason. During the meeting, emails were received from Meleiza Fiqueroa and Ali Knight and Paul Bletz. The item was closed to further public comment.

The BPPC requested that the Draft VFMP go to the Natural Resources Committee for further review and public input. The Committee will bring their review and input to the Commission for the August 31st meeting.

5.2. CONSIDERATION OF POLICY REGARDING PERMIT APPLICATIONS FOR PUBLIC AND PRIVATE EVENTS DURING COVID-19 REOPENING PLANS

The BPPC considered developing a policy regarding park reservation applications and permits for compliance with Governor Newsom's COVID-19 California Pandemic Resilience Roadmap. ***(Report – Linda Herman, Park & Natural Resources Manager)***

Chair McReynolds opened the hearing to the public. An email from Karin Willhoit regarding this item was received prior to the meeting. During the meeting, an email comment was received from Richard Elsom Sr. The item was closed to further public comment.

A motion was made by Vice-Chair Haar and seconded by Commissioner Moore to cancel all reservations and events until further notice to follow State or County guidelines on reopening plans.

The motion carried by the following vote:

AYES: Commissioner Moore, Commissioner Liles, Commissioner Smith Peters, Commissioner Glatz, Vice-Chair Haar, Chair McReynolds

NOES: None

The Commission recessed at 7:19 p.m. for a ten-minute break. The meeting was reconvened and all members of the Commission were present.

5.3 CONSIDERATION OF OPTIONS TO REDUCE DAMAGE TO BIDWELL PARK AND OTHER CITY PARKS AND GREENWAYS

At its 2/24/20 meeting, the BPPC approved agendizing the discussion of developing options to reduce environmental degradation, trash, and damage to Bidwell Park and other City parks and greenways due to encampments. The BPPC also discussed the increased impacts due to COVID-19. ***(Report – Linda Herman, Park & Natural Resources Manager)***

Chair McReynolds opened the hearing to the public. Email comments prior to the meeting were Suzette Welch, Elaina Brown, Janet Elner, Michele Burton, Jeri Luce, Susan Smead, Kate Roark, Lisa Holeman, Karen Willhoit, Linda Calbreath and Julie Brown

During the meeting, emailed comments were received from Charles Withuhn, Jessica Bender, Tom Bond, Sisarie Sherry, Meleiza Figueroa,Nichole Nava, Rich Ober, Tom Barrett, Amy Wheeler, Angela McLaughlin, and Theresa O'Connor and Effie Hale. The hearing was closed to further public comment.

Commissioner Moore made a motion and seconded by Vice-Chair Haar to send the following letter to City Council:

Dear Chico City Councilors:

To protect our parks, the Bidwell Parks and Playgrounds Commission unanimously supports your taking immediate action: please establish a sanctioned campground or low-barrier shelter for Chico's unhoused population.

As you know, One Mile, Comanche Creek, and other park areas did not have the infrastructure to support encampments before the pandemic; this is more apparent now that our city is confronted with COVID-19. To a greater extent than ever before, the park is being stretched beyond its limits, limits it was never meant to have. The environmental impacts of encampments in the park are profound, as is the risk of fire danger and other public safety issues.

Please act accordingly. Our community needs to protect Bidwell Park and other city parks and greenways as we are entrusted to do by our Charter. The establishment of supported campground or low-barrier shelter as soon as possible will provide a healthier alternative for those who are currently homeless and for visitors to the Park and greenways, especially in this time of crisis. A campground or shelter will also provide time for other city measures and partnerships to fully develop in order to address our community's homeless issues.

In addition, we strongly urge the council to direct the City Manager to divert money in the budget toward public works in order to clean up the parks. COVID-19 has reduced the number of park volunteers who regularly and heroically cleaned up. We need more support from the city to mitigate the trash. Please also consider a shopping cart ordinance that requires businesses to keep carts on their business' property.

Again, these efforts have the unanimous support of the Bidwell Parks and Playground Commission. Please address this crisis immediately. Thank you.

Sincerely,
Bidwell Parks and Playgrounds Commission

The motion carried by the following vote:

AYES: Commissioner Moore, Commissioner Liles, Commissioner Smith Peters, Commissioner Glatz, Vice-Chair Haar, Chair McReynolds

NOES: None

Staff requested the Commission take a recess at 9:11 p.m. for a ten-minute break. The meeting was reconvened and all members of the Commission were present.

Staff informed the Commission that there was a concern from the City Attorney that the annotation for Item 5.2 regarding park reservations and large events on the posted Agenda may not have been clear to the public that current and future events may be cancelled. Staff advised that the original motion be rescinded and that the Commission direct Staff to work with the City Manager, as the COVID-19 Emergency Operations Director, to develop park reservation and event procedures to comply with State and County restrictions.

A motion was made by Vice-Chair Haar and seconded by Commissioner Glatz to rescind the motion previously made on Agenda Item 5.2.

The motion carried by the following vote:

AYES: Commissioner Moore, Commissioner Liles, Commissioner Smith Peters, Commissioner Glatz, Vice-Chair Haar, Chair McReynolds

NOES: None

A motion was made by Commissioner Liles and seconded by Commissioner Glatz to provide Staff and the City Manager the ability to comply with State social distancing guidelines and mandates on group sizes, and large public events in the context of the permitted activities in City Parks during COVID-19.

The motion carried by the following vote:

AYES: Commissioner Moore, Commissioner Liles, Commissioner Smith Peters, Commissioner Glatz, Vice-Chair Haar, Chair McReynolds

NOES: None

5.4 CONSIDERATION OF STAFF'S PROPOSAL TO MODIFY THE SOUTH ONE MILE RESTROOMS

The BPPC considered a proposal from Staff to make some modifications to the changing and shower areas at the restroom on the south side of Sycamore Pool in the One Mile Recreation Area. Staff proposed to knock down a portion of the changing area walls and to enclose the unused shower areas for use as storage rooms. ***(Report – Linda Herman, Park & Natural Resources Manager)***

Chair McReynolds opened the hearing to the public. No email comments were received. The hearing was closed to further comment.

A motion was made by Vice-Chair Haar and seconded by Commissioner Smith Peters to approve the proposed One Mile Restroom modifications.

The motion carried by the following vote:

AYES: Commissioner Moore, Commissioner Liles, Commissioner Smith Peters, Commissioner Glatz, Vice-Chair Haar, Chair McReynolds

NOES: None

6. BUSINESS FROM THE FLOOR – None

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. ADJOURNMENT

Adjourned at 9:50 p.m. to the next regular meeting on 8/31/20 at 6:00 p.m. in the Council Chamber of the Chico Municipal Center building located at 421 Main Street, Chico, California.

Date Approved: __/__/___

Prepared By:

_____ _____

Becky Anderson, Office Assistant Date

Distribution: BPPC

BPPC Staff Report

Meeting Date 8/31/20

DATE: 8/25/20

TO: Bidwell Park & Playground Commission

FROM: Linda Herman, Parks and Natural Resources Manager

SUBJECT: CONSIDERATION OF COMMENTS RECEIVED ON DRAFT VEGETATIVE FUELS MANAGEMENT PLAN AND FINAL PROPOSED IMPLEMENTATION PROJECTS.

REPORT IN BRIEF:

At its 7/20/20 meeting, the Bidwell Park & Playground Commission (BPPC) received an update on the development of the Draft Vegetative Fuels Management Plan (VFMP) for Bidwell Park, and City greenways and open spaces. The BPPC also considered proposed potential implementation projects identified in the Draft VFMP.

Recommendation: The BPPC is requested to provide comments and direction on the second Draft VFMP and the proposed future implementation projects.

FISCAL IMPACT:

With assistance from the Butte County Resource Conservation District (BCRCD), the City applied for and was awarded a $158,907 Community Wildfire Prevention grant from Cal Fire to develop the VFMP. The grant does not include funding for the implementation of the VFMP, and the project specific environmental review and implementation of the proposed projects identified in the Plan. The City also pledged a local match of $55,828 for a total project cost of $214,735.

BACKGROUND:

The VFMP encompasses vegetation management techniques and practices for approximately 6,400 acres of City parks, greenways and open space (see map in Attachment A). The purpose of this grant is to build local capacity to complete community-based fire prevention measures and projects, so the scope of work also includes identification of potential “shovel-ready” implementation projects. The VFMP and all other associated planning work must be completed by March 2021.

On 7/20/20, the BPPC reviewed the first draft of the VFMP developed by Park Staff and its collaborating partners (Project Team) which includes the following:

1. Biological surveys/mapping of existing City properties
2. Fire severity and risk Analysis/mapping
3. Identification of five vegetation management units (grasslands, valley oak, riparian, blue oak/gray pine, upland mix)
4. Potential treatment methods (i.e. manual, prescribed burn, mechanical, grazing etc.) for each type of management unit
5. Standards (targets) of vegetation density/composition for each management unit, to provide a framework for ongoing vegetation management across all City-managed parklands.

In addition to the programmatic vegetation management standards which apply across all parklands, the Project Team also identified the following seven (7) potential future vegetation management and fuel reduction implementation projects (Projects) for consideration by the Commission and the public:

1. Little Chico Creek Arundo Management - Removal of Arundo where possible, leaving the root ball intact for erosion control, and replanting with Willows and other native vegetation.

2. Verbena Fields Stewardship -Elevating, thinning, removal of vegetation in Verbena Fields.

3. Lindo Channel Vegetation Management - Elevating/thinning/grazing of invasive and fire risk vegetation to provide defensible space and to remove downed vegetation for flood control.

4. Middle and Upper Park Starthistle Burns - Addressing yellow starthistle and other invasive vegetation on the north side of Middle and Upper Bidwell Park through prescribed burns and other methods.

5. 10-Mile House Road Oak Restoration and Wildfire Resilience - Vegetation thinning/prescribed burn as needed for fuel reduction along 10-Mile House Road.

6. Upper Park Bulldozer Lines Oak Restoration and Wildfire Resilience – Restoring two existing bulldozer scars from the Stoney and Santos Fires to provide fuel breaks, emergency access, and to enhance adjoining Oak stands.

7. Nature Center Restoration – Restoration of the cleared area and surrounding the Nature Center with native vegetation.

The BPPC directed its Natural Resource Committee (NRC) to further review and obtain public comments on the draft Plan and proposed implementation Projects. However due to continued COVID-19 restrictions, an in-person NRC meeting was not possible, and the public was encouraged to submit their comments via email for the BPPC's consideration at its 8/31/20 remote meeting.

DISCUSSION:

A summary and copy of the comments received at the 7/20/20 BPPC meeting and since the meeting are attached for the Commission's consideration in Attachment B. The Project Team addressed and/or incorporated many of the comments in a second draft of the VFMP, which is attached as Attachment C. The BPPC is requested to review the comments received, the second Draft of the VFMP, and any additional comments from Commissioners or the public.

The Project Team is also requesting that the Commission provide direction and final approval of the following revised proposed implementation projects to be included in the VFMP and subsequent environmental review:

1. Little Chico Creek Arundo Management - Removal of Arundo where possible, leaving the root ball intact for erosion control, and replanting with Willows and other native vegetation.

2. Verbena Fields Stewardship -Elevating, thinning, removal of vegetation in Verbena Fields, plus educational/cultural collaboration with Mechoopda land tenders ***(suggested to be removed by several public commenters).***

3. Lindo Channel Vegetation Management - Elevating/thinning/grazing of invasive and fire risk vegetation to provide defensible space and to remove downed vegetation for flood control.

4. Middle and Upper Park Starthistle Burns - Addressing yellow starthistle and other invasive vegetation on the north side of Middle and Upper Bidwell Park through prescribed burns and other methods.

5. 10-Mile House Road Oak Restoration and Wildfire Resilience - Vegetation thinning/prescribed burn as needed for fuel reduction and to enhance native vegetation along 10-Mile House Road.

6. Upper Park Bulldozer Lines Oak Restoration and Wildfire Resilience – Restoring and maintaining native vegetation on two existing bulldozer scars from the Stoney and Santos Fires to provide fuel breaks, emergency access, and to enhance adjoining Oak stands.

ENVIRONMENTAL REVIEW:

As reported earlier, a programmatic Environmental Impact Report (EIR) will be prepared for the CEQA review of the VFMP and the proposed implementation projects. However, any required project specific CEQA review and regulatory permitting will still be conducted prior to implementation of the Projects.

PUBLIC OUTREACH:

The Project Team will continue to provide opportunities for the public to provide input on the VFMP and implementation Projects through email, websites, online videos, other media outputs, and hold when possible.

Attachment A: City Property Map
Attachment B: Summary of the Public Comments
Attachment C: 2nd Draft Vegetative Fuels Management Plan (VFMP)

Figure 1: Lands addressed in this Plan.

Additional comments about the Vegetative Fuels Management Plan
By Susan Mason 08/10/20

Project Selection:
Regarding the selection of projects, I don't think that the Verbena Fields or the Chico Creek Nature Center projects should be included.

For Verbena Fields, from a vegetative fuel management perspective, CDF already prunes (annually, I think) the vegetation on the west side of VF for a firebreak and power line clearance. The work on the willows could be included in the Lindo Channel project and the other work, except for burning, doesn't require permits. As I said in my prior comments, control of the Spanish broom in the channel needs to be done at a watershed level. While it's useful to pull out the broom plants in this section of the channel to reduce the fire danger, Big Chico Creek especially in Upper Bidwell Park is a constant source of new broom seeds.

Before I had to leave Chico, volunteers were making good progress on controlling YST, mustard, radish, puncturevine and other weeds here by hand-pulling. This is a relatively small area where the Bradley Method of invasive plant control could easily be implemented. Having worked at this site even before the restoration project and talked to dozens of its neighbors over the years, I don't think it's feasible to do on-site burning here, unless it was only small burn piles in the middle of the site. Even the amount of public outreach required prior to a burn would be very time-consuming.

At the Chico Creek Nature Center site, most of the vegetative fuels have already been removed. I understand that the Park Division is looking for a way to pay for the maintenance of this site, but including a project primarily because it already has a management plan and is thus "shovel ready" is not appropriate.

I was surprised that the Comanche Creek Greenway was not considered as a project area. Its management plan is obsolete and only covered about half of its present area. CCG has had frequent fires during the last decade including one that crossed the creek near Park Ave and another that extensively damaged the roof on the adjacent Mosquito and Vector Control District building. There are nearby commercial and industrial neighbors on both the north and south sides of the Greenway who could be severely impacted by a wildfire. Volunteers have spent thousands of hours here elevating oak trees to reduce the impacts of future wildfires on the trees, removing invasive plants, cleaning up trash at abandoned homeless camps and planting and maintaining native flora. An updated management plan and associated programmatic permitting could provide direction to future volunteer efforts here. It seems to me that supporting the efforts of these volunteers (one of the few if not the only group doing regular maintenance of a city open space) should be a high priority for the Chico Park Division. Also, because of the number of homeless camps here and on adjacent private property, wildfire is a constant threat to the Greenway, its neighbors and the PG&E Substation that's now flanked on both sides by Greenway property.

Specific comments about the draft document:

On page 57, the map shows only north side YST infestations. Could the large YST infestation on the south side upstream of Ten Mile House Rd also be included in the project?

On page 62, a first step towards Lindo Channel fire management would be to provide annual maintenance of the dirt access roads into the channel, to make sure that their locations are clearly marked on Chico Fire Dept maps and that the padlocks on the access gates are functional.

On page 65, an important process in the Arundo project is missing, namely cutting down and hauling the dead canes from the infestation sites. Perhaps Step 2 alludes to this with the word "mechanical" but this is a time-consuming and possibly expensive part of the project so it needs to be spelled out. This cutting and hauling should be done every year as soon as the water level has receded enough to safely access the sites, to reduce the fire hazard from dead canes, to make it easier see where to to-retreat the stand, and to determine when the stand is totally dead so that it can be replanted, as needed . These canes must go to landfill. Waste Management did a trial grinding a few years ago and determined that neither the stalks nor roots could be processed at the city's composting facility.

Also, some of the Arundo stands are in the middle of the channel where it would create an obstruction to channel flow if willows were to be planted.

Perhaps beyond the scope of this project is another crucial element for fire management in Little Chico Creek, namely identifying access points for fire dept access and, as needed, permanently remove neighbors' encroachments (e.g. at Normal St, off West 9th Ave.).

On page 73, I suggest that these additional invasive plants be included in the final list: bur-chervil, catalpa, cherry plum, Chinese tallowtree, fig, hackberry, hawthorn, Italian thistle, Japanese honeysuckle, milkthistle, olive, photinia, tree of heaven and Virginia creeper. If Verbena Fields is one of the projects, then curly dock, filaree, mustard, prickly lettuce, and wild radish should be on the list too. Maybe separate lists for riparian, woodland and grassland areas would be useful or a column indicating in which habitat a particular weed is most likely to be found.

On page 74 item 6.4, please include a list of the 16 invasive plant species that were looked for during the survey of the city properties. Was the survey form shown on page 72 used for these surveys? Will this survey data be available to the public?

From: [redacted]
To: Park Public Comments
Subject: comments on 7/20/20 BPPC Agenda Packet
Date: Sunday, July 19, 2020 3:34:29 PM

Comments about the VFMP draft:

1. On page 11, Bidwell Park has 3670 acres, not 3621. See https://chico.ca.us/amenities/about-bidwell-park
2. On page, 16, I think the current size of Comanche Creek Greenway should also be mentioned since the original 20 acres has almost doubled since its acquisition, which surely affects the applicability of its 2012 management plan.
3. On page 20, because it is such a lengthy distance and its boundaries are unclear to even its immediate neighbors, it would be useful to include the number of acres in the city-owned part of Lindo Channel. Perhaps this type of information could be included in an Appendix that lists all city open spaces, their acreage, their official documents (e.g. Sandy Gulch Resource Inventory July 2001) and other relevant information. Some of the documents are listed in the VFMP Bibliography but not all. Also, all of the documents referenced by the VFMP should be available on the city's web site.
4. On page 31, Item 5 is missing and Item 6. appears to be missing its first sentence.
5. On Page, 50, I suggest that Basal Bark be added as one of the herbicide treatment methods, since it is the method that's been most commonly used in Bidwell Park and on other city properties to control ailanthus and other invasive large woody species. Because it's sprayed directly on the tree bark, it requires a very small amount of herbicide and there's no collateral damage. Also, often, when the use of herbicide is mentioned, readers may have a vision of crop-dusting airplanes or tractors with a 12' boom spraying the weeds next to the freeway. It's important to quantify the amount of herbicide that the city of Chico might use in its open space areas and also to quantify in the document, how much it would cost to use other methods of control. The Marin Municipal Water District has studied this issue in regards to their broom infestations and it's eye-opening to compare the costs of volunteer (no, volunteer labor isn't really free) manual removal to herbicide.
6. On page 60, regarding depleting the seed bank of Spanish broom at Verbena Fields, unless the upstream infestations are eradicated (which extend upstream in Big Chico Creek to above Forest Ranch), the seed bank will continue to be replenished by seeds from these upstream plants floating downstream during high water events that divert water into Lindo Channel. Also, in addition to yellow starthistle, puncturevine needs a long-term control plan at Verbena Fields.
7. On page 64, the DWR map of Arundo locations is missing the Arundo stand that is slightly upstream of Hwy 99 and stands in other locations. In total, there are about 75 distinct Arundo stands upstream of Pomona Ave which is the city boundary.
8. On page 67, in the Task Calendar, I think that the invasive plant species bladder senna warrants a special mention. This area contained one of the park's most dense b. senna infestations when eradication efforts began in 2003 and, because of its long-lived seeds (25+ years) and increased seed germination in disrupted soil, it will need to be controlled for many

years after vinca, blackberry and annual weeds such as bur-chervil and yellow starthistle are eradicated from this area. B. senna can grow to be a 15' tall shrub if not controlled.

9. In various locations, "star thistle" and "starthistle" are used. Please standardize the spelling.
10. In my many years of weed removal work in the Big Chico Creek watershed, I don't remember seeing any Scotch broom. Spanish broom is the dominant BCC broom species, with a few French broom plants at 2 locations in Bidwell Park and 1 at Comanche Creek Greenway. So when/if specific broom species are mentioned, for this document I think Spanish broom should be the one that's mentioned.

I hope to provide some substantive comments when I've had more time to review and think about the draft document. This seems to be a good start to creating a plan that can be used to acquire the programmatic permit that's essential for any meaningful, long-term vegetation management in Chico's open space areas.

Susan Mason
[redacted]

From: [redacted]

Subject: PUBLIC COMMENT ITEM: 5.1. UPDATE AND CONSIDERATION OF A DRAFT VEGETATIVE FUELS MANAGEMENT PLAN

Date: Sunday, July 19, 2020 4:31:45 PM

Bidwell Park and Playground Commissioners:

The "Draft Fuels Management Plan for Parks and Greenways" (Draft Plan), attached, is composed of more or less concise descriptions for seven proposed projects and BMPs for their implementation. Its evaluation per State CEQA Guidelines as a Programmatic EIR will serve to satisfy applications for project funding and expedite environmental review of site-specific implementation of each of these seven plans. Such review would necessarily follow Municipal Code (**CMC**) **Chapter 1.40 ENVIRONMENTAL REVIEW GUIDELINES,** initiated by a written checklist per **State CEQA Guidelines 15168. PROGRAM EIR (c) (4).** The staff report recognizes that *further project specific CEQA review …. will still occur prior to implementation of the projects.* This should occur after completion and implementation by City staff of the Commission's first priority in its Year 2020 Work Plan for its Natural Resource Committee: Review of CEQA Policies and Procedures.

Not included in the Draft Plan is the ongoing effort to "clean up" wildfire fuels in Middle and Lower Park by: 1. Trimming ladder fuels which are chipped with dead and down limbs by the California Conservation Corps (CCC); and 2. Consumption of understory shrubs, grasses and forbs by goats. Site-specific plans for these projects were not developed as necessary for their required CEQA review. They need to be developed given the assertion in the Park and Natural Resource Managers report 7/14/2020: *A new contract has also been executed to continue our great partnership with the CCCs on various projects, as funding allows, over the next five years.*

Plans for these two fuels reduction projects should be developed and included in the Draft Plan because: 1. Their CEQA review will be necessary for such practices to continue; and 2. An evaluation of their past and future environmental effects is required in the cumulative environmental effects analysis of the Programmatic EIR for the Fuels Management Plan for Parks and Greenways. They could replace the following restoration projects in the Draft Plan: 5.3 Middle and Upper Park Starthistle Burns and 5.7 Nature Center Clearing and Restoration, which are **arguably**, fuels management projects intended to lessen the threat of wildfire that is the specific intent of the CalFire Community Wildfire Prevention Grant.

Draft Plan's Projects 5.1 "Ten-Mile House" Oak Restoration and Wildfire Resilience Project and 5.2 "Dozer Lines" Oak Restoration and Wildfire Resilience Project are not compatible with **Bidwell Park Master Management Plan's: 3.6.3.2 UPPER PARK GOAL, OBJECTIVES:**

O. Upper-1. Manage Upper Park as open space set aside to remain in its natural

state.

These two projects are merely projects of convenience given their locations along an existing road and degraded dozer lines. To conform with the above Master Management Plan OBJECTIVE these dozer lines need to be restored to grade and stabilized with native vegetation, not maintained as fire lines. Any work to thin understory vegetation and control resprouts creating shaded fuel breaks as described in these proposed two projects should be a component of a comprehensive, anticipatory wildfire management plan for Middle and Upper Bidwell Park that emphasizes the sustainability of Bidwell Park's "natural state".

Woody Elliott, Conservation Chair

California
Native Plant Society -
Mount Lassen Chapter

[redacted]

2020_07_15 Preliminary Veg Mgmt Plan_Staff Rpt.pdf

From: Wolfgang Rougle
To: Linda Herman
Subject: Fwd: VFMP Comments
Date: Thursday, August 27, 2020 10:05:06 AM

See below email thread with Lynne Elhardt.

---------- Forwarded message ---------
[redacted]
Date: Tue, Jul 28, 2020 at 11:28 AM
Subject: Re: VFMP Comments
To: wolfy@bcrcd.org <wolfy@bcrcd.org>

Somehow I knew you would. Thanks!

[redacted]

I absolutely agree! :)

[redacted]

> Thank you for your response. Any trimming of our vegetation would have to be done with great care. The elderberries are protected and we are very sensitive to maintaining the health of our valley oaks as well as our creek cover.
>
> Sincerely, Lynne Elhardt

-----Original Message-----
From: Wolfgang Rougle <wolfy@bcrcd.org>
To: Elhardt Lynne <bratpeep@aol.com>
Sent: Mon, Jul 27, 2020 7:40 am
Subject: Re: VFMP Comments

Thank you for your comments about Bidwell Avenue! This is such a beautiful part of Big Chico Creek. If it was left out (would have been due to a GIS error), I'm very grateful you spoke up and I will make sure it is included in the Plan. The parts I've been to have beautiful old-growth valley oak woodland. Thank you for the care you have put into this area over the years!

Best,
Wolfy Rougle

[redacted]

> Good Afternoon. My name is Lynne Elhardt and I live on Bidwell Avenue. This is an exciting and well thought out plan. Many of these areas have been left unattended for so long. The Bidwell Avenue portion of Big Chico Creek doesn't seem to be included in the plan, though it is a part of Bidwell Park. Every year the residents of Bidwell Avenue have a clean up day and enlist the help of CSUC Rugby Team and the Sheriff Department Work Program to prune and clean up the vegetation along Bidwell Avenue. Our population is becoming elderly and it is becoming more difficult to get the job completed. Bidwell is a very popular avenue for walkers and bike riders. There are several blind spots and fast moving cars. I'm wondering if you could consider adding Bidwell Avenue to your plan.
>
> Thank you for your consideration.
>
> Lynne Elhardt

--
Wolfy Rougle
Forest Health Watershed Coordinator
Butte County Resource Conservation District
"To protect, enhance, and support Butte County natural resources and agriculture by working with willing land owners and citizens through education, land management, and on-the-ground projects."
www.bcrcd.org

--
Wolfy Rougle
Forest Health Watershed Coordinator
Butte County Resource Conservation District
"To protect, enhance, and support Butte County natural resources and agriculture by working with willing land owners and citizens through education, land management, and on-the-ground projects."
www.bcrcd.org

From: Wolfgang Rougle
To: Linda Herman
Subject: Fwd: VFMP Feedback
Date: Thursday, August 27, 2020 10:06:28 AM
Attachments: [redacted]

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

See below comments thread with Patrick Spielman. :)

---------- Forwarded message ---------
From: **P Spielman** [redacted]
Date: Wed, Aug 26, 2020 at 11:08 AM
Subject: Re: VFMP Feedback
To: Wolfgang Rougle <wolfy@bcrcd.org>

Thanks for the update Wolfy, glad those factsheets are of some use.

Patrick Spielman
Environmental Technician
Office of Environmental Planning and Protection
Mechoopda Tribe
[redacted]

From: Wolfgang Rougle <wolfy@bcrcd.org>
Sent: Tuesday, August 25, 2020 3:53 PM
To: P Spielman
Subject: Re: VFMP Feedback

Hi Patrick,
The TEK factsheets are so well written and absorbing to read! I look forward to many more. I ended up just quickly citing them to support the statement that willows are a really important plant for basketry and other uses (passage below). This is just to get the TEK factsheets into the bibliography and show that the City cares whether a restoration project promotes culturally important plants or not. I will also improve the Grassland section to point out that cultural benefits/impacts should be analyzed alongside the usual "biological" benefits/impacts in grassland restoration projects, and Rhianna the forester will incorporate some of your other comments.

To speak up for the projects you like best (e.g. good fire projects in Verbena Fields and Middle/Upper park YST burns, which could get some pushback due to e.g. smoke impacts), you can remotely tune in to the BPPC meeting Aug 31 at 6 pm. Best, -Wolfy

" In the Little Chico Creek Arundo Management Project, Arundo would be replaced with well-chosen native vegetation such as well-maintained, open willow plantings on the creek banks. (Existing Arundo stands that are in the middle of the channel would be removed but not replaced with willows; that would create an obstruction to channel flow.) This restoration project would achieve several objectives. It would reduce urban fire hazard and intensity, improve wildlife and pollinator habitat, better stabilize banks, and create a safer creekside environment offering better visibility for walkers and joggers. It would create culturally important willow gathering opportunities for Mechoopda and other residents, as willow is one of the most important plants for Mechoopda basketry and many other uses (Spielman 2020). The project would also create outdoor education opportunities for children to learn about natural creekside vegetation, and its uses, right in the middle of town."
Spielman, P., compiler. 2020. 'Mechoopda Tribe Traditional Ecological Knowledge Program Curriculum: Species Factsheets.'

[redacted]

> Good Morning Wolfy,
>
> Glad I could help. I would just site it as 'Mechoopda Tribe Traditional Ecological Knowledge Program Curriculum: Species Factsheets. 2020. Compiled by Patrick Spielman.' If you do decide to incorporate information, maybe send me a draft of those sections so I can proof what goes into the document, just to be sure the Tribe is good with the information being put out there.
>
> Be Well,

Patrick Spielman
Environmental Technician
Office of Environmental Planning and Protection
Mechoopda Tribe
[redacted]

From: Wolfgang Rougle <wolfy@bcrcd.org>
Sent: Sunday, August 16, 2020 8:49:43 AM
To: P Spielman
Subject: Re: VFMP Feedback

Hi Patrick,

These are wonderful additions! Thank you so much. The writing team meets Friday to discuss all the comments received and I'll make sure yours are included. I think they really improve the draft.

And thank you also for the TEK factsheets - these are outstanding resources! You have already covered so much ground with these 13 species. I am excited to take a closer look as I get back to work.

I would like to incorporate some facts from the TEK factsheets into the plan narrative-- Would you like to provide a suggested citation for the TEK factsheets?

Warmly,
Wolfy

[redacted]

> Hey Wolfy,

Just got done reviewing the VFMP draft that you sent over last month. First off, I think the plan does a great job of including the Mechoopda Tribe's history and practices in managing the area's resources. I was glad to see the Tribe (and native peoples generally) included in many of the sections, from the description of plant communities to the breakdown of resources/projects. I'll go through the areas where I had some thoughts.

2 introduction to Chico's Natural Parks

-I appreciate the paragraph describing how Mechoopda management led to the current appearance of Bidwell Park. Maybe to drive the point home add a sentence about how the 'open, park-like riparian forest structure consisting of less dense populations of mature valley oaks resulted from traditional management. Dislocation of Mechoopda people from this ancestral land and the suppression of cultural burning therefore led to overly-dense conditions more susceptible to uncontrolled fires.'

4.2.1 Grassland

The second paragraph here mentions basketry uses for grasslands. Of equal import were food resources in grasslands, specifically brodiaeas or cluster lilies (family *Themidaceae*, subfamily *Brodiaeoideae*.) These plants were harvested in great numbers for their edible corms, and fires were regularly set to increase production. Obviously myriad plant resources were utilized from each of the plant communities mentioned and are too numerous to mention in the scope of this document, but I would suggest that these edible brodiaeas were even more important than basketry plants (which occur across veg communities) in grasslands.

4.2.2 Valley Oak

Really liked this section.

4.2.3 Riparian Areas

Arguably more important than grasslands when it comes to basketry. Principal basketry material plants: willow, redbud, tules, sedges, rushes, deergrass.

4.3.3 Machine Work: Best Management Practices for Machine Treatments

Maybe include a reseeding element following ground disturbance in the BMP's?

5.3 Middle/Upper Park Star Thistle Burns

Aside from Verbena Fields, this was the project I was most excited in learning about. This really aligns with our management goals of the Tribal property at 99/149, Wajim Kumbali. Would be great if some of us could be present during implementation of this.

Other thoughts:

Since there is so much on-site chipping of thinned trees proposed, has there been any consideration of inoculating these woodchips with appropriate species of fungi? Might help break down wood chips faster and add organic matter into the soil and also sequester carbon and increase moisture retention. Came across this strategy in the book **Mycelium Running** by Paul Stamets, who devotes an entire chapter to mycoforestry. https://agroforestry.org/the-overstory/117-overstory-155-mycoforestry

I've also attached a species factsheet I've been working on for our TEK program, this details Tribal perspectives on some of the most important plants for Mechoopda people in our region. It's just a draft and I need to proof all of the language and exact cultural uses, but it can still provide some valuable insight on this topic.

Be Well,

Patrick Spielman
Environmental Technician
Office of Environmental Planning and Protection
Mechoopda Tribe
[redacted]

--

Wolfy Rougle

Forest Health Watershed Coordinator

Butte County Resource Conservation District

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Comments on the First Draft of the Vegetative Fuels Management Plan (VFMP) for Parks, Greenways, and Open Spaces

Comments submitted by:

Thomas A. Barrett
TA Barrett Energy & Environmental Consulting
Former Park Commissioner
August 20, 2020

General Comments

I continually hear this document referred to as THE Vegetation Management Plan for Bidwell Park, it is not THE vegetation management plan and should not be referred to as such, it is the Fuels Management Plan for City-owned open spaces. It should be part of a comprehensive Vegetation Management Plan that has been promised by the Park Division since I first started on the Park Commission in the mid-1990s, that still needs to be developed for Bidwell Park, creekways, and greenways.

I don't want to visit a park or any area where everything has been elevated in the belief that you are doing good for the Park. If you want a manicured park, make one in your backyard or go to a playground or Central Park in New York.

The plan relies on the Park Division's use of "adaptive management" to implement this plan. The only problem with adaptive management strategy proposed by this plan and the Bidwell Park Master Management Plan is that it assumes the Park Division staff has the wherewithal, knowledge, and experience to implement an adaptive management strategy called for in VFMP and BPMMP. It has been shown over and over that the City doesn't have the staff to do this.

The number one priority for the City to implement this plan should be to hire a Natural Resources Manager. It is inconceivable that with one of the largest public parks and over 6,500 acres of open space (parks, creekways, and greenways) that the Park Division does not have a qualified Natural Resources Manager that handles the vegetation management and restoration of the City's property. The current Park Manager is a highly qualified and skilled administrative manager but is not a Natural Resource Manager that is needed along with an administrative manager. The Public Works Director is just that, a public works director not a resource manager.

1.1 Purpose

While managing vegetation may sometimes seem contrary to the spirit of keeping parks wild and natural, the truth is that the land we now cherish as parks has always been managed by humans.

> The statement "the land we now cherish has always been managed by humans" is a ridiculous statement. The land that is Bidwell Park was thriving without human intervention before humans ever showed up on the land. Native Americans did not use fire to manage their lands for "natural values", they used it to take advantage of what the land could provide them. Fire was a useful tool for cultivating and propagating plants that were of value to the native peoples. It eliminated the plants that weren't useful and promoted the ones that were. It also allows great areas to be opened up to make hunting much easier. To state that is was done in a benign and benevolent to benefit the natural values of the land by native peoples is to mythologize their behavior.

…invasive species can displace and disrupt natural systems that provide services we all value. For example, invasive species can create or contribute to fire risk, obstruct flood conveyance, displace habitat diversity and resilience, and cause other problems. In short, "leaving nature alone" is likely to exacerbate, not fix, the problems of catastrophic wildfire risk, climate change vulnerability, and invasive species.

No one has ever proposed to "leave nature alone" and let happen whatever happens. This is a management strategy used by the City of Chico to ignore the needs of the City's parks and open space. In fact, many people have been calling for a vegetation management plan for years and in turn have been promised over and over by City Staff that one would be developed. This document is not that plan.

The Bidwell Park Master Management Plan (BPMMP) calls to keep Bidwell Park in it's "natural state" except in designated areas of intensive recreational use. There was no definition of "natural state"; however, those of us who worked on the BPMMP understood that to mean the way it was before the area was settled by white people.

Areas of Bidwell Park, primarily the lower Park area where the human/nature interface between the residential and agricultural development has greatly impacted the former natural conditions of this part of the Park. Due to the refusal of the City of Chico to adequately manage this area, the term vegetation management should be thought of in terms of rehabilitation.

…this Plan includes both a wildfire risk assessment delineating the highest-priority areas for treatment (where to reduce vegetation first), and a plant prioritization scheme delineating the highest-priority species for removal (what vegetation to reduce first).

Where is the wildfire risk assessment to delineate the highest-priority area for treatment?

Scope

This is a guiding document for management of vegetation in City of Chico parks and green spaces that are not (a) the irrigated landscapes of neighborhood parks or (b) those managed by the Chico Area Recreation District (C.A.R.D).

The City needs a comprehensive vegetation management plan that also includes irrigated landscapes in our parks. Planting of invasive plants in irrigated landscapes throughout the City may perpetuate plants that the City should be eliminating. Native plants should be planted in neighborhood parks to match the existing local vegetation and not some landscape designer's idea of what a pretty park should look like. This should also include streetscapes. The Park Commission had a policy of planting native, non-invasive, drought-tolerant plants that seems to have been ignored.

1.4 How This Plan Was Developed

Burn planning was or will be provided by Firestorm LLC.

Isn't this a conflict of interest? Firestorm was involved in developing a plan, recommending the Park Division utilize control burning to reduce fuel loads and according to the document, they will manage the implementation of it ("will be provided by Firestorm") should the plan be approved.

2. Introduction to Chico's Natural Parks

As stated in the VFMP – "*City owned parks that are managed foremost for natural values" include:*

- *Bidwell Park;*
- *The three vernal pool mitigation properties Bidwell Ranch, Foothill Park, and Wildwood Vernal Pool Preserve along with Hillview and South Chico preserved parcels;*
- *The Comanche Creek Greenway;*
- *Teichert Ponds; and*
- *Verbena Fields*.

First of all, some of these are not "Natural Parks". The only Park that could be considered "natural" would be Upper Bidwell Park.

Teichert Ponds are not a natural feature, they have become "naturalized" by accident. The Ponds were formed as "borrow pits" when Highway 99 was built and "dirt" was needed to raise the freeway above the natural elevation through Chico. The area was ignored after the construction and vegetation grew up because of the high water table. There is nothing natural about the area at all. This area is in need of a vegetation restoration plan including the ponds themselves to ensure the restored ecosystem is with the area.

Comanche Creek (Crouch Ditch or Edgar Slough) may have had some remnants of a former natural seasonal creek but has been modified as an irrigation ditch that is fed by Butte Creek from the Parrot-Phelan Dam ("Okie Dam") and now retains water all year long. Parts of it may have remained in its "natural" riparian state and valley oak savanna.

Verbena Fields is also not a natural "park" other than trees and plants have grown up naturally since it was a gravel pit. For a long time, there wasn't anything on the property as it was a functioning gravel pit for the County. The land was also used for a lumber operation. The county gave the land to the City of Chico where it sat for years until a citizen's group started restoring it. Vegetation has come back to "naturalize" the area. This area also needs a restoration plan.

Vernal Pool Mitigation Areas – these sites also need their own vegetation management plan in addition to a fire fuel plan to maintain their integrity as vernal pools. Surrounded by residential development the vernal pools are likely to be under intensive threat by exotic invasive from surrounding residences.

Second, other areas this document has ignored:

Little Chico Creek – this is a natural waterway running through the City that is also in the purview of Bidwell Park and Playground Commission. It is addressed in this document for managing the Arundo problem; however, the rest of the Creek needs an active management plan to restore and maintain its natural values to the community. It has been heavily encroached by residential and agricultural plants.

Lindo Channel – this plan addresses a couple aspects of Lindo Channel that deal with a supposed fire threat (Verbana Fields and elevating, thinning, grazing of invasive and fire risk vegetation). In some

areas (west of the Esplanade) it is an impressive riparian corridor. It should also be included as a resource managed for its natural values too.

Sycamore Creek – is also a natural waterway and part of the City's open space, greenways, and a potential park. While parts of it are a natural waterway other parts are part of Chico's flood control system. There is actually a bike path that runs along the creek to give it a park-like feeling.

Chico's rich natural heritage is inseparable from its cultural and historical heritage. The beautiful and productive landscape of what is now called Bidwell Park is the visible legacy of thousands of years of skilled management by Mechoopda people. Thus, when Annie Bidwell adjoined the City to "preserve" and "sacredly guard" ''the beauty of [the] Park," she was praising the beauty of a landscape that had been cultivated, tended, and deliberately burned by Native people since time immemorial. For this reason, parks managed for natural values may also be managed for consistency with traditional ecological knowledge (TEK) held by the Mechoopda Tribe.

Where is the reference to the statement above claiming that Native people have cultivated, tended, and deliberately burn Bidwell Park since "time immemorial"? There must have been thousands of Mechoopda in the north state using their vegetation management skills as there are hundreds of areas and canyons with landscapes very similar if not identical to Bidwell Park.

Native people most likely did not have a permanent residence in Chico for "thousands of years" and took advantage of the area as they passed through moving from one area to another. Does the Native American myth you are perpetuating in the document have proof? If so it would be great if it was referenced. Native Americans undoubtably used fire as a cultivation tool, as they all did, but fire was also naturally occurring on a periodic basis from lightning strikes. Did the Mechoopda have a significant effect on the density and composition of the different ecosystems in the area or was it limited to certain areas of known vegetation needs?

I am assuming all the references to the Mechoopda and their use of fire as a cultivation tool is to make readers feel ok about the use of fire in vegetation management. There are hundreds of documents verifying the beneficial uses of fire as a vegetation management tool without the need to mythologize the native people.

2.1 Bidwell Park

The natural fire return interval in Upper Park is 5-12 years.

As determined by whose analysis? Is "natural fire return intervals" different from "human-caused" fire intervals? I supposed what the statement is referring to is the historic trends of fire in the area.

In Lower Park, a higher maintenance level is appropriate, resulting in a more developed and manicured, more "parklike" appearance.

In Lower Park a higher level of vegetation management (not maintenance) and restoration is necessary because of the encroachment of invasive plants from the old Dept of Forestry arboretum (now known as Cedar Grove) and from residential and agricultural land use next to the park. The Park Commission agreed in the writing of the MMP that the Park outside of the intensive use area (One-Mile, Cedar Grove, and Five-Mile) would <u>NOT</u> be developed or manicured to give it a "parklike"

appearance in the Fredrick Olmsted sense of parkland. It was to remain in the Annie Bidwell sense of parkland, undeveloped to protect and preserve the native wildlife and flora.

Landscaping, manicuring, and frequent maintenance was intended to be used minimally and only in the intensive use areas of One-Mile Recreation Area and Cedar Grove (minimal landscaping, irrigated lawns, active recreation uses, and managed for recreational values) and Five-Mile area. Lower Park outside of those areas were to be managed for passive uses (walking, hiking, biking, small site picnicking, and leisure) and left in its "natural parklike" 1905 parklike condition.

Crews will continue to prioritize the removal of invasive plants over natives (BPMMP-NRMP, C.4-2) and to maintain a shaded riparian corridor that can provide cool water for salmon and other aquatic species (see pp 3-20 and 3-21 of the BPMMP for more on riparian habitat objectives within the Park).

This is critical.

At the same time, in high-use areas, raising sightlines and providing a safe recreation experience where park users can see their surroundings is a valid vegetation management objective.

Sightlines in the "high-use areas" of Bidwell Park - One-Mile and Five-Mile areas are a result of the manicured aspect of the area – the removal of the understory plants to allow irrigated lawns, a ball field, play areas, and picnic areas. The distinction between the high-use areas and the "natural areas" with its mixture of native and invasive plants with a variety of foliage densities and heights should be maintained. Currently work crews under the guidance of Park Staff have been raising sightlines under the guise of public safety, which is not in accordance to the BPMMP or a policy of the BPPC.

