

Draft

**PROGRAM
ENVIRONMENTAL
IMPACT REPORT**

**City of Chico Vegetative Fuels
Management Plan**

December 2020
SCH Number: 2020090170



**City of Chico- Public Works Department, Parks Division
965 Fir St., Chico, CA 95928
Contact: Linda Herman, Park Manager, 530-896-7241**



**Funded by a CAL FIRE Community Wildfire Protection
Grant #5GA18210**

Prepared with the Technical Assistance of:



**Butte County Resource Conservation District
150 Chuck Yeager Way, Ste. A, Oroville, CA 95965
Contact: Wolfy Rougle 530-693-3173**



**CSU, Chico Ecological Reserves
25 Main St., Ste 203
Chico, CA 95928-5388**



**Deer Creek Resources
1100 Fortress St. #2
Chico, CA 96973**



**Dempsey
Vegetation
Management

Chico, CA**



**Butte County
Fire Safe
Council**



Table of Contents

1. Executive Summary	
1.1 Background Information.....	1
1.2 Project Description and Environmental Setting	2
1.3 Environmental Impacts and Mitigations	6
1.4 Alternatives; Issues to be Resolved	13
2. Program Description	
2.1 Background and Project Objectives	16
2.2 Locations and Proposed Treatments	20
2.3 Standard Project Requirements (SPRs)and Later Activity Review Process	26
2.4 Environmental Review and Public Participation	26
2.5 Implementation	28
2.6 Permits and Approvals	28
3. Proposed Vegetative Fuels Management Plan	
3.1 Key Projects	29
3.2 Programmatic Vegetation Management	29
3.3 Vegetation Management in Cooperation with Private Landowners	30
3.4 Vegetation Management Methods and Standard Project Requirements	31
3.5 Monitoring and Maintenance	32
4. Environmental Impacts, SPRs, and Mitigation Measures	
4.1 Aesthetics	34
4.2 Agriculture and Timberlands.....	40
4.3 Air Quality.....	43
4.4 Biological Resources.....	48
4.5 Cultural, Historical, and Archaeological Resources.....	73
4.6 Energy.....	81
4.7 Geology and Soils.....	83
4.8 Greenhouse Gas Emissions.....	91
4.9 Hazards and Hazardous Materials.....	95
4.10 Hydrology and Water Quality.....	104
4.11 Land Use and Planning.....	118
4.12 Mineral Resources.....	119
4.13 Noise.....	120
4.14 Population and Housing.....	123
4.15 Public Services.....	125
4.16 Recreation.....	129
4.17 Transportation.....	134
4.18 Tribal Cultural Resources	137
4.19 Utilities and Service Systems.....	143
4.20 Wildfire.....	146
4.21 Mandatory Findings of Significance.....	152
5. EIR Preparers.....	155
6. References.....	156

Appendix A : Project Consistency Checklist:	Page 166 of this PDF document
Appendix B: 3rd Draft VFMP:	Page 202 of this PDF
Appendix C: Standard Project Requirements:	Page 288 of this PDF
Appendix D: Maps and Tables:	Page 309 of this PDF
Appendix E: Selected Invasive Plants and their Treatment:	Page 374 of this PDF

1.1 Abbreviations and special terms

Acronyms Used

Acronym	Meaning
BCAQMD	Butte County Air Quality Management District
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
CDFW	California Department of Fish & Wildlife
CEQA	California Environmental Quality Act
CESA	California Endangered Species Act
CNPS	California Native Plant Society
CRHR	California Register of Historic Resources
CRPR	California Rare Plant Rank
CSUC	California State University, Chico
CVFPB	Central Valley Flood Protection Board
CVRWQCB	Central Valley Regional Water Quality Control Board
CWA	(United States) Clean Water Act
dbh	Diameter at breast height, a way to measure the thickness of trees.
DEIR	Draft EIR
DPR	(California) department of Pesticide Regulation
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
EPA	(United States) Environmental Protection Agency.
ESA	(United States) Endangered Species Act
FRI	Fire return interval
FRID	Fire return interval departure (a measure of the difference between a place’s historical fire return interval and its modern-day 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
LOP	Limited Operating Period (i.e., a seasonal restriction on when work can be done).
MM	Mitigation measure
MND	Mitigated Negative Declaration, a type of CEQA document
NAHC	(California) Native American Heritage Commission
ND	Negative Declaration, a type of CEQA document
NOC	Notice of Completion, a document filed by a public agency that accompanies any other CEQA filing
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 a public agency uses to announce it is preparing an EIR
OHWL	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.

QAC	An individual holding a certificate qualifying the individual to apply herbicides but not to supervise others' applications or operate a pest control business
QAL	An individual holding a certificate qualifying the individual to apply herbicides and also to supervise others' applications and operate a pest control business
RPA	Registered Professional Archaeologist
RPF	Registered Professional Forester
RWQCB	Regional Water Quality Control Boards, the group of regional agencies responsible for implementing the Clean Water Act in California. (Chico is in the jurisdiction of the Central Valley RWQCB.)
PEIR	Programmatic EIR
TEK	Traditional Ecological Knowledge
TMDL	Total Maximum Daily Load, an allowable level of sedimentation or other pollution
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
WUI	Wildland Urban Interface: A transitional zone where human development abuts wildlands or the two are intermixed

I.0 EXECUTIVE SUMMARY

I.1 BACKGROUND INFORMATION

The City of Chico is proposing to implement a comprehensive program of work known as Vegetative Fuels Management Plan (referred to as the “Plan” or “the VFMP” or “the program”) to protect lives and property and enhance natural resources in the City of Chico. The Plan covers all land owned and managed by the City, including parks, greenways, and open spaces (henceforth referred to collectively as “Chico parklands”). It identifies high fire hazard areas in greatest need of treatment, describes how fire can best be managed in each of Chico’s five main vegetation communities, and develops policies and actions focused on reducing the harmful impacts of wildfire in the community, while protecting and in many cases enhancing Chico’s natural resources, including by redressing the adverse effects of long-term fire suppression. The proposed Plan is attached as Appendix B. To analyze the environmental effects of implementing the Plan and its component projects and activities, the City has prepared this programmatic EIR (PEIR). The "project" under CEQA, analyzed by this PEIR, is the multi-year program of work described in the VFMP. This work was funded by a CAL FIRE Community Wildfire Protection Grant (5GA18210).

People involved in developing this Plan The Parks Manager has the authority to identify parkland areas within the City’s jurisdiction that are vulnerable to hazards, including fire, and to apply appropriate policies and strategies within these areas to protect life, property, and natural resources. In December, 2018, the Parks Manager submitted a grant to CAL FIRE to support VFMP development and environmental review. The grant agreement was executed summer 2019.

The VFMP was then developed by the City of Chico Public Works Department, Parks Division, with the help of numerous qualified consultants. The Butte County Resource Conservation District (BCRCD) provided project management and a wide range of environmental review services. The CSU, Chico Enterprise Foundation and the CSU, Chico Ecological Reserves provided a registered professional forester (RPF) experienced in designing ecological and effective fuels reduction activities; the Reserves also provided an intern who perform fuels surveys on City parcels scattered across the program area. Deer Creek GIS conducted a comprehensive LiDAR analysis of the program area, creating the most detailed and accurate digital vegetation layer ever developed for the City and generating a wildfire risk map that identifies the areas of greatest fire danger based on ladder fuels density, likely conditions during hazardous weather, and proximity to homes, among other factors. Dempsey Vegetation Management provided Plan design and review especially as it pertains to management of invasive species that pose a fuels risk.

The Plan was reviewed by the Bidwell Park and Playgrounds Commission (BPPC) and by the public. Comments were incorporated. The revised Plan was reviewed by the BPPC and the public a second time. The BPPC is a seven-member board with the power and duty to operate and maintain all parks and playgrounds owned by the City; provide for the care of the trees and shrubbery on the streets and along the sidewalks of the City; and enter into leases and contracts for up to 15 years, among other duties (Charter Sec. 1006.1). Due to delays related to the COVID-19 crisis, several BPPC and Natural Resource Committee meetings were canceled in spring/summer

2020. However, the dates of VFMP review were as follows: the first-draft VFMP was reviewed by the BPPC on July 20, 2020 and an initial round of comments incorporated by staff before the BPPC voted to forward the second-draft Plan to the environmental review stage on August 31, 2020, initiating the preparation of this PEIR. After August 31, 2020, comments and suggestions on the Plan were still accepted and incorporated, including an additional Key Project being added (Project 7, Lower Park thinning) because studies and comments emphasized the urgency of this project. The “new” project consists of work that was already within the scope of the VFMP’s programmatic vegetation management work and does not represent new impacts.

Development of this PEIR The VFMP analyzed in this PEIR is a third draft. (This redlined draft is attached to this PEIR as Appendix B.) It was developed by the contributors listed in 5.0, “EIR Preparers”. Additionally, experts from the NRCS and the Butte County Fire Safe Council donated their time to help develop or review the Soils, Wildfire, Noise, and Utilities sections of this EIR.