The first place the BPPC allowed the practice of raising sightlines was in Children's Park along Big Chico Creek from the Bidwell Bowl to the Esplanade where the vegetation was dense (because of the failure to removal the invasive plants growing there). At the request of the State Park and police department, the BPPC agreed to trim up the foliage to raise the sightlines (the non-native, invasive plants were not removed however, they were just trimmed up). Given the level of activity in the bushes along the creek this was a reasonable action. It is not reasonable to do it throughout Bidwell Park and should be used rarely as a vegetative management tool as it is currently doing (without being a BPCC policy BTW).

It is questionable that "raising sightlines" is a valid or even desirable vegetation management objective for Bidwell Park. "Raising sightlines" is a vegetation management practice promoted by the police department and not a component of the BPMMP or policy of the BPPC. The need for "raising sightlines" has been promoted by some as a way to increase public safety and reduce transients in the Park; however, there is no proof that destroying the natural aesthetics and foliage actually results in a "safer" Park. Actively patrolling during the evening and at night and removing transient camps is much more effective way to manage this situation; however, the City doesn't want to spend the money to do so and whacking and hacking trees and shrubs is easier. If public safety was such a concern, then the City should be more active in patrolling in Lower Park or install lighting throughout park.

Currently, about 90 percent of Lower Bidwell Park is infected with non-native species, there is only a few places where the "natural", open oak woodland can be found. Returning the Park to this condition should be the number one priority of this document and the Park Division. If the Park

Division actually made an concentrated effort to reverse the 100 years of benign neglect and remove the invasive plums, hackberry, winged elms, figs, olives, catalpa, walnuts, Himalayan blackberries, English Ivy, periwinkle, and other obnoxious non-native plants in Lower Park it would restore Bidwell Park to its original "parklike" condition. Removing this unwanted understory would in effect raise sightlines. Blindly raising sightlines, as is being done now, destroys the health of native plants, animal habitat, and wildlife's food sources.

Work projects and activities of park volunteers, CCC crews, and Cal-Fire crews, under the guidance of Park Division staff for the past two to three years, have indiscriminately whacked and hacked any and all vegetation in Lower Park to "raise sightlines" and/or "reduce ladder fuels" or whatever excuse is used to try to prevent transients from setting up camp.

Issues with "raising sightlines":

- Both native and invasive trees and shrubs have been trimmed but the invasives were not removed.
- There does not appear to be any rhyme or reason to the City's practice of selective pruning. Some plants have had their lower branches pruned within a couple feet of the ground (and the plants were only 4 – 5 feet tall). In other places all tree branches 10 – 12 feet off the ground were removed. Some places native trees and shrubs were pruned but the invasives next to them were not touched.
- In some areas small trees and shrubs were pruned where plant density was low (even small single trees) and foliage sparse. There were no visual impairment looking through the trees yet they were sightline or ladder trimmed.
- Just as stupid is the practice of trimming up invasive plants and not removing them. It is mind boggling that this is continually done in the Park.
- When small trees and seedlings are whacked off, it is usually done within a foot of the ground. This leaves an unsightly mess of sharp pointed trunks ("punji" sticks) that could cause injury to park users should the walk or fall on them. This practice was commented on by a number of people at Park Commission and Committee meetings over the past two years, yet the City has failed to stop the practice.
- The other major problem with the current practice of whacking and hacking is that the remaining "stumps" re-sprouts into a much denser shrub. Where there was one branch the re-sprout causes many branches to grow from the base resulting in a much denser foliage cover. The only way to actually remove these plants (yes, a Best Management Practices) is to dig or pull them out by the roots. Applying herbicides on the cut stump can kill the plant but leaves an unaesthetic dead stick when or if it actually kills the plant (herbicides applied to recent work does not appear to be very successful in killing the stumps as about 50% re-sprouted withing a month of application.
- The native, "natural" understory that supposedly makes up the "natural values" we are trying to protect is not being protected by current practices. Native understory plants in Lower Park include California Buckeye, Elderberry, California Blackberry, California Bay, California Grape, and others all have bushy foliage that is also being whacked and hacked by work crews. These plants need to be protected from this effort. They are important to the natural values and wildlife of Bidwell Park AND are not a fire treat!
- Most, if not all, of the raising sightline work has been unnecessary and destructive to the park ecosystem. Wildlife depends on foliage for protection (hiding places), shelter (nests), and to provide food. If the required environmental review had been done these issues would have had to be addressed.

4.2 Vegetation Standards and Specifications

General Vegetation Management Objectives for Defensible Space:

Within a range of 10-30 feet (based upon the judgement of the person doing the work) of all other park structures or recreational infrastructure which could be damaged by a fire or cause a fire ignition, including but limited to: wooden fences, interpretive signs, wooden handrails or steps, BBQs, picnic tables, or commonly-used illegal camping areas, the City will:

Comments

- Fortunately, most City structures currently have sufficient defensible space and this isn't much of an issue.
- "Structure" should be defined better. Is a concrete picnic table or other non-flammable built infrastructure a "structure" that requires a defensible space around it?
- Areas requiring additional defensible space should be identified by the Fire Department.
- How about "the judgement of the **supervisor** of the person(s) doing the work". I've seen the judgement of workers in the Park and the lack of supervision is the primary reason for many problems.
- A little more specificity is necessary here. When should a 10-foot buffer be used and when should a 30-foot buffer or anything in between be used? Leaving it up to a person's "best judgement" sounds good but tends to fail in practice, especially when that person is inexperienced in make these types of decisions. I would not want to see a 30-foot buffer around the picnic tables scattered throughout the Park because a worker thought it was a good idea and it met the "standard". A 10-foot buffer around a picnic table may be too much, especially with non-combusting concrete picnic tables and slabs.
- BBQs should be removed during fire season.
- "Commonly-used illegal camping areas" should be removed from open spaces, not buffered. Establishing a buffer of any size will provide encouragement to folks wanting to camp in those areas and in effect establish the legitimacy of the illegal camp.

1. *Mow all grasses (annual and perennial), weeds, and thistles to a height not to exceed 3 inches. Remove all dead or dying vegetation or woody material, and chip or spread onsite outside the 10-30' buffer. Avoid removal to the mineral soil to minimize erosion.*

   When should grasses and weeds be mowed? While the material is still green or after it is dried out and flammable? Timing is important, mowing too soon allows the grass to regrow and have to be cut down again.

2. *To minimize soil erosion potential, removed shrubs shall be cut at or near the ground surface and root systems left intact (with exceptions for invasives like broom).*

   This should be applied only in areas of erosion potential. In all other cases invasive shrubs, trees, plants, etc. shall be removed by digging or pulling them out of the ground so they don't regrow. Cutting at or near ground level only allows them to re-sprout and have to be retreated later. Unless there is a real reason to remove native plants (i.e. defensible space) they should not be removed.

3. *Individual, diseased, damaged, or isolated gray pine trees located within 100' of any building shall be prioritized for removal.*

Is this a problem anywhere? Cedar Grove has a couple dead and dying Gray Pines but not a real issue in the City.

4. *Cut grass may be left on the ground surface in the 30-100' buffer around buildings to protect soil as long as it does not exceed 6 inches in height.*
5. *Jackpots of dead woody material with potential to cause torching into adjacent trees or damage nearby trees through radiant heat should be moved to open areas away from large trees. It is ok to leave branches and trunks over 4 inches diameter where they lie, or spread as a chipped mulch, or removed. Full ground contact is not necessary.*

Does this apply only to defensible space? Or does it apply throughout?

6. *All mulch or chipped material shall be spread to a depth not to exceed 4 inches on average; and*

Chipped material becomes combustible once it dries out. Doesn't seem like a good idea in a defensible space situation.

4.2.1 Grassland

Most of the Great Central Valley used to be a rippling grassland, full of vernal pools, wetlands, fire-adapted perennial grasslands, and areas of a unique mima-mound topography that supports a high biodiversity of grasses, forbs and invertebrates.

I'm glad mima-mounds were mentioned as they need protection from encroaching development (east of Bruce Road and north of the Skyway); however, they are not yet part of the City's land inventory.

The Great Central Valley supported a high diversity of vertebrates too.

Is the goal of this plan to return Bidwell Park and other city-owned open space to the pre-European condition? If not, then relying on a past has little or no bearing on present day conditions. With climate changes that occurring the present has little bearing on what future floristic communities will look like.

For millennia, California's grasslands supported a thriving basket-based economy and the development of perhaps the most sophisticated basketry art cultures in the world. Mechoopda and other people cultivated high-quality basketry materials by applying regular and well-timed fire, and Chico's grasslands are adapted to regular fire to stay healthy.

Aboriginal peoples in California, as elsewhere, took advantage of the material at hand to manufacture the items they needed to thrive. They cultivated the plants they needed and drove animals by using fire as one of their primary tools because they had no other tools. Their use of fire served to modify their ecosystems (the grasslands and foothills) to suit their needs. Fire was not used to maintain the ecological integrity of the lands the native peoples lived on as this document seems to be saying. Using fire to ensure that certain wanted species of plants propagated more than an unwanted species is no different than mechanical farming land to do the same. Sure, aboriginal cultivating techniques may have been less damaging to the environment than the subsequent European cultivation practices of plowing, ripping, furrowing, irrigation, and applying chemicals. Fire is actually pretty damaging whether caused by lighting or by humans. If they couldn't control it and limit it to the area that they were trying to cultivate, it likely caused just as serious damage to the environment as our recent wildfires did.

The statement "*Chico's grasslands are adapted to regular fire to stay healthy"* does not make sense. Chico's grasslands are primarily invasive grasses and forbs and seem to be very healthy in light of the lack of periodic fires. The original grasslands were fire adapted as there was no control of periodic fires. Since European occupation fires have generally been suppressed and the composition of the grasslands has completely changed, does that mean that burning would make Chico's grasslands more "healthy" or revert to the previous fire-adapted grassland? I don't think so.

Define a "healthy grassland" since it seems to be a goal we should know what it looks like.

Applying fire to Bidwell Park's grasslands is no more likely to restore native grasses than anything else. Previous control burns in Upper Park to control star thistle have shown that the non-native grasses came back and dominated the landscape as soon as it rained.

Although low-elevation perennial grassland is one of the most endangered ecosystems in the world, Chicoans are lucky - parts of these perennial grasslands are still here. Fire has a role to play in maintaining and protecting the ecological integrity of these rare vegetation types.

It might be instructive to identify where all these perennial grasslands are. To my knowledge there are small patches of native grasses along Big Chico Creek, but they couldn't be called "grasslands" as they are more remnants of former grasslands. It would be great to restore them but there are more high priority vegetation management issues pressing.

The other thing to keep in mind is that once the Europeans showed up the diversity of the native grasses drastically changed as invasive, non-native grasses outcompeted native grasses. Now that non-native grasses dominate the landscape, native grasses are hard to find. It would be instructive to identify the "*low-elevation perennial grassland"* mentioned in the document as the only perennial grasslands I'm familiar with remnants of native grassland. Attempts to propagate native grasses have been tried with some success in limited areas.

Should the city invest in restoring the native grasslands in the Park?

Grasslands with infestations of star thistle, medusa head, and barbed goat grass are the highest priority for management. Ideally, these areas would be burned in July or August for several consecutive years to reduce the seedbed of invasives.

The Park Division used control burns to manage star thistle in the Middle Park area a number of years ago. The area was burned two years in a row and some control over star thistle was obtained. If a report on the effectiveness of this project was produced it was not shared with the public. How did it work?

Star thistle, medusa head, and barbed goat grass are rangeland grazing issues that can cause economic harm to livestock. Since the City's grasslands are not grazed this is not a real issue that needs to be managed unless the restoration of native grasslands becomes a priority and the City wants to invest the funds to do that.

4.2.2 Valley Oak

Valley oak woodlands are a uniquely Central Valley vegetation community that support thousands of species of plants, fungi, invertebrates and birds.

Valley oak woodlands also support other vertebrates besides birds!

Valley oak understories were maintained with cultural fire for millennia by Mechoopda people around what is now Chico.

Northern California has thousands of acres of valley oak forests that are thriving. Were all of them maintained over the millennia by cultural fire by Native Americans? Did the Mechoopda use fire for the specific purpose of maintaining the understory of oak woodlands, which seem to do nicely even without fire where invasives haven't taken over.

Valley oaks have been consistently outcompeted by evergreen oaks since fire exclusion.

Where in the Park are live oaks outcompeting Valley Oaks? Live oaks are not common in Lower Park, there are very few and those tend to be relatively young trees. Live oaks are more common in Upper Park where they naturally occur in foothill biomes. If Upper Park burns every 5 -12 years there should be few live oaks and in Lower Park where it never burns there should be many? Seems the opposite is true for Bidwell Park anyway.

General Management Standards for Valley Oak:

Open valley oak savannas with large trees have a fairly low wildfire hazard. The surface is generally well-sheltered from winds, and any fire starts will burn primarily in grass fuels.

Vegetation management should focus on areas along access roads and in concert with other management objectives including: Raising sightlines to improve visibility into areas with illegal camping, reducing the hazard of wildfire ignitions from illegal campfires, invasive species removal, visual resource enhancement, preparing areas for the use of prescribed fire, and other ad-hoc decisions to achieve specific habitat restoration objectives.

We should NOT be managing vegetation to improve visibility into area with illegal camping to prevent illegal camping. We should be managing vegetation to preserve and enhance the natural values of the Park. We should be removing the campers as soon as they set up camp not sacrificing the natural values of the Park to prevent camping, that is the Ranger's job. While illegal camp activity has caused a number of fires in Lower Park, they have been contained almost immediately and have NEVER gotten out of control. It is just as likely, if not more so, for fires to start from illegal smokers (smoking is banned in the Park, however, cigarette butts litter every trail in Lower Park evidence that this regulation isn't enforced either) and from the year round use of BBQ pits where the ashes are regularly cleaned out by users by scraping the coals onto the ground below the BBQ.

Understory thinning in valley oak areas should first target shrubs the priority invasive species according to the list in the Appendix, then should remove any other exotics, before thinning any native vegetation.

Not sure what this sentence means.

Understory management of the Valley Oak woodland in Lower Park should first target identified invasive, non-native, exotic species. In Lower Park 80 percent or more of the understory is made up of invasives. Removing them as a first step will improve visibility, remove the hiding places of illegal campers, and immediately reduce fire hazards.

Native vegetation should NOT be thinned, period. As this document states, the "natural values" of the Park should be preserved. The BPMMP states that the Park should be in natural state. The Park Commission reiterated this when updating the BPMMP.

The objective of thinning, where it occurs, is to raise canopy base heights to 8 feet, remove low-hanging grape and ivy, remove thatch from decadent blackberry vines, and prune multi-stemmed shrub like species such as bay laurel back to a single healthy stem, where possible.

Raising the canopy bases to 8 feet off the ground give the vegetation a manicured look. Since a goal of this plan is to maintain or enhance the "natural values" of the Park this will do the opposite, make it look totally unnatural.

Removing "low-hanging grape and ivy" will not remove a ladder fuel because neither plant is a ladder fuel. A ladder fuel has to be able to sustain a fire that can climb into a canopy. Both grapes and ivy are high in moisture content and don't burn well. The moisture content of grapes and ivy is too high to rapidly combust like dried grasses. Grape vines are conduits for water. Cut one and water will flow out of the hollow vine. They are in abundance in the riparian zone along creeks because that is where the water is. The City's current practice of cutting grape vines in the belief that they are a ladder fuel is flawed. In addition, wild grape provides food, habitat, and shelter for Park wildlife. Removing grape in the belief that is a ladder fuel diminishes the natural values of the Park more than a fire would.

Grape and ivy will become ladder fuels when they are cut off at the base eight feet off the ground. Then the vines and leaves die and dry out high in the trees where they can quickly ignite and burn! Thinning these plants will create a ladder fuel, not remove one.

Grapes can be low-hanging but ivy doesn't hang it climbs and attaches itself to the bark of trees.

To become a real ladder fuel a fire would have to establish itself in a Lower Park as a very hot fire, which takes time. The fire would have to get hot enough to dry out the moist grape and ivy plants in order for the leaves and vines to combust. Fire burning the first few feet of the plant would only combust that part of the plant. It would have to dry out the moist vegetation along its entire length.

A severely hot, well established fire could do that, but it is unlikely of one occurring in Lower Park, Upper Park maybe. Fire response time in Lower Park is a matter of minutes. A fire anywhere in Lower Park is almost immediately noticed because it is surrounded by homes and there seems to be people in the Park all the time, night and day. There is no part of Lower Park that cannot be reached by a fire crew in less than 15 minutes after a call goes out. This is not enough time for a fire to establish itself and dry out the hydrated grape and ivy leaves, or most of the riparian zone for that matter, to send the fire into the canopy.

Blackberry is also a poor ladder fuel. It is rarely more than four feet high. It does not burn well at low temperatures. A sustained high temperature fire will ignite it. Utilizing goats to graze or thin ivy and blackberry is a waste of time. The goats eat only the green leaves and not the blackberry canes or ivy vines. Grazing may slow down blackberry growth, but it all grows back! Walking though the goat grazed area in Lower Park this summer, only six or seven months after it was grazed and it is impossible to identify where the blackberries were grazed. After the blackberry is grazed it needs to be removed either by hand (this is where CCC crews and volunteers come in) or judiciously treated with herbicides.

There is also a problem with wholesale removal of blackberries by goats. There is a native blackberry in Bidwell Park that needs to be protected and sustained. Goats are indiscriminate, they eat anything in front of their noses. No one to my knowledge has taken the time to identify native blackberry patches and protect them from the goats. After the goats have eaten all the leaves it becomes impossible to identify the native blackberry from the invasive Himalayan blackberry. Manual release or herbicide treatment would further reduce the population of the native blackberry should all canes be killed or removed. This would have, or should have, been address if the required CEQA process had been followed for the goat project (yes it meets the project definition of CEQA).

As far as ivy goes, goats only remove ivy leaves as far as they can reach, maybe five feet, on a tree but the ivy continues to grow up into the tree. Goats do nothing to stop ivy growth. When observing the goats in the Park last fall, they rarely ate the ivy on the ground. They ate the ivy growing up trees, but only the leaves, leaving the vines alone. Basically, they are useless for removing ivy in the Park.

Volunteers, under the insufficient guidance of Park Staff, remove ivy by cutting the ivy vines off of trees for about six feet up a tree trunk. This at least kills the ivy plant, but then the dead ivy dries out and leaves the dried biomass all the way up the trunk of the tree. Now a true ladder fuel has been created and a spark or ember landing in the dead, dried out ivy leaves and vines could ignite this inadvertent ladder fuel. And it looks ugly.

It is recommended not to remove the ivy vines from tree trunks because it can damage the bark. To prevent the dried, dead ivy from becoming a ladder fuel, vines should initially be removed at least 10 feet up each tree. Then within two to three years the dead ivy mass should be pulled down after the vines' holdfast roots are brittle and won't damage the bark of the tree by removing it. Ivy should also be cleared around the base of each tree at least 6 feet, if not totally removed in the area, to prevent it from growing back up in the tree. In addition, proper ivy management requires persistent attention and inspection to prevent ivy from re-establishing itself on trees.

….prune multi-stemmed shrub like species such as bay laurel back to a single healthy stem, where possible.

WHY? When you do that you destroy natural wildlife habitat. What is the point if the fire risk is low in the first place as stated in this plan?

There are many multi-stemmed native shrubs and trees in Bidwell Park. They should not be pruned back to a single "healthy" stem. This statement implies that a multi-stemmed shrub is <u>not</u> healthy, yet I see no evidence for that. Is this a personal opinion or is it based on science? Please cite.

- Bay laurels (California bay) have a couple different forms, they range from single stemmed small trees to multi-stemmed shrubs. LEAVE THEM ALONE.
- Elderberry is also a multi-stemmed shrub. DON'T PRUNE THEM
- California Buckeye is also a multi-stemmed shrub found in the Park. At this time of year the leaves have already died and dried out. LEAVE THEM ALONE
- Coyote Bush is another one that should be left alone.
- Spice Bush is another multi-branch shrub that should not be thinned.

There is a reason plants develop low branches. One reason is to protect the trunk and keep it from being over heated by sunlight. Without them plants quickly stress and then regrow branches.

Another reason the native shrubbery should not be touched is the value they provide to wildlife. There are elderberries in the park covered by grape vines. By mid-summer both the elderberries and the grapes are ripe and provide food for wildlife. The same thing can be observed with California Buckeye their fruit becomes ripe the same time the grapes growing on them ripen. Trimming up any of these plants will destroy the food source for many animals.

Recent fire fuel reduction activities in the Park have taken single-stem seedlings of invasive plants and instead of removing the whole plant they were cut to within a foot of the ground. Within a month they have medusa-headed and turned into multi-stemmed bush. Now they are more of a problem than they were.

I hate to repeat this but it is worth repeating – remove the invasive understory in the Park and along the creeks and greenways and you eliminate most if not all of the fuel hazard in the Park and other riparian corridors and greenways. Leave the native vegetation alone.

Thinning chunks of valley oak woodland in a checkerboard pattern is a strategy to leave viny refugia for pipevine and other native climbers.

Thinning chunks? What the heck is a 'chunk"? This practice makes no sense and needs to be explained.

Woody thinned vegetation under 4" in diameter should be chipped.

In the process of removing invasive trees and shrubs they should be chipped unless the amount of chipped material is too much biomass for the area to handle and then it should be chipped and taken to the green waste facility.

Thinned stems between 4" and 8" may be chipped or may be left on the ground if they are in full ground contact, the site is flat, and leaving them does not result in excessive fuel loading (in the judgement of the person doing the work).

Stems larger than 4" inches should be left on the ground, period. We need to eliminate people making judgement calls unless they are qualified to do so, and then not in this case

Larger material can be piled in open areas or left in place, as long as it is far enough from the boles of nearby remnant large trees which could be damaged by radiant heat if the pile or log ignites. This material is left for wildlife habitat and nutrient cycling.

The long-standing policy of the BPPC is to leave fallen branches and trees on the ground where they can provide wildlife habitat and properly decompose. It takes just as long, if not longer, for a tree to decompose as it did for it to grow. Nutrients used by the growing tree is thus returned to the soil for another generation of trees.

In addition, when a tree falls it may not be dead. There are a few examples of this in the Park. A fallen tree continues to grow and the branches that were growing horizontally now start growing vertically and becoming trunks. Park Staff has be quick to remove trees lately with a variety of lame excuses:

- "It could fall more and hurt someone." (Has that ever happened? Not to my knowledge has a fallen tree fallen further and injured someone.)
- "It doesn't look good." (Here again is the uninformed judgement of someone managing a resource that is supposed to be managed by the Park Commission. The Park Commission has never had a policy that branches and trees are to be removed because they didn't look good, the policy per the BPMMP was to leave the Park in it's natural condition, and "if a tree falls and is not blocking a trail or roadway, leave it".)
- "Homeless people could set up a camp alongside the trunk." (Yes, they could, but it is the Ranger's and Police Department's job to enforce the no camping rules in the Park, and yes, they were saying this before the pandemic started.)

Burning in the Valley oak understory may be appropriate to manage forbs, reduce thatch fuel loads, kill invasive walnut seedlings and saplings, thin thick areas of oak regeneration, and to improve acorn quality and harvesting conditions for traditional uses by local Mechoopda people.

In some parts of the Park burning may be appropriate a useful tool or a tool of choice for vegetation management, but it should not be considered the only tool, as this document seems to imply. Walnut seedlings can be easily removed with a week wrench. There are few areas of thick oak regeneration, in most areas there is little oak regeneration until a tree falls and allows sunlight to hit the forest floor.

In the 1990's the Park Department tried two control burns in Lower Park to manage some invasives, primarily blackberry and burn down the accumulated vegetation. It seemed successful; however, a woman and her son were running in the Park during the burn period and inhaled poison oak smoke. The poison oak smoke irritated their lungs and a bad case of poison oak in their lungs. They sued the City of Chico for warning them that the burn had poison oak in it. The case was settled out of court and control burns were not allowed in Lower Park. Instead the Park brought in goats to manage the blackberry and other veg issues.

This paragraph states that a control burn will be used "*to improve acorn quality and harvesting conditions for traditional uses by local Mechoopda people"*. When did improving acorn quality in Bidwell Park for the Mechoopda people become a priority? The priority should be to remove the invasives and restore Bidwell Park back to its original state or as close as possible.

Restoring Over-dense Valley Oak Areas to Open Stands of Large Trees

There are areas of valley oak woodland which require major thinning to establish healthy and resilient future conditions. One example is the old walnut orchard in Lower Bidwell Park near the east entrance of Peterson Way from Vallombrosa Avenue.

There are not too many areas of dense (not sure what "over-dense" means) oak stands in Bidwell Park. A couple places in Upper Park there are dense drip-line stands around some oaks. However, the thickest area of oaks is the Petersen Orchard which is addressed in the document, but it is not a valley oak woodland, it is an orchard that was planted with oaks and never properly managed by the Park Division afterwards. It could and should be restored to an oak woodland.

4.2.3 Riparian Areas

Creekside vegetation (including invasive vegetation) plays a role in keeping water temperatures low, so creekside vegetation removal must take the needs of salmon and other aquatic organisms into account. This accounting is negotiated through the Lake and Streambed Alteration ("1600") permit process whereby CDFW, as the trustee agency charged with protecting California's plants and wildlife, sets the terms and conditions governing the City's work inside stream corridors.

Recent vegetation management activity over the past couple of years with Sherriff's crews and volunteers have encroached in the riparian zone without the City following proper CEQA procedures (it was not routine maintenance and could be defined as a project) or Streambed Alteration permit process. In the past the Park Commission was told that vegetation management in the riparian corridor could not be done because it required a Streambed Alteration permit. It was interesting watching the Catalpa take over the Creekside from the Deer Pens all the way to the Sacramento River and the City did nothing about because it didn't have the permit.

Overgrown vegetation along the southern boundary of Lower Park between Highway 99 and Five Mile Recreation Area poses the greatest WUI threat within Bidwell Park. Much of this area borders the riparian zone, and often, the worst fuel loading is on the private property adjacent to the Park. A wind-driven fire along this corridor, while a low-probability event, could result in major structure losses. Areas of special concern are along South Park Drive in the first 1,500 feet east of Highway 99, South Park Drive between Husa Lane and Centennial Ave, and between Manzanita Ave and Five Mile Recreation Area, along Centennial Ave.

This statement makes it sound like the entire southern boundary of the Park is under some kind of fire threat, more than any other area of the Park. Most of the boundary is made up of private homes with manicured landscape and very little threat or fuel load. From Centennial to Five-Mile the Park is separated from the residential area by a road and bike path. There is no threat from fuel loads from private residences along this stretch.

The "corridor" from Hwy 99 to 5-Mile runs west to east, the prevailing winds are from the south. During high pressure weather events, when air is the driest, winds are from the northeast. For a fire event to run down this corridor the wind pattern would have to change. Anabatic, or up-slope winds in the Chico area run west to east up canyons; however, the effect in Lower Park is not pronounced. Conversely, katabatic, or down-slope winds coming down the canyon, typically at night, is also not very pronounced in town. So to turn this corridor into a wind-blown fire trap wind patterns would have to change. This can happen if a wildfire gets started in Bidwell Park that gets out of control. Given the ability of the Chico Fire Department to be anywhere along South Park Drive within 5 – 10 minutes, and they are located within 1,500 feet of Hwy 99 and South Park Drive it would be hard for a fire to get established long enough to be hot enough to create its own weather or cause a firenado.

The greatest threat to Bidwell Park's vegetation from these homes on the southern boundary is not from fire hazards but from the encroachment of exotic, invasive vegetation from these residences. English ivy, privets, pyracantha, bamboo, exotic ornamentals, and others make their way into the Park from homes and get established.

The 1,500 feet of growth between Hwy 99 and the first picnic site on South Park Drive is like other places in Bidwell Park where the City has never maintained the vegetation growth in this area. When the highway was widened a couple years ago a lot of the trees and vegetation was removed during construction. Removing invasives in this area and maintaining it would reduce whatever fire risk there may be, but is it the "worst fuel loading" area, I don't think so.

What is WUI? Wildland Urban Interface? It is not in the list of abbreviations nor mentioned anywhere in the text.

"The worst fuel loading is on the private property adjacent to the Park" – where? And what makes it the "worst fuel loading"? Most neighboring properties are heavily manicured yards with little fuel loading from 5-Mile to Hwy 99. Please identify the fuel loads with these properties?

Treatment in these areas can include removal of invasives, dead and down material, and should aggressively target aerial fuels including living and dead grape vines and ivy

Treatment should not include supposed aerial fuels, i.e. wild grape. Invasives should be removed throughout Lower Park.

General Vegetation Management Standards for Riparian Areas:

1. *Minimize vegetation management except for invasive species removal.*

   Vegetation management includes restoring riparian areas where invasives are removed to keep invasives from re-establishing and then continuing to manage the riparian corridor. Vegetation management needs to be maximized, not minimized. That is how the Park got in the situation it is today.

2. *Target ladder fuel treatment at riparian edges where they abut other vegetation types: here, vertical separation between top of surface fuels and lowest tree branch shall be at least 8 feet. Provide horizontal spacing between the outward canopy edge and the nearest shrub equal to three (3) times the adjacent shrub height;*

   Why? If we get rid of the invasives in the riparian and adjacent habitats (the invasives are pretty much the same) you remove a huge amount of fuel and maintain the ecological value of the Park. Again, wild grapes are NOT ladder fuels. Unless a major fire gets established in the Park, grape will not burn.

   What is the purpose of targeting supposed ladder fuels at riparian edges? Where is the edge of riparian habitat? There is no such thing as one vegetation type abutting another, they transition from one to another, think soft edges and blending. There isn't a line you can say here is riparian and on the other side you have Valley Woodland.

   Whose standard is this anyway?

   For Lower Park the riparian zone has a hard edge, it is South Park Drive and Petersen Drive. In Upper Park the riparian zone blends into the Valley Oak Woodland, and open grasslands.

3. *Maintain closed canopy except for invasive species removal; where removal opens significant shaded water surface to sun exposure, a phased removal of invasives and replacement of shading by natives will be done. No canopy will be reduced beyond 50% canopy closure at any one time.*

   How is 50% closure measured? Along the entire creek length? For a reach?

   Another judgement guess by a maintenance person?

   Does this apply to natural tree falls or just "managed vegetation" done by staff? Normally if a tree falls it open up the area under it to sunlight so that seedlings can grow and replace the downed tree. The problem has been invasives (Catalpa, Ailanthus, Winged-elm, etc.) fill in faster

than natives. Park Staff needs to monitor these sites and remove the invasives at an early stage and encourage native growth.

The same thing needs to happen when the large invasives the City has allowed to grow along Chico's creeks, they need to be removed. Staff had been told by Park Commissioners and citizens that they would become problematic, if they weren't removed while they were small. In some places catalpas are the majority species in some reaches along the creek, they need to be removed and when done it will remove the shade they provide until native riparian species can grow.

4. *When possible, riparian corridors will be managed in increments so as not to remove all the dense habitat for wildlife at once. Rather, a phased approach will allow for regrowth of native species between entries, promoting a mosaic of habitat continuity.*

   What does "regrowth of native species between entries" mean? What are entries?

   What does "promoting a mosaic of habitat continuity" mean? Mosaics are discontinuities.

5. ***No fuel breaks will be constructed through riparian areas.***

   Are you sure? Removing ladder fuels (grape) in riparian areas is by definition a "fuel break". Removing all low branches up to 8 feet off the ground is a "fuel break".

   Why is it highlighted? Why is it even stated? It isn't going to happen.

6. *This is due to the sensitivity of riparian habitats and their residents. Riparian habitats tend to have a higher moisture content and are therefore less likely to torch.*

   By removing ladder fuels identified in this document, the branches of native trees and wild grapes, is ignoring the value of leaving the native vegetation as is.

   I agree that riparian habitat has a higher moisture content (cooler in temperature, more living "green" vegetation, etc.) and is less like to catch on fire ("to torch" really?) why does this document state that a major conflagration will occur along the riparian corridor is it isn't trimmed up?

The riparian section seems to focus on Bidwell Park yet there are four other riparian corridors in need of attention. A specific vegetation management plan needs to be developed for each of these corridors:

- Little Chico Creek
- Lindo Channel/Sandy Gulch
- Cherokee Creek/Edgar Slough
- Sycamore Creek

4.2.4 Blue Oak-Gray Pine

While we do not advocate logging all of the mature gray pine on City property, Gray Pines are generally undesirable within the urbanized areas. Over the longer term, they should be targeted for thinning or removal when they are at all unhealthy in areas which are within 100 feet of a structure. Where

removing gray pine is not practical, special attention should be given to reducing ladder fuels and undergrowth around the trees.

Fortunately, there are few Gray Pines on City property on lower elevations and as such are very low-risk tree. These have already been addressed in a previous section of the document (Defensible Space) and needs not be repeated.

4.2.5 Upland Mix

General Vegetation Management Standards for Upland Mix:

What is being proposed here is to manage and manicure a natural environment primarily to reduce fuel loads. It is totally doubtful that the City will fund crews going throughout Upper Park pruning native trees, thinning shrubs, selecting trees for retention and eliminating unwanted trees.

Care should be taken to retain a diverse vegetation community.

Yes, care should be taken, but who will ensure that a diverse vegetation community is retained? There are no staff that can do this and it is unlikely given the history of city management that any will be hired or projects like this will ever be funded.

The goal of vegetation management in this zone is to create a mosaic of biodiverse habitats through hand or mechanical treatments, or herbicide application that can later support a prescribed burn and therefore be more wildfire ready.

Why is it a goal "to create a mosaic of biodiverse habitats"? They already exist. The goal should be to minimize extremely destructive wildfires. Wildfires will occur and should occur.

If there are signs of grasslands or meadows that have been encroached upon by woody species, for example, relict sun-loving forbs struggling under a shady edge, vegetation management can be used to re-establish the grassland or meadow conditions in the adjacent area.

The plan it to create a snapshot of current conditions and manage the vegetation in this area so that nothing changes in the future. Life doesn't work that way. Things are always in a state of flux not a state of stasis.

While we do not advocate logging all of the mature gray pine on City property, Gray pines are generally undesirable within the urbanized areas and over the longer term, should be targeted for thinning or removal when they are at all unhealthy in areas which are within 100 feet of a structure. Where removing gray pine is not practical, special attention should be given to reducing ladder fuels and undergrowth around the trees.

This is the fourth or fifth time in the document that urbanized Gray pines have been culled out for removal or control. The topic of this section is not the urbanized Gray pines, it is the "Upland Mix" not the urban mix. It doesn't have to be included again in this section.

Fuel break Management Standards for Upland Mix:

Fuel breaks have been found to be of little value on their own. Embers can jump and bypass fuel breaks where they do little to stop fire. Studies have found that fuel breaks only work if they are defended by fire crews working the line on a fuel break.

4.3 Vegetation Management Tools

4.3.1 Biological Techniques

Grazing

Grazing management plans should be site- and objective-specific. They should also identify the optimal stocking rate, timing, and duration, as well as the desired conditions (such as reduction in canopy coverage or residual dry matter (RDM)), even if these desired conditions cannot be achieved in just one grazing cycle. Plans should contain trigger points or thresholds for turning animals into and out of the area. These thresholds can be anything that is both relevant and measurable: for example, % canopy closure, estimated tons/acre of vegetation, etc.

This is critically important, there hasn't been a clear objective (written) of goat grazing in Lower Park nor has the grazing been assessed to determine if it has been the desired objectives. Or what the aftereffects are like in less than a year most of the material removed by the goats was back and the area looks like it is in the same condition. In addition, invasive weeds are now growing where the goats grazed the grass.

Best Management Practices for Grazing

Riparian Zones

Do not allow grazing in riparian corridors/zones.

Sensitive Biological and Cultural Resource Areas

Grazing areas are often assessed for presence of sensitive biological and cultural resources prior to turn-out. This ensures areas with special-status plants, animals, historic or pre-historic resources, and other areas or items of cultural significance, can be fenced out from the grazing area if necessary. In particular, areas with highly erodible or unstable soils often warrant exclusion. However, it is not always necessary to exclude animals from an area just because a sensitive resource is present. Many cultural resources will be unharmed by grazing, and targeted grazing at the right time can even be a tool to promote rare plant recruitment.

This should always be done prior to any grazing activity. It is called an environmental evaluation and is required by CEQA. Park Division staff have failed to do this. Goats are not discriminating in their eating behavior and will consume everything, including desirable plants. An assessment of each plot to be grazed must be done prior to grazing.

Effects of grazing must be measured. Turkey mullein has come up throughout the Park where goats have grazed the past two years. Turkey mullein is a persistent obnoxious weed caused by grazing and is nonpalatable for grazing animals so it becomes a problem.

4.3.4. Chemical Techniques

Chemical treatments should only be conducted as a “last resort”.

5. Projects

5.1 "Ten Mile House" Oak Restoration and Wildfire Resilience Project

5.2 "Dozer Lines" Oak Restoration and Wildfire Resilience Project

5.3 Middle and Upper Park Star Thistle Burns

5.4 Verbena Fields Stewardship

5.5 Lindo Channel Vegetation Management

Comments on this project similar to already stated comments. Fire risk is minimal along Lindo Channel due to immediate access to area.

5.6 Little Chico Creek Arundo Management

5.7 Nature Center Clearing Restoration

This proposed project is supposed to be funded from city budget. Grant funds need to be used elsewhere. While the dead trees that were supposed to be removed never were and almost 50 other trees were killed, there is no fire hazard at this site, except the wood chips spread out as mulch that has pretty much killed the area.

Additional Project Proposals

Lower Bidwell Park Vegetation Management

After reviewing the information in this plan, it appears that the Number One project for the City should be to manage the fuel loading in Lower Bidwell Park by removing the invasive plants and restoring to its original state. Why wasn’t it even considered. In the presentation a lot of fear was generated when the speaker claimed that based on his LIDAR mapping a very destructive fire in Lower Park could wipe out not only the Park but homes along the park, yet despite this claim there was nothing in the plan to remedy the situation.

Fire Hazard Risk Assessment

A real fire hazard risk assessment needs to be conducted along with the City’s Fire Department to determine where the highest risk for fire exist and to create a matrix of risk assessment levels so that scarce resources are spent when the greatest need is.

According to the Fire Chief, who presented at a Park Commission meeting, Lower Park has a very low risk of fire; however, this document does not access risk to Lower Park other than to make it sound and many people

Cedar Grove “Chico Forestry Station and Nursery Arboretum” Proposal

The proposal put forth below is to turn this area into a “living museum” and arboretum celebrate the historical aspects of the Chico Forestry Station and Nursery. In 1988, John Bidwell granted these

39 acres (comprised of Cedar Grove, Nature Center, Redwood Grove, Deer Pens, and the Eucalyptus Grove) to the State Board of Forestry for the Chico Forestry Station and Nursery.

The 2005 Master Management Plan barely touches on its historical component and treats the area more as a recreational area than a historic monument. The historical aspect of this part of Bidwell Park is ignored or has been forgotten. The City has not maintained this area and it has been overgrown by invasive trees and shrubs hiding its former purpose.

While the World of Trees Trail highlights the different tree species that still exist in the arboretum, like the Cypress Grove and the renown Spanish Cork Oak Plantation that was planted in 1904 (not identified on any Bidwell Park map), the redwood grove next to the Nature Center is ignored. Cedar Grove is also misnamed as the trees the grove is named for are actually cypresses. A living museum would highlight the trees planted in this area.

The proposal is to rename the area the Bidwell Park Historic Arboretum and delineate it based on the original parcel of land John Bidwell granted to the State of California for the station. Remove the invasive trees and recreate the groves and nursery aspects of the Nursery. Create information material for visitors as well as kiosks and educational displays throughout the arboretum. Turn the area into a native plant nursery to grow local native trees for replanting in Bidwell Park and other city properties.

In addition, it is also proposed to create a Maidu Living Village in the area that was the deer pens. Currently this area, which was part of the Chico Forest Station and Nursery, sits fenced off. As this was Maidu land creating a historical Maidu village along with the Arboretum would bring a historical as well as a nature aspect to this area.

The Cedar Grove area is an historical site for northern California. It was the home of the Chico Forestry Station and Nursery, a gift from John Bidwell to the State of California that was dedicated in 1888. One of only two Forestry Stations and Nurseries (Santa Monica was the location for the southern station) charged with identifying what trees were best to grow in California's climate. The Forestry State was used as a woody-plant nursery and demonstration plantation. By 1890 there were 30,000 seedlings in the nursery and 15,000 scattered in 7 acres of plots surrounding it. Cuttings and young plants were distributed far and wide including species of willow, mulberry, linden, maple, oak, catalpa, pine, and eucalyptus collected from all parts of the world. In the older sections of Chico and surrounding towns, some of these and their offspring still grow. Along the World of Trees Nature Trail, 18 representative species from this time period are labeled.

In 1893 the State turned over the Forestry Center to the California Department of Agriculture at Berkeley and with the help of John Bidwell and his staff improved the nursery activity. In 1921, the University turned the 29 acres over to the state. Chico Normal School utilized the arboretum and nursery as a study area for students of the college.

The City of Chico, in turn, purchased the property (a small group of public-spirited citizens contributed $100 each to provide the funds) in 1921. It continued to be used as a tree nursery to some extent. In 1949 the USFS Genetics Station in Placerville planted several species of pines to test their development.

In 1972 a State Historic Plaque was installed at Cedar Grove highlighting the role this area played in promoting forestry in California. Little has been done to promote the historical character of this area. None of the historic trees have been maintained and invasive trees and shrubs have been allowed to proliferate.

The meadow was once considered to be the largest picnic area in the north state; however, the Group Picnic Area, which is the designated picnic area for Cedar Grove consists of only a dozen tables, a bar-b-que, and trash containers in a smaller clearing near the parking lot.

The Cedar Grove area is an important historical resource in northern California and should be honored by turning this area into an arboretum and living museum.

Lise Smith-Peter's Comments on the Vegetative Fuels Management Plan (first draft) for 2020
I assume that you all will incorporate Susan Mason's comments, corrections, and where applicable, her observations. I don't plan to comment on all of what she has already pointed out such as Bidwell Park is 3,670 acres not 3,621 acres on p. 11.

1) However, I concur with Susan Mason that a table should be added to the Appendix that has all of the parks and greenways listed, the # of acres of each, and whether there is an existing plan for the site and the year it was developed. Make sure all plans are on the Park Division's website as well as any documents referenced in the VFMP.
2) Pgs 16 – Comanche Creek and Page 18 – Verbena Fields – Susan Mason may have a good list of plants and activities needed for these sites.
3) In regards to Lindo Channel p. 21 – when is the last time that DWR cleared the OHWM area? -- include that in the description of this location.
4) P. 23 – add USACE – US Army Corps of Engineers - to the Abbreviation tables on p.9
5) Please add on p. 28 – a "9. Park Division will utilize its volunteer program to educate and instruct volunteers to remove invasive weeds where possible and approved by the City, in particular in Lower Park."
6) Rewrite sentence on p. 30 – 4th full paragraph – "Non-native woody species should be removed where possible. Alternatively, they may be girdled and left standing as snags …"
7) Next paragraph p. 30 "Woody debris over 8" diameter may be left onsite at least 10 feet away from the nearest tree. (Remove "or removed."). ADD: Downed large valley oaks are habitat and are slow burning if they were to burn, and with forest floor surface contact, these trees retain moisture and should be left as is.
8) P. 31 – does 5. No fuel breaks… go with the next 6. This is due to the …?
9) Pps. 39 – 40 discusses grazing and the City's successful use of goats but unfortunately there has never been the required follow up to remove the roots of plants grazed and eaten (BMP mentions follow up on p. 40). The goats have merely pruned vegetation back which will and has returned. In creating an actual plan for goat grazing areas (vs. it being considered maintenance and having no plan), follow up herbicide use or manual labor can be conducted and should be included in the project's timeline. Plans need to be developed on paper for staff and animal handlers when grazing is going to be conducted and plan should undergo CEQA review.
10) P. 45 Under Chipping in paragraph 2 after sentence 2 (…or broadcast on site. Add the sentence: "Exotic trees and shrubs should not be chipped when they have seeds on them, as spreading chips will be spreading the seeds of unwanted plants."
11) P. 45 under Tree Removal – add Tree winch (CCCs have one or used to – we used it to take out large olive trees in the World of Trees). Winch is used more often in our lower park/greenways vs. the feller-bunchers (which might be used in fire fighting areas in Upper Park).
12) P.46 Add to 7. "…from the uphill side. <u>Tree stumps should never be left with a sharp angular side, a common practice of CDF crews</u>";
13) P. 47 Move "Tree Removal" paragraph to p. 46 at the top under the first paragraph (last paragraph under Tree Removal section. Above the section titled "Yarding"

14) P. 47 Under Chemical Techniques – 1st paragraph – "Application of herbicides and other chemicals is typically performed….injecting, spraying, ADD painting, dripping…
15) P. 48 -- 4th paragraph under Herbicides – ADD the following "Careful targeting of the right herbicide for the right species at the right time of year reduces the amount of herbicide used, increases success rate of treatment, saves money…."
16) P. 49 – 2nd paragraph – CHANGE reference from Scotch broom to Spanish broom (which we have in our Park and greenways). Also, basal bark application is typically painting on the herbicide not spraying.

Please use Susan Mason's description of basal bark treatment. It is needed in this herbicide section, as it is one of the most commonly used treatments on particular plant species (Ailanthus, Spanish broom, English Hackberry, Black Locust and other weed trees) outside of foliar spray on blackberry, etc.

17) P. 51 Add a 8) The City of Chico will post signage or flyers for when there is herbicide being used in public areas so that families may choose to stay clear of the area.

18) "Shovel Ready" Projects in listing of preference – changed from the VFMP and new ones added.

1. (NEW) Vegetation Management of Lower Park through Middle Park
The City of Chico has started the removal of lower lying vegetation in Lower Park and Middle Park with the use of goats and a CAL Fire grant for CCC hours. This work needs to continue through this project. The removal of exotic, invasive trees and shrubs through a variety of means is a priority in terms of fuel reduction. Exotic trees include Catalpa, Japanese Privets, English Hawthorn, European Hackberry, Prunis, Chinese Pistache, Black Locust, Black Walnuts, Pyracantha, Fig, Bladder Senna, Winged Elm, Olive and more.

Bidwell Park's Lower Park area and some of Middle Park is located close to homes (there are also areas of Lindo Channel that may have similar issues). Much of the dense vegetation in this area is not native to the park but was introduced by humans throughout Chico's history (John Bidwell's Experimental Forestry Station now World of Trees and even Park neighbors).

Management plan for these dense areas is needed so that plants are properly identified for removal and the proper techniques are used, manual removal, winch, herbicide, etc. Goats have been used to remove some of the understory shrubs and grasses, but no follow up either manual removal or herbicide has taken place so much of this growth will return. These follow-up measures, such as manual removal of roots and or use of herbicide, must be included in the plan and timeline.

One major issue with this project is making sure that the plan is written and the work on the ground is directed by someone knowledgeable of invasive weed species and their

treatment. CCCs need expert direction. City staff needs to be trained in the removal of the most common weeds (privets, pokeweed, etc.) and the volunteer program should once again promote this type of work as park stewards.

A second issue with this program is the amount of vegetation material that will need to be disposed of. The use and cost of green waste containers provided by our local waste haulers need to be factored in. In some areas, prescribed burns may be able to clear some of the vegetation but this will definitely have to be carefully planned and directed.

2. - 5.6 Little Chico Creek Arundo Management
Include the stand that is upstream that Susan Mason makes mention of in her notes.

3. (New) Weed Tree Removal in Upper Park and Spanish Broom - Project should focus on the removal of Spanish broom, Olive trees and Fig…

4. (New) Update and implement Comanche Creek restoration plan. Volunteers have spent thousands of hours trying to manage this area. There needs to be an updated plan, and the support needed to remove invasive weed trees, and other exotics.

4. – 5.1 "Ten Mile House" Oak Restoration and Wildfire Resilience Project

5. – 5.2 "Dozer Lines" Oak Restoration and Wildfire Resilience Project

6. – 5.5 "Lindo Channel Vegetation Management Plan"

REMOVE THE FOLLOWING PROJECTS FROM THE GRANT LIST:

5.7 Nature Center Clearing Restoration – This is not a fuel management project. The exotic weeds in this area can be handled by CCC or volunteer manual labor in most instances. The Park Division needs to retreat the Catalpa stumps that have resprouted. The main Catalpa, which was the focus of this misguided project, is still standing. The situation adjacent to the Nature Center was created by the mistakes of the Park Division and their guidance of CDF crew or lack of guidance. This should not be included in this lineup of fuel management projects (small project site, limited fuels of concern). Restoration mitigation and management should be paid for by the City and Jim Dempsey's plan followed after the project goes through its required CEQA.

5.3 Middle and Upper Park Star Thistle Burns – This should be done by the City and Fire staff – not needed to be paid for by this grant.

5.4 Verbena Fields Stewardship
The Mechoopda were original partners with the City and Big Chico Creek Watershed Alliance in the planning and in some of the work at this site. In terms of fuel

management, this area is not a priority as simple pruning, and thinning can be done by volunteers or CCCs with correct guidance.

The City of Chico and the Mechoopda Tribe have partnered in many park/greenway projects through the years. The Mechoopda have a successful natural management stewardship education program and the over 100 volunteers who have participated in this program may serve as volunteers for this site as well as tribe members. The City of Chico's volunteer program used to conduct work sessions here and that could be started again. Establish plan and tasks needed (confer with Susan Mason and Mechoopda Tribe for what is needed here).

** I will send more comments shortly on the Appendices. Thanks, Lise

Linda Herman

From: [redacted]
Sent: Sunday, August 23, 2020 9:43 AM
To: Linda Herman
Cc: [redacted]
Subject: Vegetation Management

The recent article in the 7/26/20 Enterprise Record regarding vegetation management in the Chico area has interested me, particularly relative to the management of vegetation in Bidwell Park.
I have lived adjacent to BIdwell Park on El Monte Avenue for over 50 years. During this time I have ridden horses, bicycles, and walked in the park daily. If there is a need to reach a destination by car, I arrange my route so I can pass by the park. The Bidwell Park experience has been a great joy to have had during this time.

I have observed an increasing number of dead, fallen, or cut-down trees on the floor, and along the roads and paths throughout the park. Aside from detracting from the natural beauty of the park, this debris is fuel for a fire that could destroy Bidwell Park, as well as adjacent residential neighborhoods. This type and quantity of waste has accumulated over a period of many years. There has been little visual evidence to alleviate the situation other than pruning that has been left to lay and create more hazardous clutter. The floor of the park is so full of this type of waste that it would be impossible to move off-road equipment to a fire source in order to effectively extinguish a fire.

A hot, dry, windy day, and a spark from lightning, a vehicle, or a smoldering camp fire, could set the park on fire quickly. If some of the 100 foot tall trees caught fire, smoke, sparks, and flames, could also be blown in to neighboring residential areas. Think of how quickly Paradise was almost totally eliminated by this type of fire.

I wish you well in your endeavor to manage the accumulation of vegetation in our beautiful city.
Thank you for the opportunity to join you with my perspectives.
SIncerely,
JIm Panek
[redacted]

Sent from my iPad

SECOND DRAFT
Vegetative Fuels Management Plan

for
Parks, Greenways, and Open Spaces

City of Chico, California

August 2020

Plan development funded by
California Department of Forestry and Fire Protection (CAL FIRE)
Community Fire Prevention Grants Program
Project #5GA18210
Compiled with assistance from Deer Creek Resources, Dempsey Vegetation Management, Butte County Resource Conservation District, and the CSU, Chico Ecological Reserves

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CONTENTS

1 Introduction

1.1 Purpose

This Vegetative Fuels Management Plan ("VFMP" or "Plan") describes actions that the City will take over many years to minimize fire risk and improve other values relating to vegetation on the City's 6,400+ acres of parks, greenways, and open space. Although the primary driver of this plan is the need to improve wildfire safety, the Plan should and does address other values that are meaningful to Chico's residents and visitors. These include recreation values, community safety, Chico heritage and historic values, and ecosystem values such as water supply, conveyance and quality, and habitat for wildlife (including agricultural pollinators) and wildflowers. The Plan includes several key projects that are high priorities, but it also guides and authorizes work on every acre of City-owned land, whether it is inside the footprint of a "priority" project or not.

Because cities rarely have the resources needed to complete all the work they would like, this Plan identifies priority projects to make the most of limited funding, time, and capacity. Because conditions will change, this Plan also provides a means for evaluating future priorities to enable adaptive management. Also, to help community members understand the art and science of vegetation management, this Plan defines and explains a wide range of vegetation management tools, techniques, actions, and methods. It also specifies best management practices to ensure resources remain protected. It is intended to be flexible enough yet detailed enough to guide vegetation management for any Chico-owned park, open space, or greenway, both those parks that have existing management plans and those that lack them.

Development and environmental review of this Plan is funded through a CAL FIRE Community Wildfire Protection Grant. The purpose of the Community Wildfire Protection Grant Program is to build local capacity to complete community-based fire prevention projects.

Why should vegetation be managed? Managing vegetation may sometimes seem contrary to the spirit of keeping parks in their "natural state". However, it's important to remember that the "natural state" so deeply appreciated by Annie Bidwell was itself the legacy of long-term human management, including millennia of regular and deliberate human-led fire managed by the Mechoopda people, who still live here. Because of this natural and cultural history, all Chico parkland and open spaces are fire-dependent ecological communities. After a century of being deprived of the frequent fire they depend on, many Chico parklands and greenways are overstocked with vegetative fuels. This increases the risk that any future wildfire could be catastrophically intense. Human tending is again required to rehabilitate these parklands to health.

Furthermore, as climate change advances, Sierra foothill forests are expected to experience rapid change that results in profound ecological stress. Park management changes may be needed to help the land adapt to a new climate. Climate-related stresses are expected to include new or severer insect and disease outbreaks, longer droughts, more intense storms, and/or longer fire seasons in more years. In most cases, these stresses hit the densest woodlands the hardest. Keeping woodlands relatively open (within the natural range of variation for the site, of course) can help ameliorate these climate stresses.

Meanwhile, invasive species can displace and disrupt natural systems that provide services we all value. For example, invasive species can create or contribute to fire risk, obstruct flood conveyance, displace habitat diversity and resilience, and cause other problems. Invasive species can also detract from the scenic and cultural experiences many Chicoans seek in their parks, such as the sense of beholding the same vista someone would have seen two centuries ago. In short, "leaving nature alone" is likely to exacerbate, not fix, the problems of catastrophic wildfire risk, climate change vulnerability, and invasive species.

The intent of this document is to guide vegetation management. It would not be practical to attempt to remove every conceivable fire *hazard* nor *exotic* plant in Bidwell Park and other city greenways and open spaces. It is sensible to reduce both fire *risk* and *invasive* plants (priority exotic weeds with negative impacts) - and these two goals are related in purpose and implementation. Therefore, this Plan includes both a wildfire risk assessment delineating the highest-priority areas for treatment (**where** to reduce vegetation first: see Section 6.1), and a plant prioritization scheme delineating the highest-priority species for removal (**what** vegetation to reduce first: see Section 6.3).

When we prioritize certain plants for removal, it is another way of saying we prioritize certain plants for keeping. Creating guidelines for removal and retention of plants helps ensure that fuels reduction projects will not have excessive or avoidable negative impacts on our plant biodiversity, pollinators, nesting birds, streams and salmon, and the rest of the ecosystems we cherish. These guidelines are fleshed out in details in Chapter 4 and will be subject to detailed environmental review in the forthcoming EIR.

This Plan does not attempt to specify specific timeline goals as would a Project, and it does not fund any particular project. Rather, it provides a *programmatic* approach for setting priorities and practices for Projects as funding becomes available. This document guides ministerial (i.e., legally obligated) or maintenance actions on vegetation, as well as actions that would constitute a Project (i.e., discretionary actions). A major objective of this Plan is to make it easier for the City to efficiently complete future vegetation management projects as time and budgets allow. A big part of that efficiency will come from streamlining the City's process for the California Environmental Quality Act (CEQA) compliance.

CEQA is the law that requires all agencies and cities to carefully consider the effects of their proposed actions on the environment, to determine whether those effects are significant, and to reduce or mitigate significant effects whenever possible, all while informing the public. Because this is an arduous process to complete on a project-by-project basis, cities can and do bundle proposed actions together to be considered all at once, saving time and taxpayer money. This Plan is, among other things, an effort to develop a "bundled," "programmatic," CEQA document to guide vegetation management in the Chico for many years to come. For more about how this Plan relates to CEQA, see Section 6.5 of this Plan.

How to use this Plan.

This VFMP is structured to describe *where* the City of Chico manages lands, *what* objectives and standards the City manages them for, *how* they are managed (i.e., using which vegetation management tools and techniques, and standards for vegetation management) and, finally, *what* specific projects are top priorities for meeting those standards. It can be read in sections, or even beginning to end.

First, in Sections 1.2-1.4, we cover the basics: who drafted this Plan, why we did it, and what existing plans we relied on to do it.

Next, in Sections 2 and 3, you will learn about *where* the City manages lands. You will find descriptions of each park, greenway, and open space parcel inside the Plan area. Not every parcel is described in great detail, but we emphasize the key objectives the City needs to uphold when considering its vegetative fuels management activities. Different parks or open spaces are managed for different objectives.

In Section 4, we explain in more detail *how* vegetation management gets done. For instance, here you will find more detailed technical specifications about vegetation management activities and how they should be applied, including standards for desired conditions, mitigations to limit resource damage, and seasonal restrictions. The map presented in Section 4.1 divide the City's parklands into five vegetation zones -- grassland, Valley oak woodland, riparian corridors, blue oak-gray pine woodland, and upland mix. Zone by zone, the specifications in Section 4.2 explain ***what*** our parklands will look like when they are fire safe. Here,

you will find the measurable metrics crews will aim to achieve to reduce fuel loading to acceptable ranges for the vegetation type they are working in. (These techniques and standards will be further fleshed out, with even more technical specifications, during the environmental review process which begins with the release of this Plan.) Finally, the vegetation treatment tools, or techniques, presented in Section 4.3 are the practices used to modify vegetation. They describe ***how*** work will get done. Again, the mitigations and best management practices the City will use to protect natural and cultural resources will be fully fleshed out in the environmental review process.

In Section 5, we describe in greater detail several priority projects developed concurrently with this Plan. These fire hazard reduction projects, dependent on funding availability, will likely be among the first vegetative fuels management projects implemented under this Plan. However, that does not mean they are the only places vegetation management will happen. The City will conduct routine thinning and invasives removal throughout the parks under this Plan, as funding allows, starting with final approval of this Plan in 2021 and continuing for many years. Through this Plan and its subsequent EIR, programmatic environmental review will have been done and useful, effective mitigation measures will have been defined *for all City-managed parklands, greenways, and open spaces*. That said, some supplemental environmental review will be needed for some projects, depending on their expected impacts, and it will always be conducted before implementation.

In summary, Sections 1 through 3 provide the background information to understand this Plan. Section 4 provides the more specific actions and recommendations of the Plan. Section 5 provides several priority projects the City intends to implement under the Plan.

Section 6 is where you will find the appendices. These documents describe the detailed work done in spring 2020 to assess fuels density and fire hazard across the City's parklands. This work was conducted to ensure this Plan was based on good data.

1.2 Scope

This is a guiding document for management of vegetation in City of Chico parks and green spaces. It does not cover parks that are not City-owned, such as those managed by the Chico Area Recreation District (C.A.R.D). Chico's urban forest outside of parks (i.e., street trees) are managed under a separate plan.

The geographical scope as of this writing is the 6,440+ acres of parks and green space owned by the City of Chico. For maps of the City-owned land covered by this Plan, see Figure 1.

This Plan distinguishes two main types of City-owned lands: lands managed first for natural values, and lands managed primarily for other values. Parks managed for "natural values" are managed first and foremost for natural ecosystem services such as clean water, clean air, and wildlife habitat, and/or for recreation in a relatively wild, natural setting. Managing for natural values does not mean leaving a park alone; rather, the priority is maintaining healthy ecological communities that are resilient to wildfire. Achieving this objective usually does mean active management of both native and non-native species. The prime example of a park managed for natural values is upper Bidwell Park. A park can be managed for natural values without being a completely natural landscape; for example, the Teichert Ponds are not natural ponds. They were gravel quarries that flooded, but now they are thriving ecosystems and are managed for natural values such as wildlife observation and quiet paddling.

Parks and open spaces managed primarily for "other values" could be managed primarily for floodwater conveyance or as an airport safety buffer. An example would be Lindo Channel, which is managed primarily to keep the City of Chico safe from flooding. This does not mean that natural values like bird habitat are not important in Lindo Channel or around the Airport. It means that natural values influence, but usually do not drive, projects there.

For Bidwell Park, this Plan serves a special role. It serves to fulfill the "fuels management program" called for by the 2008 Bidwell Park Master Management Plan (BPMMP). According to Section C.5.4.1.2 of the BPMMP, a fuels management program "should establish fuel load guidelines to specify acceptable fuel load levels within various Park regions" and "should ultimately prepare a detailed, programmatic level prescribed burning plan" with "a procedure [...] developed to map and prioritize prescribed burns" (section C-5.4.2.1). Due to time and capacity constraints, that fuels management program was never developed, until now.

With respect to the CEQA, the practices described in this document encompass ministerial actions (i.e., those required of the City by law) and also maintenance actions to manage vegetation, as well as those actions that are discretionary and thus qualify as “projects” under CEQA. After this Plan is complete, the City will complete an Environmental Impact Report, or EIR, on the Plan. The EIR will analyze possible environmental impacts that could be caused by implementing the Plan. The EIR will determine whether any of those effects could be significant, and if so, how they could be mitigated to below a level of significance. The public and interested groups will have multiple opportunities to comment on the EIR, as will affected agencies and governments, including the Mechoopda Tribe of Chico Rancheria. After the EIR is certified, many future vegetation management actions will be easier to fund and implement, because some (or, for certain projects, virtually all) needed CEQA review on them will already have been completed. For more about how this Plan connects to CEQA, see Section 6.5.

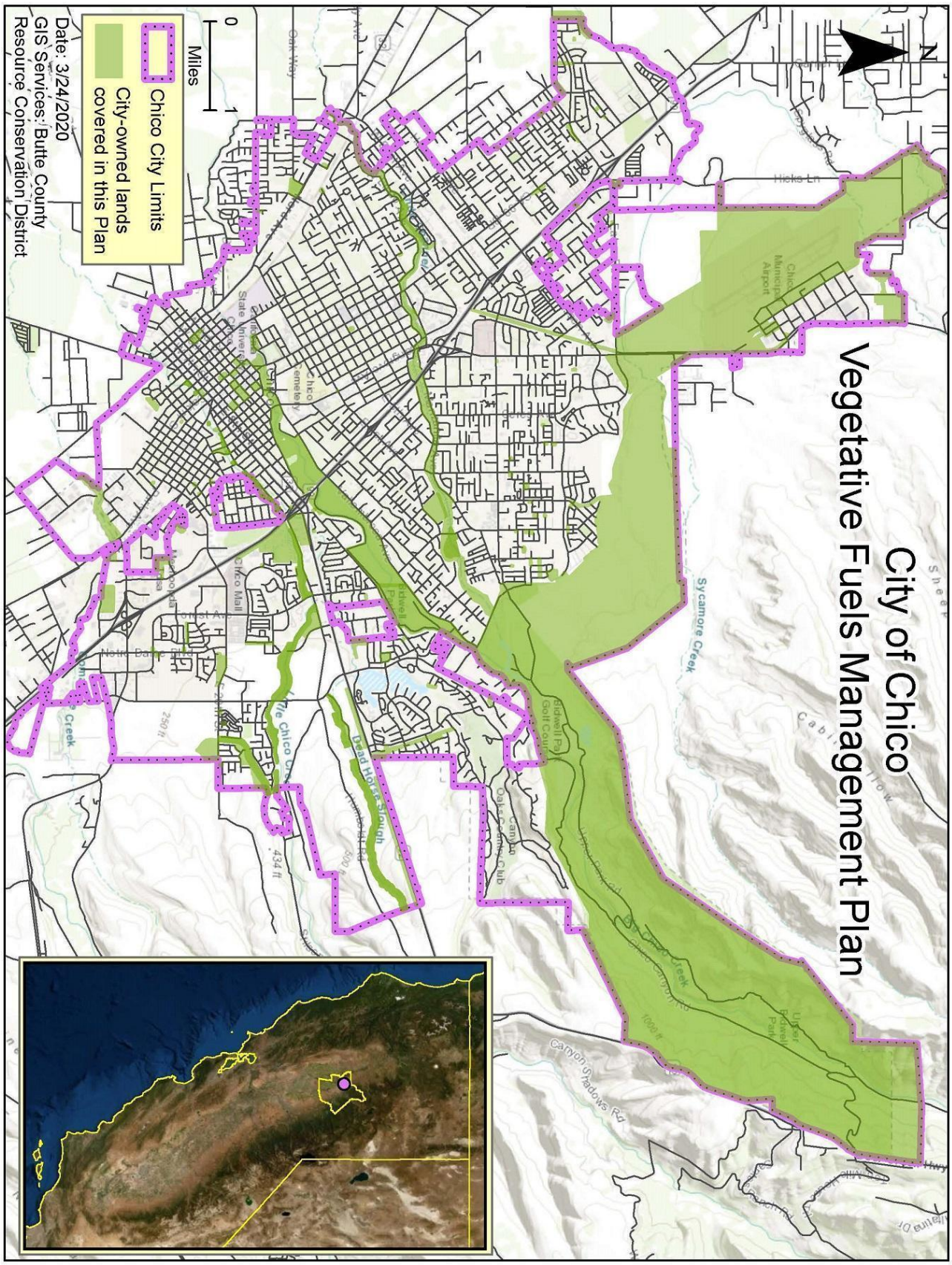


Figure 1: Lands addressed in this Plan.

1.3 Connection to other Plans

Several parks and green space areas of Chico have existing management plans that serve various purposes or convey responsibility or legacy legal restrictions that limit how the City can act on vegetation for those parcels. For example, the Wildwood Vernal Pools Preserve has very strict and clear guidelines about what kind of vegetation management can be undertaken and under what conditions, and it has a Preserve Manager whose job is (among other things) to monitor for, assess, and resolve fire hazards there. Therefore, this Plan will not spend a lot of time addressing the Wildwood Preserve. On the other end of the spectrum, Lindo Channel (Sandy Gulch) has never had any kind of management plan (with the exception of some inventory work and monitoring plans for native species and elderberry bushes), much less any framework for how to control fire risk, so Lindo Channel gets significant attention in this Plan.

Many of Chico's creek corridors have either no management plan or an outdated management plan. This includes Little Chico Creek, Lindo Channel, Comanche Creek Greenway, and Sycamore Creek. For the City-owned lands along these creeks, this plan serves as a programmatic management document. That means Section 4.2's management standards for the relevant vegetation zones (i.e., Grassland, Valley Oak, or Riparian Area) will be applied on these creekside parcels, resources allowing, for as long as they do not have their own up-to-date management plan.

Bidwell Park has a detailed master management plan, but that plan has long been missing a detailed fuels management program. This Plan provides that program, but it will not provide every possible analysis of Bidwell Park's vegetation and natural resource context, since rehashing the background information already presented in the BPMMP would be inefficient.

It would be impractical to list the details of all the existing plans (or lack thereof) and the constraints and responsibilities they impose. Therefore, most existing plans are incorporated by reference into this Plan. Readers will find the planning status of the different parks, greenways and open spaces discussed in Sections 2.1-3.5. For a quick summary table of this information, see Section 6.6.

1.4 How This Plan Was Developed

In November 2018, the Camp Fire destroyed over 18,000 structures across Butte County, including most of the town of Paradise. The human toll was devastating, and Chico was profoundly impacted as residents took in newly homeless family members, friends and even strangers. The fire burned up to the city limits of Chico, and some Chico neighborhoods were evacuated. Many Chicoans became newly sensitized to how Chico's cherished parks and greenways could serve as fuses pulling wildland fire into the neighborhoods of Chico. While Chico's topographical setting and prevailing winds make a Camp Fire-like conflagration less likely here than in Paradise, our town could still do more work to reduce fire risk.

Cities cannot simply send crews into the hills to cut brush at will. Under California law, cities must first analyze the likely environmental impacts of their projects, and they must inform and invite comment from citizens, the wider public, and affected agencies and other governments. This process is what is known as project planning. Recognizing that capacity for planning was a critical need in further reducing the City's wildfire risk, in December 2018 the City of Chico applied for a CAL FIRE planning grant to fund this Plan.

Starting after grant award in May 2019, this Plan was developed by City staff (Parks Division) with assistance from many partners and contractors. Sections on vegetation management were written by longtime City consultant Dempsey Vegetation Management, as well as by conservation professionals from the Butte County Resource Conservation District (BCRCD) and the CSU, Chico Big Chico Creek Ecological Reserve (BCCER), which also provides Registered Professional Forester review of the finished plan. The fire risk

assessment was completed by Deer Creek Resources, part of Firestorm LLC. The collegial assistance of professionals from Horizon Water and Environment, who shared some lessons learned from their experience developing the Oakland Vegetation Management Plan (OVMP; Eckhart et al 2019), is gratefully acknowledged; in places, this Plan adapts parts of the now publicly available OVMP to Chico. Earlier work completed by parks volunteer Susan Mason was important in developing the *Arundo donax* removal project. Resource surveys were completed by BCRCD and others.

Through a pilot partnership with the CSU, Chico Ecological Reserves, the project provided paid interdisciplinary training to a CEQA intern who contributed hundreds of hours of surveys, mapping, and data analysis to the Plan while gaining valuable professional skills. Managers of the Big Chico Creek Ecological Reserve (BCCER), which borders Bidwell Park to the north, donated their time to help review and harmonize this Plan with vegetation management plans upcanyon. The team is grateful to Horizon Water and Environment, who generously shared some of their lessons learned while developing the City of Oakland's Vegetation Management Plan and EIR.

1.5 Abbreviations and special terms

Acronyms Used

Acronym	Meaning
BCCER	Big Chico Creek Ecological Reserve
BMPs	Best management practices
BPMMP	Bidwell Park Master Management Plan
BPPC	Bidwell Park and Playgrounds Committee
BRCP	Butte Regional Conservation Plan
CAL FIRE	California Department of Forestry and Fire Protection
C.A.R. D	Chico Area Recreation District
CCG	Comanche Creek Greenway
CCI	California Climate Investments, a funding source that uses carbon auction proceeds to fund, among other things, fuels reduction work
CDFW	California Department of Fish & Wildlife
CEQA	California Environmental Quality Act
CSUC	California State University, Chico
dbh	Diameter at breast height, a way to measure the thickness of trees.
DEIR	Draft EIR
DWR	(California) Department of Water Resources, an agency which has the responsibility to maintain floodwater conveyance in several of Chico's channels
EDRR	"Early Detection and Rapid Response," a strategy for engaging people to identify and control invasive weeds. Colloquially, "EDRR weeds" in an area are the ones that people are particularly vigilant about keeping out of their parklands.
EIR	Environmental Impact Report, a type of CEQA document
FRI	Fire return interval
IS	Initial Study (also known as "the Appendix G checklist," a type of preliminary CEQA document that sorts out insignificant from potentially significant impacts
LCC	Little Chico Creek
LSA	Lake and Streambed Agreement

MMP	Master Management Plan (or, sometimes, Mitigation and Monitoring Program!)
MND	Mitigated Negative Declaration, a type of CEQA document
ND	Negative Declaration, a type of CEQA document
NOD	Notice of Determination, a document filed by a public agency when it completes the CEQA process
NOE	Notice of Exemption, a document filed by a public agency to show that a project is exempt from further CEQA review
NOP	Notice of Preparation, a document filed by a public agency to announce it is preparing an EIR
OHWM	Ordinary High Water Mark, the level of every stream channel up to which the State of California holds an easement to perform activities found by the Legislature or the People to be in the public interest (e.g., removing obstacles to floodwater conveyance).
OLWM	Ordinary Low Water Mark, the level of every stream channel which forms the upper boundary of the land to which the State of California holds title under the Public Trust Doctrine. While the State holds title to lands below the OLWM, it usually merely holds an easement on lands between the OLWM and OHWM.
PEHL	Public and Easement Habitat Lands (a term used in the BRCP to describe lands that are in public ownership or under conservation and thus serving to conserve natural communities and covered species habitats)
PEIR	Programmatic EIR
SRCS	Spring-run Chinook salmon, a sensitive endemic species
TEK	Traditional Ecological Knowledge
USACE	U.S. Army Corps of Engineers
USFWS	US Fish & Wildlife Service
VELB	Valley Elderberry Longhorn Beetle, a sensitive endemic species
VFMP	Vegetative Fuels Management Plan
VMP	Vegetation Management Program, a program of CAL FIRE whereby CAL FIRE assumes responsibility (including liability) for vegetation management activities (usually including prescribed fire) on lands not owned by the State, under agreement with the land manager.
WUI	Wildland Urban Interface: A transitional zone where human development abuts wildlands or the two are intermixed

2 Introduction to Chico's Natural Parks

City owned parks that are managed foremost for natural values include:

- Bidwell Park.
- The three vernal pool mitigation properties Bidwell Ranch, Foothill Park, and Wildwood Vernal Pool Preserve, along with Hillview and South Chico preserved parcels.
- The Comanche Creek Greenway.
- Teichert Ponds; and
- Verbena Fields.

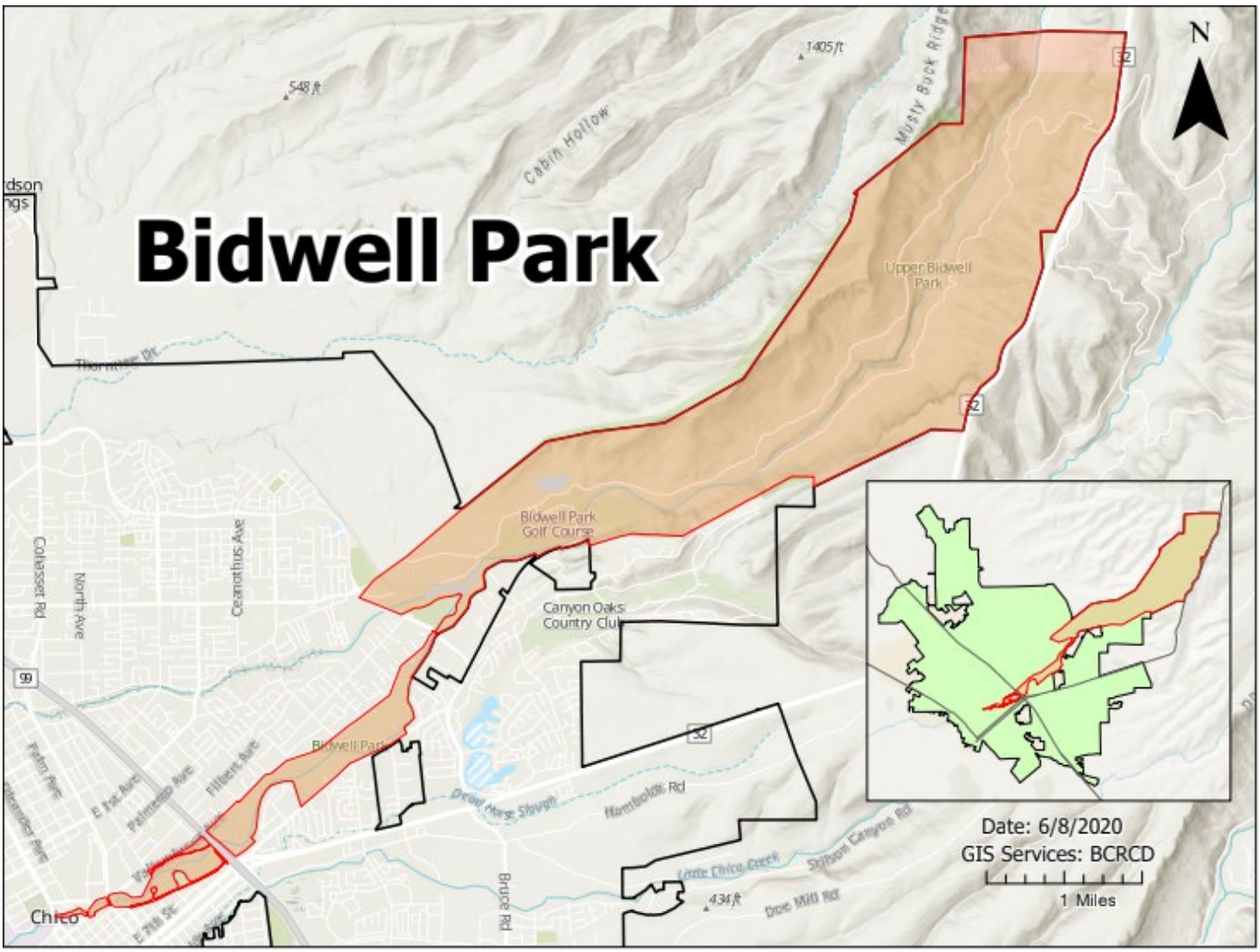
By natural values, we mean:

- Recreation in a natural setting.
- Natural and cultural heritage; and
- Natural ecosystem services such as clean water, clean air, and carbon banking for climate change.

Other natural values for which these lands are managed include wildlife habitat, native insect and agricultural pollinator habitat, wildflower beauty, and fisheries values.

Chico's rich natural heritage is inseparable from its cultural and historical heritage. The beautiful and productive landscape of what is now called Bidwell Park is the visible legacy of thousands of years of skilled management by Mechoopda people. Thus, when Annie Bidwell adjoined the City to "preserve" and "sacredly guard" "the beauty of [the] Park," she was praising the beauty of a landscape that had been cultivated, tended, and deliberately burned by Native people since time immemorial. For this reason, parks managed for natural values may also be managed for consistency with traditional ecological knowledge (TEK) held by the Mechoopda Tribe.

2.1 Bidwell Park.



2.1.1 Purpose and Scope

Often described as "the jewel of Chico," Bidwell Park encompasses 3,670 acres. It extends from Bidwell Mansion, the historic center of the town of Chico, ten creek-miles into the Big Chico Creek canyon. This canyon deeply divides the wild, volcanic foothills of the southern Cascade foothills (geographically usually considered the Sierra Nevada foothills). Bidwell Park is described in detail in its Master Management Plan (BPMMP) Sections 1 and 2, which are incorporated here by reference. The entire BPMMP (City of Chico 2008) is available from the City of Chico Parks website.

The iconic wide-open landscapes of Bidwell Park, such as its spacious riparian forest structure consisting of low-density mature valley oaks, resulted from traditional management. Dislocation of Mechoopda people from this ancestral land, and the suppression of cultural burning, therefore led to overly dense conditions more susceptible to uncontrolled fires.

The pre-settlement fire return interval (FRI) in most of the project area is 5-12 years (Safford et al 2011) and some areas of high use were likely burned almost yearly, based on settler and indigenous accounts. Because the park's natural communities have evolved with frequent fire, from a native plant's perspective the problem in Upper Park is not too much fire, but too little. Fire suppression, while often necessary to protect

lives and property, eventually results in overly dense woodlands that are more drought-susceptible, less biodiverse, less able to cycle nutrients (and less nutritious as wildlife forage), and more vulnerable to eventual catastrophic wildfire, compared with woodlands that burn every few years.

Recognizing that fire is the keystone ecological process shaping the Park, the drafters of the BPMMP called for a "fuels management program" (Section C-5.4.1.2). According to the BPMMP, a fuels management program "should establish fuel load guidelines to specify acceptable fuel load levels within various Park regions" and "should ultimately prepare a detailed, programmatic level prescribed burning plan" with "a procedure [...] developed to map and prioritize prescribed burns" (section C-5.4.2.1). For example, BPMMP page C.5-5 states:

> *Fuel reduction treatments should be prioritized, with highest priority given to treating those areas likely to pose significant risks to public safety, private property, or Park facilities. Fuels reduction treatments should also be considered for areas with dense infestations of nonnative invasive plants (e.g., Himalayan blackberry, tree of heaven, eucalyptus), areas with high concentrations of ladder-like fuels like wild grape, areas where wildlife habitat could be improved or protected through fuels reduction, areas lacking natural oak regeneration, or areas where fuels reduction would benefit native plant communities or special status plant populations.*

This Plan fulfills that need. It establishes fuel load guidelines (see Section 4.2) and describes high-priority areas for programmatic prescribed burning (see Sections 4.2, 5.1, 5.2, and 5.3). It provides a fire risk assessment to guide the prioritization of projects (Section 6.1) and it provides a framework for prioritizing invasives removal during fuel reduction activities (Section 6.3).

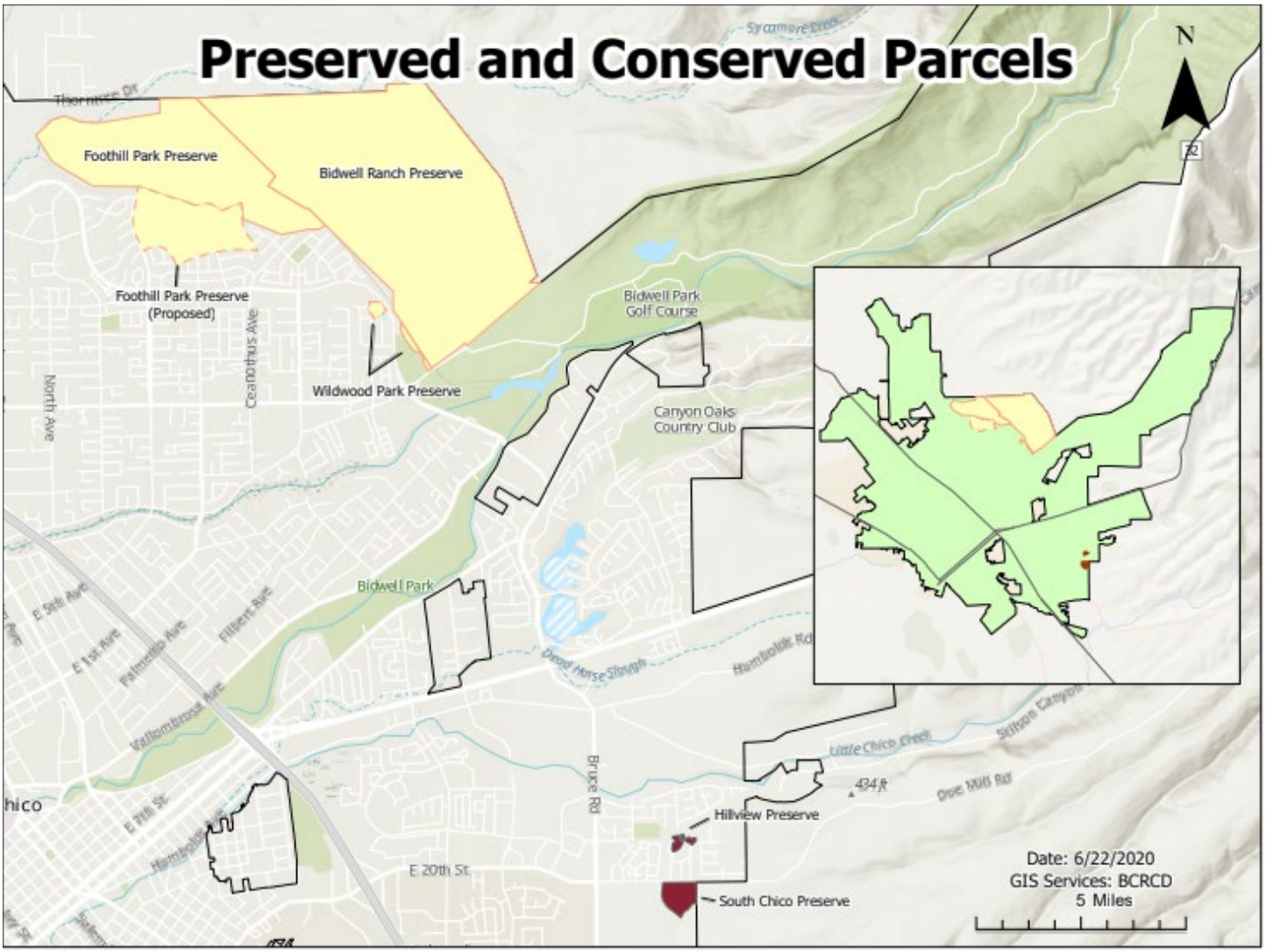
Since Upper and Middle Parks are managed primarily for natural values (e.g., wildlife and rare plant habitat, a healthy wild or minimally tended landscape, rugged non-motorized recreation, and a basic level of user safety), fuels reduction work there will focus on enhancing natural values. For example, fuels work will be guided by objectives in the BPMMP (e.g., O-NC-7, “Improve age class diversity within chaparral and even-age stands of oaks and other plant communities to benefit wildlife”) and will be designed to improve vegetation communities’ resilience to climate change and to help mitigate the ecologically detrimental effects of long-term fire suppression. When it is necessary to remove plants to make the landscape healthier, crews will prioritize removing invasive plants, and then move on to returning native plants to within the range of healthy density, as defined by the Registered Professional Forester. What all this means on the ground, for each of the five main vegetation communities found in Bidwell Park, is defined in Section 4.2 of this Plan.

In Lower and Middle Park, a higher management level is appropriate than in Upper Park. That’s in part to accommodate the park’s highest-use areas like One-Mile, Five-Mile, and Cedar Grove, and in part because Lower and Middle Park have the highest level of encroachment by invasive plants that can increase fire danger. Outside of the high-use areas, Lower and Middle Park will continue to be managed for passive uses (walking, hiking, biking, small site picnicking, and leisure), and to meet the vegetative fuels loading standards for the relevant vegetation communities (e.g., Valley Oak; Riparian). Areas managed for passive use are not intended to look “manicured” but will be regularly managed to ensure vegetation density stays within a healthy range.