Objectives and contents of the Plan The objective of the Plan is to establish and implement strategic management actions on City-owned lands to reduce the likelihood of unwanted ignitions in the wildland-urban interface; reduce the negative effects of parkland fires on structures, lives and natural resources; and create conditions under which fire, when it does occur, can have beneficial effects in Chico’s parkland ecosystems. To that end, the Plan identifies and characterizes the City’s existing high fire hazard areas, presents policies and management actions to reduce parkland fire hazards and impacts in each of the City’s five main vegetation communities, and provides a framework for seeking funds, coordinating efforts with agencies and private landowners, and prioritizing work efforts. Although the primary driver of the Plan is the need to improve wildfire safety, the City believes the Plan should and does enhance other values that are meaningful to Chico’s residents and visitors, including recreation values; community safety; Chico heritage and historic values; tribal cultural values; ecosystem services such as water supply, conveyance and quality; native biodiversity (i.e., parklands relatively free from invasive species); and habitat for wildlife (including agricultural pollinators) and wildflowers.

The City Public Works Department (Parks Division) will be responsible for implementing the management actions in the Plan, in cooperation with other City Departments, other fire-related agencies, individual landowners where applicable, and the general public. This DEIR serves as a program EIR, as defined by the State CEQA Guidelines, Section 15168, for adoption of the Plan. Adoption of the Plan and its program of work is the “project” evaluated by this PEIR. In other words, this PEIR analyzes what environmental impacts could result if the Plan were fully implemented, and it specifies how those impacts will be reduced to the lowest level possible.

The Plan outlines a suite of vegetation management methods (a “toolbox”) to reduce parkland fuel hazards. These methods will be applied to selected treatment areas on a case-by-case basis, not as a one-size-fits-all approach. The Parks Division has prioritized the areas to be treated based on the level of hazard. However, implementation of the vegetation management work is largely dependent upon funding. (Also, if the work would not be effective unless adjacent private property was also treated, then implementation could depend on private landowner permission). The Parks Division estimates that full implementation of the Plan will take 5 to 10 years. The Plan will not expire, although it can be modified as conditions and priorities change. Whether the Plan is modified by BPPC action in the future or not, future activities could require additional environmental review, an eventuality which is planned for in the structure of this PEIR and its attached Project Consistency Checklist

(Appendix A). There is no set term or expiration date associated with a Program EIR under CEQA.

Implementation of the proposed Plan will require formal adoption of the Plan and this PEIR by the Bidwell Park and Playgrounds Commission and the Chico City Council. Permits required for some future activities under the Plan are as follows:

- Burn permit and smoke management plan from the Butte County Air Quality Management District for prescribed burning of vegetative debris and landscape restoration units as proposed under the Plan;
- Burn permits from CAL FIRE for prescribed burning occurring in-season;
- A limited amount of work would occur in creeks; as such, a California Department of Fish and Wildlife (CDFW) Lake and Streambed Alteration Agreement (LSA or “1600” permit) would be required;
- Any and all vegetation management work outside of City-owned lands would require landowner permission, and the execution of a Letter of Agreement between the Division and the affected landowner(s).
- No 404 permit would be required under the Clean Water Act (CWA) because vegetation management activities adjacent to Waters of the U.S. would “involve only the cutting or removing of vegetation above the ground (e.g., mowing, rotary cutting, and chainsawing) where the activity neither substantially disturbs the root system nor involves mechanized pushing, dragging, or other similar activities that redeposit excavated soil material.” (CFR §232.2(2)(ii).)
- No formal consultation with USFWS or CDFW for take of endangered or threatened species would be required for projects within the scope of this EIR, because take would be avoided through programmatic mitigation measures and/or standard project requirements (SPRs), as specified in this EIR. Future activities will be reviewed for consistency with this EIR to determine whether they are (a) entirely within its scope or (b) require additional review.

I.2 PROJECT DESCRIPTION AND ENVIRONMENTAL SETTING

The City of Chico manages almost 6,400 acres -- fully ten square miles -- spanning a variety of vegetation communities, including grassland, riparian forest, Valley oak woodland, blue-oak-gray-pine woodlands, and the mixed oak-chaparral community known here as Upland Mix. All these vegetation communities, like the rest of the Sierra-Cascade foothills, are fire-adapted. That means each acre managed by the City needs fire in order to be optimally healthy, biodiverse, and safe to live in. Every vegetation community in Butte County has a native fire return interval: some shorter, some longer. If fire cannot be safely applied to these lands before their fire return interval runs out, then a fire surrogate will need to be applied in order to do some of the work fire would have done. Fire surrogates include almost any technique that reduces or kills vegetation, including hand cutting, mechanical mastication, grazing, mowing, or herbicide use.

A trait shared by fire and all fire surrogates is that a single entry (treatment) is not enough. Follow-up treatments (i.e., maintenance) are crucial to keeping land healthy. This work is never done. The ongoing nature of vegetation management work makes it a *program* of work, not merely a collection of projects. Therefore, it is best reviewed and authorized as a program. Adoption of the VFMP and implementation of its program of work is the Project analyzed in this PEIR.

1.2.1 Programmatic Vegetation Management on City Lands

This EIR serves as a program EIR, as defined by the State CEQA Guidelines, Section 15168, for adoption and implementation of the City of Chico Vegetative Fuels Management Plan. Activities proposed in the Plan receive general environmental review in this EIR, e.g. analyzing their cumulative impacts as a program after considering their standard project requirements, and then spelling out mitigation measures (if needed) that would be expected to reduce their environmental impacts below a threshold of significance based on the particular resources known or expected to be found in the treatment areas.

Section 15168 of the State CEQA Guidelines describes the procedural approach to the use of program EIRs. It states that a program EIR may be prepared on series of actions that can be characterized as one large project or program and are related either:

- (1) geographically,
- (2) as logical parts in a chain of contemplated actions,
- (3) in connection with issuance of rules, regulations, plans, or other general criteria to govern the conduct of a continuing program, or
- (4) As individual activities carried out under the same authorizing statutory or regulatory authority and having generally similar environmental effects which can be mitigated in similar way(s).

All of the scenarios described in Section 15168 apply to the VFMP. The VFMP identifies proposed management activities and facility improvements geographically located on City-owned parklands and open space. The Plan approval is the first in a sequence of contemplated actions, followed by subsequent approvals to implement the proposed Projects and other future activities consistent with the VFMP. These future projects or activities, as they are designed, will undergo additional, site-specific review pursuant to CEQA. If the City finds that a future activity would have effects that were not examined in this program EIR, a new initial study would need to be prepared leading to either an EIR or a negative declaration. If, however, the City finds that pursuant to CEQA Guidelines §15162, no new effects could occur or no new mitigation measures would be required, then the City can approve the activity as being within the scope of the program EIR, and no new environmental document would be required (§15168(c)(1) and (2)).

To determine whether future activities in the VFMP are really within the scope of this PEIR, additional surveys and impact analyses will still be needed. Based on the results of these analyses, new impacts not covered in this PEIR could be identified, and new mitigation measures could be needed. If so, new environmental documents under CEQA would be required before implementation of those activities. To determine whether a future activity/project is entirely or partially within the scope of this PEIR or not, the City will use the Project Consistency Checklist attached in Appendix A.

The Plan would involve reducing the amount of flammable vegetation within designated areas of City-owned lands. Some areas would see a 90% reduction, similar to what could be experienced after a wildfire (e.g., certain very overgrown brushy corridors along evacuation routes or surrounding legacy black oaks in Upper Park). Other areas would see about a 40% reduction (e.g., many denser riparian corridors, where invasives would be removed before any native vegetation is removed). A large majority of acres would see no reduction (e.g., most grassland and blue oak-gray

pine areas most years). The objectives and method of vegetation management (both first entries and follow-up treatments) would be selected from the menus of tools and techniques described in section 4 of the VFMP and summarized below in 2.2.

I.2.2 The Key Projects

As a deliverable of the CAL FIRE grant, the Plan also contains seven key Projects which are high priorities for the City and stakeholders. Making these projects “shovel-ready” (i.e., fully reviewed and permitted) was one of the goals of the grant. Therefore, these seven projects have received more detailed planning, mapping, and/or resource surveys using funding from this grant.

However, site-specific biological resources and cultural resources surveys sufficient for defining project-level environmental effects for these seven projects have, in most cases, not been completed at the time of this DEIR release. (Continuing to develop these surveys is within the scope of the CAL FIRE grant and the Parks Division will continue to use that funding to develop these surveys through mid spring 2021.) Therefore, this EIR serves as a program EIR for the seven Key Projects. Programmatic mitigation measures for these projects are included in the PEIR for those resource topics where implementation of the proposed projects could result in potentially significant impacts before mitigation. These mitigation measures, if they are found to apply, are to be implemented prior to or as part of approval of the final design or alignment and implementation of these projects. After more detailed planning and design of the projects are completed and the projects are considered for implementation by the City, they will undergo additional review, consistent with Section 15168(c) of the State CEQA Guidelines. They will be reviewed in light of the information in the program EIR. If a detailed analysis using the Project Consistency Checklist can document that their impacts are within the scope of the information in the program EIR, additional environmental documentation will not be necessary. If new effects are identified that were not addressed in the program EIR, the Project Consistency Checklist would then serve as an Initial Study to determine the appropriate environmental documentation the City would need to prepare.

Finally, for the 7 Key Projects and indeed any future activities under this PEIR, it's important to note most areas will still receive some last-minute surveys right before implementation: for example, nesting bird surveys must be conducted within 30 days of implementation start.

There is no expectation that the seven projects will be implemented “in order” or that one will need to be completed before another can begin or before programmatic vegetation management (i.e., vegetation management that is not associated with a “key project”) can proceed.

I.2.3 Vegetation Management in Cooperation with Private Landowners

Sometimes, vegetation management objectives cannot be completed without the cooperation of neighboring landowners. This is particularly true of arundo eradication efforts along creeks. Arundo (*Arundo donax* or giant reed) is a highly flammable invasive weed which spreads easily by rhizome or fragment and quickly grows to 10-15' high walls of vegetation which will readily burn even when green. While all vegetation has some potential to act as fuel for fires, arundo is considerably more flammable and volatile than the native streamside vegetation, e.g. willow and mulefat, it often crowds out. Arundo cannot be effectively eradicated from a City-managed stream channel as long as it is harbored on privately managed parcels that are adjacent to, or upstream from, City-managed lands. Therefore, this EIR analyzes the likely environmental effects of addressing and removing arundo on some private lands. Even though agreements have not yet been developed or executed with most private landowners who would be eligible to participate, it is appropriate to review the cumulative or general impacts from performing this work on private lands and to develop standard project requirements and/or mitigation and monitoring measures to reduce the likely effects of this work below thresholds of environmental significance.

I.3 ENVIRONMENTAL IMPACTS AND MITIGATIONS

I.3.1 Less than significant impacts

In section 4 of this PEIR, preparers analyzed the environmental impacts of fully implementing the Plan. This analysis, similar to the analysis commonly performed in an Initial Study (IS), determined that either no impact, or no significant impact, would occur related to the following environmental resources or issue areas:

- Air quality – emission related impacts associated with vegetation management (e.g., chain saws, chippers, smoke) would be minor, temporary, and less than significant.
- Aesthetics - the impacts on scenic views would be less than significant or would be beneficial.
- Agriculture – the proposed Plan would have no impact on agricultural activities or on timberland.
- Cultural resources - surveys and design features built into the program would sufficiently protect cultural, historical and archaeological resources.
- Energy - the program would not use energy wastefully or in conflict with an adopted energy efficiency plan.
- Geology and Soils – the proposed Plan would not affect, or be affected by, geological hazards such as seismic ground shaking, fault rupture, landslides, or subsidence.
- Greenhouse Gas Emissions - the project's influence on the production or sequestration of greenhouse gases in the area would not be significant or adverse and would not conflict with an adopted greenhouse gas reduction or climate resilience plan.
- Hazards and Hazardous Materials – design features built into the program would sufficiently prevent the release of hazardous substances and would not expose the public to health hazards
- Land Use and Planning – the proposed Plan would not alter existing land uses nor would it conflict with City General Plan policies
- Mineral Resources - the program would not cause any change in the availability of any mineral resource
- Noise – noise impacts related to vegetation management (i.e., chain saws, chippers) would be temporary, localized, and less than significant
- Population and housing – implementation of the Plan would not affect population growth

or available housing

- Public services – implementation of the Plan would not significantly affect the amount and availability of fire, police, school, or park services
- Recreation - implementation of the Plan would neither develop new recreational opportunities or infrastructure that could harm the environment, nor will it have a significant adverse impact on existing recreational opportunities or infrastructure
- Transportation - implementation of the Plan would not have a significant adverse impact on existing transportation networks, access, or evacuation; the impact of additional traffic or delays associated with work crews performing vegetation management near local roadways and intersections would be minor and localized
- Tribal Cultural Resources- surveys and design features built into the program would provide a clear and explicit framework for government-to-government collaboration between the City and local Tribes to sufficiently protect tribal cultural resources.
- Utilities and service systems – the Plan would not significantly affect, or cause a significant demand for, water supply, waste treatment, wastewater treatment, or drainage facilities

1.3.2 Potentially significant impacts that can be mitigated to below a level of significance

The City's analysis determined that implementation of the Plan over many years could result in a potentially significant impact related to the following environmental resources or issue areas, but that these impacts could be mitigated to below a level of significance:

- Biological Resources - Although it is not expected, direct, indirect or cumulative impacts to special-status plant or wildlife species could occur from Plan implementation activities and/or the habitat alterations resulting from them. Therefore, a framework for compensatory mitigation has been developed (**MM-BIO-1**) that would (with CDFW and/or USFWS concurrence) reduce these impacts to below a level of significance. If compensatory mitigation was not feasible to offset significant biological impacts of a future activity, then that future activity would not be under the scope of this PEIR and a new EIR would be required for that activity.
- Hydrology and Water Quality - Removing all the vegetation in a streamside area can result in bank instability. In most streamside areas, the Plan would not remove all or even most vegetation. However, in parts of the Little Chico Creek greenway, *Arundo donax* may be the only streamside vegetation or could be the only streamside vegetation by the time implementation begins. If work removes all the *Arundo donax*, it could possibly result in eventual instability of the bank that causes hydrological impacts after the *Arundo donax* root ball dies and begins to separate from the soil. To reduce this impact to below a level of significance, while also avoiding the area's re-colonization by weeds that present a relatively

high fire hazard, a low-density riparian revegetation mitigation measure has been developed (**MM-HYDRO-1**). Because streamside work needs to be carried out under the terms of a 1600 permit from CDFW (**SPR BIO-10**) as well as potentially an encroachment permit from CVFPB, this mitigation measure would still need to be reviewed by CDFW and potentially CVFPB. If CDFW and/or CVFPB stipulated more stringent mitigation measures, those agencies' mitigation measures would be applied.

I.3.3 Cumulative impacts and potentially significant impacts remaining after mitigation

The proposed Plan represents a long-term program that affects a wide geographic area in the City of Chico. Impacts would be dispersed over time and space. The impacts of the program have the potential to interact and combine with similar impacts from other land disturbing actions in and around the City, such as residential land development on individual lots, small subdivisions, road and other infrastructure improvements, flood control channel maintenance, and discretionary land development projects in the unincorporated portions of the County surrounding the City. The proposed Plan has the potential to overlap in time, and in effect, with these other types of projects, resulting in potential cumulatively significant impacts to biological resources, as described above. Cumulative impacts related to other resource areas are not expected to be significant.

After mitigation, the City concludes that no cumulative impacts nor potentially significant impacts would remain.

I.3.4 Significant unavoidable impacts and irreversible impacts.

Because the "project" in this case is approval of a Plan, CEQA requires the City to disclose any significant unavoidable impacts and any significant impacts that would be irreversible (§21100(b)(2)). Since the City finds no significant impacts would remain after mitigation, there are no irreversible nor unavoidable significant effects.

I.3.5 Growth inducing impacts

The proposed program would not result in any growth inducing impacts.

<p>Table 1 - Key to Impact Levels</p> <p>NI = No Impact LTS = Less than significant PS = Potentially significant</p> <p>LTSM = Less than significant with Mitigation SU = Significant and unavoidable</p>			
4.4 Biological Resources			
Impact	Significance Before Mitigation	Mitigation Measure	Significance After Mitigation
<p>Impact BIO-a: Project activities could have a substantial adverse effect, either directly or through habitat modifications, or through cumulative impacts, on a <i>wildlife</i> species identified as a candidate, sensitive, or special-status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Wildlife or the U.S. Fish and Wildlife Service.</p>	PS	<p>Mitigation Measure BIO-1a: <i>Compensatory Mitigation to Special-Status Wildlife, If Applicable</i></p> <p>If the provisions of SPR BIO-5a cannot be implemented and additional mitigation is necessary to reduce significant impacts, the project proponent will compensate for such impacts to species or habitat by acquiring and/or protecting land that provides (or will provide in the case of restoration) habitat function for affected species that is at least equivalent to the habitat function removed or degraded as a result of the treatment. Compensation may include:</p> <ol style="list-style-type: none"> 1.) Preserving existing habitat outside of the treatment area in perpetuity; this may entail purchasing mitigation credits and/or lands from a CDFW- or USFWS-approved entity in sufficient quantity to offset the residual significant impacts, generally at a ratio of 1:1 for habitat; and/or 2.) Restoring or enhancing existing habitat within the treatment area or outside of the treatment area (including decommissioning roads, adding perching structures, removing existing perching structures, or removing existing movement barriers or other existing features that are adversely affecting the species), and/or 3.) In lieu of the measures described above, compensatory mitigation may be satisfied through compliance with permit conditions, or other authorizations obtained by the project proponent (e.g., incidental take permit, if required), if these requirements are equally or more effective than the mitigation identified above. <p>The project proponent will prepare a Compensatory Mitigation Plan that identifies the residual significant effects that require compensatory mitigation and describes the compensatory mitigation strategy being implemented to reduce residual effects. The project proponent will consult with CDFW and/or any other applicable responsible agency prior to finalizing the Compensatory Mitigation Plan in order to satisfy that responsible agency's requirements (e.g., permits, approvals) within the plan. For species listed under ESA or CESA, the project proponent will submit the mitigation plan to CDFW and/or USFWS for review and comment. For other special-status wildlife species (not listed under ESA or CESA) the project proponent may consult with CDFW and/or USFWS regarding the availability and applicability of compensatory mitigation and other related technical information. The Compensatory Mitigation Plan will include:</p> <p>For preserving existing habitat outside of the treatment area in perpetuity, a summary of the proposed compensation lands (e.g., the number and type of credits, location of mitigation bank or easement), parties responsible for the long-term management of the land, and the legal and funding mechanisms for long-term conservation (e.g., holder of conservation easement or fee title). The project proponent will submit evidence that the necessary mitigation has been implemented or that the project proponent has entered into a legal agreement to implement it and that compensatory habitat will be preserved in perpetuity.</p> <p>For restoring or enhancing habitat within the treatment area or outside of the treatment area, a description of the proposed habitat improvements, success criteria that demonstrate the performance standard of maintained habitat function has been met, legal and funding mechanisms, and parties responsible for long-term management and monitoring of the restored habitat. If the loss of occupied habitat cannot be offset, and as a result treatment activities would substantially reduce the number or restrict the range of listed wildlife species, then the treatment will not qualify as within the scope of this PEIR.</p>	LTSM