To that end, crews will continue to prioritize the removal of invasive plants over natives (BPMMP-NRMP, C.4-2) and to maintain a shaded riparian corridor that can provide cool water for salmon and other aquatic species (see pp 3-20 and 3-21 of the BPMMP for more on riparian habitat objectives within the Park). At the same time, in high-use areas, raising sightlines and providing a safe recreation experience where park users can see their surroundings is a valid vegetation management objective. The “Riparian” vegetation standard (see Section 4.2.3) provides guidance for how to maintain a shaded and healthy creek corridor while pruning back excessive ladder fuels.

Below the Five Mile Diversion control structure, DWR does not work in the Park unless the City requests it. For example, when large trees fall into the stream, during salmon season they must be lifted out rather than dragged; currently, DWR will handle this at the City's request. Through the CSUC campus, DWR maintains the zone below the OHWM free of downed wood. Above the Five Mile structure, DWR maintains flood clearance, acting on both vegetation and sediment removal.

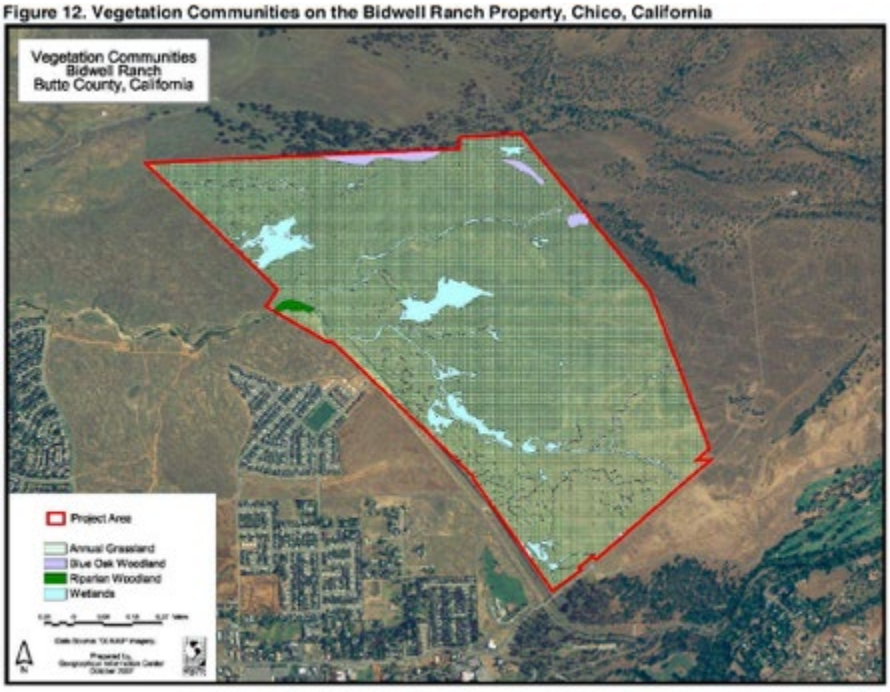
2.2 Preserves and Conserved Parcels -Bidwell Ranch, Foothill Park Preserve, Wildwood Vernal Pool Preserve, and conserved parcels of Hillview & South Chico.



The contiguous areas of Bidwell Ranch, Foothill Park Preserve, and Wildwood Vernal Pool Preserve were set aside to preserve vernal pool rare and sensitive species habitat.

Bidwell Ranch (750 acres, map at right) awaits progress on the Butte Regional Conservation Plan (BRCP) to determine future disposition and funding of the site for vernal pool mitigation banking. A draft management plan currently guides maintenance grazing on the area. Future vegetation management depends on the pending BRCP and whether a specific plan for Bidwell Ranch will be developed as a consequence, otherwise the objectives described for Bidwell Park, especially its grasslands (see sections 2.1 and 4.2.1) can serve to guide future management.

Figure 12. Vegetation Communities on the Bidwell Ranch Property, Chico, California



Bidwell Ranch – Site Inventory
River Partners

March 5, 2008
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Foothill Park Preserve (292 acres, map at right) is managed by a third party according to the 1999 Foothill Park Preserve Management Plan. Its long-term maintenance and preservation are funded as mitigation for the adjacent residential development. This land is protected against any change in land use and management for ecological protection (protected land Category 1 PEHL [Public and Easement Habitat Lands]). Foothill Park is part of the Grassland vegetation zone and is already managed to the standards established for that zone in section 4.2.1.

SITE AERIAL
PHOTO DATE: 12/18/98

FOOTHILL ASSOCIATES
ENVIRONMENTAL CONSULTANTS
©1999

N

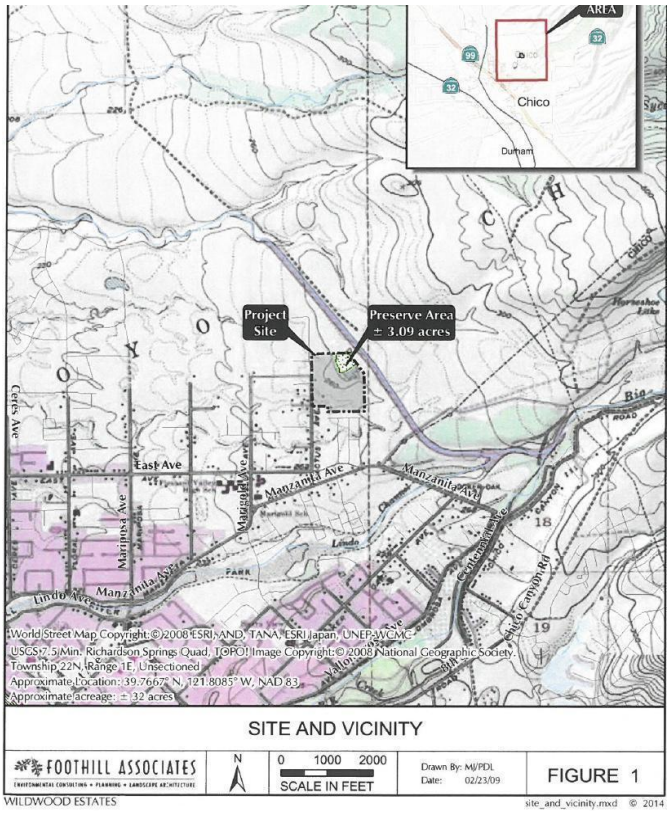
0 850 1700
SCALE IN FEET

FIGURE 3

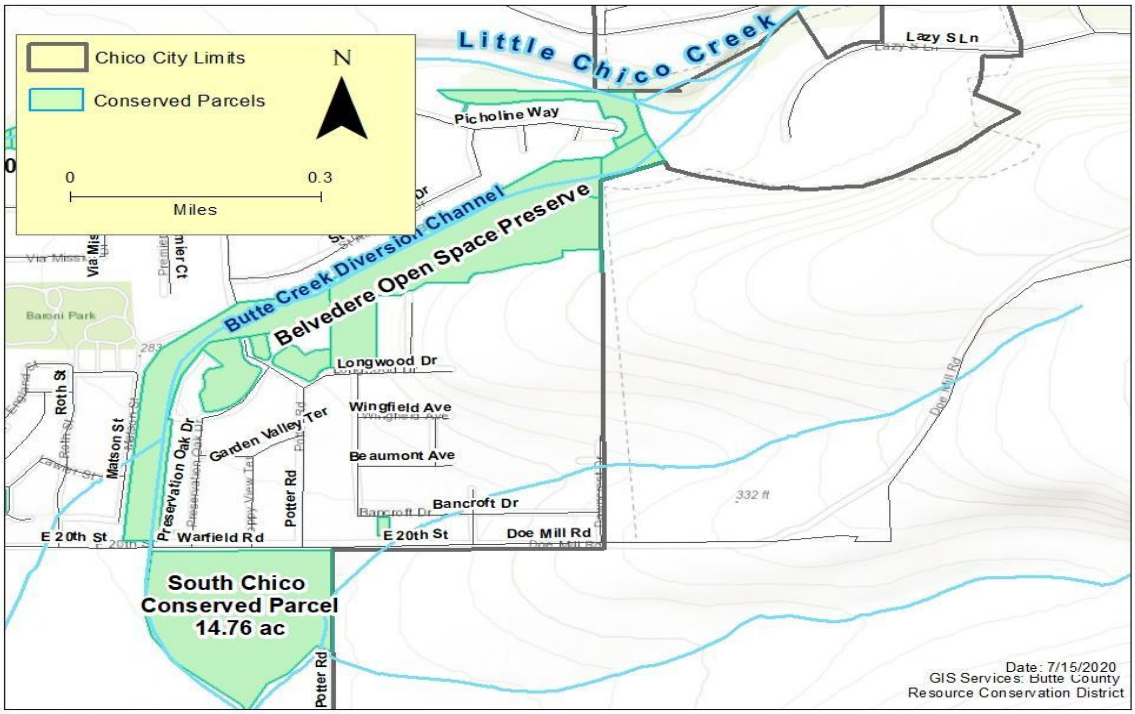
FOOTHILL PARK PRESERVE

Wildwood Vernal Pool Preserve consists of 3.1 acres between Wildwood Neighborhood Park and the Sycamore Diversion Channel (map at right). It has a detailed management plan (Foothill Associates 2014). The plan states, "If, at any time, conditions at the Preserve become a fire hazard, the Preserve Manager will work with [the Army] Corps [of Engineers], the [U.S. Fish and Wildlife] Service, and the local fire authorities to decide on the best method to reduce the fire risk at the Preserve." (p 31)

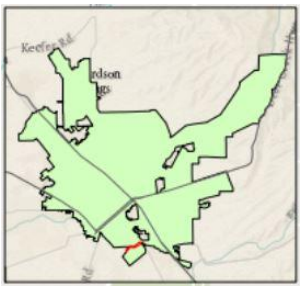
This area is managed for open space for mixed use in a way that maintains ecological value (protected land Category 2 PEHL according to BRCP Sec 5.2.3.6). Wildwood Vernal Pool Preserve is part of the Grassland vegetation zone and is already managed to the standards established for that zone in section 4.2.1.



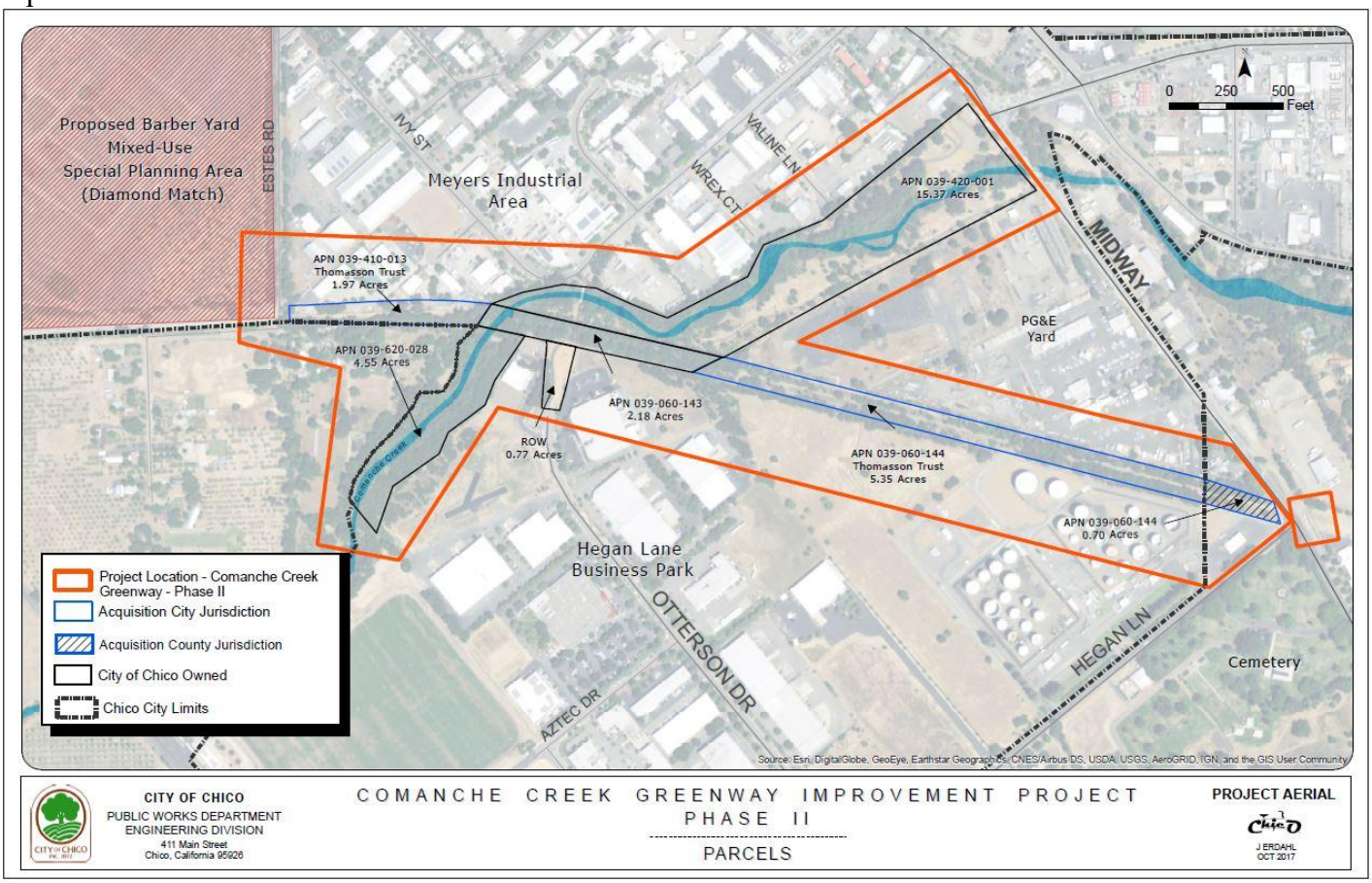
Some open space preserves have no management plans. One is **Hillview, a.k.a. Belvedere open space preserve** (27.6 acres when including the canal) located in the Hillview Terrace subdivision along the Little Chico Creek to Butte Creek diversion canal. Maintenance is funded by a maintenance district, but there is no management plan. Also lacking a management plan is **South Chico conserved area** (14.8 acres), on the south side of East 20th Street, and east side of the Little Chico Creek to Butte Creek diversion canal. Now that this Plan is complete, vegetation in both areas (which falls into the Grassland vegetation type, see 4.1) will be able to be managed under the Plan.



2.3 Comanche Creek Greenway

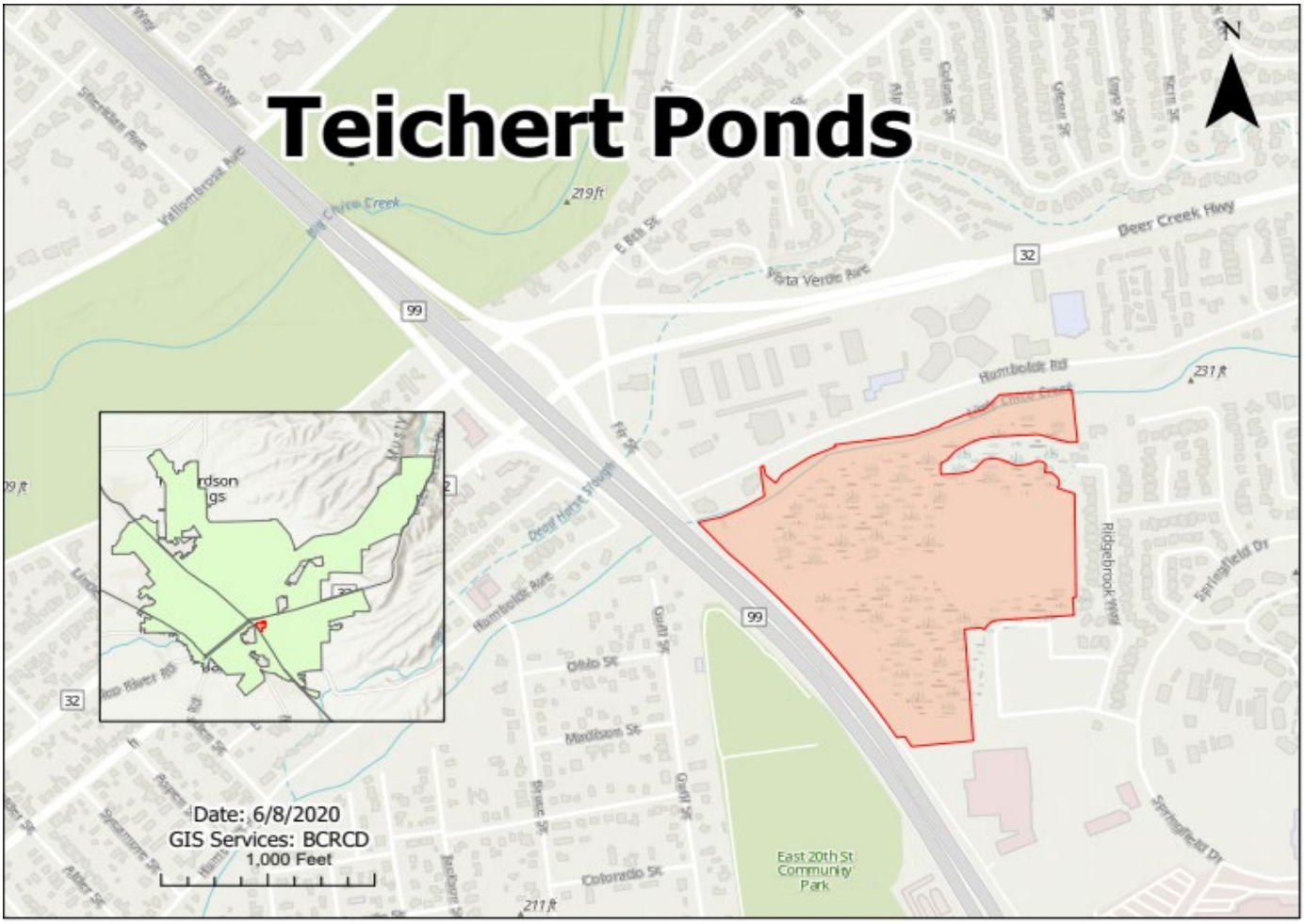


Comanche Creek (a.k.a. Edgar Slough) originated as a seasonal stream but now flows year-round, delivering irrigation water diverted from Butte Creek to M&T Ranch. Originally, Comanche Creek Greenway parcels totaling about 20 acres were acquired by the City of Chico Redevelopment Agency to mitigate impacts on sensitive species (Giant Garter Snake, Valley Elderberry Longhorn Beetle, and Swainson's Hawk) in connection with Redevelopment Agency projects. Thus, habitat conservation is a very important goal for this park. Another objective is providing a safe and enjoyable corridor for non-motorized commuting and recreation. By 2020, Comanche Creek Greenway totals about 30 acres of City-maintained land. The associated bike path/walkway also extends beyond City limits onto County jurisdiction. Comanche Creek is not designated as a floodwater conveyance channel of particular importance and DWR has no maintenance responsibilities or activities there.

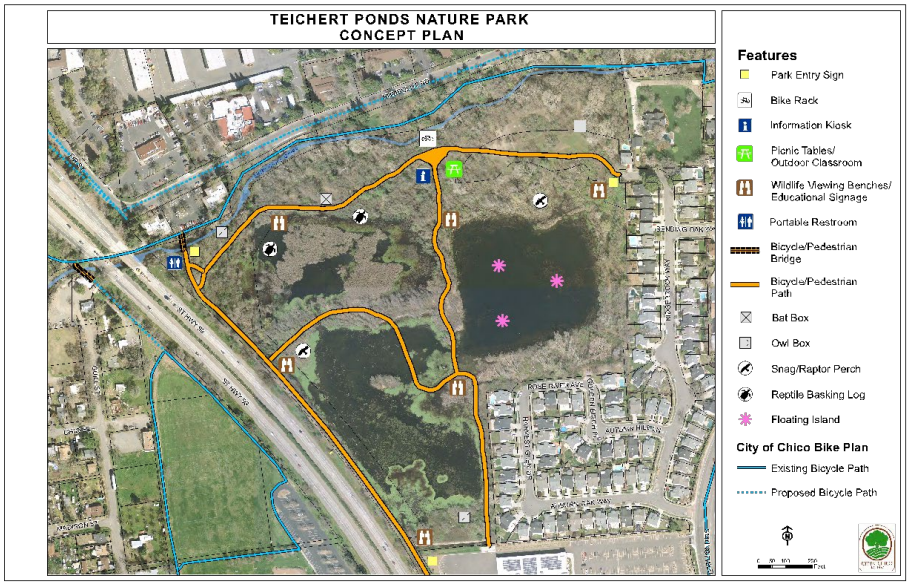


The Comanche Creek Management Plan (City of Chico 2012) observes that increasing public use of greenway carries with it an increased risk of fire but does not provide any fire risk reduction objectives or suggestions. Members of the public have observed that this management plan is somewhat out of date now that the greenway has been expanded in size. The Comanche Creek Vegetation Management Plan (DCE 2008) provides considerable guidance on restoring riparian vegetation, improving wildlife habitat, providing an enjoyable recreational experience, and removing invasive species. However, that plan contains minimal reference to fire beyond an acknowledgement that fire risk is one reason vegetation should occasionally be thinned out in a valley oak woodland community. Therefore, this Plan adds to the body of management literature for Comanche Creek by assigning it measurable vegetation management standards (see the relevant standards in Sections 4.2.2 and 4.2.3). This Plan will serve to guide vegetation management in Comanche Creek Greenway for as long as the old plan is not updated.

2.4 Teichert Ponds

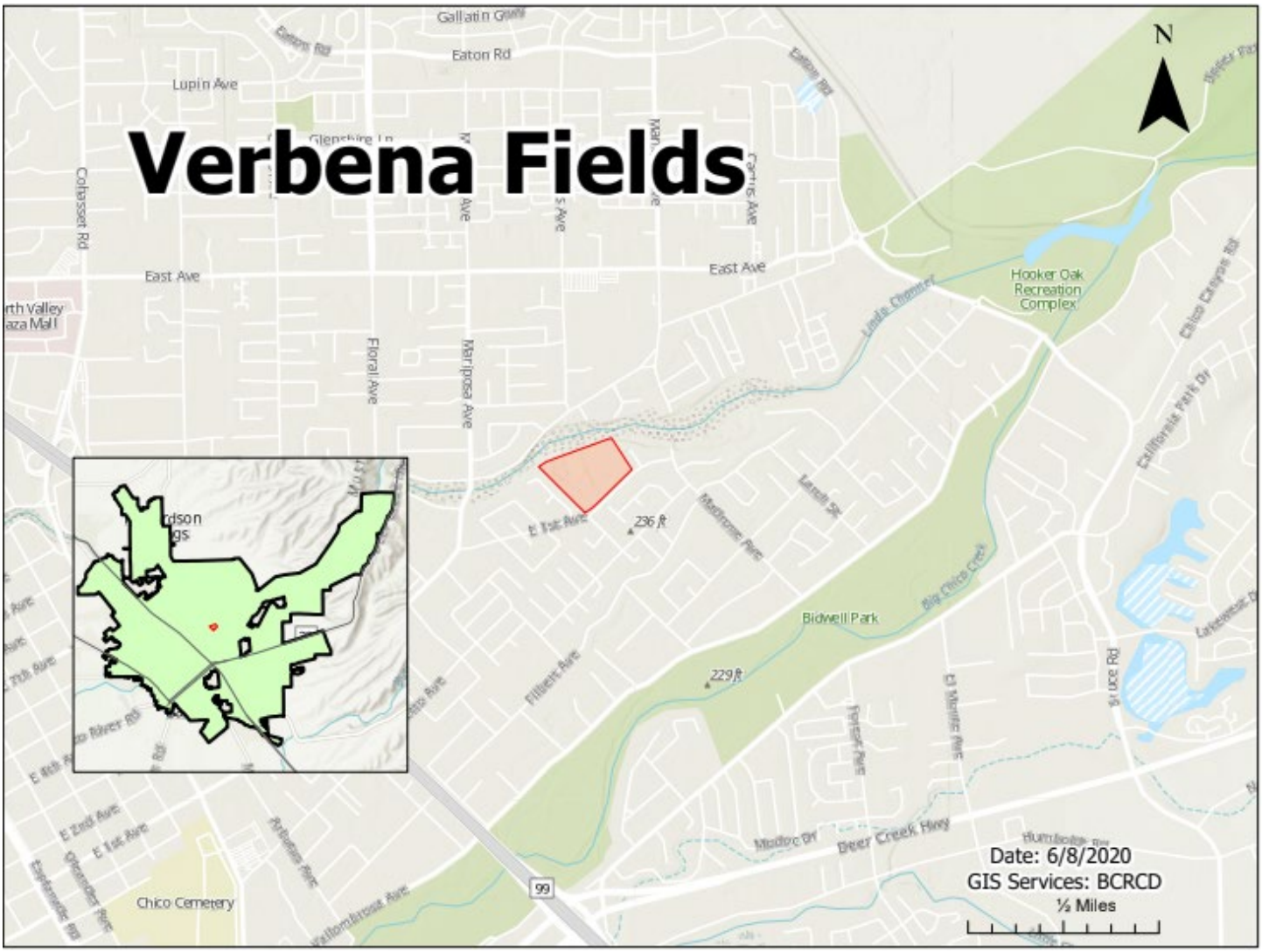


Teichert Ponds is currently maintained for use as stormwater detention hydrologically connected to Little Chico Creek. The Habitat Development Plan (Restoration Resources 2008) addresses stormwater detention, recreation, and habitat enhancement, including management of invasive species, but it does not mention fire.



The City's core objectives for Teichert Ponds as stated in the 2008 HDP are to maintain stormwater detention and treatment functions, improve water quality, provide for mosquito abatement, restore and enhance wildlife habitat, improve landscape aesthetics, and provide features to enhance public use. While wetlands are usually not considered high-fire-risk areas, Teichert Ponds' location in the middle of a busy, urban residential/commercial neighborhood makes it an attractive place to build an (unauthorized) campfire. This results in a risk level for human-caused ignition that does not exist in most wetlands.

2.5 Verbena Fields

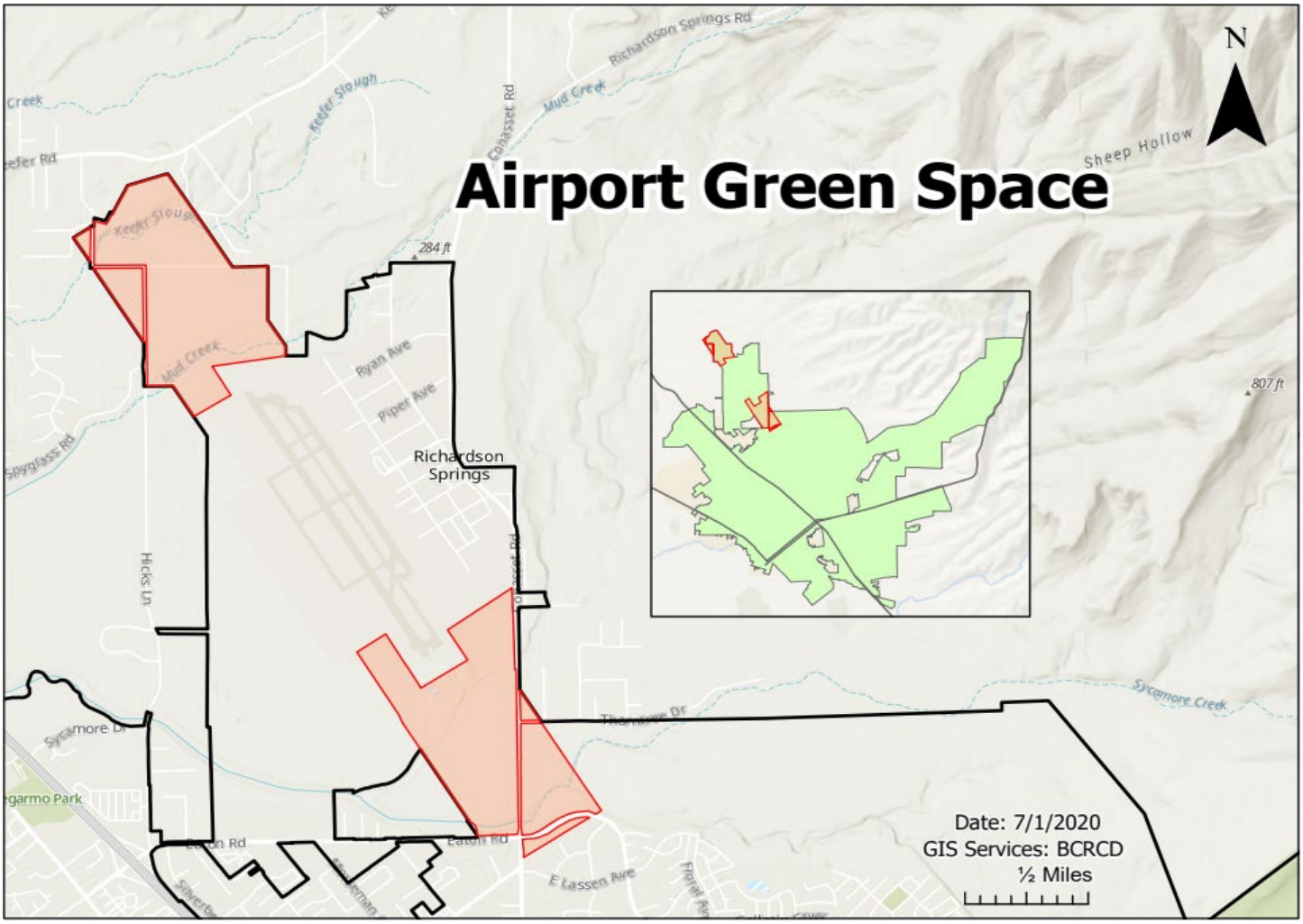


This 13.4-acre site is located along Lindo Channel. Once a gravel mining site, it was recontoured as a flood overflow basin and restored as a unique natural and interpretive park focused on plants of significance to the Mechoopda people, the original inhabitants of Chico. Mechoopda people still maintain, gather, and care for the living cultural resources here such as deer grass and willow. Maintenance projects in and around Verbena Fields present unique opportunities to collaborate with Native land stewards, to educate Chico community members about the plant-human relationships that have endured here since long before John and Annie Bidwell arrived, to allow citizens and schoolchildren to experience traditionally cultivated landscapes, and even to support traditional ecological management techniques such as cultural fire. Other than the restoration design and three-year native plant establishment plan (Cole 2009) developed for the restoration grant, Verbena Fields has no management plan, so this Plan serves as the first document guiding maintenance activities there. For as long as no site-specific management plan exists, management activities at Verbena Fields will proceed in accordance with the relevant standards for the "Valley Oak," "Grassland," or "Riparian" standards (see Section 4.2), depending on the location in the park.

To best allow Verbena Fields to reach its potential as a native restoration and educational site, the City can develop an MOU with the Mechoopda tribe and/or local land tenders to support continued collaboration and activities like cultural burning. Volunteer activities in the past have included hand-pulling yellow star thistle, mustard, puncturevine, and Spanish broom.

3 Introduction to Other City Green Spaces.

3.1 Airport Green Space.



The primary objective for the lands around the Chico Municipal Airport is to support a safe landing and takeoff zone for aircraft. Therefore, vegetation management here is likely to focus on reducing the risk of ignition or the potential for a conflagration that could damage the businesses and structures around the airport. This open grassland habitat also happens to support several vernal pools, including 21.2 acres of known occupied habitat and 406 acres of modelled suitable habitat for Butte County meadowfoam (*Limnanthes floccose ssp. California*), a State and Federal Endangered species. This land is excluded from the Butte Regional Conservation Plan Permit Area and thus is not available for the purchase of conservation credits (BCAG 2019). Management on these lands must address the habitat and survival needs of this species.

A small, unlevied portion of Mud Creek crosses the north end of the airport runway parcel. Otherwise, DWR is responsible for Mud Creek maintenance. DWR clears (masticates, mows, sprays) the entire length of Mud Creek that traverses the City of Chico. Within the leveed portion, DWR can also periodically remove sediment, which would otherwise fill sections of the leveed channel capacity over time.

3.2 Lindo Channel a.k.a. Sandy Gulch

Lindo Channel (historically known as Sandy Gulch) begins at the Sycamore Creek diversion structure just north of Five-Mile dam, where Big Chico Creek encounters its first diversion in its journey to the Sacramento River. There, Big Chico Creek's flow is partially diverted into Lindo Channel, an ephemeral stream that originally formed as a natural channel on the Chico alluvial fan, but was historically modified for flood control purposes in the early 1960's. Before then, flooding was a normal occurrence in much of what is now Chico, and indeed almost the entire Central Valley. The Valley's deep and fertile soils formed through repeated flooding.

Lindo Channel runs parallel to Big Chico Creek for almost eight miles before rejoining its sister channel about 2.5 miles from Big Chico Creek's confluence with the Sacramento River. The City-owned parcels comprising Lindo Channel total 129 acres. Lindo Channel is still actively used today as a diversion channel to relieve flood flows in Big Chico Creek. In addition to flood control, Lindo Channel is important for groundwater recharge as well as riparian (and intermittent aquatic) habitat.

Currently, Lindo Channel is maintained chiefly by DWR. DWR ensures flood conveyance by periodic clearing of vegetation up to the Ordinary High-Water Mark (OHWM) but there is currently no management plan. Below Hwy 99, the stream is mostly channelized without floodplain, so DWR removes downed wood in the channel as needed or requested but does not address banks (i.e., works exclusively within the OHWM). Upstream from the Hwy 99 crossing, however, Lindo Channel does include substantial floodplains within the OHWM. All in-

channel work in California requires a Lake and Streambed Alteration (LSA) from CDFW. This permit is colloquially known as a "1600" permit. LSA 1600 permits, if issued on a project-by-project basis, can be quite expensive. The City negotiates and pays for a 1600 permit on a project-by-project basis when it has a project in Lindo Channel. It is more desirable for an entity with significant ongoing vegetation management responsibilities to negotiate a "management and maintenance" version of the permit with CDFW. The City currently does not have such an arrangement with CDFW, but DWR does.

DWR's arrangement with CDFW (via 1600 maintenance permit) enables DWR to cut everything under 4" dbh to ground level, leaving larger diameter vegetation untouched. DWR plans to clear this floodway every 5 years. From time to time, it is in the City's interests to clear some vegetation from Lindo Channel for purposes of reducing fire danger, eradicating invasive plants (e.g. Spanish broom), and reducing the attractive nuisance presented by dense brush that might invite people to construct campfires. When these clearance activities are below the OHWM, then DWR can respond under its flood clearance responsibility (and under the terms of their maintenance 1600 permit). Therefore, any City requests to DWR to assist with Lindo Channel/Sandy Gulch clearance should clearly emphasize the flood clearance need for the action.

An LSA 1600 permit's scope is potentially bank top to bank top, so work above the OHWM can sometimes require a 1600 permit. If work above the OHWM does require a 1600 permit, then in time, it would be in the City's best interest to also develop a maintenance 1600 permit with CDFW. Project work division within Lindo Channel/Sandy Gulch would be divided up between the City (above OHWM) and DWR (below OHWM). This shared responsibility would be mapped within the CDFW 1600 permit process. More follow-up and agency consultation are required to better understand the City's most cost-effective path to managing vegetation in Lindo Channel/Sandy Gulch.

The entire length of Lindo Channel is a priority vegetation management project for the City (see Section 5.5). Vegetation management in this Riparian zone (see Section 4.2.3) focuses on raising sightlines to improve public safety, reducing the likelihood that an untended campfire could start a wildfire, and reducing flotsam buildup that can hinder floodwater conveyance.

3.3 Little Chico Creek Greenway

Little Chico Creek Greenway (33 acres owned by the City) has no current management plan. The California Department of Water Resources may clear the channel up to the Ordinary High Water Mark (OHWM) to ensure flood conveyance. As stated above, DWR has an easement (sometimes written into deeds, otherwise implied by State code) for flood clearance to the OHWM (see section 3.2). Vegetation management objectives here are in many ways similar to those along Lindo Channel: i.e., reducing fire danger to neighboring structures, eradicating invasive plants (e.g. Spanish broom), and reducing the nuisance presented by dense brush that might invite people to construct campfires.

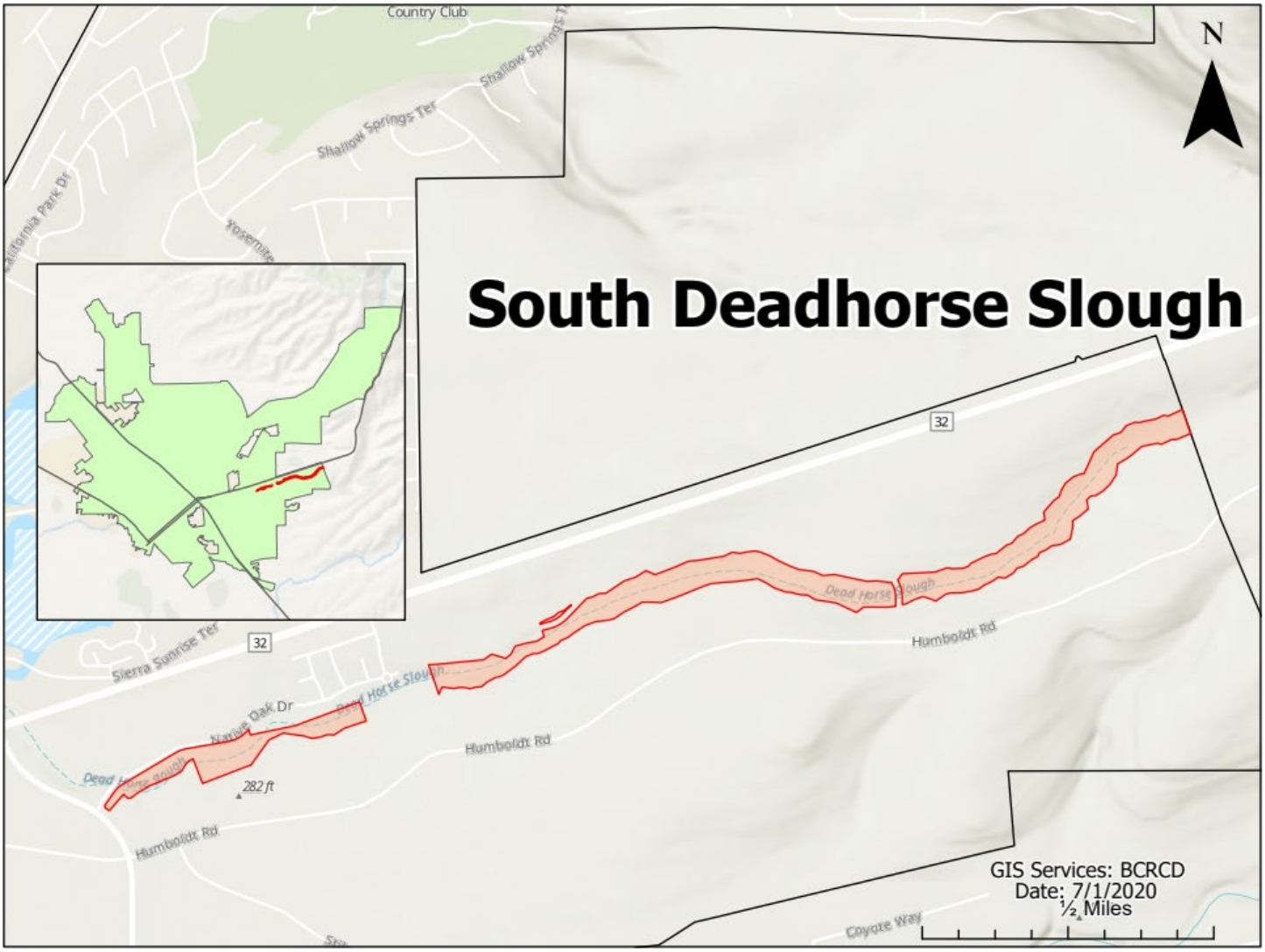
On Little Chico Creek, giant reed (*Arundo donax*) or Arundo forms large stands in places. Reducing this infestation has long been a City goal, because Arundo displaces native vegetation, displaces native vegetation habitat for a wide variety of animals, and creates very attractive spaces to light illegal campfires which could easily get out of control. Arundo will burn even when green, and reducing its prevalence along Chico creekways is explicitly recommended in the Butte County Community Wildfire Protection Plan, which doubles as the CAL FIRE Butte Unit plan (CAL FIRE 2015).

An additional reason to deal with Arundo is that its shallowly anchored yet massive root balls can sometimes be undermined in high-water events and come loose from the bank. It is not common, but these waterborne hazards have been known to cause serious erosion downstream and even damage bridges when they are trapped

under the span. Even so, it is usually much better to leave the massive root ball in place when eradicating Arundo, because removing it by hand or machine is not only very difficult but also can present bank stability issues. Common BMP for Arundo is to leave an Arundo root ball in place to hold the bank, plant fire-safe native vegetation into the root ball (e.g. willow), and, depending on the site, perhaps require monitoring to ensure that the root ball situation is not a bank stability problem (leaving open the possibility of acting on the substrate/bank for stability).

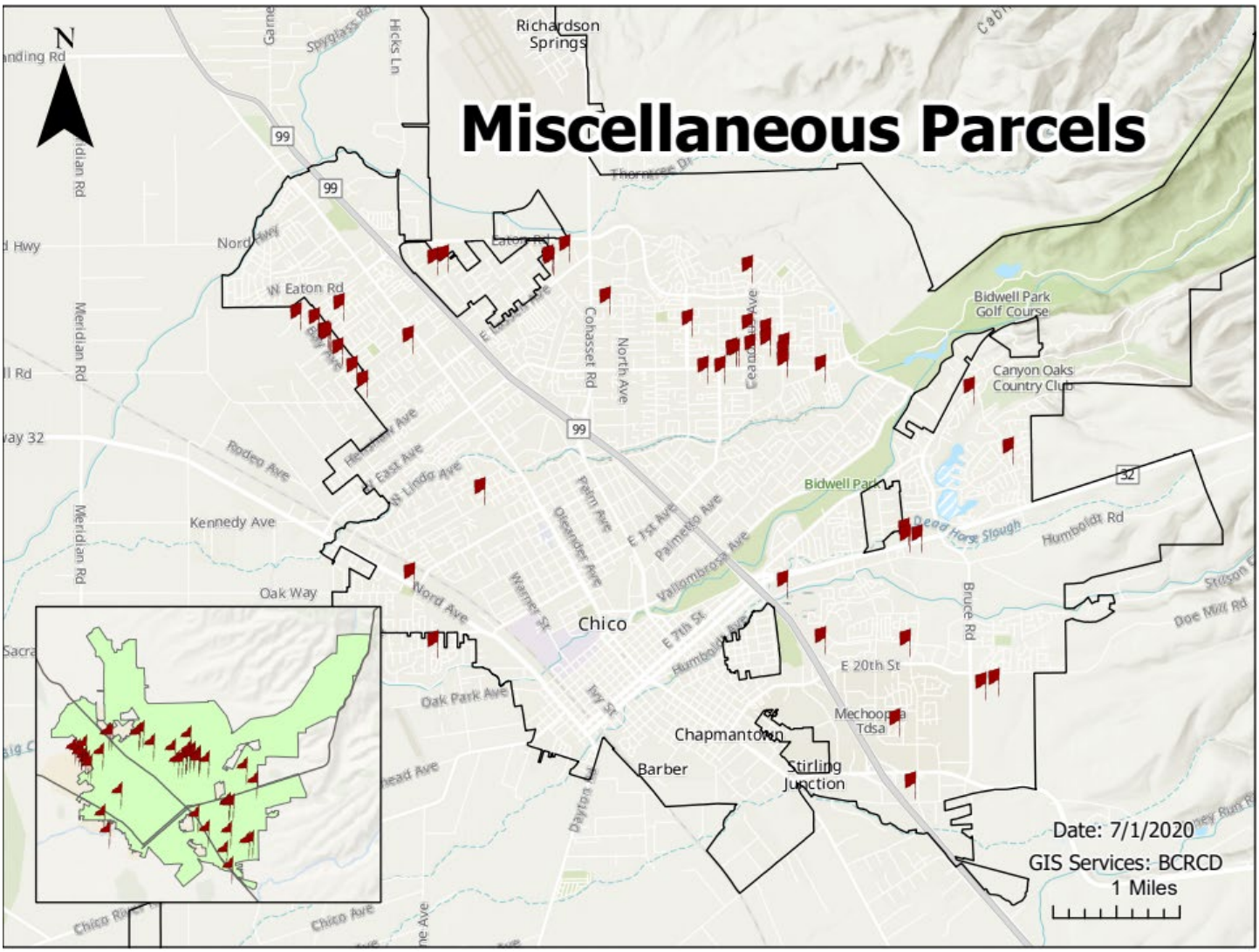
Several Arundo stands on the banks of Little Chico Creek are surely in part within the OHWM. When work needs to be done in that area, this is dealt with via the CDFW 1600 (LSA) permit (see section 3.2). The details of this implementation strategy are something to work out with CDFW via the 1600 permit, not with DWR. LCC is not a USACE project, which is why there is little to no rock on the bank at this point. However, City/County can potentially rock the bank, to protect infrastructure from flooding and erosion, if bank stability problems arise.