4.4 Biological Resources			
<p>Impact BIO-a: Project activities could have a substantial adverse effect, either directly or through habitat modifications, or through cumulative impacts, on a <i>plant</i> species identified as a candidate, sensitive, or special-status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Wildlife or the U.S. Fish and Wildlife Service.</p>	PS	<p>Mitigation Measure BIO-1b: <i>Compensatory Mitigation to Special-Status Plants, If Applicable</i></p> <p>If the provisions of SPR BIO-5b cannot be implemented and additional mitigation is necessary to reduce significant impacts, the project proponent will compensate for such impacts to species or habitat by acquiring and/or protecting land that provides (or will provide in the case of restoration) habitat function for affected species that is at least equivalent to the habitat function removed or degraded as a result of the treatment. Compensation may include:</p> <ol style="list-style-type: none"> 1.) Preserving and enhancing existing populations outside of the treatment area in perpetuity (first priority). If that is not an option because existing populations that can be preserved in perpetuity are not available, 2.) Creating populations on mitigation sites outside of the treatment area through seed collection and dispersal (annual species) or transplantation (perennial species) and/or <p>Purchasing mitigation credits from a CDFW- or USFWS-approved conservation or mitigation bank in sufficient quantities to offset the loss of occupied habitat; and/or</p> <p>If the affected special-status plants are not listed under ESA or CESA, compensatory mitigation may include restoring or enhancing degraded habitats so that they are made suitable to support special-status plant species in the future.</p> <p>Finally, in lieu of the measures described above, compensatory mitigation may be satisfied through compliance with permit conditions, or other authorizations obtained by the project proponent (e.g., incidental take permit for state-listed plants), if these requirements are equally or more effective than the mitigation identified above.</p> <p>The project proponent will prepare a Compensatory Mitigation Plan that identifies the residual significant impacts that require compensatory mitigation and describes the compensatory mitigation strategy being implemented and how unavoidable losses of special-status plants will be compensated. The project proponent will consult with CDFW and/or any other applicable responsible agency prior to finalizing the Compensatory Mitigation Plan to satisfy that responsible agency's requirements (e.g., permits, approvals) within the plan. If the special-status plant taxa are listed under ESA or CESA, the plan will be submitted to CDFW and/or USFWS (as appropriate) for review and comment. The Compensatory Mitigation Plan will include: (continued on next page)</p>	LTSM

4.4 Biological Resources			
<p>Impact BIO-a: Project activities could have a substantial adverse effect, either directly or through habitat modifications, or through cumulative impacts, on a <i>plant</i> species identified as a candidate, sensitive, or special-status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Wildlife or the U.S. Fish and Wildlife Service.</p>	PS	<p>Mitigation Measure BIO-1b, continued: For compensatory mitigation that includes preservation of existing populations or creation of new populations, a summary of the proposed compensation lands and actions (e.g., the number and type of credits, location of mitigation bank or easement, restoration or enhancement actions), parties responsible for the long-term management of the land, and the legal and funding mechanisms (e.g., holder of conservation easement or fee title). The project proponent will submit evidence that the necessary mitigation has been implemented or that the project proponent has entered into a legal agreement to implement it and that compensatory plant populations will be preserved in perpetuity.</p> <p>For compensatory mitigation that includes relocation efforts, details on the methods to be used, including collection, storage, propagation, receptor site preparation, installation, long-term protection and management, monitoring and reporting requirements, success criteria, and remedial action responsibilities should the initial effort fail to meet long-term monitoring requirements. After relocation, the extent of occupied area will be substantially similar to the affected occupied habitat and will be suitable for self-producing populations. Re-located/re-established populations will be considered self-producing when habitat conditions allow for plants to reestablish annually for a minimum of 5 years with no human intervention, such as supplemental seeding; and the occupied area is comparable to existing occupied habitat areas in similar habitat types in the region.</p> <p>3.) For compensatory mitigation that includes dedication of conservation easements, purchase of mitigation credits, or other offsite conservation measures, the details of these measures. This includes information on responsible parties for long-term management, conservation easement holders, long-term management requirements, funding assurances, and success criteria such as those listed above and other details, as appropriate to target the preservation of long term viable populations.</p> <p>4.) For compensatory mitigation that includes restoring or enhancing habitat within the treatment area or outside of the treatment area, a description of the proposed habitat improvements, success criteria that demonstrate the performance standard of maintained habitat function has been met, legal and funding mechanisms, and parties responsible for long-term management and monitoring of the restored habitat.</p> <p>If the loss of occupied habitat cannot be offset (e.g., if preservation of existing populations or creation of new populations through relocation efforts are not available for a certain species), and as a result treatment activities would substantially reduce the number or restrict the range of listed plant species, then the treatment will not qualify as within the scope of this PEIR.</p>	LTSM

4.10 Hydrological Resources			
<p>Impact HYDRO-j: Project activities could cause hydrological adverse impacts or impacts to water quality through bank instability if they remove all the vegetation in a given streambank area, e.g. for <i>Arundo donax</i> removal projects.</p>	PS	<p>Mitigation Measure HYDRO-1: <i>Replant Native Vegetation into Arundo Root Balls</i> . To mitigate for Impact HYDRO-j, after Little Chico Creek Arundo Eradication (key project # 6) the City shall plant or cause to be planted native willow and other native vegetation along portions of Little Chico Creek where arundo was formerly the dominant vegetation. Native plants can be planted directly into the arundo root ball and should be planted at densities and protocols established in the region as best practices for creeks similar to Little Chico Creek in elevation, hydromorphology, and flow regime. Because streamside work needs to be carried out under the terms of a 1600 permit from CDFW (SPR BIO-10) as well as potentially an encroachment permit from CVFPB (if required), this mitigation measure would still need to be reviewed by CDFW and potentially CVFPB to ensure it adequately mitigates for this potentially significant impact. If CDFW and/or CVFPB stipulated more stringent mitigation under the terms of its/their permit(s), that more stringent mitigation would be applied.</p>	LTSM

I.4 ALTERNATIVES

CEQA requires lead agencies to consider (1) the no project alternative and (2) alternatives that reduce or lessen at least some of the project's/program's significant impacts. While alternatives need not be analyzed in detail as fully as the proposed program must be, alternatives should be explored enough to determine whether they would reduce any significant impacts, whether they are feasible, and whether they would meet some or all of the objectives of the program. To this end, it is valuable to have a clearly written set of objectives to guide analysis of alternatives. As stated in the VFMP and described above in 1.1, the program objectives are as follows:

- Establish and implement strategic management actions on City-owned lands to reduce the likelihood of unwanted ignitions in the wildland-urban interface
- Reduce the negative effects of parkland fires on structures, lives and natural resources
- Create conditions under which fire, when it does occur, can have beneficial ecological effects
- Make it easier for the City to efficiently complete future vegetation management projects by establishing standard project requirements for all work
- Reduce fire hazard to homes, businesses, and natural resources while continuing to manage natural parks (e.g. Bidwell, Verbenia Fields, and the others listed in VFMP sections 2.1-2.5) for natural values, while managing other parklands for their respective primary management objectives as described in VFMP sections 3.1-3.5 (e.g. floodwater conveyance for Lindo Channel, airport safety for airport parcels)
- Post-fire, in the three woodland vegetation zones (Upland Mix, Blue Oak-Gray Pine, and Valley Oak), create an open stand of well-spaced single-or few-stemmed trees that has reduced horizontal and vertical fuel continuity

I.4.1 No Project Alternative

Under the No Project Alternative, the Department would not implement any new vegetation management actions on City-managed parklands and greenways. Under this alternative, the impact of wildland fires would be greater than under the proposed Plan because there would be a higher potential for damage to structures and loss of life due to a wildland fire in or adjacent to the City. The increased risk of larger and more damaging wildland fires in the City would also cause environmental impacts that would be greater than from a wildland fire that occurred after implementation of the proposed Plan. The more destructive wildland fires would cause greater damage to native vegetation and cause more post-fire erosion due to the higher temperatures reached by a fire with greater fuel. These impacts would be considered significant and unavoidable under this alternative, and of a greater magnitude compared to similar impacts under the proposed Plan. This alternative would fail to accomplish most or all of the program objectives.

I.4.2 Alternatives That Avoid or Reduce Significant Impacts

The proposed Plan could result in the following types of potentially significant impacts: (1) direct, indirect or cumulative impacts to special-status plant or wildlife species could occur from Plan implementation activities and/or the habitat alterations resulting from them; and (2) hydrological or water quality impacts could result from potential bank instability if large amounts of *Arundo donax* are

removed and not replaced with appropriate streamside vegetation. There are no feasible alternatives to reduce wildland fire hazard and the effects of wildland fires in the City that completely avoid the potential for significant impacts on special-status plant or wildlife species. The City considered a suppression-only alternative, in which wildfires are suppressed when they approach assets at risk, but vegetation is otherwise unmanaged and no proactive treatments are implemented. However, the environmental impact of continued fuel buildup resulting in a high-severity fire could still result in losses to special-status plants or wildlife, and could also result in hydrological or water quality impacts (from post-fire sedimentation) that are cumulatively greater than from *Arundo donax* removal.

I.4.3 Environmentally Superior Alternative

The City finds the environmentally superior alternative is the proposed program of work because it would better improve the health of fire-suppressed biological communities, reduce invasive species and provide ways to make certain natural communities more resistant to re-invasion, and improve the City's ability to manage and steward resources, including cultural resources, compared to a no-project alternative or a suppression-only alternative.

I.4.4 Areas of Controversy and Issues to Be Resolved

The NOP for this PEIR was distributed on or by Sept 9, 2020, to the State Clearinghouse, the Butte County Clerk-Recorder, responsible agencies, and interested parties and organizations. The City of Chico held a public scoping meeting on September 16, 2020 to provide information on the proposed program and solicit public input on the scope and content of the PEIR. The scoping period ended on October 9, 2020.

Comments were received during the scoping process that expressed support for the proposed program, but the following environmental concerns and issues were also expressed. Comments are followed by the section of this PEIR section (in parentheses) where they are addressed.

- Consider whether same environmental review objectives could be addressed in an MND rather than an EIR. (2.4)
- Discharge of dredged or fill material to any waters of the United States requires CWA Section 401 and/or Section 404 permits from the Central Valley Regional Water Quality Control Board. (2.6)
- For work in or near creeks, an encroachment permit may be required from the Central Valley Flood Protection Board. (2.6)
- A smoke management plan would be required for prescribed burning, and certain heavy equipment would need to be listed on an air quality management registry. (4.3.2)
- AB 52, which addresses a lead agency's obligations regarding tribal cultural resources and tribal consultation, applies to this program. (4.18)
- An evaluation is needed of the cumulative environmental effects of ongoing and future projects. (4.4)
- An analysis is required of how the projects in the final VFMP conform to all the Goals and Objectives in the Bidwell Park Master Management Plan (Throughout section 4); particularly "O. Upper-1. Manage Upper Park as open space set aside to remain in its natural state." (4.4.3)
- Adequate evaluation of impacts requires a thorough biological analysis of what plant and animal species are to be found in the park/open space/waterways that are being discussed, with detailed mapping (4.4.1)

2.0 PROGRAM DESCRIPTION

2.1 BACKGROUND AND PROGRAM OBJECTIVES

2.1.1. Background on the parklands, greenways, and open spaces of Chico

Chico manages almost 6,400 acres of fire-adapted lands. These lands and their management planning status are summarized in the following table. However, all these lands are described in greater detail in chapters 2 and 3 of the VFMP (Appendix B), which also includes maps and historical detail on the lands. Readers are encouraged to familiarize themselves with the VFMP before reading through the EIR that follows.

Parkland/Open Space	Acreage	Management plan: year last updated
Bidwell Park	3,670	Bidwell Park Master Management Plan (BPMMP) (EDAW 2008a) 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 (City of Chico 2017);
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	Established to protect endangered Butte County Meadowfoam. Detailed management plan (CNLM 1996).
South Deadhorse Slough	51.43	No management plan
Verbena Fields	13.38	Maintenance plan (Cole 2010).
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

2.1.2. Background on fire ecology of the region

Fire has always been a part of the Chico region. Local vegetation is adapted to, and reliant upon, a combination of periodic wildfires and regular human-led fire. Current and past fire suppression policies have resulted in large accumulations of vegetation on hillsides to the east of the City. When wildland fires occur after long-term fire suppression, the severity of the fire is greater than under natural/traditional conditions which tend to be characterized by more frequent, smaller/patchier, and less intense fires. As wildland vegetation continues to accumulate and land development expands into the urban-wildlife interface, there is an increased potential for loss of life, structures and natural resources. Fire history in the Big Chico Creek foothills indicates that a major wildland fire occurs, on average, every ten years. The significant wildfires that affected the City in the last 50 years include the 1999 Musty fire (18,000 acres, smoke and ecological impacts), the 1999 Doe Mill fire (11,000 acres, evacuation and smoke impacts), the 2008 Humboldt Fire (23,000 acres, 250+ structures destroyed just outside Town of Paradise; evacuation and smoke impacts, 10 injuries), the 2018 Stoney Fire (950 acres, evacuation, road and trail closure, and smoke

impacts), and the 2018 Camp Fire (154,000 acres including 203 inside Chico city limits, 18,000 structures destroyed, including none within City limits but about 350 identified as belonging to the Chico community; multiple injuries, 85 deaths; extreme smoke impacts to the City and tens of thousands of displaced persons requiring shelter in Chico).

Not all fires are destructive. Prescribed or cultural fires are applied by humans at a time and place of human choosing, and are ignited in pursuit of certain objectives (which they may or may not achieve). Many wildland fires also have mixed or predominantly beneficial effects. Managing wildland fire so it “does good work” is a goal of many parks and fire departments. It is now widely recognized that Maidu people, including the Mechoopda who are the original inhabitants of Chico, successfully managed the watersheds of what is now Butte County with deliberate fire for many thousands of years, and that suppression of these cultural fires is a primary cause of the wildfire crisis California is enduring today. Returning Sierra Nevada foothill parklands to a healthy vegetation density could restore a historic cycle in which fires burn in a patchy mosaic with mixed intensity or low intensity. Important to understand is that high-severity fires tend to set the stage for repeated high-severity fires cycle after cycle, while patchy mixed-intensity fires tend to beget more patchy mixed-intensity fires.

Managing Chico’s parklands has been the responsibility of the City since 1905. The responsibility is complex because most parklands need to be managed for several objectives at once. For example, Lindo Channel needs to provide a flood control function, be aesthetically pleasing, and provide recreation and safe non-motorized transportation opportunities for residents. Some parks have written plans or guidelines for managing fuels, but the vast majority of acres under the Parks Division’s purview have, until now, not had any fuels management guidelines. That does not mean managers failed to manage fuels; it just means they did so based on local knowledge but without benefit of a comprehensive data-based overview showing them which areas present the highest fire hazard and thus, which projects should have the highest priority from a fire science-based perspective. Over the last two decades, this information has become increasingly important to the funders on whom parks departments increasingly depend.

The Camp Fire (2018) focused the City’s concern for parkland health and safety on reducing the hazards that contribute to the ignition, rate of spread, and severity of parkland fires. Despite being somewhat less exposed, by topography and prevailing winds, than the community of Paradise was, the Chico community is still vulnerable to catastrophic loss that results from wildland fire.

2.1.3 Background on Program Objectives

Because of the potential for significant loss to life, property, and natural resources from wildland fire, the City has placed a high priority on developing a comprehensive fuels management program that also protects and even enhances natural and cultural resources. Most notably, recognizing that fire is the keystone ecological process shaping Bidwell Park, the drafters of the the 2008 Bidwell Park Master Management Plan (BPMMP) called for a “fuels management program” (EDAW 2008a 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” (BPMMP 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.

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

However, Bidwell Park is not the only fire-adapted land the City of Chico manages. Every acre of City-owned vegetation has a fire return interval and requires some fire for optimal health and to remain safe from catastrophic fire. If fire cannot be safely applied to these lands, then a fire surrogate will need to be applied in order to do some of the work fire would have done. Fire surrogates include almost any technique that reduces or kills vegetation, including hand cutting, mechanical mastication, grazing, mowing, or herbicide use. A trait shared by fire and all fire surrogates is that a single entry (treatment) is not enough. Follow-up treatments (i.e., maintenance) are crucial to keeping land healthy. This work is never done. Some vegetation communities require more frequent re-entry intervals to stay healthy (or at socially acceptable vegetation densities) compared to others.