3.4 South Deadhorse Slough



Deadhorse Slough is a foothill drainage parallel to Highway 32 on the south side. Immediately east of Bruce Rd, it crosses Hwy 32 immediately to accept the contribution of the California Park Lake overflow outlet, then continues to flow west underneath Bruce Rd on the north side of Highway 32. It crosses again just east of the Forest Avenue light, joining Little Chico Creek just east of the Forest Avenue bridge over Little Chico Creek. The City owned portion is on the south side of Highway 32 and has no current management plan.

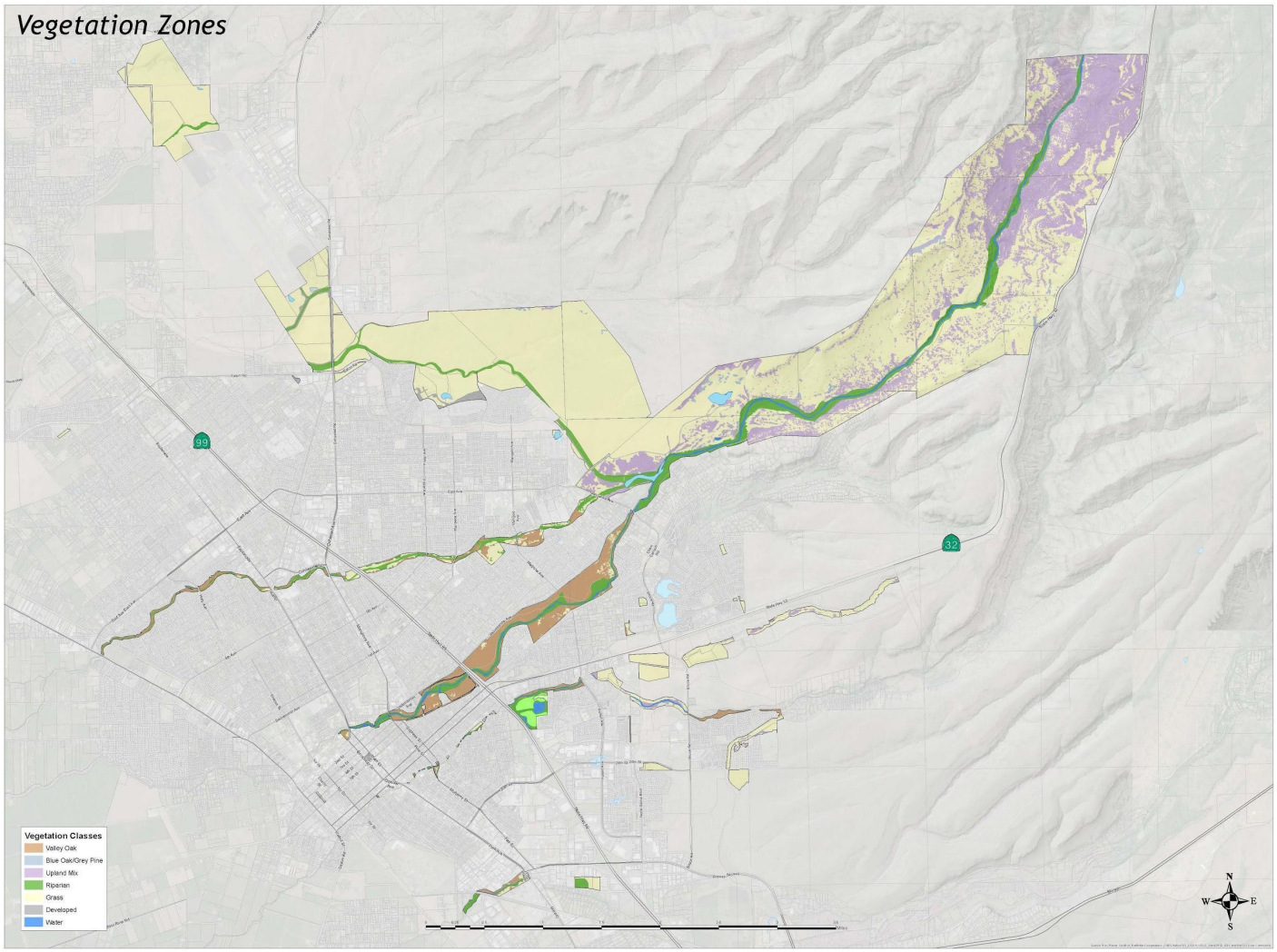
3.5 Miscellaneous City Green Space Parcels.



In spring 2020, a CSUC-ER Land Steward surveyed all the “small, scattered” parcels of City-owned land across Chico. The presence or absence of potential hazardous fuels issues and invasive plant issues were noted on each parcel and the resulting database will be used for ongoing adaptive management by the City’s Public Works Department. Vegetation management on these parcels (most of which are stormwater detention basins) will focus on reducing fire danger to neighboring properties, reducing invasive species infestations that can act as seedbanks to start downstream infestations, and removing excess live or dead vegetation that could obstruct stormwater flow.

4 Vegetation Management

4.1 Vegetation Zones



4.2 Vegetation Standards and Specifications

This is a description of the ranges of acceptable fuel loading and thinning standards for each vegetation zone. The treatments applied at any one location will vary based on slope, aspect, and the particular vegetation subcommunity found there, which is why the standards are ranges. In general, the goal *outside* of fuel breaks will be to restore natural ecosystem processes (i.e., vegetation community composition/biodiversity and succession processes) and enhance natural ecosystem functions (e.g. wildlife corridors, climate change adaptation and mitigation, water supply and quality, etc.) through some combination of mechanical thinning and prescribed burning. The goal *inside* fuel breaks will be creating vegetation conditions which increase firefighter safety and the likelihood of suppression success during a wildfire. Defensible space is any thinning or hazard reduction around structures or assets of value. Fuel breaks are linear treatments usually along roads or ridges, and do not address park vegetation at large.

When tree removal is necessary to achieve identified spacing standards, invasive species will be removed first, then non-native species, and only then native species, selected to retain maximum species and structural diversity using a 'thinning from below' method retaining the largest stems. There are two main approaches to removing invasive species: area by area, or species by species. Areas heavily impacted by multiple invasive species are best managed by area. Areas lightly impacted by various species are usually managed by addressing invasive species by species. When focusing on invasive species control, it is appropriate to use a broad toolbox of treatment options and an Adaptive Management framework (i.e., follow-up and evaluate whether treatments were successful and if not, why not). An example would be to allow goats to graze down the Himalayan blackberry to a more manageable state and then follow up with herbicide.

General Vegetation Management Objectives for Defensible Space:

In general, vegetation clearance around City-owned buildings in parks, greenways, or open space areas should comply with CAL FIRE's PRC 4291 regulations, summarized below.

> *Maintain defensible space of 100 feet from each side and from the front and rear of the structure, but not beyond the property line. The amount of fuel modification necessary shall consider the flammability of the structure as affected by building material, building standards, location, and type of vegetation. Fuels shall be maintained in a condition so that a wildfire burning under average weather conditions would be unlikely to ignite the structure. Trees and shrubs should be pruned to a crown base height of 8 feet and maintained to effectively manage fuels and not form a means of rapidly transmitting fire from other nearby vegetation to a structure or from a structure to other nearby vegetation. The intensity of fuels management may vary within the 100-foot perimeter of the structure, the most intense being within the first 30 feet around the structure. Where possible, the first 2 feet out from a structure should be bare dirt, gravel, concrete, or lawn, and free of wood chips or mulch.*
>
> *Maintain any tree, shrub, or other plant adjacent to or overhanging a building free of dead or dying wood. Maintain the roof of a structure free of leaves, needles, or other vegetative materials.*
> *(California Public Resource Code Sec 4291)*

Within a range of 10-30 feet (based on the guidelines set forth by Cal Fire and in conjunction with Chico Fire Department recommendations for defensible space) of all other park recreational infrastructure which could be damaged by a fire or cause a fire ignition, including but not limited to: wooden fences, interpretive signs, wooden handrails or steps, BBQs, wooden picnic tables, or commonly-used illegal camping areas, the City will:

1. Mow all grasses (annual and perennial), weeds, and thistles after the last rain to a height not to exceed 3 inches. Effort should be made to ensure invasive grasses are mowed prior to seed set. Remove all dead or dying vegetation or woody material, and chip or spread onsite outside the 10-30' buffer. Avoid removal to the mineral soil to minimize erosion.

2. To minimize soil erosion potential, removed shrubs shall be cut at or near the ground surface and root systems left intact (with exceptions for invasives like broom).

3. Individual, diseased, damaged, or isolated gray pine trees located within 100' of any building shall be prioritized for removal.

4. Cut grass may be left on the ground surface in the 30-100' buffer around buildings to protect soil as long as it does not exceed 6 inches in height.

5. Jackpots of dead woody material with potential to cause torching into adjacent trees or damage nearby trees through radiant heat should be moved to open areas away from large trees. It is ok to leave branches

and trunks over 4 inches in diameter where they lie, or spread as a chipped mulch, or removed. Full ground contact is not necessary.

6. All mulch or chipped material shall be spread to a depth not to exceed 4 inches on average; and

7. All material removed from the site shall be properly disposed of per City standards.

8. If living plants are to be removed, invasive species will be removed first, then non-native species, and only then native species selected to retain maximum species and structural diversity, using a 'thinning from below' method retaining the largest stems.

9. City Park Division will utilize its volunteer program, particularly in Lower Park, to educate and instruct volunteers to remove invasive weeds where possible.

4.2.1 Grassland

Most of the Great Central Valley used to be a rippling grassland, full of vernal pools, wetlands, fire-adapted perennial grasslands, and areas of a unique mima-mound topography that supports a high biodiversity of grasses, forbs, invertebrates, and vertebrates. In grassland ecosystems, fires can be relatively frequent -- even an annual occurrence -- but are usually swift and transient. It is possible to walk unharmed over a blackened grassland just minutes after it burns, but that does not mean grass fires are harmless. Grasslands usually lack overstory vegetation that can block direct impingement of wind onto the flaming front of a fire, and hence, rates of fire spread in grass are often much higher than in areas of brush or woodland. Aircraft are very effective helping corral grassland fires, even under midsummer fuel moisture conditions, but they cannot operate at night or close to high-voltage powerlines.

For millennia, California's grasslands supported a thriving basket-based economy and the development of perhaps the most sophisticated basketry art cultures in the world. Mechoopda and other people cultivated high-quality basketry materials by applying regular and well-timed fire, and Chico's native grasslands are adapted to regular fire to stay intact. For example, fire is sometimes the most effective way to reduce invasive weeds in native grassland. While we often think of Native people utilizing resources in riparian areas and oak savannahs, living resources found in grasslands were and are at least as important to Native life. In many cases, the sites richest in living cultural resources also tend to be the most iconic in terms of the classic Californian vistas the first settlers saw and Annie Bidwell prized, e.g. prairies of deergrass or purple lakes of *Dichelostemma capitatum*. Therefore, when assessing the negative or positive impacts of grasslands management projects, environmental review can and should consider any impacts to living cultural resources and TEK.

Although native low-elevation perennial grassland is one of the most endangered ecosystems in the world, Chicoans are lucky - relicts of these perennial grasslands are still here, for example on the benches above Big Chico Creek in Middle and Upper Park. Fire has a role to play in maintaining and protecting the ecological integrity of these now-rare vegetation types.

For the purposes of this Plan, "grassland" means those parts of the City's parklands that have few to no trees (e.g., most of the Airport or Bidwell Ranch; see map in 4.1). Grass, other light, flashy, or surface fuels may be found within other mapped vegetation communities/land cover types and when they are, they should be treated to the standards outlined in this section. The following management standards shall apply to grass/herbaceous fuels:

General Vegetation Management Standards for Grassland:

For most grassland areas on City-owned properties, management of the vegetation should be based upon ecological needs like controlling invasive species or creating vegetation conditions that benefit native plants. Because these grasses do not pose an imminent threat of a high intensity fire to the community, they are lower priority for treatment than areas of heavy vegetation adjacent to houses or other assets of value. That said, fast-moving grass fires can impact any of the neighborhoods along the City's northern edge, especially during red-flag north wind events, and residents living adjacent to open spaces and greenways should be encouraged to maintain defensible space and fire-safe conditions around their buildings.

Grasslands with infestations of star thistle, medusa head, and barbed goat grass are the highest priority for management. Ideally, these areas would be burned in July or August for several consecutive years to reduce the seedbed of invasives. If burned consistently, native grasses and forbs would be given the opportunity to outcompete invasive grasses, because natives are fire adapted and most invasives are not. However, due to funding availability, restrictions, and small windows for prescribed burning, it is more likely that opportune mowing will be applied. As funding becomes available, invasive grasses (such as barbed goat grass, medusa head and wild oats) should be mowed prior to drying and seed set to reduce the population spread on an annual basis until the populations are under control. Many of the invasive species are not palatable to grazing animals and can even hurt grazers. Grazing can be beneficial to reduce herbaceous fuel loads in areas of native grass species, as native grasses can lose vigor over time if their thatch is not being reduced by fire. Invasive forbs such as yellow star thistle and Klamath weed are a threat to native grasslands. These invasive forbs can also be managed through direct herbicide applications, grazing, or mowing.

4.2.2 Valley Oak

The valley oak (*Quercus lobata*) is an iconic and beloved part of the Chico community, appearing in artistic tributes on murals, bridges, and signs. Valley oak woodlands are a uniquely Central Valley vegetation community that support thousands of species of plants, fungi, invertebrates, and vertebrates. Many of these live nowhere else.

Valley oak understories were maintained with cultural fire for millennia by Mechoopda people around what is now Chico. Regular low-intensity fire in oak woodlands does more than just reduce the intensity of future fires. It consumes the decaying old acorn shells, rotting wood, and other pathogenic debris around the oaks, extending their lives, and keeping acorn pest populations low. Smoke rising into the oak canopy can even "fumigate" developing acorns and keep pests to a minimum, ensuring a good harvest and a healthy next generation of young oaks. With that said, large old oaks tend to both live and die by fire. Oaks are great at developing cavities (it's part of what makes them such outstanding wildlife trees) and when an ember finds its way into one of those cavities, it can land on flammable material (such as an old bird nest) and develop into a well-established fire inside of the tree. Moss on the lower reaches of the trunk often provides a pathway for even the smallest flames to travel up the tree to become established in a rotten old knothole or damaged limb. Fire inside of large hardwoods is extremely difficult and dangerous to extinguish, can spread the fire outside of the control line via falling embers, and often results in the death and weakening of major branches (even days after the surrounding under burn is cold to the touch).

Valley oaks can be outcompeted by evergreen oaks since fire exclusion. Though this has not been fully realized in Upper and Lower Park, we can expect this soon as it has been observed in adjacent lands for years. Evergreen oaks photosynthesize year-round and thus grow faster than deciduous oaks. Their acorns also tend to be less palatable to wildlife, which results in more of them left lying on the ground to reproduce into thicker forests shading out Valley Oak seedlings. However, Valley oaks are more fire tolerant due to their thick bark and their less waxy cuticle. Low intensity burns help Valley oaks better compete with evergreen oaks.

General Management Standards for Valley Oak:

Open valley oak savannas with large trees have a fairly low wildfire hazard. The surface is generally well-sheltered from winds, and any fire starts will burn primarily in grass fuels. Flame lengths will generally be under 6 feet, fire control will be straightforward, and extensive damage to large trees will be limited to where flames can reach up to damaged limbs or other rotten areas on the trunk. Ladder fuels and thickets increase the likelihood that fires will extend into the canopy, where exposure to more wind can flick embers into adjacent areas, complicating fire control. For this reason, wildfire hazard reduction in the valley oak community should prioritize areas with the densest understory vegetation, aiming to create open conditions under large, mature valley oaks. Vegetation management should focus on areas along access roads and in concert with other management objectives including: Raising sightlines to improve visibility into areas with illegal camping, reducing the hazard of wildfire ignitions from illegal campfires, invasive species removal, visual resource enhancement, preparing areas for the use of prescribed fire, and other ad-hoc decisions to achieve specific habitat restoration objectives.

Understory thinning in valley oak areas should first target the priority invasive shrub species according to the list in the Appendix, then should remove any other exotics, before thinning any native vegetation. Thinning and pruning may occur to raise canopy base heights to 8 feet. Remove low-hanging ivy, and thatch from decadent invasive blackberry vines from tree trunks and around the base for 6 feet in order to prevent regrowth up the trees. A secondary entry may be required to pull the dead vines out of the bark as ladder fuel reduction. Thick grape vines may be thinned where they have become over abundant in the absence of fire. Prune multi-stemmed shrub like species, such as bay laurel, back to a single healthy stem. This treatment acts like a wildfire would, killing the smaller vigorous branches and leaving the healthiest and biggest leaders. However, natural fires do not burn uniformly and thus this treatment should not be done in a uniform manner. Thinning should be done to reduce dense forest structures and to allow species to continue to have room for growth. Not all species will be treated in the same manner but treated based on their particular habit. Thinning stands of valley oak woodland in a checkerboard pattern is a strategy to leave vine refugia for pipevine and other native climbers. A stand is a natural grouping of trees where edges are usually defined by the microclimate. Woody thinned vegetation under 4” in diameter should be chipped. Chipped depths should not exceed an average of 6 inches in depth. Thinned stems between 4” and 8” may be chipped or may be left on the ground if they are in full ground contact, the site is flat, and leaving them does not result in excessive fuel loading through horizontal continuity. Larger material can be piled in open areas for habitat structures or left in place, as long as it is far enough from the boles of nearby remnant large trees which could be damaged by radiant heat if the pile or log ignites. This material is left for wildlife habitat and nutrient cycling.

Burning in the valley oak understory may be appropriate to manage forbs, reduce thatch fuel loads, kill invasive walnut seedlings and saplings, thin thick areas of oak regeneration, and to improve acorn quality and harvesting conditions for traditional uses by local Mechoopda people. Burning valley oak understories will support native plant regrowth as native plants are fire adapted and invasives are usually easily killed by fire. Any burning in Valley oak should be done under weather prescriptions and with prep work (mowing and raking around each large tree or using wetlines to check the fire’s spread) which reduces the likelihood of fire getting into the large trees. One tactic for protecting large, fire-susceptible oaks from ignition would be to begin the burning project by burning 10-20’ diameter rings around each large oak under very mild burning conditions, possibly at night or early in the morning, and then returning later to run a hotter broadcast burn through the rest of the understory vegetation.

Burning Himalayan blackberry is difficult without a decent wind. Fire is unlikely to be an effective management tool for reducing blackberry in the valley oak understory or in other wind-sheltered locations. Grazing and hand or chemical treatments will likely be more effective.

Restoring Over-dense Valley Oak Areas to Open Stands of Large Trees

There are areas of valley oak woodland which require major thinning to establish healthy and resilient future conditions. One example is the old walnut orchard in Lower Bidwell Park near the east entrance of Peterson Way from Vallombrosa Avenue. In the 1990s, after the property came into City ownership, Boy Scouts planted a large number of valley oak acorns into the walnut orchard as a first step to returning it to natural park conditions. These valley oaks are now well-established, and in places are competing with each other in an unnaturally large even-aged dense thicket. The density of trees causes drought stress, which makes the trees more flammable as well as more susceptible to damage or mortality should a fire occur. Thinning this type of stand to encourage the development of a mature, well-spaced stand of large oaks is a multi-decade project.

We suggest thinning should begin with a focus on removing diseased/distressed individuals, retaining vigorous individuals to a spacing of no more than 70 trees per acre (about 30 feet apart *on average*, some closer, some farther apart). Branches should be pruned to achieve a canopy base height of 8 feet. Non-native woody species should be removed where they compete with valley oaks for light or touch oak canopies. Alternatively, they may be girdled and left as standing snags (for wildlife habitat if >8" diameter at 12' above ground) as long as follow up treatments can be ensured to cut stump sprouts.

Woody debris over 8" diameter may be left onsite at least 10 feet away from the nearest tree or removed. Large woody debris is left on site for wildlife habitat and nutrient cycling. Material under 8" may be chipped and broadcast to an average depth of 4" or less. Further restoration to natural vegetation may be done, including prescribed burns (to initially treat weedy grasses and forbs) and/or planting of native seed/plugs to fill out the palette of natural diversity suitable for valley oak woodland. These goals may be achieved through multiple entries.

4.2.3 Riparian Areas

Chico's creeks define the experience of living, playing, and studying here. Chico is extremely lucky to have urban creeks where salmon can still be glimpsed, and kids can splash next to turtles, orchids, and pipevine swallowtails. People have always camped and traveled next to these creeks, so the City's work here sometimes focuses on keeping sightlines high, so creeks are safe to walk beside (especially downtown) and reducing ladder fuels to reduce the likelihood of conflagrations from escaped campfires. This work is done by removing invasive species first and only thinning native vegetation where necessary. In some cases, removing invasive species is an important part of improving creeks' ecological integrity.

Creekside vegetation (including invasive vegetation) plays a role in keeping water temperatures low, so creekside vegetation removal must take the needs of salmon and other aquatic organisms into account. This accounting is negotiated through the Lake and Streambed Alteration ("1600") permit process whereby CDFW, as the trustee agency charged with protecting California's plants and wildlife, sets the terms and conditions governing the City's work inside stream corridors. The City desires to seek an LSA Maintenance agreement to accompany this document. These management standards must be agreed upon by CDFW before any work can begin in the riparian corridor.

Overgrown vegetation along the southern boundary of Lower Park between Highway 99- and Five-Mile Recreation Area poses the greatest WUI threat within Bidwell Park. Much of this area borders the riparian zone, and private property making this one of the more challenging areas to manage. A wind-driven fire along this corridor, while a low-probability event, *could result in major structure losses*. Areas of special concern are along South Park Drive in the first 1,500 feet east of Highway 99, South Park Drive between Husa Lane and Centennial Ave, and between Manzanita Ave and Five Mile Recreation Area, along Centennial Ave. Treatment in these areas can include removal of invasives, dead and down material, and should target ladder fuels including living and dead grape vines and ivy.

The following guidelines apply to Big Chico Creek, Little Chico Creek, Lindo Channel, Cherokee Creek, and Sycamore Creek.

General Vegetation Management Standards for Riparian Areas:

1. Minimize disturbance.

2. Remove invasive species where possible and manage to reduce reestablishment.

3. Target ladder fuel treatment at riparian edges where they transition to other vegetation types: here, vertical separation between top of surface fuels and lowest tree branch shall be at least 8 feet. Provide horizontal spacing between the outward canopy edge and the nearest shrub equal to three (3) times the adjacent shrub height. This is based upon defensible space guideline set forth by Cal Fire in order to further protect the riparian corridor.

4. Maintain closed canopy except for invasive species removal; where removal opens significant shaded water surface to sun exposure, a phased removal of invasives and replacement of shading by native species establishment will be done. No canopy will be reduced beyond an average of 50% canopy closure at any one time within a given project area.

5. When possible, riparian corridors will be managed in increments so as not to remove all the dense habitat for wildlife at once. Rather, a phased approach will allow for regrowth of native species between management projects, promoting a mosaic of habitats. The riparian corridor will be broken down in a checkerboard like pattern, under the supervision of CDFW, in order to have habitats available for plants and wildlife at various successional stages available at all times. Project areas or "checks" will not be managed sequentially.

6. **No fuel breaks will be constructed through riparian areas.** This is due to the sensitivity of riparian habitats and their residents. Riparian habitats tend to have a higher moisture content and are therefore less likely to torch. "Fuel breaks" are linear zones of high-intensity treatment where most vegetation is removed; they are maintained as permanent infrastructure to assist in fire management.

4.2.4 Blue Oak-Gray Pine

Blue oak (*Quercus douglasii*) and gray pine (*Pinus sabiniana*) are two endemic species whose partnership defines the vegetation of the Central Valley foothills. Expertly adapted to drought and high temperatures, they sustain an impressive diversity of companion fungi, invertebrates, large mammals, and birds. Gray pines are unusual in that they (and Torrey pines) have a heptane-based pitch chemistry, which makes them extremely flammable. With their nutritious nuts and soft wood for creating cavity nests, they do have an important place in the foothill ecosystem and are likely to be one of the most climate-change-adapted of California's conifers. But these "gasoline trees" are inappropriate for planting directly adjacent to structures or other high-value assets. Both these trees have thick bark which allows them to easily survive ground-based grass fires, unless either a) high densities of fuel have built up around the tree base due to past fire suppression or b) an ember finds its way into a tree cavity and ignites it from within.

This vegetation type hosts many endemic species that do not exist outside of this habitat. Blue oak recruitment has increased since fire exclusion due to urban sprawl. Blue oaks are the slowest growing oaks in this area as well as the longest lived. They also provide the most desirable acorns for wildlife foraging. These acorns were/are among the most desirable for indigenous peoples.

General Vegetation Management Standards for Blue Oak-Gray Pine:

Gray pine needle litter drapes into understory vegetation creating 'jackpots' of fuel. These areas are susceptible to torching and crowning fire behavior, which presents difficulties for wildfire control. Dense areas of undergrowth under gray pine within 150 feet of Upper Park Road, below Bear Hole, should be high priority areas for thinning.

While we do not advocate logging all the mature gray pine on City property, Gray Pines are generally undesirable within the urbanized areas. Over the longer term, they should be targeted for thinning or removal when they are at all unhealthy in areas which are within 100 feet of a structure. Where removing gray pine is not practical, special attention should be given to reducing ladder fuels and undergrowth around the trees.

Thinning or removal of gray pine should be done when the trees are small, as removing larger trees is expensive and more dangerous. An example of a young stand/thicket of gray pine that should be treated before the trees become larger is on the southeast end of a small meadow in Lower Bidwell Park just west of the Vallombrosa Avenue entrance at Bryant Avenue. When thinning thickets, the healthiest and most vigorous trees should be chosen for retention and the others removed to achieve a goal of 10 seedlings or saplings per acre in managed areas.

It is thought that invasive grasses may reduce the recruitment of young blue oaks. Young blue oak seedlings should be protected from herbivory, by caging them, whenever management is done in these vegetation types. Invasive grasses can also be managed in the blue oak gray pine vegetation type the same as in grasslands. Whenever possible, low intensity prescribed fires are the best management practice for the habitat type. Just like the valley oak woodland, low intensity fires reduce overcrowding and the potential to be over- shaded by evergreen oaks. Blue oaks should be targeted as retention trees in all vegetation types.

Defensible Space Management Standards:

In areas within 100 feet of occupied structures, all unhealthy gray pine shall be removed. Where removal of the mature trees is not possible, targeted thinning of understory/ladder fuels is recommended. Blue oaks within defensible space should be retained whenever possible.

4.2.5 Upland Mix

This vegetation category covers much of Upper Bidwell Park and describes the chaparral-like brush community with mixed oaks and pines that characterizes most of the low-elevation Sierra Nevada foothills. This community is also characterized by quick changes in geology, slope, aspect, and soil type which create a diverse mosaic of vegetation types.

The majority of Upper Park has experienced wildfire in the past 25 years. Only the area upstream of the Stoney Fire, on South Rim, areas between Annie Bidwell Trail and the Creek, and areas between the Park Road and the Creek from the Golf Course upstream to the Northern boundary have not burned. The normal fire return interval in this vegetation community is 5-12 years, and fire suppression has had varying levels of impact on the density of vegetation in the unburned areas.

The reason for the varied impact is geological. The mudflow layers in the canyon walls of Upper Bidwell Park alternate between permeable, well-watered areas with deeper soils, and dry, hard, impermeable ash layers with little soil, covered mainly with sparse grasses. Additionally, in places where it is not in the bottom of the canyon, the Lovejoy Basalt flow has created deeply weathered, stable colluvial soils on the steep toe-slopes below. The radical geology coupled with the abundant number of deeply dissected tributaries has created a wide

variety of microclimates which either magnify or reduce the magnitude of vegetation changes caused by fire suppression.

The fine-grained mosaic of habitat types in Upper Park, especially on the South Rim, creates a very *pyrodiverse* landscape, where fire severities are widely-variable, and the patch-sizes of their effects create more niches for native plant diversity. Biologists express this dynamic with the proverb, "pyrodiversity begets biodiversity". Vegetation management in the wildland parts of the Upland Mix vegetation community will be necessarily complex and is best approached by working within individual microclimates. The landscape defines the management units.

In the unburned areas, with unnaturally long intervals between fires, shade-tolerant species such as interior live oak eventually can dominate species that need direct sunlight such as black oak. Woodlands which were historically periodically cleared by fire can become a dense thicket of competing vegetation. This change in species composition changes forest structure and wildlife habitat, among other ecosystem features. Therefore, vegetation management in this zone can be focused on compensating for the vegetation consequences of unnatural wildfire suppression over time.

General Vegetation Management Standards for Upland Mix:

This vegetation type should be managed on a microclimate basis, thus allowing for expansion of the biodiversity in each microclimate. Biodiversity in this case, should not include invasive species; these should be prioritized for removal by grazing, hand, mechanical, or chemical treatments. Where appropriate species are present, canopy heights should be managed to be increased over time (e.g., raising canopies through hand treatments). This may be done through removal of invasive species, thinning, and pruning of shrub species, and then tree species. Where they are present, populations of black oaks, valley oaks, broad leaf maples and other deciduous trees that do not present great fire hazards should be enhanced and should be prioritized over evergreen oaks.

First, workers should select the most vigorous deciduous trees for retention; then, they should thin around those to achieve vertical and horizontal discontinuity. Care should be taken to retain a diverse vegetation community. The canopies of trees provide shade to increase the longevity of moisture availability through the dry summer months. The goal of vegetation management in this zone is to enhance the mosaic of biodiverse habitats through hand or mechanical treatments, or herbicide application that can later support a prescribed burn and therefore be more wildfire ready.

Where residual older black oak or manzanita are abundant enough to form a localized patch or larger stand on their own, crews will remove competing younger interior live oak, bay, poison oak, and other shade-tolerant species (i.e., 'release' black oaks or manzanita). Managers should consider removing enough of the ladder fuels to be able to conduct a controlled broadcast burn in the following 2-3 years, during or after the burning of the piles.

In general, where there are concentrations of large individuals of a particular woody species surrounded by a smaller different species chosen management methods should benefit the older species in that patch. Relict species may be those dependent on fire for regeneration such as manzanita, redberry, ceanothus and others. If there are signs of grasslands or meadows that have been encroached upon by woody species, for example, relict sun-loving forbs struggling under a shady edge, vegetation management can be used to re-establish the grassland or meadow conditions in the adjacent area.

In areas that have been subject to high intensity fires, species should be managed towards a successional climax community with mature vegetation - see the *Postfire Restoration section, below.* Slope aspect is an important factor in the feasibility of prescribed burning in Upper Park. South and west-facing slopes dry out quickly after

storms, while north and east slopes tend to remain wet for longer periods. This can create opportunities for late-fall or midwinter burning on the more solar slopes when risk of escape to the wetter north slopes is very low.

Broadcast burning on north-facing slopes in the upland mix will generally be more difficult, as fuel conditions there will rarely be in a condition which allows fuels reduction objectives to be met without a higher risk of escape onto the drier aspects nearby. However, it may be possible to use low-intensity under burning to reduce leaf litter and low shrubs following projects which aim to open up the understory in north-facing black oak stands.

Gray pine is less desirable from a wildfire fuel risk standpoint. These pines may be unnaturally locally abundant or old because of the absence of wildfire in these wildfire-dependent vegetation types. While we do not advocate logging all of the mature gray pine on City property, Gray pines are generally undesirable within the urbanized areas and over the longer term, should be targeted for thinning or removal when they are at all unhealthy in areas which are within 100 feet of a structure. Where removing gray pine is not practical, special attention should be given to reducing ladder fuels and undergrowth around the trees. Gray pines may be girdled and retained for wildlife value and to achieve a more balanced and biodiverse microclimate.

Fuel break Management Standards for Upland Mix:

There are few assets at risk in the Upland Mix zone which require defensible space thinning around them. Most targeted thinning will be in areas designated as fuel breaks or 'Defensible Fuel Profile Zones'. Fuel breaks are similar to defensible space in that there are buffer zones of intense thinning with diminishing intensity of treatment farther from the core. The following recommendations are specific to ridgetop thinning and postfire restoration work on the South Rim of Bidwell Park.

1. <u>In the core area, 50' either way from the centerline of the project:</u>

    a. Prune sprouting woody species back to 1 or 2 main stems.
    b. Raise canopy base heights to 8 feet.
    c. Remove all dead or dying brush/scrub. It should be chipped or moved to an area outside the core.
    d. Remove all gray pine, living or dead.
    e. Individual shrubs should be separated from adjacent shrubs or trees by at least two times the height of the shrub crown.
    f. Mowing may not be practical on the ridgetop fuel breaks, which will likely be opened up by bulldozers or hand crews during a wildfire.

2. <u>In the area 50-100 feet from the centerline of the project:</u>

    a. Prune sprouting woody species back to 1 or 2 main stems.
    b. Raise canopy base heights to 8 feet.
    c. Remove understory vegetation under trees, especially gray pine.
    d. Groupings of shrubs may be retained such that the grouping does not exceed 12 feet in diameter. Shrub groupings shall be horizontally separated from adjacent shrubs, shrub groupings, or trees by at least two times the height of the shrub crown.

3. <u>In areas within the overall fuel break project area, farther than 100 feet from project centerline:</u>

    a. Prune sprouting woody species back to 1 or 2 main stems. Limb largest trees up as high is practical.

General fuel break standards

1. To minimize soil erosion potential, removed shrubs shall be cut at or near the ground surface and root systems left intact.

2. Where chipping is practicable, all vegetative material from brush/scrub removal or trimming, smaller than 8 inches in diameter, shall be reduced to full ground contact, or chipped and spread as mulch no deeper than an average of 4", or removed. Wood larger than 8 inches in diameter can be left on site without efforts to increase ground contact but should be placed where radiant heat from the material burning will not kill adjacent large trees.

3. Avoid leaving rounds of wood or short logs in places where they could roll downhill while on fire.

4. All material removed from the site shall be properly disposed of per City standards; and

5. If living plants are to be removed, invasive species will be removed first, then non-native species, and only then native species selected to retain maximum species and structural diversity, using a 'thinning from below' method retaining the largest stems.

Post-Fire Restoration in the Upland Mix - General Marking Guidelines and Best Practices

The objective is to create an open stand of well-spaced single-or few-stemmed trees that has reduced horizontal and vertical fuel continuity. Stands should retain the larger well-spaced trees (live and dead). Emphasis should be placed on the recruitment of all oak species of all sizes.

1. Retain

a. Retain all living oak trees of all size classes.
b. Retain dead tree stems 8” DBH and larger that are not a hazard to roads or trails.
c. Retain toyon, coffeeberry, and ceanothus in understory.
d. Aim to leave herbaceous native diversity in understory intact through treatment.
e. Retain 3-4 strongest resprouts on large standing dead bay laurels, madrones, and oaks where they do not compete with other trees.
f. Leave larger downed tree stems (especially 20+” diameter downed logs) in longer lengths (do not buck), if close to ground contact
g. Leave trees that contain an active wildlife nest and large diameter snags (12+” diameter).

2. Remove

a. In areas with hazard tree concerns or near heavily used areas, depending on site density, either cut, -lop, -and-scatter, or cut-and-pile all dead tree stems 6” DBH and smaller.
b. In instances of mature, second-growth, multi-stemmed laurels, live oak, and madrones: retain a single stem over 10” and cut the rest.
c. The need to remove dead and worst-quality trees takes precedence over spacing preferences.
d. Cut hazardous trees of any size near roads and trails with:
e. Heavy lean (on hardwoods, removal of only those branches/stems that lean toward infrastructure may be sufficient).
f. Charring all the way around the base with reduction in bark thickness and exposed wood
g. Signs of significant decay
h. Prefer to remove trees in the following order:
   - Pine (knob cone or gray pine)
   - Bay laurel

- Madrone
- Douglas-fir
- Coast live oak
- Oregon white oak
- California black oak

These prescriptions place priority on the recruitment and sprout recovery of well-spaced overstory species including various oaks, madrone, bay laurel, and understory species including toyon, coffeeberry, and ceanothus. Invasives should be targeted for removal. All post-fire work should take precautions to avoid soil disturbance and spread weeds.

Oaks should be retained wherever possible, and their original dominant stem should be prioritized for keeping even if others must be removed. It can take even up to three to five years for an oak to resprout, so where possible, give oaks sufficient time before deciding of live or dead. Even oaks that endured significant heating to their main stem may resprout from their crowns. Oaks tend to prefer resprouting from their original stem, possibly except for cases where the original stem was already heavily infected with a pathogen.

Pacific madrones, toyon, scrub oak, and bay laurels tend to resprout from their base prolifically in cases where their original stems or leaves endured significant heating. When this occurs, pruning back all but the three to four most dominant resprouts will encourage more rapid growth into a tree form rather than a bush form. This also improves fire resilience by increasing spacing.

Depending on the amount of fuel cut on any given site and amount of available space between intact trees left standing, treated dead tree material may be lopped and consolidated into small piles (less than or equal to 4ft diameter) for future burning and habitat, or chipped and broadcast in a fine layer (<5") only along roads or where reasonable to bring a chipper.

Felled large-diameter material, especially 20 inches diameter and larger, if not hazardous to infrastructure or safety, can be left in longer lengths (ideally 20 ft long or longer) where they lie. This helps retain a "natural" appearance and provide habitat at a load between 2-6 logs per acre.
Where not a hazard to infrastructure/safety, at least four snags per acre of the largest possible diameter should be retained for habitat. Habitat snags should generally be at least 12 inches in diameter, but preferably 16 or more, and at least 20 ft tall.

To minimize ecological impact on recovering native understory vegetation, any chipping operations should minimize soil disturbance and broadcast chips away from sensitive plants. Where it is feasible, broadcast chips toward known invasive weed patches.

3. Other Near-term Actions 1-2 Years Post-fire

a. Manage weed infestations/mitigate weed impacts of cleanup activities.
b. Use crews to hand pull target weed species where and when possible. Utilize herbicide crews to remove exotic species in locations or of sizes that are not readily removable by hand pulling. Utilize propane torch during wet season as needed to support invasive species management efforts.
c. Build habitat piles in areas not directly adjacent to roads and trails.
d. Collect and spread seeds of desired plants.
e. Collect seed from on-site or near-site native bunchgrasses, herbaceous species, and herbaceous species through the late spring to early fall. Store in mouse-proof, breathable container. Direct-sow grass and forb seed in the fall with rain. Bare mineral soil following pile burning is an excellent place to spread native seed.

4. Ongoing Post-fire Restoration Activities 2-4 Years Post-fire

a. Reseed with native plants where appropriate.
b. Continue collection of native seeds through each late spring to early fall; direct-sow seeds with fall rains. To reduce required effort, bring seed collection bags on hikes or projects or whenever out in wildland areas for other reasons. Focus seed dispersal efforts into disturbed, open, or unvegetated areas, such as in footprints of heavy equipment operation or burned piles of vegetation.
c. Maintain fuel breaks; perform ongoing vegetation management to meet the vegetation zone standard(s), including pruning new growth.
d. Use a combination of hand thinning, pruning, chipping, moving, and burning to reduce accumulated live and dead fuels less than 8 inches in diameter. Reduce basal resprouts on trees in burned areas down to 3-4 dominant resprouts. Keep and promote oaks as much as possible and leave burned oak trees standing for 3-5 years where not a threat to infrastructure to allow for sufficient recovery opportunity.

5. Long-Term Actions 5+ Years Post-Fire

a. Reintroduce fire where appropriate in treated areas to achieve desired vegetation conditions.
b. After initial post-fire rehabilitation and cleanup efforts are complete, and five years after the fire, reintroduce broadcast prescribed burning to areas that present logistical benefits from burning, including amongst road and trail systems.
c. Maintain fuel breaks; perform ongoing vegetation management to meet the vegetation zone standard(s), including pruning new growth.

4.3 Vegetation Management Tools

To provide context and a common starting point for discussion, this section defines and explains a wide range of vegetation management tools, techniques, actions, and methods. It also specifies best management practices to ensure resources remain protected. Readers are encouraged to refer to this section when reading the project proposals or maintenance recommendations in the other parts of this Plan.

Vegetation management for fire hazard mitigation means thinning, pruning, removing, rearranging, or otherwise altering vegetation to (1) make ignitions less likely and (2) make fire behavior less severe. The vegetation management toolbox is large because nature is varied. No two acres are exactly alike. Tactics may need to change from site to site – or, on the same site, from season to season. On the other hand, conditions on some sites may be stable enough to make a standard prescription appropriate. In general, vegetation management techniques can be classified into five categories:

- Biological (e.g., grazing)
- Hand Labor (e.g., hand pulling, cutting)
- Machine Labor (e.g., tractors, masticators)
- Chemical (e.g., herbicide)
- Fire

Below, we will discuss each of these five main vegetation management techniques that may be implemented in the Plan Area. This discussion will cover relevant equipment, application, timing, limiting factors, special considerations and BMPs. Selection of a qualified and trained contractor, appropriate training, scheduling, and supervision to carry out vegetation management treatments and any associated BMPs are also key components of an effective vegetation management program.