To restore and maintain ecological health and appropriate fire intervals in Chico's parklands, the program objectives are as follows:

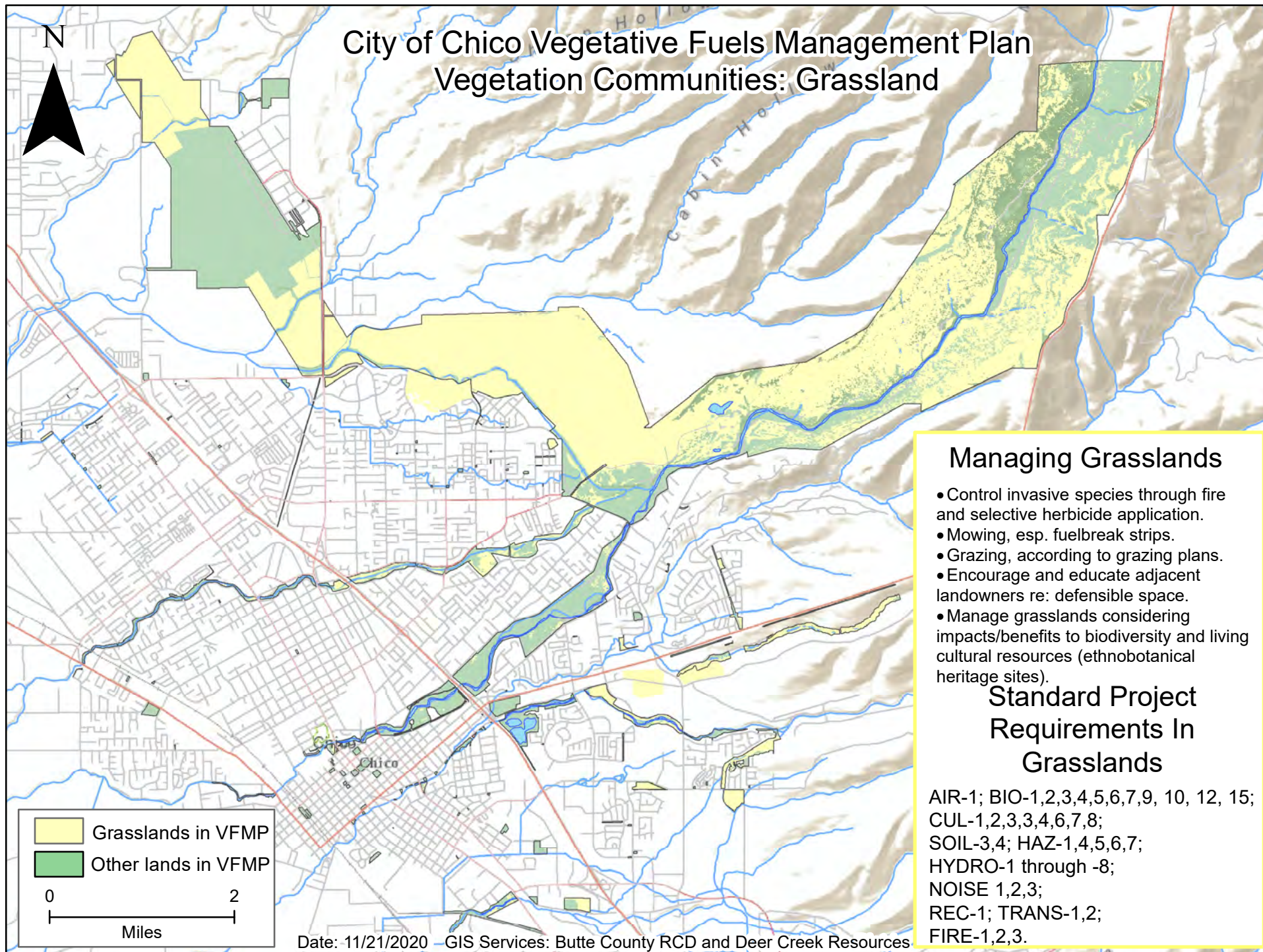
- Establish and implement strategic management actions on City-owned lands to reduce the likelihood of unwanted ignitions in the wildland-urban interface
- Reduce the negative effects of parkland fires on structures, lives and natural resources
- Create conditions under which fire, when it does occur, can have beneficial ecological effects
- Fulfill the need for a comprehensive fuels management program for Bidwell Park as expressed in the 2008 BPMMP Natural Resources Management Plan
- Make it easier for the City to efficiently complete future vegetation management projects (and increase pace and scale of vegetation management) by establishing standard project requirements for all work
- Reduce fire hazard to homes, businesses, and natural resources while continuing to manage natural parks (e.g. Bidwell, Verbena Fields, and the others listed in VFMP sections 2.1-2.5) for natural values, while managing other parklands for their respective primary management objectives as described in VFMP sections 3.1-3.5 (e.g. floodwater conveyance for Lindo Channel, airport safety for airport parcels)

- Post- fire, in the three woodland vegetation zones (Upland Mix, Blue Oak-Gray Pine) create an open stand of well-spaced single-or few-stemmed trees that has reduced horizontal and vertical fuel continuity
- In grasslands, sustain health and biodiversity (including by fostering good fire) while reducing any threats to homes, businesses or natural resources from unwanted grass fires
- In riparian areas, maintain riparian values, including cold water temperatures needed by salmon and riparian buffers' ability to filter sediment, while reducing overgrowth by removing invasive plants first before removing any natives.

2.2 LOCATIONS AND PROPOSED TREATMENTS IN THE PROGRAM

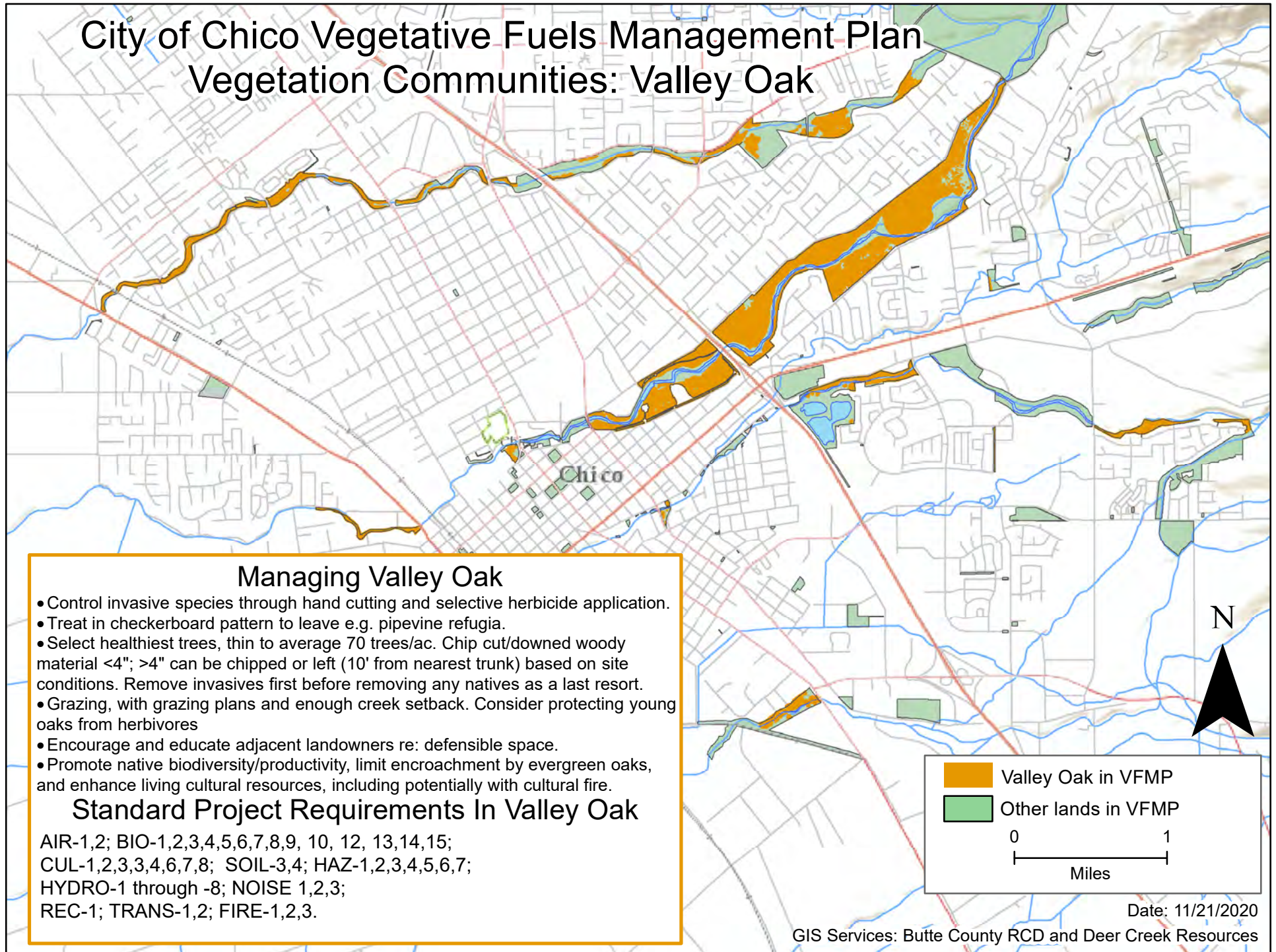
The scope of the program is all nearly-6,400 acres of City of Chico-owned lands, including parks, open spaces, and greenways. These locations are scattered across the entire City but are concentrated in the north and east of the city, particularly in the northern grasslands and the eastern woodland-chaparral expanses of Upper Bidwell Park. The City's lands comprise five main vegetation communities, each with its own features and particular needs for treatment. These vegetation communities are shown in the five maps that follow. The maps summarize the main objectives, fuel loading standards, and "toolbox" of treatments for each community. Each community is treated in much greater detail in VFMP section 4.2.

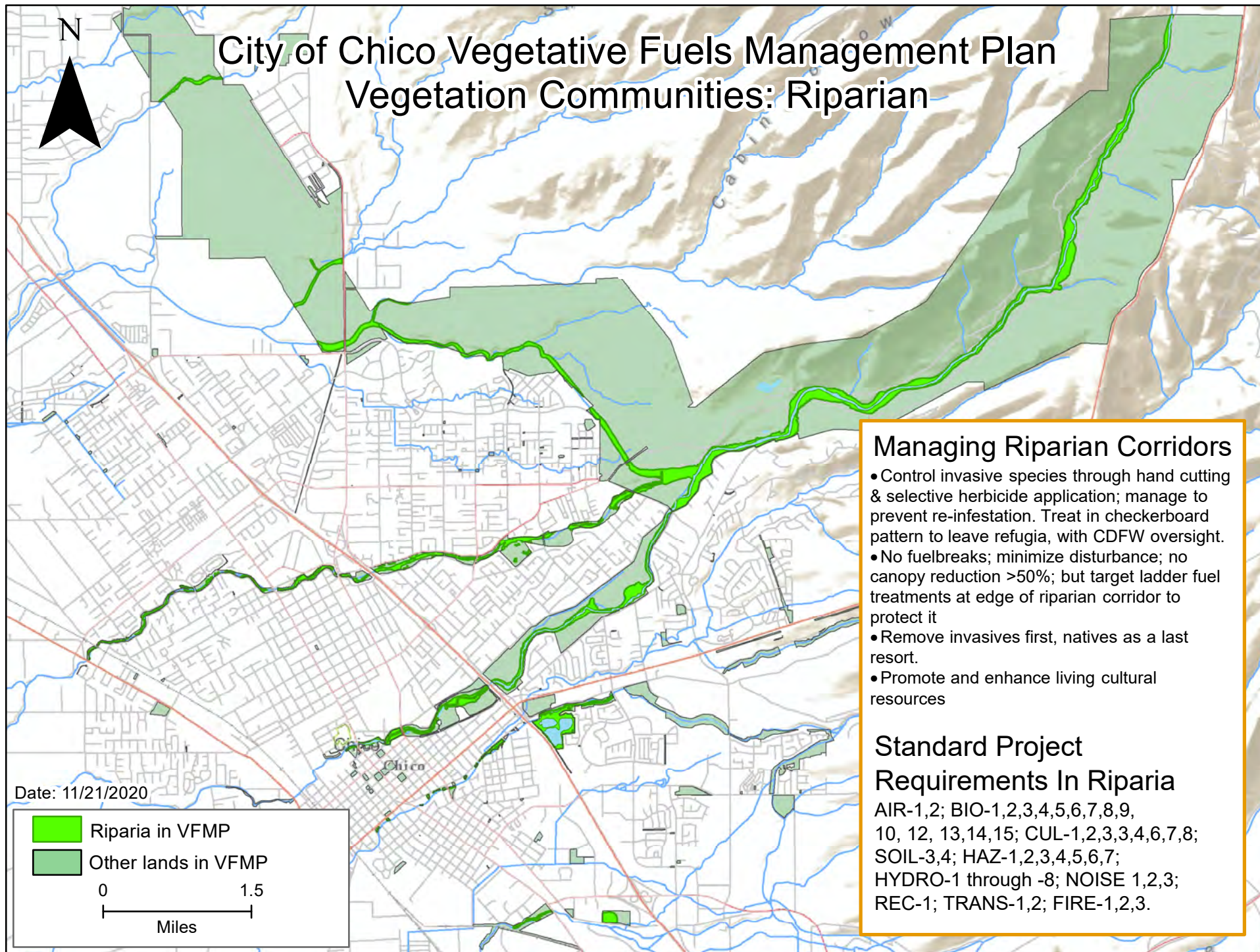
The need for fuels reduction varies greatly across the program area. Some parts of the program area already meet their fuel loading standards and need no treatment. This is especially true in the Grassland and Blue Oak-Gray Pine zones, as well as most Riparian areas that are not close to homes and businesses. Other parts of the program area would benefit from light treatment, while others are scheduled for substantial thinning. Units have been, and will continue to be, prioritized using a detailed LiDAR analysis developed for the VFMP (VFMP section 6.1) by Deer Creek Resources. The proposed treatments in each vegetation community are summarized in the following maps and described in much greater detail in Chapter 4 of the VFMP (Appendix B), which is hereby incorporated by reference.



City of Chico Vegetative Fuels Management Plan

Vegetation Communities: Valley Oak





City of Chico Vegetative Fuels Management Plan

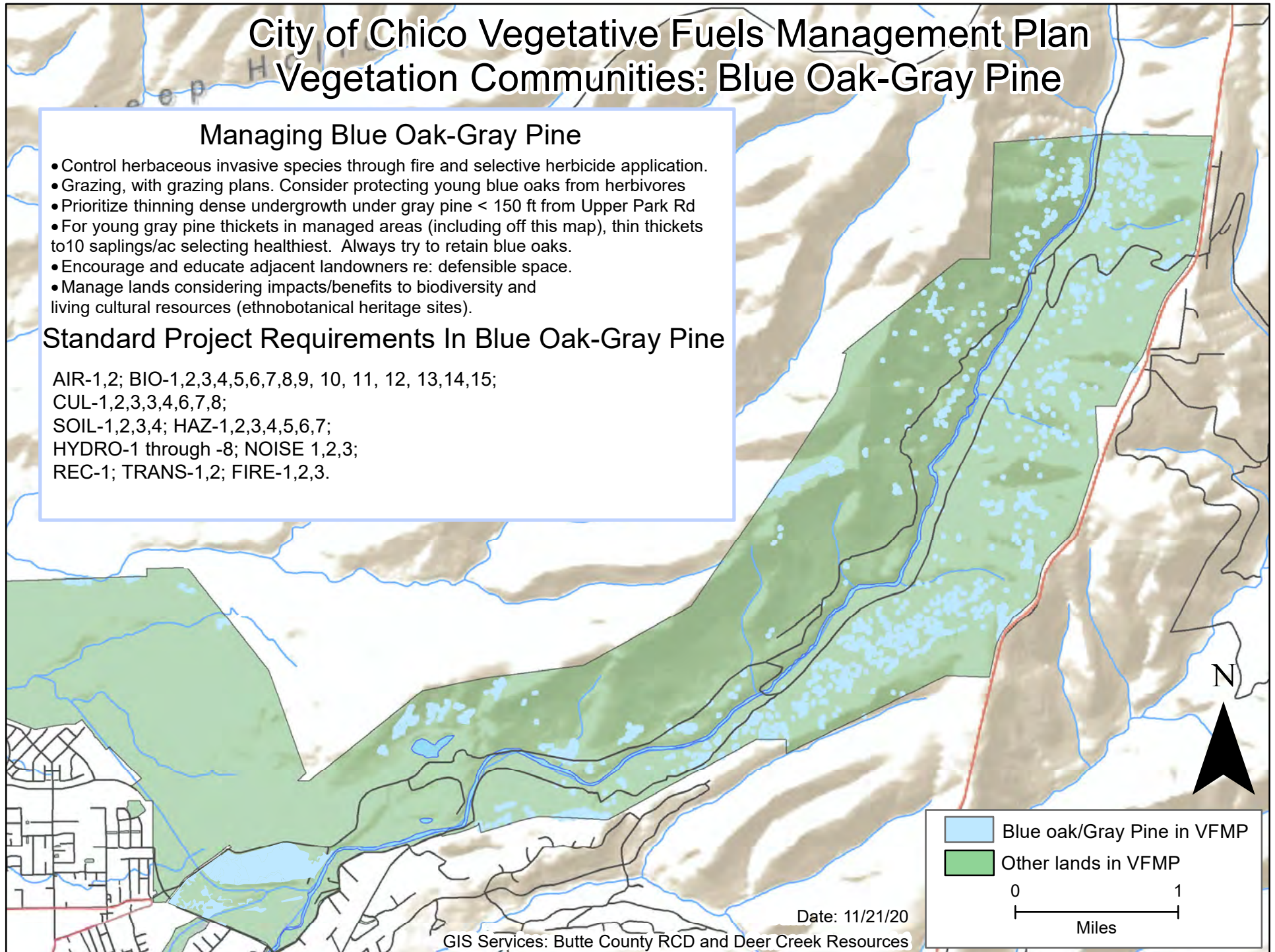
Vegetation Communities: Blue Oak-Gray Pine

Managing Blue Oak-Gray Pine

- Control herbaceous invasive species through fire and selective herbicide application.
- Grazing, with grazing plans. Consider protecting young blue oaks from herbivores
- Prioritize thinning dense undergrowth under gray pine < 150 ft from Upper Park Rd
- For young gray pine thickets in managed areas (including off this map), thin thickets to 10 saplings/ac selecting healthiest. Always try to retain blue oaks.
- Encourage and educate adjacent landowners re: defensible space.
- Manage lands considering impacts/benefits to biodiversity and living cultural resources (ethnobotanical heritage sites).