Finally, because vegetation tends to grow back, we can expect most treatment techniques may need to be repeated (alone or in combination with other techniques) over time. Therefore, an adaptive approach that allows for ongoing adjustment of techniques is best. Adaptive management allows the City and partners to achieve the desired vegetation outcomes and standards listed in this VFMP. Vegetation management techniques will be dictated by site-specific conditions and by the relative effort needed to meet identified vegetation management standards, which are provided in Section 4.5.

4.3.1 Biological Techniques

Grazing

Grazing, in a fire mitigation context, means managing livestock with the goal of altering vegetation, especially the fine fuels, which drive wildfire spread. Managers may target grazing to reduce fuel loads, to rearrange fuels, to favor certain plants over others, or all three. Different livestock concentrate on different types of vegetation: for instance, horses are good at reducing the fine flashy fuel we know as grass, while goats are often willing to remove berry vines, shrubs, and the fresh growth of young trees. Some livestock are large or athletic enough to trample fuels, thereby changing the fuel orientation from vertical to horizontal. This rearrangement can significantly alter fire behavior even if the livestock did not actually consume much vegetation.

Livestock each have different grazing habits and not all livestock are ideally suited for grazing treatments in all areas. Most livestock, except for goats, do not consume significant amounts of live or dead, tough, woody plant material. Even goats will not consume as much woody material in the summer and fall as they will in the spring when many shrubs are at their most palatable (and the animals undergo their seasonal growth

surge). In general, no matter the species, livestock are better at maintaining fuel breaks than they are at creating them.

Grazing can be a relatively inexpensive and effective treatment method. Sometimes, it can even generate revenue (but usually not). Doing grazing correctly takes substantial oversight and attention, so labor costs (including professional herders and portable fences) can be significant. If grazing animals are not moved to a new location as soon as the grazing objective is met, the grazing can become counterproductive. Fortunately, the North Valley has several professional grazing contractors who are experienced at using targeted grazing to achieve management objectives while protecting resources. It is important for the City and the contractor to have a shared understanding of how much the animals will be attended, and what is expected of the herder(s).

Livestock need to be protected from predators. This includes domestic dogs, who can sometimes kill livestock from sheer harassment (or "trying to play") even if they do not actually attack the animals. Dog-livestock conflicts may need management in City parks. Some contractors use livestock guardian dogs as working partners.

Grazing management plans should be site- and objective-specific. They should also identify the optimal stocking rate, timing, and duration, as well as the desired conditions (such as reduction in canopy coverage or residual dry matter (RDM)), even if these desired conditions cannot be achieved in just one grazing cycle. Plans should contain trigger points or thresholds for turning animals into and out of the area. These thresholds can be anything that is both relevant and measurable: for example, % canopy closure, estimated tons/acre of vegetation, etc.

Plans should also note areas of concern (e.g., erodible banks) for grazers to watch out for. Maps or sketches showing sensitive areas need not be highly precise or sophisticated, as long as they are clear, and the herder or contractor thoroughly understands managers' expectations. Any features that will concentrate animals' impacts (e.g., mineral licks or watering troughs) should be placed outside of sensitive areas. If grazing near a stream, the plan usually includes a stream buffer, which need not be very large (see below). Finally, every grazing plan should include measures to prevent the movement and introduction of highly flammable/rapidly spreading plants and diseases.

Some areas need to be grazed annually, which others benefit from a "two years on, one year off" or other pattern of grazing. In many cases, at least after initial environmental review is conducted, grazing is best thought of as a maintenance activity rather than as a project in and of itself. Grazing is a "blunt tool" useful principally to reduce biomass and sometimes shift species ratios; if targeted long-lasting effects on species composition are desired, they are usually achieved by following up with hand labor or targeted herbicide application. The City of Chico has already successfully used goats to temporarily reduce blackberries and other unwanted vegetation in and around Bidwell Park and other places.

Best Management Practices for Grazing

Riparian Zones

Streams and watercourses within proposed grazing areas should be identified and assessed prior to turn-out. Temporary fencing will keep animals directly out of creeks and provide a sufficient buffer to prevent water contamination. There is little danger of significant bacterial contamination from overland flow (EBMUD 2001). Besides bacterial contamination, nitrogen and phosphorus runoff are concerns from grazing livestock. However, bringing livestock into an area for a short, relatively intense pulse of grazing mimics the activity of historic herds of ruminants and thus arguably reproduces nutrient cycling conditions with which the watershed would have evolved.

Sensitive Biological and Cultural Resource Areas

Grazing areas are often assessed for presence of sensitive biological and cultural resources prior to turn-out. This ensures areas with special-status plants, animals, historic or pre-historic resources, and other areas or items of cultural significance, can be fenced out from the grazing area if necessary. Areas with highly erodible or unstable soils often warrant exclusion. However, it is not always necessary to exclude animals from an area just because a sensitive resource is present. Many cultural resources will be unharmed by grazing, and targeted grazing at the right time can even be a tool to promote rare plant recruitment.

Other Best Management Practices

A BMP for goat grazing to reduce Himalayan blackberry thickets (and other perennial resprouting undesired plants) necessarily includes follow up with herbicide to consolidate gains, prolong positive effects, and increase the effectiveness of funds spent. Additional BMPs include routine monitoring, proper selection of qualified contractors, inclusion of BMPs in grazing contracts, and properly addressing safety concerns regarding use of electric fences in public spaces.

Biological Control Agents

Some vegetative fuels are best controlled with natural enemies. Examples include weevils that eat unwanted plants' seeds, caterpillars that defoliate them, fungi that blight them, or even viruses that stunt their growth. For example, the Scotch broom beetle (*Bruchidius villosus*) feeds on the seeds of Scotch broom, a highly flammable invasive weed. Scotch broom can thrive on roadsides and dry creek bottoms, eliminating these corridors' usefulness as firebreaks, and is a significant invasive weed in Butte County (although Spanish broom is the bigger problem inside most of Chico parklands). Any biological control agent release would be coordinated with Butte County Ag. The following information is not a prescription for any action but is to provide a common starting point for discussions in case biological control ever becomes a proposed project inside Chico.

Biological control agents are usually used to control invasive, not native, vegetation. Unlike local native organisms, the biological control agent evolved in the invasive weed's homeland, so it must be imported from that area of origin. Some biological control agent introductions have had unintended consequences (e.g., the biological control agent is sometimes found to feed on native vegetation too, or it disrupts local food chains). Many, however, have been successful. Sometimes, the same biological control agent is a success in one part of the world but a failure in others. For example, the Scotch broom beetle (native to Europe) seems to be providing effective broom control in parts of the U.S. but had unintended consequences when it was introduced to New Zealand.

Biological control agents are not just for invasive weeds. They can also attack invasive pests that are hurting native trees. For example, recently insurgent tree pests like the Gold-Spotted Oak Borer (*Agrilus aurogutattus*), a beetle, and sudden oak death (*Phytophthora ramorum*), a fungus, can kill large numbers of mature oak trees in a short time, turning vibrant oak woodlands into standing dead fuels. These pests may one day be managed with biological control, too, although they are not correct now.

This Plan does not contemplate the release of any new biological control agents not yet present in Chico. However, this background is provided for context because monitoring biological control agent populations may be key to some integrated pest management (IPM) guidelines, which are found in this Plan. For example, guidelines may state that chemical or mechanical control of a weed is warranted if its biological control agent is not abundant enough to keep its population in check.

Best Management Practices for Biological Control Agents

Food webs are complex and unpredictable, and introducing new species can have serious unforeseen consequences. It is wise to only use biological control agents that are well established in the local bioregion (if not at the specific site one is managing). The University of California Cooperative Extension is the authority on biological control of weeds and pest species in California.

Reseeding

Plants can be kept in check by insects and diseases, but also by other plants. Plants readily compete for food (sunlight) as well as for water, space, and pollinators. Sometimes, managers can use plants' natural competitive instincts to human advantage by giving one plant species a helping hand over others. For example, managers may try to restore perennial grasslands at the expense of star thistle. Even though both vegetation communities readily burn, bunchgrasses are more likely to support a patchy and self-limiting (i.e., low intensity) fire, whereas dense star thistle is more likely to support higher flame lengths.

Seed can be scattered by hand, but this is usually not very effective unless very well-timed and under the right conditions (e.g., disturbed or near-bare soil, hand-sowing quickly followed up with appropriate mulching with e.g. weed-free straw, and a good rain coming). Seeds can be drilled into the ground with a push-seeder or planted with a seed drill pulled behind a tractor or 4x4. Seed drills can be no-till or regular. No-till drills disturb the soil surface very little, and they are useful when planting into a flat mulch of mostly dead or dormant vegetation. Regular drills tend to churn up the soil surface, and they are useful when existing vegetation needs to be removed before a seed can be planted (e.g., for light-dependent germinators). There are few opportunities to use these seed establishment tools in Chico. Of course, there are other ways to prepare a good seedbed, such as fire (see section below).

Plants can also be established from plugs, seedlings, saplings, cuttings, and other methods of propagation. These planting methods range from relatively non-invasive (e.g., sticking dormant willow cuttings into a riverbank) to relatively resource-intensive if the propagules are well-rooted and require a large planting hole.

An important consideration for plantings is whether they will need to be watered to allow the desired vegetation to outcompete its opponents. Carefully targeted irrigation can give desirable plants a competitive advantage but is resource-intensive and not always feasible. Irrigated plants are far more fire-resistant than non-irrigated plants, and irrigated lawns or golf courses make excellent firebreaks.

4.3.2 Hand Labor Techniques

Hand labor treatments involve pruning, cutting, or removal of trees, shrubs, and grasses by hand or using hand-held equipment (including mechanized hand-held equipment, such as string trimmers and chainsaws). Other hand labor treatments involve removing dead wood and litter or applying mulches. Hand labor can be selective and targeted, so it is often appropriate in areas with difficult access and/or sensitive resources (such as in riparian areas). Hand laborers usually have a light impact on the land, except sometimes on steep erodible slopes or during very wet weather. Depending on the situation, hand labor may be more or less dangerous for the workers who engage in it, compared with machine labor.

Hand labor generates debris when pulling, pruning, and cutting vegetation. The debris can be removed, burned on site, chipped on or near the site, or scattered on site if that is consistent with fuel loading objectives.

Hand labor is relatively accessible to students and volunteers because some hand labor treatment techniques require little expertise and manual skill. However, appropriate supervision and adequate training is always

essential. If the objective is to identify and retain one type of plant, the hand laborers need to be able to identify that plant. Even distinguishing live from dead trees can take a surprising amount of skill. Trees to be removed are marked beforehand by a qualified arborist, but it is of paramount importance that the laborers understand and interpret the marking system the same way as the manager(s).

Hand tools include, but are not limited to, shovels, Pulaski hoes, McLeod tools, string or blade trimmers (potentially using different blades according to materials being treated), "weed wrenches" (tools that pull both shrub and root system out), chain saws, hand saws, machetes, pruning shears, and loppers. Personal protective equipment (PPE) typically includes long pants and long-sleeved shirts, gloves, safety goggles or face shield, hard hats, and sturdy boots.

Hand labor *can* be used to solve almost any vegetation problem, although it is not the most cost-effective option on every site. For example, hand-held string trimmers can mow grass, greatly reducing its potential to fuel wind-driven fires but are not cost-effective for large fields. Handheld cutting tools can thin brush and prune up the lower branches of trees to reduce ladder fuels. While masticators are certainly faster (see 4.4.3), hand- cutting allows managers great flexibility to create space between and around trees or clumps of trees (mosaic thinning) and/or to thin out the vegetation under the dripline of trees (dripline thinning). Hand-cutting also allows crews to be highly selective. Dead, dying, and invasive plants are usually prioritized for removal. In some cases, highly flammable plants like gray pine might be prioritized for removal over oaks. Hand removal techniques are most useful in WUI or Intermix areas and/or around high-value resources, such as cultural sites or park management facilities.

Hand labor crews can also be used to apply mulch. Mulch, in this context, means any material applied to vegetation to physically hinder its growth. Mulch can be biodegradable, such as a deep layer of wood chips, or it can be non-biodegradable, such as a 5-mil layer of black plastic. In addition to inhibiting weed growth, mulch can protect bare soil from rainfall impact, provide soil nutrients during the decomposition process, and help retain soil moisture, depending on the application.

Best Management Practices for Hand Labor

The following BMPs should be implemented, where feasible, when utilizing hand labor vegetation management techniques. In all circumstances, tools and equipment should be utilized only for their intended use. Marking systems should always be explained before work starts to ensure laborers interpret them the same way management does. Laborers should always be able to explain the reason for the work they are doing, and what plants they are leaving intact and why. The CSUC Reserves are developing a training program for wildland managers that includes training crews on how to avoid sensitive resources during vegetation management, and the City intends to use CSUC crews from time to time both to do hand work and to train other crews to do hand work.

Tool and Equipment Use

1. Ensure equipment operators and project personnel are properly trained in equipment use.

2. Ensure that vehicles and equipment arrive at the treatment area clean and weed-free.

3. Protect retained trees and vegetation from tool and equipment damage.

4. Service and fuel tools only in areas that will not allow grease, oil, fuel, or other hazardous materials to pass into streams or retained vegetation.

5. Remove from the site and properly dispose of all refuse, litter, trash, and non-vegetative debris resulting from vegetation treatment operations, and other activity in connection with vegetation treatment operations.

6. All internal combustion tools should be fitted with a spark arrestor.

4.3.3 Machine Work

Machine labor means all fuel reduction methods that employ motorized heavy equipment. Machines can treat grass (e.g., mowers, diskers) or woody material (e.g., masticators, feller-bunchers). Machine techniques rearrange vegetation structure, crush, or chip/shred material, and move material to landings, staging areas, or burn piles. For example, mowers leave cut material on the ground surface, and masticators shred/chip brush and heavier woody vegetation, leaving treated material in a compacted chip layer on the ground surface. Neither of these machines actually *remove* fuels; instead, they alter fire behavior just by *rearranging* fuels. Of course, machines can also remove fuels entirely, usually by transporting them to a landing where they are burned or loaded into a truck.

Heavy equipment is usually equipped with either rubber tires or tracks, although skids and cables are also used. In some instances, two or more pieces of heavy equipment will work in concert to achieve the fuel treatment standard. For example, a feller-buncher might cut trees, while another piece of equipment moves the cut material to a landing or staging area where it can then be further treated or transported off site.

Machine equipment is generally used in more uniform fuels where its use more efficiently reaches treatment standards. Constraints to machine use include:

- steep slopes.
- dense tree cover machines cannot move through.
- saturated soils.
- a high need for selectivity in plant removal.
- high-fire-hazard weather conditions where equipment use could result in ignition.

Machine labor is typically not able to be as selective as hand labor. In many cases, machines are more likely to result in damage to retained vegetation than hand labor. Finally, machines usually require more training to operate than hand tools.

Machines are often used in conjunction with other treatment techniques, particularly hand labor (prior to machine treatment) and prescribed fire (following machine treatment). Timing of the treatments plays a large part in determining treatment success. More common mechanical techniques to treat or reduce fuel loads are described in the following sections.

Grading

Grading means using a tractor-mounted metal blade to scrape away and reshape the top inch to several inches of soil. It is a seriously ground-disturbing activity that carries a relatively high potential of damage to cultural and historical resources like old wagon ruts and tribal artifacts, so it is not contemplated for use on City parklands. However, during fire emergencies, CAL FIRE may bulldoze firebreaks to stop the spread of wildfire. The resultant “dozer scars” can pose erosion and invasive weed issues if left un-addressed. Therefore, grading may have some beneficial applications to rehabilitate dozer scars.

Mowing

Mowing tools include rotary mowers on wheeled tractors, straight-edged cutter bar mowers, or flails. Mowing does not involve soil disturbance. Mowing results in shorter, more compacted fuels, which reduces potential flame length and fire spread rates. Under ideal conditions, approximately 5 acres can be mowed per day, depending on the treatment area's slope and accessibility. Timing of mowing has an impact on the type of grasses and forbs promoted.

Mowing is typically required annually, sometimes more than once per year depending on late spring storms. Mowing may be used in conjunction with other techniques, such as disking which is a light soil-disturbance technique. Mowing may not be appropriate in areas where special-status species have potential to occur.

Disking

Disking is a fuel reduction technique where a tractor drags several circular, slightly angled blades behind it, each blade offset a few inches from the next. These blades cut the sod and lightly mix it into the top few inches of soil, creating a strip of exposed earth which does not retain enough fuel to carry a fire. Disking does not work in areas with tall or dense vegetation; these areas must be mowed first. Disking of fuel breaks is a common practice along the perimeter of open spaces, ranches, and roadways. A tractor with disk attachment can typically disk a 6- to 15-foot-wide swath in a single pass (depending on the size of the attachment), disking approximately 2 acres per day. Disking is typically done once a year, in early summer, once grass is dry and cured enough so that it will not regrow during that growing season. For example, the perimeter of Bidwell Ranch is commonly disked as a firebreak in early summer.

Disking creates an uneven surface that reduces water velocity and can even improve water infiltration; however, when aligned with steep slopes, disking could result in erosion. While disking is an effective barrier to surface fire spread, it can promote weed growth, depending on the seedbank and timing.

Mechanical Crushing/Mastication

A tractor or similar equipment may be used to crush vegetation. A common way of doing this is with a blade that is kept slightly off the ground. A variety of attachments may also be used, including rollers (e.g., brush hog), a horizontal cutting blade (which operates similar to a large mower), or a set of chains to flail the material being treated. The blade cuts or breaks off the shrub tops, knocks down larger shrubs, and compacts the treated material, which is then left to dry so that it can be subsequently scattered or piled and burned. Sometimes, a Bobcat with a grapple arm is used to pull shrubs directly out of the ground and pile them for crushing. Using these and similar treatment techniques, some soil is disturbed where the equipment travels and where some shrubs are uprooted.

Because crushed brush dries out faster than live brush, it will often burn well even in midwinter, when surrounding live brush still has a high moisture content. Thus, by crushing brush in fall, operators can create islands or windrows of drier brush that will burn in February when fire conditions are safe and surrounding vegetation is relatively slow to ignite. Burning these islands or windrows can create a desirable mosaic pattern which enhances habitat and fire safety, compared to homogenous vegetation.

Flailing treatment involves the use of tractors with affixed or towed mowing heads that cut or flail small diameter material, especially grasses and thin shrubs like broom. Some attachments include an articulated arm or boom that can reach 10 feet to 15 feet from a vehicle (Tiger mower).

Masticating equipment (installed on Bobcats, wheeled or crawler-type tractors, excavators, or other specialized vehicles) is used to cut or shred shrubs and trees into small pieces that are then scattered across the ground, where they act as mulch. Shrubs and sapling-size trees are typically masticated with Bobcats and crawler-type tractors, while excavators are often used when larger trees are removed. Bobcats typically

operate on slopes with gradients less than 20%, while excavators and tractors can operate on slopes with gradients up to 45%.

Crushing and masticating brush do not, by themselves, remove fuel. They just rearrange it so that it is more horizontal than vertical. The resulting deep layer of woody mulch does not burn as quickly or with as high flame lengths as the standing brush would have. But if it does ignite, it can burn with a long heat residency that may result in higher tree mortality than a shorter burn racing through the brush. This is because the deep layer of woody mulch can produce enough heat to cook tree roots deeper underground than normal wildfire heat penetrates. Fires in smoldering mulch can also be very difficult to extinguish. These problems are more likely to result when the layer of crushed fuel is quite deep.

Chipping

Chippers can shred long branches and into wood chips small enough to run between a person's fingers. Larger grinders, such as tub grinders, can chip logs up to 24 inches in diameter. Most chippers are stationary when they operate and need to have woody material brought to them. However, tracked chippers also exist and can be driven from pile to pile across the landscape.

Chipping reduces the size of materials by passing them through a series of high-speed blades. The result is chips or mulch deposited into a truck bed, on the ground in a pile, or broadcast on a site. The smaller the wood chip, the less flammable the resulting chipped mulch. To be fire-safe and to protect the roots of surviving plants from future fires, chips should be scattered and not piled more than 4-6" deep. Chips should be raked away from retained trees to prevent root crown rot. When possible, chip invasive species before seed set.

Tree Removal

Sometimes, it is necessary to remove whole trees. This is most commonly done with chain saws, but sometimes with feller-bunchers. Yarding equipment (described below) is then used for transporting cut material to a landing or staging area. Tree removal can be selective (removing individual trees within a stand and retaining others) or broad (removing all trees in a stand or portion thereof). Selective tree removal is used to reduce vertical and horizontal continuity between retained trees and in shaded fuel breaks. The open space created by selective thinning minimizes the potential for crown fire transition (upward movement of fire from the ground into tree canopies) and crown fire spread (horizontal movement of fire from tree canopy to tree canopy). Broad tree removal is not contemplated in this VFMP.

When trees are removed using chain saws, workers typically first use chain saws to cut and drop trees to the ground, then to de-limb them and buck them (i.e., cut them into smaller lengths). By contrast, feller-bunchers are large mechanized pieces of equipment used to harvest or remove trees in a short period of time. Because they tend to be less selective in their application, they are typically not used in areas where tree retention is identified as a treatment standard. While feller-bunchers typically have a 24- inch- to 30-inch-diameter limit for the size of trees that they can remove and can create a large amount of debris requiring removal for further treatment, they generally reduce the amount of skidding and on-site soil disturbance.

Following their use, treatment of residual material is typically performed using hand labor techniques. Removal of more than one or two trees from a site usually requires the establishment of a flat landing area, which is an area of land used during operations to sort, store, and load logs onto trucks or to chip them into mulch. (Felled trees are not always removed from a site; sometimes, simply laying the tree down on the ground can be sufficient to meet fuel loading objectives. Downed trees can provide good habitat for some species.)

Not all dead trees need to be removed. Where they pose no hazard to lives or infrastructure, it is beneficial to leave snags on the landscape to act as habitat and fall on their own time. 2-4 snags per acre are often left in wildland settings to support cavity-nesting songbirds, woodpeckers, raptors, and a host of other creatures. Hazard trees are only defined as such where there is an identified fall hazard target, namely a paved road or parking area, structures, or places where people may congregate such as benches or picnic tables. In most cases, this does not include trails.

Yarding

Yarding is the process of transporting cut trees, or portions thereof, from their cut location to a landing or staging area for subsequent treatment (e.g., tub grinding) or for transport off-site. This transportation can be done with tractors, which can negotiate relatively steep slopes, but which can sometimes leave significant scars where chains and logs drag along the ground surface increasing the potential for erosion and compaction, and requiring additional treatment to remediate the soil surface. Thus, yarding with tractors works best where slopes are not too steep.

Yarding can also be accomplished with cables, helicopters, or even mules, but these tactics are not contemplated in this Plan. An exception is that DWR uses a crane or grapple truck to remove flood-obstructing fallen trees from creeks. Removal by crane prevents drag damage to the banks and channel.

History of Machine Treatment Use in the Plan Area

The City of Chico has a long history of using some of the mechanical techniques identified in the previous sections in portions of the Plan Area to manage vegetation for fire hazard reduction purposes. Mechanical equipment is used on an as-needed basis to grade or disk fire trails, control highly flammable/rapidly spreading species, reduce surface fuels (e.g., mowing grasses), chip and spread trimmings and downed material, to thin vegetation, and to maintain fuel loads. Machine techniques are also used in concert with hand labor treatment efforts. When using machines, areas such as steep bare hillsides that are prone to erosion are avoided, and plants identified for retention are protected.

Best Management Practices for Machine Treatments

The following BMPs should be implemented, where feasible, when utilizing mechanical vegetation management techniques. In all circumstances, equipment should be utilized only for its intended use.

Heavy Equipment Use

The following practices should be implemented when using heavy equipment for vegetation management activities:

1. Utilize equipment that causes the least amount of soil disturbance for the job.

2. Ensure equipment operators and project personnel are properly trained in equipment use.

3. Install water breaks, as needed, for graded or disked areas that are not otherwise stabilized.

4. Ensure that vehicles and equipment arrive at the treatment area clean and weed-free.

5. When feasible and necessary, control fugitive dust resulting from equipment use by watering disturbed areas.

6. Protect retained trees and vegetation from potential damage resulting from heavy equipment use.

7. To minimize soil disturbance, leave stumps from removed trees and shrubs intact, with stumps cut flat not exceeding 6 inches in height, as measured from the uphill side.

8. Minimize exposure of bare mineral soil, where it was not previously exposed (natural surface paths). Replant/seed when resources are available.

9. Use the smallest and fewer machines necessary to meet the vegetation management standard.

10. Fix any heavy equipment-caused damage by regrading or recontouring any areas of soil disturbance, including from dragging or skidding of trees.

11. Avoid heavy equipment use on unstable slope areas, slopes with gradients exceeding 65%, slopes with gradients between 50% and 65% where the erosion hazard rating is high or extreme, or slopes with gradients over 50% that lead without flattening to sufficiently dissipate water flow and trap sediment before reaching a stream or other water resource.

12. Service and fuel heavy equipment only in areas that will not allow grease, oil, fuel, or other hazardous materials to pass into streams or retained vegetation.

13. Remove from the site and properly dispose of all refuse, litter, trash, and non-vegetative debris resulting from vegetation treatment operations, and other activity in connection with vegetation treatment operations.

14. Ensure that hazardous materials spill kits are available on all heavy equipment. ensure that all equipment with an internal combustion engine using hydrocarbon fuels is equipped with a spark arrestor, as defined in California Public Resources Code Section 4442.

Tree Removal

To the fullest extent possible and with due consideration given to topography, lean of trees, utility lines, local obstructions, and safety factors, trees should be felled away from streams, sensitive biological resources areas, and retained trees. Cabling, sectional removal, or other felling techniques should be employed, where feasible, to minimize impacts to streams, sensitive biological resource areas, and retained trees.

4.3.4 Chemical Techniques

Chemical techniques involve the use of herbicides or growth regulators to kill vegetation or prevent growth. Chemical techniques are typically used in combination with other types of fuel reduction treatments, such as hand cutting. Herbicide may be used to prevent buildup of fuels, but herbicides do not by themselves remove any vegetation from a treatment area. Application of herbicides and other chemicals is typically performed by hand, and can include injecting, spraying, painting, dripping, or dusting chemicals onto undesirable vegetation. Hand application allows flexibility and precision in application and is ideally suited for small treatment areas.

Herbicide and growth regulator application requires specific storage, training, and licensing to ensure proper and safe use, handling, and storage. Only personnel with the appropriate license are allowed to use chemicals to treat vegetation. In California, no herbicide may be used without first being registered through the Department of Pesticide Regulation (DPR). During the registration process, the registrant must perform over 120 tests on each product to assess its safety to people, wildlife, and the environment. Representatives of several state agencies participate in this review to assist DPR. These agencies include Air Quality, Water Quality, Agriculture, Fish and Game, and the Office of Environmental Health Hazard Assessment. Notices of the “Decision to Register” for each herbicide are posted for at least 30 days for public comment before such

herbicide is finally licensed for use in the state. As part of the registration process, the herbicide usage label is developed. Because DPR's pesticide registration program is certified as a "functional equivalent" of an Environmental Impact Report under the California Environmental Quality Act (CEQA), herbicide use in compliance with a label is by definition compliant with CEQA.

It is possible to utilize an herbicide for off-label uses, with the recommendation of a licensed pest control advisor (PCA). (Some agencies (such as the USFS) choose to require a PCA recommendation even for on-label uses, but for the City this would be a redundant expense.) Personal protective equipment is essential to limit personnel exposure to chemicals. This includes long pants and long-sleeved shirts, minimum 14 mil chemical resistant gloves, safety goggles, and full leather upper footwear.

Each herbicide or growth regulator comes with its own label instructions for safe application, including required PPE, and required no-entry period (technically known as a re-entry interval or REI) after herbicide application. In the case of every herbicide currently used by the City, it is safe for pets and the public to re-enter the area as soon as the application has dried, generally a few minutes after the application. The herbicide product usage label will also state whether it requires a certain buffer distance from water. Some herbicides are labelled for use as an 'emergent aquatic' herbicide; for these herbicides, it is safe and legal for the spray to incidentally hit the water surface in the process of targeting a plant growing over water.

The remainder of the herbicides used by the City carry no specified buffer to water, regardless of concentration, but simply do not allow the wet spray to contact any surface water. While there is always some risk of damaging non-target vegetation, more options for bio-specific herbicides (herbicides that target one group or family of plants, as opposed to broad-spectrum herbicides) exist now than ever before.

Herbicides

Herbicides can be used alone or as a secondary vegetation treatment technique following manual (hand labor), goat grazing, or mechanical removal. In the latter case, the herbicides control sprout growth and regeneration. The advantage of herbicide treatments is that they typically kill plants quite effectively, and can prevent treated plants from setting seed, while having the potential to be precisely targeted at problem species if that is a concern. Thus, in the long run, targeted plants are eliminated, although it may require follow-up treatments. Some disadvantages include the necessity of applicators to be trained and then licensed by the State of California, the cost of application and safety equipment, the cost of the herbicide itself, and in some cases the potential to affect non-target vegetation and/or wildlife. Despite these disadvantages, herbicides, or herbicides in combination with hand/mechanical removal, are the most widely used and economical techniques for controlling certain types of vegetation.

Herbicides are broadly classified into two basic types: pre-emergent and post-emergent. Pre- emergent herbicides prevent plants from germinating (emerging from the seedbank in the soil) and some also act on early seedling development. As such, they have a larger potential to impact seeds of desired species remaining in the soil, and often have longer persistence times in the environment. Post-emergent herbicides are applied directly onto the plants, killing them, preferably before they have the chance to mature and set seed for another season. With proper equipment and training, herbicides can be applied selectively, minimizing impacts to seeds of desired species residing in the soil. However, should the target vegetation be intermixed with growing desired vegetation, the chance of affecting desired vegetation would be increased.

Different plants vary in their response to any particular herbicide and can also vary in their response depending upon in which stage of their life cycle the herbicide is applied. For this reason, seasonality is an important consideration in herbicide application.

Some herbicides are specific to particular groups of plants, while others are "broad-spectrum". Careful targeting of the right herbicide for the right species at the right time of year reduces the amount of herbicide

used, saves money and time, increases the efficacy of the treatment and reduces the chance of herbicide coming into contact with non-target vegetation.

Herbicide application is useful following removal of all tree and other perennial species that have the ability to regenerate from root fragments, whenever it was not possible to remove all plant fragments. Herbicide use should be limited to localized applications rather than foliar applications to eliminate the possibility of drift and impacts to neighboring desirable vegetation. Obviously, herbicides must always be applied in accordance with state and federal law, i.e.: in accordance with the product usage label or a PCA Recommendation for use.

Herbicides are sometimes the most or the only cost-effective way to control vegetative fuels. They sometimes offer lower environmental impacts compared to the non-herbicide alternative. (An example is with giant reed, *Arundo donax*, an aggressive invasive fuel that can grow 20' tall and will burn green. It grows on creek banks where erosion is a serious concern. Killing the stand by mechanically removing its large root wads is much more destructive to the creek banks than killing the stand by carefully applying herbicides in the right season, such as **imazapyr** which comes with an emergent aquatic formulation for use over/near water, where other herbicides are not appropriate.)

Herbicides can also provide wildlife benefit when used strategically. For example, targeted applications of **triclopyr ester** are sometimes applied to woody plants using basal spray, cut stump, or foliar application. In a forestry context, this technique can control infestations of Spanish broom and resprouting brush, allowing native trees to better establish. The chemical can also be used for targeting broadleaf weeds in a monocot stand, such as to target blackberry invading a grassland.

Glyphosate can be used sparingly for woody plants using direct injection, cut stump, or foliar, and is also used to control Arundo. It is generally used as a highly targeted spot spray, not a broadcast application. Glyphosate is a useful herbicide because its next best alternatives are more dangerous to human health (too limiting in their Warning/Danger label) and are more likely to harm non-target species or to have residual pre-emergent effects. It is a best management practice to always use the least toxic alternative that provides acceptable and cost-effective control of the problem. (For more about best management practices involving chemical treatments, see below.)

Some herbicides are highly selective and have low risk of harming non-target species. For example, **aminopyralid** or **clopyralid** are "selectives" targeting only legumes and composites. If the right mix of species is present, these chemicals can provide excellent control of yellow star thistle or broom in grasslands. (When high populations of native composites and/or legumes are present, these chemicals are no longer a good choice.) Herbicides can be an important complement to prescribed fire for yellow star thistle control. The herbicides listed above are not the only ones the City would ever consider using, but any herbicide used would need to be consistent with the best management practices spelled out below.

Growth Regulators

Growth regulators are a form of chemical vegetation management, but they are not herbicides. Rather than killing plants, they stimulate or inhibit plant hormones to alter a plant's metabolism and physical architecture, but they allow it to continue living. This class of chemicals is sometimes called TGRs (Tree Growth Regulators). Even though they are not herbicides, they are still regulated and registered by the EPA under its Federal Insecticide, Fungicide and Rodenticide (FIFRA) program, and they still carry warning/danger/caution labels and their own requirements for PPE.

An example of a TGR is the chemical marketed under the trade name Cambistat (paclobutrazol 22.3%). When injected into the soil around a tree, Cambistat inhibits the production of gibberellins, the hormones that elongate cells in trees (making branches longer). When a tree produces less gibberellins, its branches might take three years to grow the same amount that untreated trees grow in one year. Since the tree is still producing

the same amount of energy but not using it to lengthen its branches, the tree may compensate by producing much more chlorophyll (turning a darker green), and by investing more in root development, and producing more abscissic acid, which can make the tree more drought-resistant.

TGRs are especially useful under power lines because they increase the interval between needed prunings. Conflicts between trees and power lines are one cause of fire. Thus, TGRs can reduce the amount of labor and money required to keep power lines fire safe.

Methods of Chemical Application

Cut and Daub

Cut and daub treatment is recommended for larger highly flammable/rapidly spreading plants, such as large trees and shrubs, to control regrowth and kill the portion of the plant remaining belowground. Cut and daub involves the cutting of plant stalks or trunks and then the direct application of an appropriate systemic herbicide directly to the cambium layer of the freshly cut stump or stem. It is also called “hack and squirt”. A hatchet may be used to reach the cambium in larger trees such as Ailanthus. A drill with a very long bit is useful on palm trees. For Ailanthus in particular, it is critical that the herbicide treatment occur soon enough after the plant is injured so that the herbicide is carried into the plant tissue. If enough time elapses to allow the cut surface of the severed plant to dry out, a fresh cut should be made prior to herbicide application.

Root Injection

Some chemicals are designed to be injected into the root zone of a plant. Some growth regulators work this way. Each chemical is always applied as directed on its label.

Foliar Spray

Foliar spray simply means spraying herbicide directly on a plant’s leaves. Discussions of foliar spray should distinguish between 'broadcast spray' and 'spot spray'. Both are vulnerable to drift from wind generally approaching 10mph, but broadcast spray is less precise and more likely to damage non-target plants. Spot spraying is most commonly used within the City for a foliar application because workers are most commonly treating individual plants in a multispecies environment. However, an applicator may occasionally need to overspray a small stand, for example if using a selective broadleaf herbicide on thistle emerging from a swale of Santa Barbara sedge.

Some plants, like Arundo, are best controlled by a fall foliar spray when the plant is busy preparing for winter by shunting as much sugar as it can from its leaves to its roots. Herbicides can hitch a ride on this sugar traffic and kill the plant’s roots much more efficiently, and with fewer ounces of herbicide used, than other methods of application. By contrast, foliar spray is not suitable for broom, because of its open foliage habit; instead, the applicator grasps the broom canopy and “drizzles” a higher concentration herbicide onto smaller portion of green leaves with a direct controlled application, avoiding drift.

Use of an adjuvant (a substance that helps the chemical stick to leaves) can improve success and require less herbicide per unit of vegetation. Adjuvants can be complex, patented polymers, or they can be as simple as molasses. The herbicide-adjuvant mixture is always determined by a licensed Pest Control Advisor (PCA).

Best Management Practices for Chemical Techniques

The following BMPs should be implemented, where feasible, when utilizing chemical vegetation management techniques.

1. Herbicide use should be considered when other treatment techniques are determined to be infeasible, ineffective, or not cost-effective in achieving desired management and maintenance standards.
2. Herbicide labels are in themselves the law. If a proposed use is off-label, then the City will consult with a state-licensed Pest Control Advisor to identify the appropriate site-specific herbicide application approach to meet vegetation management standards.

3. The timing of herbicide applications should be considered to optimize effectiveness on the target weed, while minimizing impacts to adjacent retained vegetation and nearby resources.

4. Only herbicides bearing Caution labels (i.e. not Warning or Danger labelled) are used by the City of Chico. No 'Restricted' chemicals are expected to be used. Certain additive Crop Oils (adjuvants) currently have a Warning label (due to potential eye damage from spray), but this is a concern to the Applicator and does not reflect a concern to public, pets, or the environment.

5. The lowest recommended rate to achieve vegetation management objectives of both herbicides and surfactants should be utilized to achieve desired control.

6. An indicator dye is added to the tank mix to help the applicator identify areas that have been treated and better monitor the overall application.

7. In general, the use of broadcast (spray) applications should be minimized, prioritizing localized or direct applications (e.g., cut and daub) where effective. Spot foliar spraying (such as with a hand pumped wand sprayer, manual with low volume output directed with a wand directly at a target) is a direct application. Often, directed (spot) foliar application is the most effective method, minimizing collateral damage and susceptibility to drift while still fixing the problem.

4.3.5 Prescribed Fire and Cultural Burning

The purpose of prescribed fires is to burn up fuel at a time and place of humans' choosing. By intentionally burning when conditions are right for low- to moderate-intensity fire, and when atmospheric conditions promote good smoke dispersal, managers can reduce fuels, replicate a natural process, improve habitat for many native fire-dependent species, and still protect public health and safety. Burning piles of cut vegetation is called pile burning, while setting fire to a designated prepared area is called broadcast burning. The terms prescribed fire and controlled burning are interchangeable.

Cultural burning is human-led fire that draws on Native Californian traditional ecological knowledge (TEK) and is timed to promote culturally important plants and other species. Native Californians often prefer to distinguish between "cultural burning" and "prescribed fire," because the latter term can connote modern, agency-centered techniques that are not always consistent with ecological outcomes sought by Native land managers. (For instance, CAL FIRE and federal managers often burn in different seasons and with different objectives than traditional managers.) All native plant species in the Chico area evolved with regular cultural burning by the Mechoopda people. The expression "good fire" is sometimes used as an informal blanket term covering both prescribed fire and cultural burning.

Both broadcast and pile burning are often (but not always) implemented in conjunction with hand labor and machine treatment done as pre-burn preparations. This pre-fire "burn unit prep" can include rearranging fuels to make them more (or less) continuous, removing some fuels to ensure shorter flame lengths or lower burn intensity, or creating fire lines around resources managers don't wish to burn. All these tasks can be completed using either hand or machine labor.

Broadcast burning can be a cost-effective way to quickly reduce a large volume of woody material remaining after other fuel treatment operations. The more homogeneous the fuel is, the more homogeneous the broadcast burn will be. However, all burns can be expected to vary in intensity and completion across the burn unit. "Hot-spots" of more complete combustion, as well as islands of unburned fuel, are normal, and the heterogeneity they create contributes to a mosaic structure that is usually beneficial for habitat. Likewise, some tree mortality after a fire is normal. Dead trees are an important part of any wild landscape. A burn plan usually includes a range of acceptable tree mortality.

Broadcast burning can be implemented on a scale measured in square feet or in hundreds of acres. Treatment boundaries are often roads, trails, or other non-burnable features, reducing the number of firebreaks that need to be created. Under the right conditions, even the transition zone from sunny open meadow to the dripline of winter oak trees can be used as a firebreak. Changes in aspect (the direction a slope faces) can also be used as effective control lines in the late fall and winter, when south-facing slopes dry quickly after a rain, but north-facing slopes are still too wet to carry fire. Using natural fire lines reduces labor costs and preparation time and minimizes soil disturbance and the potential for soil erosion. Midslope fire lines require holding forces to work directly in the smoke from the fire below. When at all possible, burn units should be designed in a way that minimizes the amount of midslope fire line.

Broadcast burning can be used in all vegetation types. However, some vegetation types and exposures have more frequent "burn windows" (opportunities to burn because conditions allow for effective control of fire) than others. Also, the proximity of structures, roads, businesses, and neighborhoods can be an important limiting factor on prescribed fire and cultural fire. These limitations are due at least as much to concern about smoke impacts from smoke as it is to concerns about fire escaping the unit.

Broadcast burning may occur any time of year. Early fall burns are the most common for cultural burning and are generally most closely aligned with the natural fire cycle found in California. Spring burns are often convenient for agencies and provide good public safety; however, there may be impacts to animal and plant reproduction. Midsummer (late June into July) burns, when the atmosphere is very stable, can provide the opportunity to consume extensive brushfields or star thistle infestations, and can avoid smoke impacts because smoke from fires lofts so well during this season. However, "in-season burns" (i.e., burns during declared fire season, which certainly includes summer) are difficult to implement because most fire departments are too busy suppressing fires to devote time to lighting them.

How do managers decide where and when to light a burn? As the name expresses, a prescribed fire is based on a prescription. A prescription specifies the conditions under which the fire is to be lit. It could include factors like seasonality, wind speed and direction(s), humidity range, and ecological triggers such as a certain species having completed its reproductive cycle for the year. Those conditions are chosen based on the objectives (what we want the fire to accomplish). A fire with the objective of killing half the small trees in a stand will have a different prescription than a fire with the objective of consuming just the top layer of leaf litter. Both broadcast burns and pile burns have prescriptions.

Pile burning

As an alternative to a broadcast burn, piles can be built and burned. Tractors or hand crews can create piles of material on flat or gently sloping ground that can be burned during moderately cool to very wet conditions. The volume of fuel in the piles can produce localized heat which may impact adjacent retained vegetation or temporarily sterilize the soil directly below the pile. The type and moisture of the fuel in the piles, as well as the spatial arrangement of the fuels, can have a significant impact on how much smoke the piles emit as they burn. Piles of vegetation may be burned any time after the vegetation has sufficiently dried - the lowest-risk proposition is to trap or cover the pile with craft paper, and then burn it in the winter after soaking rains. Spring burns can smolder for months and re-emerge as a wildfire later.

Tools and resources needed for burning

Cultural fires are often lit by bundles of dry grass or herbs. Other handheld tools, such as drip torches, lighters, matches, propane torches, diesel flame-throwers, and fusees (flares), may also be used for igniting prescribed fires. Mass ignition techniques may include the use of terra-torches and heli-torches. These types of ignition devices release an ignited, gelled fuel mixture onto the area to be treated. Helicopters may also be used to drop hollow polystyrene spheres ("ping-pong balls") containing potassium permanganate that are injected with ethylene glycol immediately before ignition. The sphere ignition method is best used for spot-firing projects in light fuels. In this VFMP, only handheld ignition devices are contemplated.

Prescribed burns must be conducted by trained personnel. Training can be formal or informal. Examples of formal training include the NWCG (National Wildfire Coordinating Group) trainings, TREXes (training exchanges), or CAL FIRE trainings. Examples of informal training include the family-based fire traditions of ranching or Native cultures. Some people who have received informal training have an extremely nuanced and sophisticated understanding of fire, and some people who have received formal training have a better understanding of how to fight fires than of how to light them. Conducting prescribed fires safely requires both skills.

Personnel can be from State, local, volunteer, private for-profit, or non-profit fire crews. Utilizing personnel and equipment from a variety of crews provides the added benefit of joint training under prescribed rather than emergency conditions.

Prescribed burning requires proper planning and the development and approval of a prescription or burn plan, which can be developed by the local fire protection district or contractors in consideration of fuel reduction requirements, local weather conditions, and available resources for fire management. The following sections summarize the planning needs for implementing prescribed burns.

Planning Good Fire

The following describes the steps that must be completed prior to initiating prescribed fire activities.

Burn Plan/Prescription

Working with a fire management specialist, managers develop a site-specific prescription and burn plan. This plan establishes goals and procedures for the prescribed burn. You can find examples of burn plans in the Projects section, section 5. Burn plans take into account the site characteristics and the likely behavior of the fire, including the heat output, length of burn, best ignition sources and points, and optimal fire control methods, as well as the firing pattern (i.e., whether fires will be lit from the top of the unit down or the bottom up or in some other pattern). Each element of the burn plan depends on the type, age, density, and condition of vegetation; the site's terrain; solar exposure; and local and prevailing wind patterns, as well as the managers' and the community's goals for the burn. The prescription identifies the boundaries of the burn area, locations of control lines, acceptable fuel moisture ranges and weather conditions, and required personnel and equipment. Before ignition, fuel moisture content must be measured to assess if the treatment area is safe to burn.

Agency and Air District Review

Under CEQA, local and regional regulating agencies need to review the burn plan to identify potential environmental impacts and develop mitigation measures. Some burns may need very little to no review.
The Butte County Air Quality Management District (BCAQMD) requires preparation of a smoke management plan (SMP) for any burn below 1000' elevation. Almost all the lands in this Plan are below 1000,' but the upper portion of Ten Mile House Rd, for example, is above 1000'. However, development of an SMP is a

best management practice for all City burns regardless of elevation. An SMP maps the location of sensitive receptors (i.e., schools, homes, businesses) and lists measures managers will take to maximize smoke dilution and minimize smoke production. In addition to the preparation and approval of a smoke management plan, the BCAQMD requires notification of the burn and that burning is conducted on a permissive burn day. The BCAQMD selects burn days based on air quality, weather conditions, and wind patterns; provides the burn's acreage allocation the morning of the burn; and provides the "all clear" designation prior to initiation of the burn.

Pre-burn Site Preparation

Not every burn unit needs prep. However, hand labor or mechanical treatments are often conducted prior to initiation of a prescribed burn to remove and treat larger material (trees, shrubs, slash). A common goal of burn unit prep is to remove ladder fuels that may allow for crown fire transition. Site preparation also includes the establishment of fire lines needed to control the fire if they do not already exist. These fire lines are typically constructed using bulldozers or by hand using scraping tools. Occasionally they are "burned in" with a strip of fire under conditions that limit fire spread.

Burn Notification

Notifying the local or surrounding communities, local fire departments, CAL FIRE, media, and BCAQMD is an essential component to avoid potential misinterpretation of the prescribed burn as a wildfire. Notification to interested and affected parties and the media are also repeated the day of the prescribed burn. Temporary road signs are usually placed on nearby roads. Prescribed fires sometimes generate high levels of public safety concerns over the chance of fire escape from control lines, and the rapid distribution rate of smoke, ash, and particulate matter may raise additional concerns from the public. These concerns are strongest in areas where prescribed fires are rare. Many communities have found that as prescribed fires become a more common part of normal life, public concern about them decreases.

Post-Burn Follow-up and Evaluation

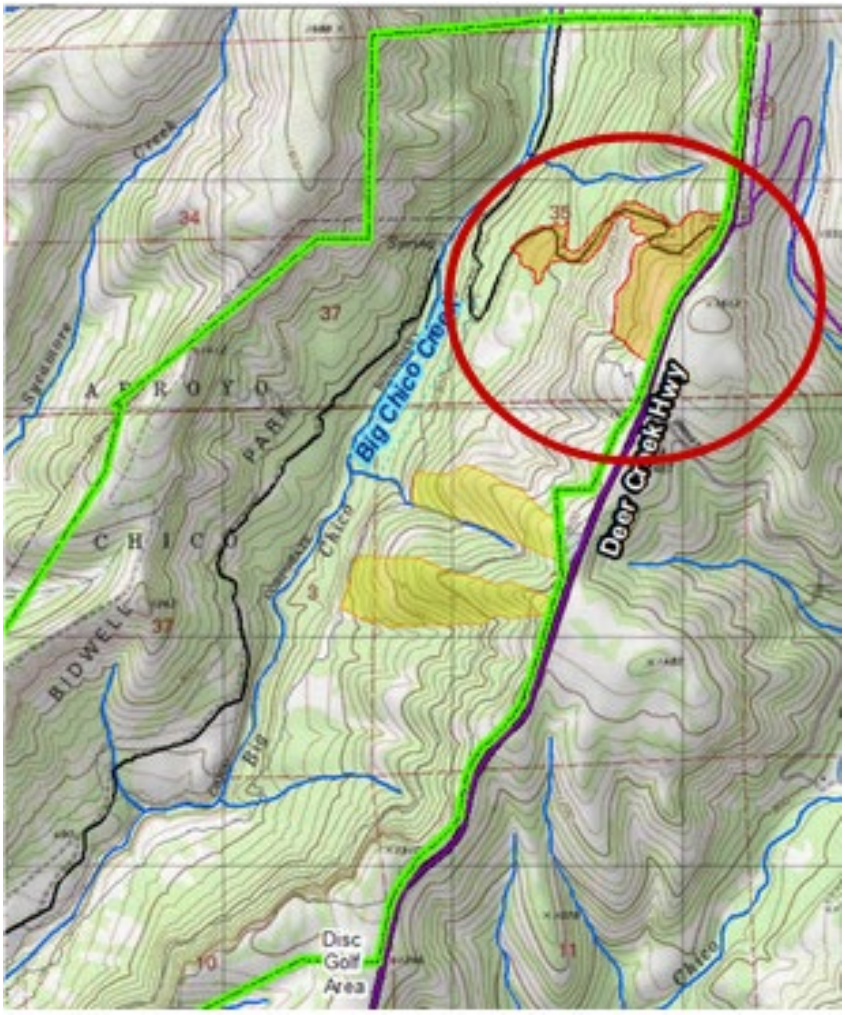
Crews must patrol the burn area until no more hotspots (smoldering or hot areas) remain. In heavy timber, this can take weeks; in grassland, it can take hours. The process of patrolling a burn unit and making sure all hotspots are "dead out" is called "mop-up".

Following completion of the prescribed burn, the results are evaluated to determine if additional treatment is needed to achieve goals. (Evaluating results of treatment is a key principle of Adaptive Management and is not limited to prescribed fire. Regardless of the treatment, afterwards managers should ask: Were goals achieved? If not, why not? What institutional or procedural problems occurred and how could they be remedied? How could the process or implementation be improved specifically?) The art and science of evaluating the results of a burn is called fire effects monitoring, or FEMO.

If follow-up is needed, additional treatment methods could include hand labor or mechanical treatment of unburned or partially burned materials. Follow-up and evaluation efforts may occur from 1 to 2 years after the burn, or longer. Grazing is often a useful follow-up treatment a year to two years after a burn. Fire is cyclical by its nature, and a single fire does not produce as good results as several fires in a row, spaced out along the area's natural fire return interval (FRI). The FRI in most of the Plan area ranges from 1 to 12 years. Therefore, it is reasonable to think of prescribed or cultural fire as a maintenance activity that can be expected to recur in the same unit one to several times per decade.

5. Projects

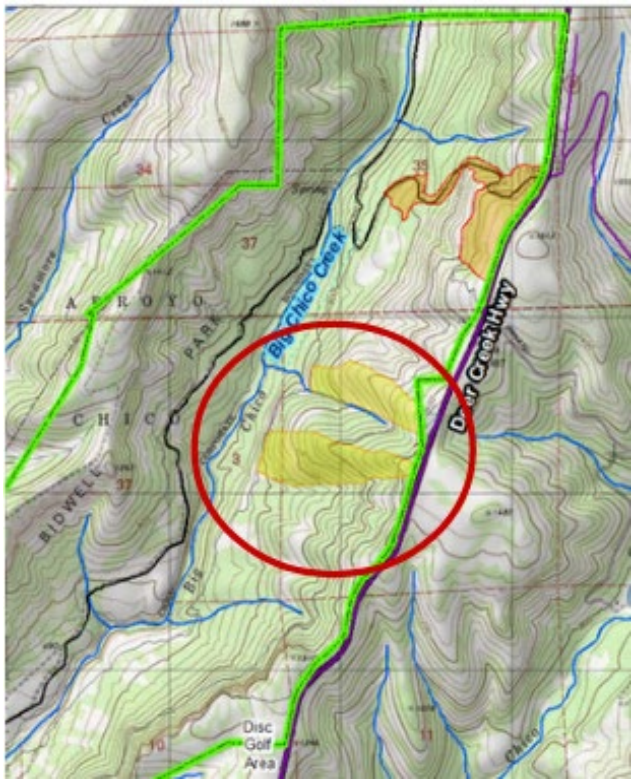
5.1 "Ten Mile House" Oak Restoration and Wildfire Resilience Project



This project will implement understory thinning in black oak stands adjacent to the 10 Mile House trailhead and upper portions of the 10 Mile House Road, and reduce hazardous fuels and potential wildfire intensities complementary to CAL FIRE's Highway 32 fuel break and along 10 Mile House Road, a major fire access to the northeastern portion of Bidwell Park.

The project will thin from below to create open understory conditions under mature black oak trees, remove decadent understory vegetation in the margins of the black oak stands, and create conditions which may allow future understory burns to be used to maintain open conditions in the black oaks. Additionally, opening up the black oak understory may improve scoping and construction of new multiple-use trails which could provide access and control opportunities for firefighters conducting both prescribed fire and wildfire control operations.

5.2 “Dozer Lines” Oak Restoration and Wildfire Resilience Project

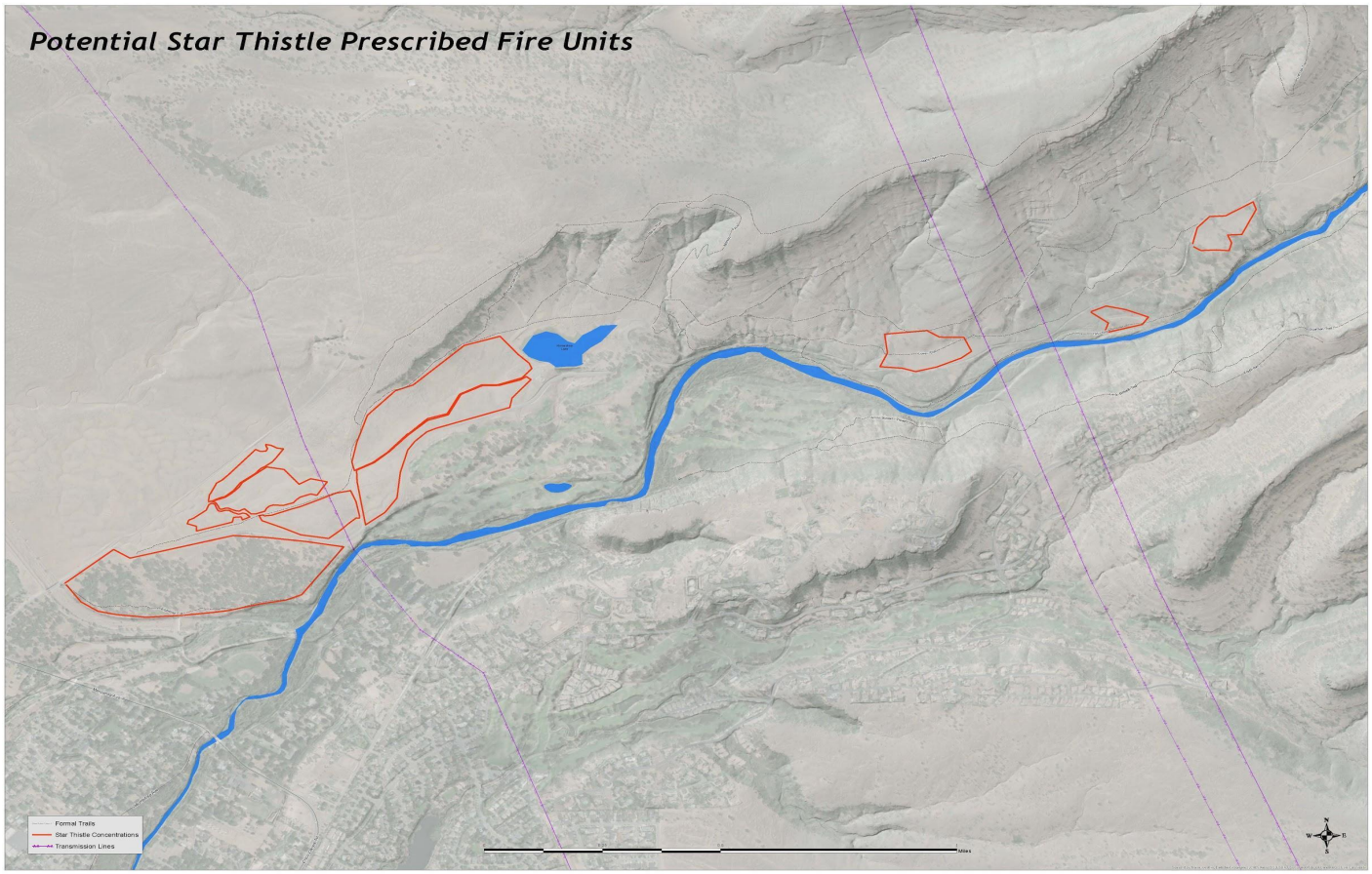


This project will implement thinning and postfire restoration activities to improve the utility of two key fireline locations on the South Rim of Bidwell Park.

These two ridges had bulldozer firelines installed during the 2016 Santos and 2018 Stoney Fires. Moving upcanyon on the South Rim of Bidwell Park or the CSU, Chico Big Chico Creek Ecological Reserve (BCCER), these are two of the last places where bulldozers can be used to install firelines during a wildfire. While bulldozer firelines can have a major impact on vegetation and soils, they are part of firefighting in California, and it is unlikely CAL FIRE will not use them on future fires in the Park. This project aims to create vegetation conditions adjacent to the existing bulldozer fireline alignments which will increase the likelihood they will be effective during future wildfire events. Also, there are large accumulations of slash and debris adjacent to the firelines which will be burned during this project.

This project will prune dead material out of trees affected by the recent fires, remove clumps of dead trees directly adjacent to the firelines, and prune resprouts on a larger area of south-facing slopes adjacent to each fireline with the objective of preventing multiple sprouts on each stump from becoming a dense brush field. The long-term goal is to steward the woodland toward long-lived, single stem, fire-resilient trees that sequester stable carbon, and to promote a diverse understory capable of supporting wildlife and thriving through fire events. Ideally, these slopes will be good candidates in 5-10 years for late-season or midwinter prescribed fires which will maintain healthy and fire-safe levels of vegetation on these tactically important ridges.

5.3 Middle and Upper Park Star Thistle Burns



Background

Yellow star thistle ("YST"; *Centaurea solstitial*) is an invasive weed that can be found almost everywhere in Bidwell Park. It forms especially dense thickets in Middle and Upper Park **(SEE MAP)**. In some places, YST crowds out native bunchgrass habitat, replacing a vegetation community where grass fires are inherently patchy and self-limiting with one that can burn at surprising intensity and flame height (up to 40' with good winds). Under oaks, these more intense YST fires increase oaks' chances of mortality from fire, compared to the native bunchgrass community with which the oaks evolved. YST infestations often co-occur with medusa head and barbed goat grass, so, given the natural habitat preservation objectives of Bidwell Park (BPMMP, 2008), timing of burns or other treatments should be optimized to address multiple invasives at once whenever possible (see e.g. Brownsey et al).

Objectives

Enhance recreational values, reduce the intensity of future fires, and promote a healthy native grassland consistent with patchy and self-limiting wildfire behavior by addressing hotspots of yellow star thistle ("YST"; *Centaurea solstitial*) with well-timed fire and other means.

Policy Rationale

1. Utilize prescribed fire used as a management tool to protect and enhance habitats and reduce the risk of catastrophic fires within Bidwell Park (BPMMP, 2008).

2. Eliminate undesirable or invasive plants that compete with or reduce native vegetation or degrade wildlife habitat for endangered or threatened species (BPMMP, 2008).
3. Improve age class diversity within existing mature, even-age stands of oak and other plant communities (BPMMP, 2008) by encouraging young oak recruitment as a positive byproduct of fire.
4. Reducing the fuels and infestation patches along nearby landscapes such as roads, trails, and neighboring back yards will increases safety for the community members who use the park daily, if maintained regularly (BPMMP, 2008).

Project Description

Areas to be burned will be delineated by a professional burn planner, based on YST data already gathered by DCR crews. The burn planner will delineate their units based on landscape control features such as roads, trails, and oak driplines, as well as topography and contingency escape/access routes. The burn planner will create a plan that specifies burn objectives and a burn prescription including weather conditions, fuel moisture, acceptable oak mortality, and fuel loading on the landscape. The burn plan will also specify acceptable firing and holding resources and their required qualifications, if any. The burn plan will indicate a preferable firing pattern. The burn plan will specify a burn window, which will be selected to target the unique phenology of YST, which is usually best controlled with June burns just prior to release of YST seed.

When final unit maps are available, resource surveys will be conducted on the delineated areas by specialized survey crews. Surveys must also analyze for resources that are not within the burn units but could be damaged during ingress/egress or from indirect results of the fire, like smoke.
To prevent damage to protected mature oaks, any unacceptably high fuel loads present on the units will be chipped or carefully pile-burned until the unit is in prescription for fuel loading. Hand lines will be dug, mowed or wetlined, as necessary. The burn will be implemented after obtaining final permission from the Butte County Air Quality Management District and, because the burn window will be during declared fire season, CAL FIRE.

Follow-up treatment the next spring, as soon as YST basal rosettes are visible, will be with spot applications of aminopyralid or clopyralid, which are narrow-spectrum "Caution" label herbicides that target thistle and bean family plants but not grasses. All applications will be performed by a qualified and licensed applicator and relevant riparian buffers as specified in the BPMMP-EIR, or on the pesticide label, whichever is greater, will be observed. If the post-burn YST emergence is too great to realistically control with spot-spraying herbicides, the burn should be repeated the next year, and sometimes for a third year, until the post-burn emergence is spotty enough to control with herbicide. Three successive years of burning, herbicide treatments, and/or mechanical removal are not uncommon and are recommended to control YST.

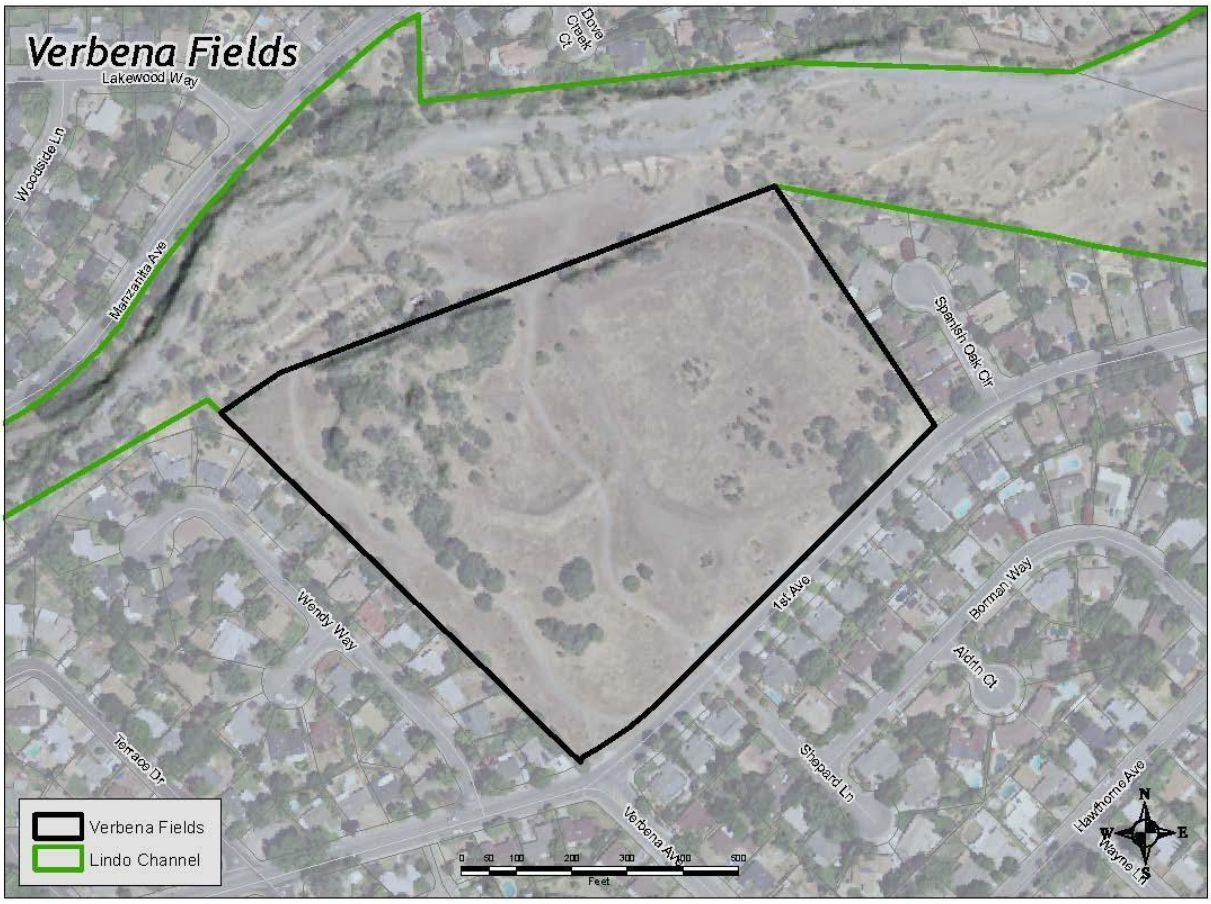
Regulatory Permits Needed

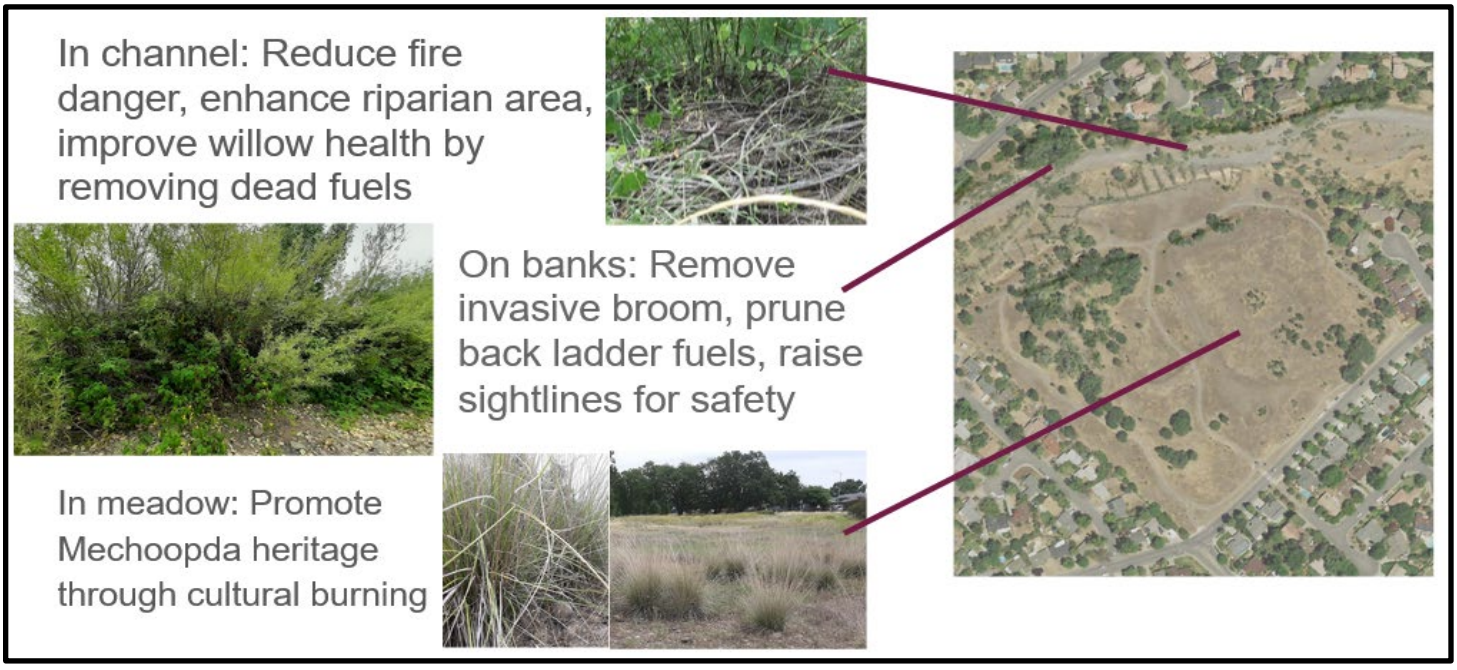
- Butte County Air Quality Management District Burn Permit
- Smoke Management Plan
- CAL FIRE Permit (LE 5)

Additional considerations

YST populations cannot be transformed into native grasslands in one year, but after three or four years a significant transformation can usually be seen. Monitoring the change in the grassland composition can be a promising citizen science opportunity through partnerships with Friends of Bidwell park (http://friendsofbidwellpark.org/potentially-invasive-plant-species-in-bidwell-park/) or other group(s) to provide phenology and population data for Park managers to use. The project is also a worthwhile study opportunity for CSU, Chico master's candidates in botany or ecological sciences.

5.4 Verbena Fields Stewardship





Verbena Fields is a 20-acre former gravel quarry which was restored to resemble the natural state that existed prior to gravel mining. The area features walking trails, large open fields, riparian areas along Lindo channel, and a large seasonal wetland. The park is culturally important to the Mechoopda tribe who were heavily involved in its restoration. The park is currently tended by the Mechoopda tribe and in addition to being a

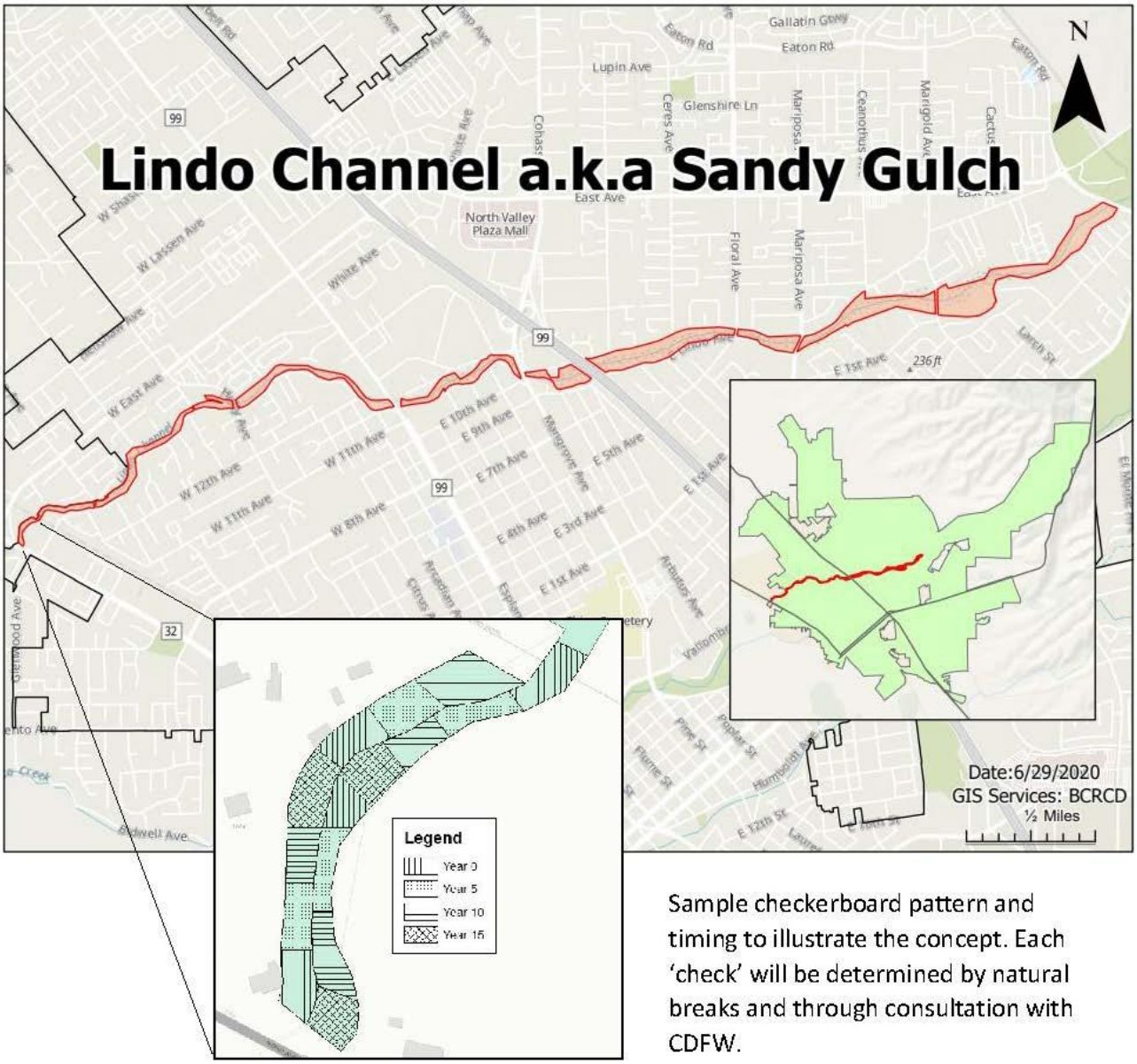
public park is used as an outdoor classroom to teach traditional ecological knowledge.
Several objectives have been identified for work in the park. These include the reduction of fire hazard, the removal of invasive species, and the promotion of Mechoopda cultural heritage using burning to encourage native plant species. When the park was established large numbers of willow cuttings were planted along Lindo channel. These willows, now mature, have collected large amounts of dead woody debris from the channel. This debris should be hand piled and burned on site. Additionally, willow thickets should be cleared around the base of mature trees. Any grapevines grown over the tops of mature trees should be cut at the base, pulled from the trees, and allowed to dry for use by the Mechoopda.

Invasive broom can be found along the banks of Lindo channel. Members of the Mechoopda have been hand pulling the broom, but much remains left to be done. Broom should be pulled and removed from the site. This will need to be undertaken annually until the seed bank in the soil has been depleted. To a lesser degree yellow star thistle can also be found along the channel and should also be pulled.

The Mechoopda people have long used fire to tend the land. At Verbena fields fire can be used to promote the growth of native grasses and the elimination of star thistle in the large fields. Fire can also be used to maintain the small groups of oak found scattered around the open areas.

Note that ‘On banks’ means within a fuel break standard distance (probably 100’) from WUI, e.g. residence property boundary fences, and ties into the larger Lindo Channel vegetation management project, below.

5.5 Lindo Channel Vegetation Management



This project area is to take place along Lindo Channel (Sandy Gulch) between Nord Avenue and Manzanita Avenue. Any projects along Lindo Channel will be done under supervision and negotiation through the Lake and Streambed Alteration ("1600") permit process with CDFW, as the trustee agency charged with protecting California's plants and wildlife, sets the terms and conditions governing the City's work alongside stream corridors containing riparian vegetation. It is recommended by this document and CDFW to attain a 1600 maintenance permit, so a permit does not have to be filed each time.

The goal of this vegetation management is to reduce fuel loading along Lindo Channel, and thus in the WUI that snakes through the City of Chico. Management entries should be done in a "checkerboard" pattern. This will allow for vegetation to exist in multiple successional stages for wildlife.

The project area has become severely overgrown. There is an additional safety concern since the overgrown vegetation has attracted illegal campers due to all the hiding places it provides. In the summer of 2019, people encamped within the Lindo Channel started a fire which burned a large elderberry plant.

Objectives: Initial entries should eradicate invasive species and reduce ladder fuels. On flat ground on the banks, create 8 feet of vertical separation between ground species and canopies. Provide horizontal spacing between the outward canopy edge and the nearest shrub equal to three (3) times the adjacent shrub height. See appendix for prioritized invasive species list. Mature trees will be managed by pruning up limbs up to 8 feet to reduce ladder fuels and increase vertical separation. Trees less than 8 inches in diameter and 4 inches if riparian trees can be removed where it is necessary to reduce fuel connectivity. Chipped depth will not exceed 4 inches (or 4 to 6 inches as indicated previously in this document?), though no soil will be left exposed. Unhealthy mature or invasive trees may be removed.

On slopes exceeding +/-10% no soil will be left exposed. However, leaving material on the ground will be up to the discretion of CDFW and the 1600 permit.

An average 50% of canopy cover will always be maintained throughout management. This can be achieved through biological (out of the channel), hand labor, tracked machine labor or chemical (150 feet away from the high water line). For best results, a mixture of treatments and intervals may be necessary. This channel will need to be continually managed, though hopefully treatments will get less and less intensive over time.

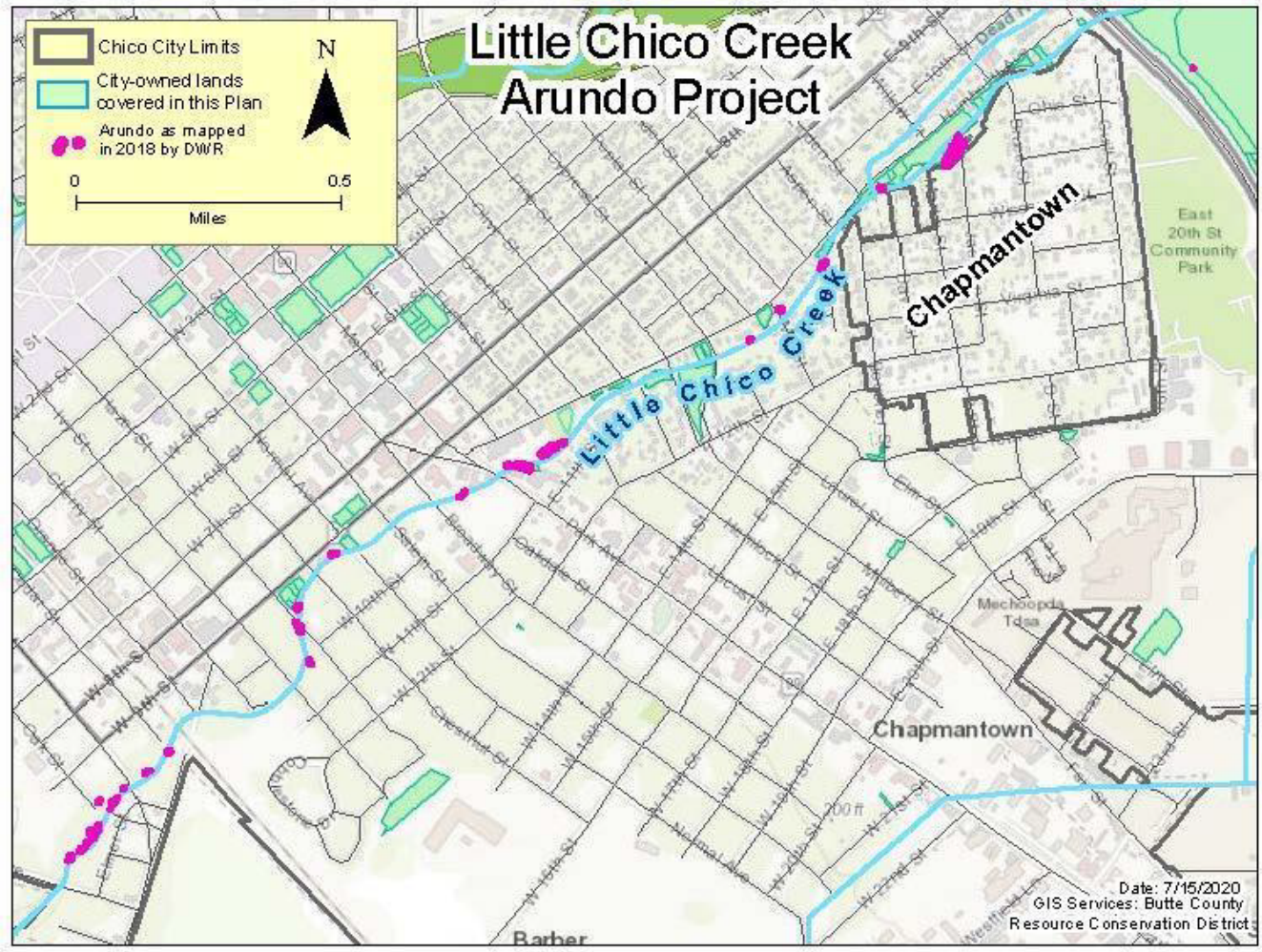
There are large populations of elderberry plants throughout the riparian corridor alongside the Lindo Channel. Elderberry is currently federally protected due to the Valley Elderberry Longhorn Beetle (VELB)'s dependency on these plants. Management around these plants must defer to USFWS guidelines as long as they are federally protected. Other shrubs will be managed to protect these plants for posterity.

All cut material will be lopped and scattered, chipped, or hauled off. Chipped depth will not exceed 4 inches, though soil will not be exposed. Lopped and scattered material, when fresh, will not exceed 1 foot in depth from bare mineral soil. Cut material will be kept within the project boundary on flat ground and will not enter into the sloped area. Water will not be present in the channel when work is completed. The project area is currently being used as an encampment, which brings a lot of refuse. The hope is that as areas are managed within the project boundary on a rotation, including trash pickup, it will be less attractive to encampments.

Every effort will be made to eliminate erosion as a result of management. Leaving chips in place, lopping, and scattering, and leaving stumps in place will slow overland flow. Vegetational bands will be kept intact for a few years on either end of the project before they are also managed. This will reduce the chances of damaging erosion.

5.6 Little Chico Creek Arundo Management

Giant reed (*Arundo donax*) is an invasive grass which forms large, durable, single-species thickets that can grow 15 feet tall. Dense arundo stands may provide inviting shelter for camping, but their dry thatch makes them very vulnerable to ignition from campfires. In fact, arundo will readily burn even when green, and because of its value as a privacy screen, it is sometimes allowed to grow in lines or walls from the creek up to neighboring yards or homes. This creates ideal fuel connectivity for transmitting fire from creek ways to neighboring homes. Other problems with arundo include its relatively poor quality as wildlife habitat and its dense, hard, plate-shaped root masses. Like chunks of pavement, these root masses stabilize banks well at first but can lead to massive bank failure when, sooner or later, they are undermined during a high-water event. Root masses can be many feet across and weigh hundreds of pounds. Although not common, large arundo root masses have come loose from banks during storms elsewhere in California and have damaged downstream infrastructure like bridges. In Chico, the largest arundo infestations are along Little Chico Creek, which borders the disadvantaged community of Chapman town and the South Chico. In total, there are about 75 distinct arundo infestations within City limits along Little Chico Creek. Not all are shown on the map below.



In the Little Chico Creek Arundo Management Project, Arundo would be replaced with well-chosen native vegetation such as well-maintained, open willow plantings on the creek banks. (Existing Arundo stands that are in the middle of the channel would be removed but not replaced with willows; that would create an obstruction to channel flow.) This restoration project would achieve several objectives. It would reduce urban

fire hazard and intensity, improve wildlife and pollinator habitat, better stabilize banks, and create a safer creekside environment offering better visibility for walkers and joggers. It would create culturally important willow gathering opportunities for Mechoopda and other residents, as willow is one of the most important plants for Mechoopda basketry and many other uses (Spielman 2020). The project would also create outdoor education opportunities for children to learn about natural creekside vegetation, and its uses, right in the middle of town.

Much work has already been done (and continues to be done) to monitor, map, and address arundo infestations in the city. An integrated arundo eradication program would likely need to be grant-funded unless City budgetary allocations shift to invest more funds in parklands. The project would:

1. Work with DWR and CDFW to develop a maintenance 1600 permit allowing the City to extend its work in the Little Chico Creek channel and on banks.

2. Treat arundo with a mix of mechanical and chemical techniques. “Mechanical techniques” means cutting down and hauling the dead canes from the infestation sites. These canes must go to landfill because experience shows neither the stalks nor the roots can be successfully processed at the city’s composting facility. “Chemical techniques” means using an integrated pest management approach that takes advantage of seasonal metabolic changes in the arundo plant to kill the root ball with a minimum effective application of low-toxicity herbicides. These techniques are necessary because they will kill the arundo without disturbing the root mass.

3. Repeat above step(s) above for 2-3 years to exhaust the energy reserves arundo stores in its roots. Cutting and hauling should be done every year as soon as the water level has receded enough to safely access the sites; this is to reduce the fire hazard from dead canes, to make it easier see where to to-retreat the stand, and to determine when the stand is totally dead so that it can be replanted, as needed.

4. When a patch of arundo is dead, plant willow and other native plants into and around the root ball at optimal, fire-safe densities.

5. Possibly (as supported by grant funding source priorities) create trails and/or interpretive features educating visitors about the value of willow communities to wildlife, pollinators, and humans, both in Chico and around the world.

6. Monitor plantings and Arundo control for three seasons (alternatively, 7 years from initial control) to ensure desired result and ensure dormant Arundo root buds do not resprout.

7. If needed to maintain the health of the willows/native plantings, follow up with suitable maintenance techniques like goat grazing, cultural fire, or hand work.

8. Continue to pursue funding through grants to work with private landowners and CFD to ensure homeowners continue to have defensible space. By investing in CEQA and permitting, this project will also provide an opportunity for landowners to pay for arundo removal on City land bordering their property, if and when the City does not have funds for eradication.

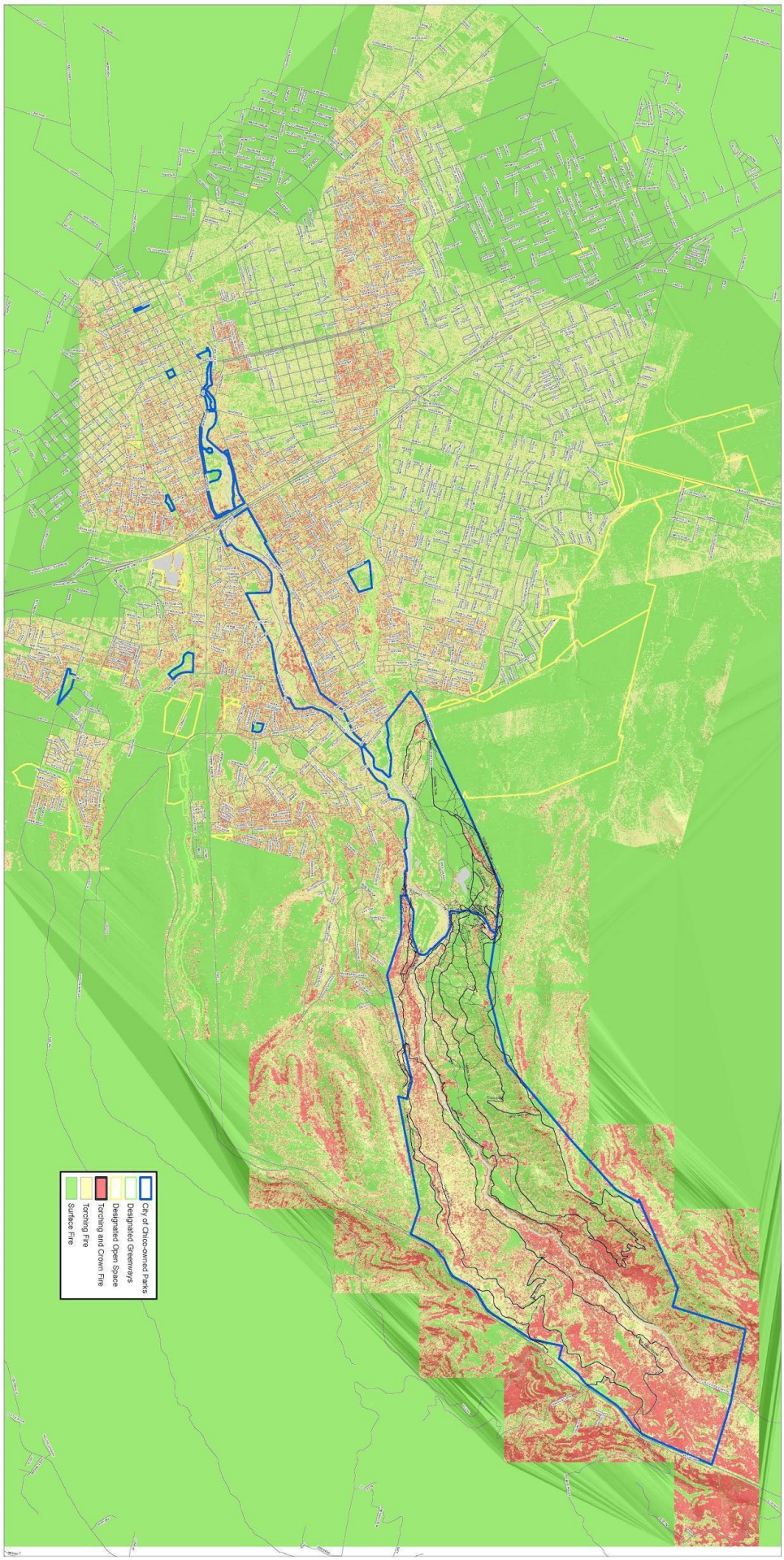
6. Appendices

It is very important to the City that vegetation management decisions be based on sound and up-to-date data. Therefore, rather than rely on old documents such as vegetation surveys of Bidwell Park done over a decade ago, for this Plan the team developed original data products to inform the work. These products include a LiDAR-based fuels assessment that is by far the most detailed vegetation layer ever developed for the City parklands; numerous task and species prioritization guidelines to aid Parks staff in targeting their resources on the problems that will yield the biggest bang for the buck, and, for the first time, a comprehensive database of all the small and scattered City-owned parcels where vegetation could potentially pose fire risk problems (e.g. stormwater detention basins).

6.1 Fire Risk Assessment by Deer Creek Resources

Based on LiDAR flights in 2018-19, DCR was able to develop a vegetation layer so detailed that individual trees can be picked out. LiDAR allows viewers to map the density of the understory even beneath tree canopies, regardless of time of year, so the red areas on the following map suggest high-priority zones to thin ladder fuels. (There are exceptions: for example, in immediate riparian corridors, denser vegetation is often ecologically appropriate, and sometimes it is more fire-safe to leave vegetation intact (so it can block surface winds) than to remove it.) This map drove project planning and development for Upper Park fuels reduction projects and will continue to guide vegetation management prioritization in City parklands, ensuring that project selection is based on high-quality and up-to-date data.

Special note on Lower Park: While the map shows many red areas on Chico parklands, the ones of highest concern to many are those in Lower Park. At the July 20, 2020 BPPC meeting, Deer Creek Resources described how under the right weather conditions, a hot fire could move from Lower Park to adjacent neighborhoods and potentially burn several homes. Therefore, based on this LiDAR data and the standards in this Plan, crews will prioritize Lower Park thinning and invasives removal activities. There is no specific Lower Park project included in Section 5, but this does not hinder or delay Lower Park thinning because the programmatic vegetation management standards defined in Section 4.2 apply to Lower Park. The program of vegetation management described in Section 4.2 will undergo environmental review in fall and winter 2020-21. Therefore, thinning work will be able to proceed in full CEQA compliance (after pre-implementation wildlife surveys and other surveys as required) in 2021. The CCCs, goats, parks crews, and well-trained volunteers are all resources that could accomplish this high-priority thinning in Lower Park.


Surface Fire
Torching Fire
Torching and Crown Fire
Designated Open Space
Designated Greenways
City of Chico-owned Parks

6.2 Task Prioritization

Few land managers have the financial resources to implement all the projects they would like to. The City, like most public and private land managers, must prioritize its projects to reap the "biggest bang for the buck". Unfortunately, placing high priority on one project inevitably means postponing another. A consistent, transparent, and data-based prioritization methodology helps depersonalize these decisions and provides continuity of management across administrations. One such proposed methodology is attached as an appendix to this Plan. Although priorities do change with changes in personnel, culture, and climate, the Parks Division will always strive to rank projects based on the values they protect, the durability of their effects, the cost-effectiveness they offer, and the number of co-benefits they provide (e.g. fuels reduction projects should also be expected to improve multiple recreational opportunities and wildlife habitats at once).

6.3 Invasive Plant Prioritization

A comprehensive weed control program encompasses prevention, early detection and rapid response (EDRR), ongoing maintenance control of areas previously cleared, ongoing infestation reduction by species or by site, and (where infestations have displaced natives and the disturbance of infestation removal is significant), restoration plantings of natives. The strategy selected should correspond to the stage and severity of infestation and to the values at risk. Not all non-native species are invasive and not all invasive species pose an equal threat to the ecosystem, recreation values, or public safety. The City of Chico prioritizes invasives for removal based on the threat(s) they pose and the cost-effectiveness of action.

Like all vegetation management, invasive weed management should take an Adaptive Management approach. This means that after every City action to (in this case) reduce an invasive weed infestation, an observer should follow up to assess whether the action worked, to what extent, and how management should be adjusted in the future. If the action was not successful (did not meet its goals), the observer should try to discern the most likely reasons why. If the action ***was*** successful, it is also important to know why, so that should also be pinpointed and recorded.

Of course, such a management strategy depends on having clear, measurable goals for each management action. Goals are usually quantitative (e.g., "reduce Arundo stands by 10% every year for 5 years"; "eliminate all fuels between ground level and 6' within three feet on either side of the trail", "promote a fine-grained mosaic where no single even-aged patch is larger than 10 acres"). The form on the next page can be updated for City use and supplemented with prompts suited to Adaptive Management (e.g., "Management goal:"). Then it could be loaded onto City crew tablets (when they are purchased) for use around the parklands. Entering this data directly into tablets creates a digital record of all the weed management actions around the parklands, and each entry can be automatically georeferenced as it is recorded (even in areas without cell phone reception), eliminating misunderstandings from crew members trying to describe the problem location on paper.

Invasive Plant Assessment field survey form (from Hall, J 2015):

Appendix 3. Invasive Plant Assessment Form

WEED ASSESSMENT FORM

Observer Name:

Date:

Location ID:

GPS Location:

Weed Name:

Growth Stage:

- Seedling
- Rosette
- Bolting
- Flowering
- Fruiting
- Seed set
- Mature
- Dormant
- Dead

Extent of Infestation:

- Single Plant
- Scattered Plants
- Line (Along Road, Ditch, Fence, etc.)
- Small Patch (<.25 acre)
- Moderate Patch (.25 – 1 acre)
- Large Patch (1-5 acres)
- Very Large Patch (>5 acres)

Canopy Cover Class (based on Daubenmire classification):

- <1%
- 1-5%
- 5-25%
- 25-50%
- 50-75%
- 75-95%
- 95-100%

Abundance (abundance is based on the area occupied by a species relative to the area of its ecological niche):

- LOW - represents an infestation that is early on the invasion curve
- MEDIUM - represents the rapid expansion phase
- HIGH - represents an infestation that has filled the available ecological niche and is no longer spreading appreciably.

Trend (overall trend of plant population):

- Spreading Rapidly (doubling in 10 years) explosive growth.
- Spreading
- Stable
- Decreasing - population could be decreasing due to management or other factors.
- Absent - population is not found and presumed eradicated

Notes:

Optional Photo:

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Making Chico parklands fire-resilient does involve cutting some trees and shrubs, but not all trees and shrubs will be treated equally. Invasive species will be removed first, then non-native species, and only then if required to meet vegetation reduction targets native species. The trees and shrubs selected will be evaluated to retain maximum species and structural diversity using a 'thinning from below' method that retains the largest stems. The City's "least wanted list" of invasive species can and should change over time as new threats emerge and old ones may become less urgent. As of 2020, some top priorities for removal would be species selected because they significantly increase fire danger compared to the native vegetation, displace and are particularly disruptive to native ecosystems, cause economic damage, cause significant problems for recreation/transportation (e.g. puncturevine), or some combination of the above. Examples include:

- ***Arundo donax*,** Giant Reed.
  (Butte CWPP (2015) recommends "future Vegetation Management Programs that will help eradicate the very invasive and non-native Arundo weed that has taken over local waterways and channels" because Arundo is a dangerous ladder fuel.)
- ***Cystisus scoparium*,** Scotch broom.
- ***Genista monspessulana*,** French broom.
- ***Spartium junceum*,** Spanish broom.
- ***Centaurea solstitialis*,** yellow star thistle.
- ***Colutea arborescens*,** bladder-senna.
- ***Tribulus terrestris*,** puncturevine.
- ***Ligustrum*,** privet.
- ***Phytolacca americana*,** pokeweed.
- ***Rubus armeniacus*,** Himalayan (Armenian) blackberry. "...Using herbicides after clearing and burning was very effective in eradicating vines and allowing natives to regenerate." p. 2 BP_vegManPlan2007_061211.
- ***Hedera*,** ivy.

A full list of low, medium, and high priority species for removal during fire resiliency projects will be included in the VFMP EIR. At a minimum, the list will include but not be limited to: bur-chervil, catalpa, cherry plum, Chinese tallowtree, fig, hackberry, hawthorn, Italian thistle, Japanese honeysuckle, milkthistle, olive, photinia, tree of heaven, virginia creeper, curly dock, filaree, mustard, prickly lettuce, and wild radish, along with any other species noting and describing the kind of habitat each weed is most likely to be found.

6.4 Miscellaneous Parcels Survey

A Spring 2020 survey of all miscellaneous City-owned parcels generated a database of fuels management issues. In all, 41 small parcels were surveyed, totaling 16.89 acres. The parcels were assessed for the presence of invasive species, 16 in total*, elderberry bushes, and a variety of nesting bird habitats. Any fuels management or fire hazard issues found were described in the database. The maximum diameter of plants present was also described. Neighboring land uses and any potential ignition hazards contributed by neighboring uses (including any power lines or electrical equipment) were also noted. Twelve parcels were noted to have existing or potential fuels management issues. Public Works crews can now focus their efforts on these parcels as resources allow.

** The 16 invasive species noted present were: Tree of heaven (Ailanthus altissima), Pampas grass (Cortaderia spp.), Giant reed (Arundo donax), Silk tree or Mimosa (Albizia sp.), Broom spp., Taiwanese photinia (P. serratifolia), Eucalyptus spp., Fig (Ficus carica), Walnut (Juglans spp.), Almond (Prunus dulcis), Olive (Olea europaea), Mexican fan palm (Washingtonia robusta), English ivy (Hedera helix), Yellow star-thistle (Centaurea solstitialis), Himalayan blackberry (Rubus armeniacus), and Pokeweed (Phytolacca americana).*

6.5 A Note on CEQA

A major goal of this Plan is to increase the pace and scale of future vegetation management in Chico's parks, while protecting sensitive resources and keeping the public informed and engaged. To meet those goals, the Plan is designed to streamline future CEQA review. This will be accomplished through a programmatic EIR that will be completed on this Plan. When the final Plan is released, the EIR process will commence.

What is CEQA review and why is it such an important factor in managing our parklands? The following section provides background on CEQA, why it is important, how it can sometimes slow down the pace of ecological restoration on public lands, and how the City is trying to improve its CEQA practices so it can manage our shared parklands efficiently, effectively, and equitably.

CEQA, or the California Environmental Quality Act, was enacted in 1970 to serve as the backbone for all future environmental law and policy in California. Simply put, CEQA requires that whenever an agency or local government inside California decides to implement a project, that agency or government must:

- Analyze the situation to see if the decision could have impacts on the environment.
- If it could have impacts, analyze those impacts to see if they could be significant.
- If they could be significant, find ways to reduce them (or mitigate them) until they are no longer significant, *if possible*.
- Keep the public, relevant agencies, and other governments informed throughout the process; and
- Provide the opportunity for the public, relevant agencies, and other governments to meaningfully comment on projects.

CEQA was designed to give the public a say in the public's business. It ensures projects cannot be approved behind closed doors or without gathering adequate data. However, as valuable as CEQA is, it has gradually become a major obstacle to increasing the pace and scale of natural resources management in California. Preparing a new CEQA document for every vegetation management project is cumbersome, expensive, and impractical. (Even though CEQA has some exemptions and does not apply to ministerial (non-discretionary) actions, in practice it really does apply to a lot of things.) In Butte County, land managers estimate the CEQA process adds six months to two years to most fues reduction projects.

There is a better way to get land management done while still complying with the letter and spirit of CEQA. Rather than analyze each new project from scratch, an agency can write a *programmatic EIR* that analyzes the effects of a total program of vegetation management. This Plan is the program of vegetation management the City intends to analyze and approve through an EIR process in 2020-21.

A programmatic EIR allows managers to "front-load" CEQA analysis in advance. For example, it may include resource inventories of certain areas, so crews do not have to conduct them later. It may specify mitigation measures (best practices or recipes) future workers can follow to automatically have their work be considered no-impact. It may identify areas where a certain practice is considered no-impact because we already know (based on surveys) there is nothing there that could be harmed by the practice.

In real life, no EIR can meet all the CEQA needs for all the projects a city will ever want to do. Time and money are limited, and humans are fallible. So, agencies write the best EIRs they can, and the next time they want to do a project, they, and the public, can see at a glance whether that new project falls within the scope of the existing EIR or not. If a new project is entirely within the scope of an existing EIR, the city can legally proceed with the project without requiring any new CEQA documents (CEQA guidelines §15168(c)). If a new project is partly within the scope of the EIR, the City, and its taxpayers, have still saved time because the new CEQA document only need to analyze the parts of the project that aren't already covered by the programmatic EIR.

CEQA sounds complicated, and it is. But at its heart, it is nothing more than a way to plan. When you want to do something, first you make a plan (the project description). Then, you start to think about all the things that could go wrong.

Some decisions or projects, like going out for dinner, are low risk by their very nature (i.e., they deserve a notice of exemption), unless there are exceptional circumstances (such as a global pandemic). Other decisions, like switching careers, are a bit more complex. You might think about the surrounding context of your life (in other words, you'd analyze the environmental setting) and you might make a written list of all the ways things could go sour (the initial study). Next, you reassess the things that could go wrong, one by one, and you figure out whether they would really matter and how much (e.g. significant impact). If it turns out none of them would be disasters or result in significant impact, that is a negative declaration. If some of them have the potential for serious harm, but then you found ways to change your plan so the potential for harm goes away or is minimized by actions you can take, then that's a *mitigated* negative declaration. If you cannot figure out how to eliminate the potential for harm, you need to analyze the problem(s) in much greater detail, which results in an EIR.

However, there are also other reasons to prepare EIRs. Writing an EIR does not, by itself, mean that the potential for problems is very large. Often, EIRs are prepared simply because the project or program is very big, or is innovative, controversial, or affects a lot of people or the environment. An EIR is useful for big projects or ongoing programs because it provides an orderly, step-by-step framework for examining a big decision (or set of decisions) and, even more importantly, recruits public input on the proposed project or actions.

6.6 Table of Parklands

Parkland/Open Space	Acreage	Management plan: year last updated
Bidwell Park	3,670	Bidwell Park Master Management Plan (BPMMP) (City of Chico 2008) and Draft Natural Resources Management Plan (unpublished; City of Chico 2010).
Bidwell Ave. Greenway	4.68	No management plan
Bidwell Ranch Preserve	750	Draft management plan guides interim grazing and firebreak maintenance until final management plan can be developed; has Bidwell Ranch Site Inventory (RiverPartners, 2008).
Chico Municipal Airport and associated open space	1322	Airport Land Use Compatibility Plan; Chico General Plan 2030;
Comanche Creek Greenway	30	Comanche Creek Management Plan (City of Chico 2012); Comanche Creek Vegetation Management Plan (DCE 2008)
Hillview/Belvedere Open Space along Little Chico Cr to Butte Cr Diversion Canal	27.6	No management plan
Foothill Park Preserve	292	Preserve Management Plan, Foothill Park East (Foothill Associates 1999).
Lindo Channel Greenway	129.15	No City management plan; but has Sandy Gulch Resource Inventory (GEM 2001) and various mitigation and monitoring documents pertaining to elderberry re-establishment.
Little Chico Creek Greenway	33	No management plan
Teichert Ponds	38.26	Teichert Ponds Restoration Habitat Development Plan (Restoration Resources 2008).
South Chico Conserved Parcel	14.8	No management plan
South Deadhorse Slough	51.43	No management plan
Verbena Fields	13.38	No current management plan
Wildwood Vernal Pools Preserve	3.1	Wildwood Estates Preserve, Operations and Management Plan (Foothill Associates 2014).
Miscellaneous Small Parcels	16.89	No management plan
Total	6,397	City of Chico Vegetative Fuels Management Plan, 2021

7 Bibliography/References

BCAG (Butte County Association of Governments). 2019 (June 28). Butte Regional Conservation Plan. Last accessed online at http://www.buttehcp.com/BRCP-Documents/Final-BRCP/index.html on July 7, 2020.

Brownsey, Philip, Josh Davy, Theresa Becchetti, Maddison L. Easley, Jeremey J. James, and Emilio A. Laca. "Barb Goat grass and Medusa head: Timing of Grazing and Mowing Treatments." (2016). https://escholarship.org/uc/item/5qd4t38r

CAL FIRE. 2015 (Nov. 3). Butte County Community Wildfire Protection Plan. Accessed online through www.buttecounty.net.

Chico Heritage Association, 1983. Chico Historic Resource Inventory.

City of Chico, October 2004. Chapman/Mulberry Neighborhood Plan. Adopted October 5, 2004. City Planning Division from neighborhood original plan prepared by County residents of the Chapman/Mulberry Neighborhood.

City of Chico, 2008. Final Bidwell Park Master Management Plan Update, including Natural Resources Management Plan. Prepared by EDAW, Sacramento, CA. Available online at: http://www.chico.ca.us/document_library/departments/general_services/Parks/BidwellParkMasterManagementPlan.asp. Parts cited: Description of the Park: Section 1. Regarding fire plan: 5.4.1.2, C.5-5, C.5-8.

City of Chico. 2010. Draft Natural Resources Management Plan, Bidwell Park, Chico, California. Draft report. Dan Efseaff. General Services Department, Parks Division. Chico, California

City of Chico, January 31, 2012. Comanche Creek Greenway Management Plan. General Services Department, Parks Division.

Cole, Roger, October 29, 2009. Verbena Fields restoration plan. Interactive Design.

Design, Community and Environment (DCE), 2008. Comanche Creek Vegetation Plan. Submitted to the City of Chico. August 01, 2008. Berkeley, California.

Design, Community and Environment (DCE), 2008. Southwest Chico Neighborhood Improvement Plan. Adopted by City of Chico, Resolution no.99-08. December 02, 2008. Berkeley, California.

DiTomaso, J.M., Kyser, G. B., and Pitcarirn, M.J. "Yellow starthistle management guide." (2006). https://www.cal-ipc.org/docs/ip/management/pdf/YSTMgmtweb.pdf

DiTomaso, J.M., G.B. Keyser et. al., 2013. Weed Control in Natural Areas in the Western United States. Weed Research and Information Center, University of California. 544 pp.

EBMUD (East Bay Municipal Utility District). 2001. East Bay Watershed Range Resource Management Plan. December 2001.

Eckardt, S. et. al., November 2019. Revised draft, City of Oakland, California, Vegetation Management Plan. Prepared for City of Oakland Fire Department (contact: Angela Robinson Pinon), by DUDEK (Auburn, CA contact Scott Eckardt, RPF) with assistance from Horizon Water and Environment (Oakland, CA; contact: Ken Schwarz).

Foothill Associates, June 25, 1999. Preserve Management Plan, Foothill Park East, Chico, California. Prepared for U.S. Army Corps of Engineers and Drake Homes.

Foothill Associates, February 26, 2014. Wildwood Estates Preserve, Operations and Management Plan, City of Chico, Butte County, California. Prepared for U.S. Army Corps of Engineers on behalf of Guillon, Inc.

Funes, Rebekah. 2008. City of Chico Bidwell Park: Effectiveness Monitoring in an Adaptive Management Framework. Prepared for City of Chico Parks Division. Internship project for: Sustainable Communities: Solving Resource Management Needs through Community Participation.

GEM (Geo Environmental Management) 2001. Sandy Gulch (Lindo Channel) Resource Inventory. Prepared for City of Chico, July 2001.

Hall, Jonathan, 2015. Integrated Vegetation Management Plan for Open Space Lands of the City of San Luis Obispo, CA 2015-2020. The Land Conservancy of San Luis Obispo County. Credit: "This plan is a modification of a weed management plan template produced by The Nature Conservancy".

Restoration Resources 2008. "Teichert Ponds Restoration Habitat Development Plan." Rocklin, CA: Prepared for City of Chico, Aug 26, 2008.

River Partners, February 29, 2008. Site Inventory for Bidwell Ranch, Chico, Butte County, California. Draft. Dan Efseaff and Colleen Martin. Chico, California.

River Partners May 28, 2010. "Lindo Channel Elderberry Mitigation Project End of Season Memo," or: "2009 End of Season Report for the East Fifth Avenue Reconstruction - Lindo Channel Elderberry Mitigation Project." Prepared for City of Chico by Michael Rogner.

Safford, H.D., K. van de Water, and D. Schmidt. 2011. California Fire Return Interval Departure (FRID) map, 2010 version. USDA Forest Service, Pacific Southwest Region and The Nature Conservancy-California. URL: http://www.fs.fed.us/r5/rsl/clearinghouse/r5gis/frid/

Spielman, P., compiler. 2020. 'Mechoopda Tribe Traditional Ecological Knowledge Program Curriculum: Species Factsheets.'

U.S. Fish and Wildlife Service and California Plant Council, 2018. *Land Manager's Guide to Developing an Invasive Plant Management Plan.* Cal-IPC Publication 2018-01. National Wildlife Refuge System, Pacific Southwest Region, Inventory and Monitoring Initiative, Sacramento, CA. California Invasive Plant Council, Berkeley CA. Available at www,cal-ipc.org and data gov.

BPPC Staff Report

Meeting Date 8/31/20

DATE: 8/26/20

TO: Bidwell Park & Playground Commission

FROM: Linda Herman, Parks and Natural Resources Manager

SUBJECT: UPDATE ON WATER QUALITY TESTING FOR SYCAMORE POOL IN BIDWELL PARK.

REPORT IN BRIEF:

For many years, the Park Division has been testing for total coliform and fecal coliform both upstream and downstream of Sycamore Pool in Lower Bidwell Park. Recently water quality guidelines were changed to recommend including the testing for Escherichia coli (E. coli) which is a subset of fecal coliform and a better indicator for potential disease-causing pathogens. Staff will provide an update on the new standards and a proposed revised water quality sampling protocol for Sycamore Pool.

Recommendation: None this is an informational item only

BACKGROUND:

Bacteria, including Escherichia coli (E. coli),can be found in all recreational waters, such as lakes, streams and rivers. E. coli are bacteria that live in the intestines of people and animals. Most E. coli are harmless and actually are an important part of a healthy human intestinal tract. There are hundreds of different strains of E.coli and only a few are pathogenic, meaning they can cause illness outside of the intestinal tract. However, increased levels of E. coli do not necessarily equate to an increased exposure risk for swimmers.

For many years, the Park Division has been testing for total coliform and fecal coliform both upstream and downstream of Sycamore Pool in Lower Bidwell Park for compliance with California Regional Water Quality Control Board (SWRCB) Waste Discharge Requirements Order No, R5-2002-0192. The two samples are taken monthly during the winter months and weekly during the summer swim season of June through September. The current Order does not require the testing for E. coli.

In addition, the Butte County Environmental Health provided guidance on how to monitor total and fecal coliform bacteria levels and when to potentially advise the public or close the pool. A copy of the guidance document that the Park Division has been using for pool thresholds is attached as Attachment 1.

DISCUSSION:

Recently, the SWRCB adopted guidelines provided by the EPA stating E. coli is a better indicator organism than fecal coliform for predicting the potential presence of disease-causing pathogens in both ocean and freshwater recreational areas. In addition to weekly test values, the calculation of geometric means for a minimum of 5 sample events taking place over the course of a month is recommended for determining the level of E. coli present in the water. The following table contains the new E. Coli threshold level guidelines that are now recommended by the EPA, SWRCB, and Butte County Environmental Health.

Table 1. REC-1 Bacteria Water Quality Objectives

Applicable Waters	Objective Elements	Estimated Illness Rate (NGI): 32 per 1,000 water contact recreators	
		Magnitude	
	Indicator	GM (cfu/100 mL)	STV (cfu/100 mL)
All waters where the salinity is equal to or less than 1 ppth 95 percent or more of the time	*E. coli*	100	320
All waters where the salinity is greater than 1 ppth more than 5 percent of the time	Enterococci	30	110
The waterbody GM shall not be greater than the applicable GM magnitude in any six-week interval, calculated weekly. The applicable STV shall not be exceeded by more than 10 percent of the samples collected in a CALENDAR MONTH, calculated in a static manner.			
NGI = National Epidemiological and Environmental Assessment of Recreational Water gastrointestinal illness rate	GM = geometric mean STV = statistical threshold value cfu = colony forming units	mL = milliliters ppth = parts per thousand	

Following this new guidance and the Waste Discharge Order, Staff is recommending that the collection and testing for E. Coli be added to the current sampling occurring at Sycamore Pool. The testing method for E. Coli is different than the test for total and fecal coliform, have different bacteria count thresholds, and results can be received the next day. The fecal and total coliform results take over a week. Staff is also recommending that the testing frequency be changed to weekly year-round and not just during the summer swim season of June through September.

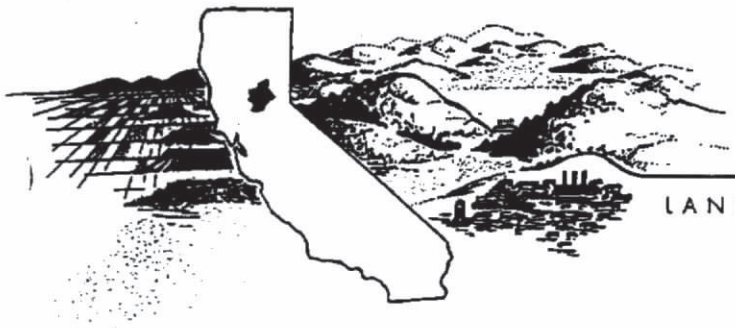
Staff is working the SWRCB and the Butte County Environmental Health to develop a final policy and protocol that may include posting permanent “flip” signs at the pool that can be easily changed to warn the public when the above bacteria thresholds are exceeded. As this is an open creek pool with no fencing, it will be difficult to “close” the pool, but it will be signed that swimmers are swimming at their own risk. However, this may change in the future if required by the regulatory agencies. Staff will bring back a formal written water quality sampling policy for the BPPC’s review and approval at a future meeting.

FISCAL IMPACT:

The City contracts with a local laboratory to sample and test water quality in Sycamore Pool. The current cost of this service is $1,972.00 per year. With the addition of E.coli testing and the change to weekly tests year-round, it is estimated that these costs could increase to approximately $5,300.00 per year.

ATTACHMENTS:
Attachment 1: Previous Environmental Health Guidance

Attachment 1



Butte County

LAND OF NATURAL WEALTH AND BEAUTY

DEPARTMENT OF PUBLIC HEALTH

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Recreational and Swimming Area Monitoring/Closure Policy

Fecal Coliform

1. Less than 500 organisms/100 ml

Continue routine sampling unless there is evidence of sewage or other contamination.

2. 500 to 5,000 organisms/100 ml

   A. Resample as soon as possible.
   B. Survey upstream areas for possible source(s) of contamination.
   C. Make a decision to remain open or to close based upon the upstream survey.

3. Over 5,000 organisms/100 ml

   A. Close recreation/swimming area at once as a precaution.
   B. Notify Health Department - Environmental Health Division.
   C. Resample as soon as possible and survey as in #2 B above.
   D. Reopen if results are below 5000 and survey indicates no source of contamination.
   E. Resample according to usual schedule.

As you may be aware, except for chlorinated swimming pools, there is no State bacteriological standard for freshwater swimming areas. The above policy is based upon local bacteriological history including previous fecal coliform levels and recommendations of the Regional Water Quality Control Board.

5/92
MM/dds
DOCS:Fecal

BPPC Division Report

Meeting Date 8/31/20

DATE: 8/25/2020

TO: Bidwell Park and Playground Commission (BPPC)

FROM: Linda Herman, Park and Natural Resources Manager

SUBJECT: Parks Division Report

NARRATIVE

1. Updates

a. Illegal Encampments/Shelters Options – At its meeting on 8/25/20, the City Council approved (6-1) to reverse their previous directive to allow camping in Bidwell Park and other City parks and greenways. They also directed the City Manager to work with Staff to determine the timing and method of implementing this new directive and possible shelter solutions for displaced campers. The City Manager hopes to provide an update on this topic to the Council in September.

b. Goats – After a competitive bid process, a five-year contract with Capra Environmental Services Inc. has been executed for goat grazing. In response to numerous calls and emails from concerned residents, goats will begin grazing sections of Lindo Channel between Manzanita Ave. and Madrone Ave. The grazing will help reduce the fire fuel load and promote defensible space. The areas grazed will vary depending on private property lines, path of the waterway, and species of vegetation. No grazing is intended to occur within the highwater mark of the channel and in riparian zones.

c. Peregrine Point Disc Golf Course 5-Year Review– With the ability to now host meetings and obtain public comments remotely using the WebEx platform, the 5-year review of the Peregrine Point Disc Golf agreement with Outside Recreation Advocates Inc, (ORAI) will be scheduled for the BPPC's Natural Resources Committee meeting on 9/16/20

d. Park Reservation Fees: Council final review of the park reservation fee schedule resolution and the corresponding resolution to amend the Chico Municipal Code is tentatively scheduled for the Council's 9/15/20 meeting.

2. Maintenance Program

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 daily afternoon cleaning and re-supplying of all open park restrooms due to COVID-19. Performs maintenance and repair of park fixtures, daily opening of gates, posting reservations, unauthorized camp cleanup and the constant removal of graffiti from all park infrastructure. Some of the maintenance projects over the past month include:

a. Lower Park: Staff has been busy picking up downed limbs and trees throughout the park, repairing park facilities due to vandalism to pool and Caper Acres, continued seasonal mowing etc. Repairs to South One-Mile restrooms are complete.

-

d. Green way Parks: Repaired drinking fountain at Comanche Creek.

e. Upcoming projects: Installation of new Bear Hole sign, fence repairs, final pool cleaning and deck repairs, bollard replacements at Comanche Creek, install new park rule signs, deliver chips to back holes at Peregrine Point Disc Golf, South I-Mile restroom walls project.

3. Ranger and Lifeguard Programs

a. Pool Season Coming to an End– With the start of academic year, the Lifeguards are only be working on weekends through Labor Day.

b. Rangers–the Rangers spent a considerable amount of time notifying encampments of the need to move out of Comanche Creek areas to allow for construction of the Phase II grant project and away from the waterways on Little Chico Creek, Annie's Glen and Lost Park. The Rangers also led two large encampment cleanups conducted by Public Works crews at Comanche Creek and on Little Chico Creek, resulting in approximately 70,000 cubic yards of trash cleaned from our parks and greenways.

4. Volunteer and Donor Program

a. Alliance for Work Force Development (AFWD) – The AFWD sanitation crew continues to spruce up and disinfect picnic tables, BBQs, benches and other park amenities in the Five Mile, One Mile, and Cedar Grove Recreation Areas and picnic sites. The AFWD participants are scheduled through the end of September.

b. Boy Scouts – Two Scouts from pack 3 and their parents spent the day weeding the landscape beds in front of Caper Acres. They removed a total of 14 large lawn waste bags of material!

c. CAVE– The CSU, Chico Community Action Volunteers in Education (CAVE) Adopt a Park program is planned to be back in session for the fall. The student volunteers will be in the parks and greenways on Saturdays from 9 AM to noon starting at the end of September.

d. Upcoming Volunteer Opportunities

i. 33rd Annual Creeks Cleanup Day– September 26th and 27th, join in with the Butte Environmental Council and the City of Chico to cleanup Chico's waterways!

ii. 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

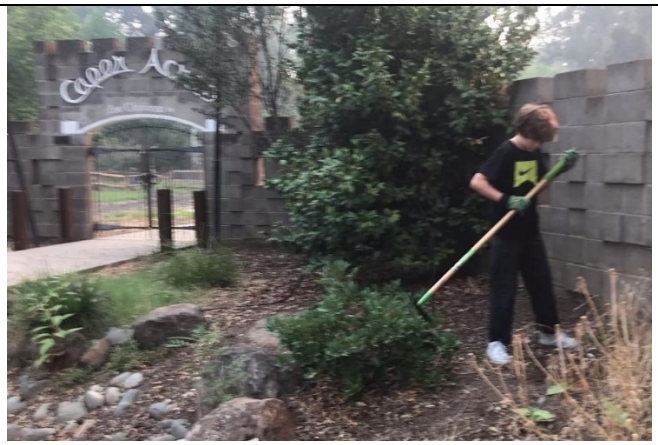
Table 1. Monthly Volunteer Hours

City of Chico Parks and Greenways -PALS- (Partners, Ambassadors, Leaders & Stewards) Volunteer Activities, July 2020							
Date	Location	Partner/Agency	# of Volunteers	Hrs. Worked	# of Vols Xs Hrs. = Total Hrs.	Task	Leader
7/10/2020	Lower Park	PALS	10	3	30	Veg Mgmt	Linda Calbreath
7/19/2020	Middle Park	BEC	2	1	2	Veg Mgmt	Anna Weins
7/22/2020	Comanche Creek	FOCCG	3	3	9	Gen Cleanup	Liz Stewart
7/24/2020	Lower Park	PALS	4	3	12	Veg Mgmt	Kevin Seeger
7/25/2020	Humboldt Rd	Respect the Walls	10	3	30	Gen Cleanup	Debbie Meline
7/26/2020	Middle Park	BEC	3	2	6	Veg Mgmt	Anna Weins
				TOTAL HRS.	89		

PHOTOGRAPHS

AFWD COVID Sanitation

AFWD COVID Sanitation



Scout weeding at Caper Acres

Tired Scouts!

Comanche Creek cleanup, before

Comanche Creek cleanup, after

BPPC Tree Division Report Meeting Date 8/31/20

DATE: 08/26/20

TO: Bidwell Park and Playground Commission (BPPC)

FROM: Richie Bamlet, Urban Forest Manager

SUBJECT: Street Trees Division Report

NARRATIVE

1. Updates

a) West Coast Arborists (WCA) has started work on a three-year tree maintenance contract.

b) The tree inventory project with Davey Resource Group (DRG has started surveying Bidwell park.

c) Of 165 calls for tree service received in July, 70 were for cracked, hanging or downed limbs.

2. Planning/Monitoring

a) Damage Reports – There were 3 damage reports in July/August.

3. Planning and Building Development

a) UFM reviewed many plan reviews in the new Trakit permitting system. Comments included Tree Protection Zone enforcement of oak trees and species diversity in the planting palette.

4. Miscellaneous

a) Davey Resource Group tree inventory specialists continued surveying all trees located in the City right-of-way. Surveyors have surveyed 39439 sites as of 7/31/20. This figure includes 688 stumps and 8783 vacant planting sites.

b) UFM met with representatives from WAPA (Western Area Power Authority) in middle Bidwell park. Several trees will be removed by the end of the year to ensure integrity of the high-voltage power system. UFM was able to negotiate retention of some roadside trees along Centennial Drive.

5. Maintenance

a) Tree crew assisted Parks Division on a number of tree maintenance projects. Additional dead or dying California sycamore trees were removed from the 5-mile picnic area. See photo **3.**

b) Public Works is starting to take tree planting requests for the fall planting season.

c) Public Works worked with PG&E to ensure that the public right-of-way is kept clear after utility pruning operations on street trees.

d) West Coast Arborists commenced the three-year tree contract. Initial work orders will concentrate on tree removals. One of the first jobs was a large removal job on 5th and ivy. Traffic detours were in place for the removal of two large Eastern sycamore tree removals.

6. **Outreach and Training**

a) UFM attended training on predictors of sidewalk damage caused by trees; integrating environmental justice into urban forest management plans as well as selecting resilient tree species for climate change.

b) New staff received on-boarding and safety related training including backhoe and grapple truck training

c) UFM appeared in an Enterprise News article on a collaboration with non-profit Butte County Local Food to glean unused fruit from City fruit trees.

7. **Street Tree Supervisor Report**

a) The Street Tree Supervisors monthly summary data tables for July is included below:

MONTHLY SUMMARY TABLES

Table 1

Category	Staff Hours	% of Total	% Change from Last Month	Trend
Tree Crew Hours				
1. Safety	94	14.9%	#N/A	
2. Tree Work	291	46.3%	#N/A	
3. Special Projects	220	35.0%	#N/A	
4. Admin Time/Other	24	3.8%	#N/A	
Monthly Totals	629	100.0%	#N/A	

Category	Staff Hours	% of Total	% Change from Last Month	Trend
Tree Crew Hours				
1. Safety	109	10.0%	98.6%	
2. Tree Work	783	71.8%	82.4%	
3. Special Projects	127	11.7%	-	
4. Admin Time/Other	71	6.5%	92.8%	
Monthly Totals	1090	100.0%	95.9%	

Table 2

Item	Values	% Change from Last Month	Trend
5. Productivity			
Calls			
Call Outs	172	117.0%	
Service Requests: Submitted	0	-	
Service Requests: Completed	114	90.5%	
Sub Total	0	-	
Trees			
Planted: Trees	0	-	
Pruned	92	65.2%	
Removed: Trees (smaller)	0	-	
Removed: Stumps	0	-	
Removed: Trees	15	100.0%	
Sub Total	107	68.6%	
Tree Permits (#)			
Submitted	5	-	
Approved	2	-	
Denied	1	-	
Total	8	-	
6. Contracts			
Expenditures ($)	$ -	-	
Trees (#)			
Planted	0	-	
Pruned	0	-	
Removed: Trees (smaller)	0	-	
Removed: Stumps	13	-	
Removed: Trees	0	-	
Routine Maintenance	0	-	
Total	13	-	

8. Upcoming Issues/Miscellaneous:

a) Interviews are being scheduled for the intern urban forest coordinator positions to be managed by Butte Environmental Council (BEC). Seven applications were received.

b) UFM is investigating the formation of a “Climate change” arboretum. This will showcase new and interesting tree species that will tolerate Chico’s projected climate in 2100.

c) New grant funding is being investigated to fund potential urban greening along transportation corridors such as Park Avenue and North Esplanade.

PHOTOGRAPHS

Figure 1. Tree crew assisting CFD downtown. Chinese pistache limb fell on vehicle.

Figure 2. WCA removing 80’ Eastern sycamore. 5th and Ivy

Figure 3. Tree and parks Crew removing dead and dying trees. 5-mile picnic area.

Figure 4 WCA removing 80’ Eastern sycamore. 5th and Ivy.
Log removal for transportation to WCA sawmill.

From: Old River Road
To: Linda Herman
Subject: Agenda item request
Date: Monday, August 17, 2020 7:37:00 AM

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

I just wanted to request yet another item to go on the agenda. I know it's a lot but I figure over the next couple meetings possibly we can go over a couple things before my time on the commission is over

I went up to over a few things with Erik in our meeting but also wanted to prioritize noise ordinance as well to be no amplified music. I would imagine erik shared my notes with you but I'll send them to you separately as well.

Thanks for all your work Linda. I'm sure you're aware of the fire we just had in the park the other night/early morning. actually saw Ann yesterday morning and we discussed and we'll see if they finally make a decision to get the illegal camping out of the park Immediately

Cheers

Jeff

Sent from my iPhone

Last 90 Day Plan:

1. Bidwell Park (all areas) officially designated a "playground"
2. Noise Ordinance
3. Code of Conduct
4. New Signage
5. Phone/Text number throughout Park to report incidents
6. Enforcement

Other Immediate: Needle Exchange

1. **Designate Official Playground** – while smoking is already illegal in the Park, people smoke anyway. By designating Bidwell Park a playground, it will enable Council to create local ordinances and support State ordinances with respect to marijuana use near schools, playgrounds, youth centers etc. Just a very public way to educate that you cannot smoke or possess Marijuana in the Park

Prop 64 – Activity not allowed - "possession of marijuana on the grounds of a school, day care center, or youth center while children are present"

2. **Noise Ordinance** – This should be easy. **No Amplified Music** in all City Parks and Waterways. This is done throughout the country, like LA County Beaches, Central Park, etc.

Music is a freedom of speech issue, so it is impossible to say no "vulgar language" that is so often found in the lyrics of some music, so other municipalities just create a rule of no amplified music

3. **Code of Conduct** - An example of possible Code language:

It is the mission of CITY OF CHICO, through the efforts of dedicated, well-trained employees to provide a safe and secure environment for its citizens and employees. The CITY OF CHICO has established a Code of Conduct to promote the safety and comfort of its citizens, to facilitate the proper use of city facilities and services, to protect City facilities and employees, and to ensure that City of Chico Public Areas are safe, secure and welcoming.

- No Camping
- No Solicitation or Panhandling
- No Amplified Music
- No Vulgar Language
- No Arguments & Loud Talking
- Conduct Oneself in a Civil Manner
- Drugs, Smoking and Alcohol Prohibited (marijuana and vaping included)
- No Weapons

- No Glass Containers
- Dogs on Leash (except during permitted times and areas)

4. **New Signage** - Desperately needed. Large Signs at all Auto entrances, and smaller signs at pedestrian entrances. Include major rules and Code of Conduct (on larger signs). Please refer to LA County Beaches signs as an example.

5. Phone/Text number throughout Park to report incidents – Smaller signs should be throughout Park, so Citizens can report suspicious activity immediately

6. **Enforcement** – Look at contract with Sheriff's Department or Private Security. Empower Rangers and all enforcement agencies (including private) to actually right tickets for smoking and noise violations. We do not need to target the homeless, but all in the Park need to be accountable and follow the rules.