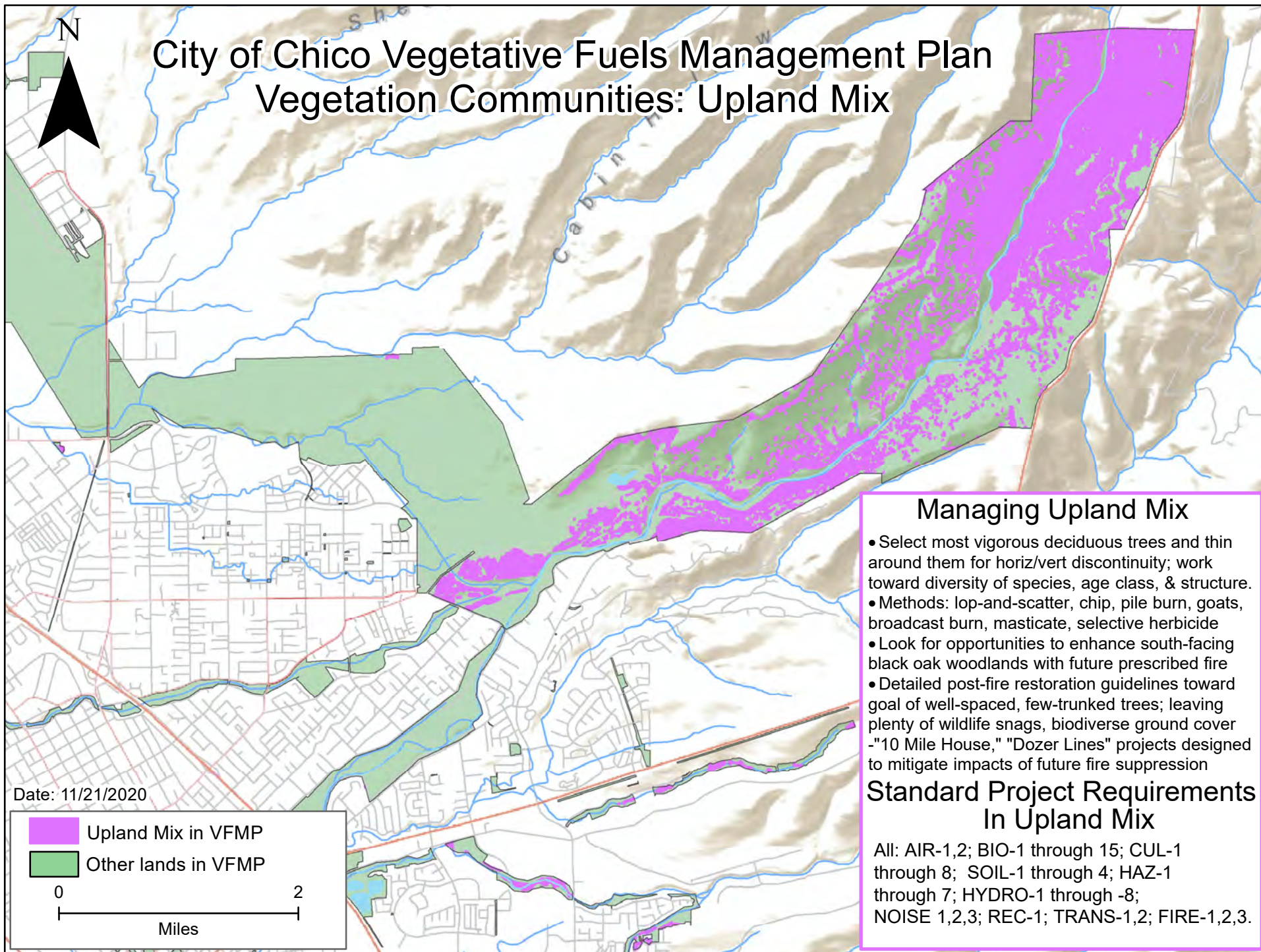
Standard Project Requirements In Blue Oak-Gray Pine

AIR-1,2; BIO-1,2,3,4,5,6,7,8,9, 10, 11, 12, 13,14,15;
CUL-1,2,3,3,4,6,7,8;
SOIL-1,2,3,4; HAZ-1,2,3,4,5,6,7;
HYDRO-1 through -8; NOISE 1,2,3;
REC-1; TRANS-1,2; FIRE-1,2,3.



City of Chico Vegetative Fuels Management Plan

Vegetation Communities: Upland Mix



Managing Upland Mix

- Select most vigorous deciduous trees and thin around them for horiz/vert discontinuity; work toward diversity of species, age class, & structure.
- Methods: lop-and-scatter, chip, pile burn, goats, broadcast burn, masticate, selective herbicide
- Look for opportunities to enhance south-facing black oak woodlands with future prescribed fire
- Detailed post-fire restoration guidelines toward goal of well-spaced, few-trunked trees; leaving plenty of wildlife snags, biodiverse ground cover
- "10 Mile House," "Dozer Lines" projects designed to mitigate impacts of future fire suppression

Standard Project Requirements In Upland Mix

All: AIR-1,2; BIO-1 through 15; CUL-1 through 8; SOIL-1 through 4; HAZ-1 through 7; HYDRO-1 through -8; NOISE 1,2,3; REC-1; TRANS-1,2; FIRE-1,2,3.

2.3 STANDARD PROJECT REQUIREMENTS (SPRs); LATER ACTIVITY REVIEW PROCESS

The VFMP program will only meet its objective of making it easier for the City to efficiently complete future vegetation management projects (i.e., increase pace and scale of vegetation management) if it can appropriately streamline future environmental review for some or most future activities. To do so, the VFMP listed best management practices for each vegetation treatment option and each vegetation community. For this PEIR, those best practices were further developed into standard project requirements (SPRs) which will apply to every future activity under the scope of this PEIR. Standard Project Requirements are construction controls that are built into the project design and provide the basis for environmental analysis. Essentially, they shape what activities and impacts need to be analyzed and to what extent. By contrast, Mitigation Measures (MMs) are developed post-environmental analysis, to mitigate the potential impacts identified through the analysis.

This PEIR analyzes the reasonably foreseeable environmental impacts of implementing the VFMP. In doing so, it assumes that all relevant SPRs are already incorporated into each activity or future project. Before permitting a future activity, the City will review the activity description to ensure it is within the scope of this PEIR. During this process, the City reviews all relevant SPRs. If the City determines the future activity is entirely within the scope of this PEIR, no new environmental document is needed (CEQA Guidelines §15168(c)(1) and (2)). In cases when part or all of the future activity is outside the scope of this PEIR (including cases when all relevant SPRs will not or cannot be incorporated into activity design), then a new environmental document (such as a negative declaration or EIR) would be prepared in order to analyze the parts of the activity that are not within the scope of this PEIR.

To determine whether a future activity is entirely or partially within the scope of this PEIR or not, the City will use the project consistency checklist attached in Appendix A.

In case a future activity on City parklands is proposed, sponsored or carried out by another agency, the project consistency checklist is designed so it can also be used by any other “project proponent”. For example, CAL FIRE or the Wildlife Conservation Board might fund a future vegetation management program in Chico parklands; both these State agencies may serve as lead agency on the projects they fund, so they could utilize the Project Consistency Checklist to finalize review for these projects (with City assistance). Non-lead agency organizations that partner with the City could also utilize the checklist. For example, a Fire Safe Council could partner with the City to fast-track a vegetation management project of concern by proactively securing funding for it and completing the Project Consistency Checklist. A Tribe could collaborate with the City in developing a management plan for ethnobotanical resources in the Park; the Tribe could then use the Project Consistency Checklist to determine if activities under the plan need further environmental review. In both these cases, City resource managers would have the final responsibility for review of the checklist for accuracy and for authorizing the activities.

2.4 ENVIRONMENTAL REVIEW AND PUBLIC PARTICIPATION

The proposed Plan represents a discretionary action subject to the environmental review requirements of the California Environmental Quality Act (CEQA). As such, the City is subjecting the Plan to environmental analysis. The City chose to prepare an Environmental Impact Report

(EIR), not because of the magnitude of anticipated impacts from implementation, but because of the programmatic nature of the action. While an MND can satisfactorily address any individual project whose effects can be mitigated to below a level of significance, an EIR is the only CEQA document capable of delivering programmatic review for interconnected activities spread out over time, such as those contemplated in the VFMP.

The draft VFMP was completed in 2020. After the draft VFMP was reviewed by Bidwell Park and Playground Commissioners at the BPPC's July and August meetings, a Notice of Preparation (NOP) was posted on or by September 9, 2020, and public comments on the scope of the EIR were provided at the September 16, 2020 Natural Resources Committee scoping hearing. Comments were also accepted by mail and e-mail. Due to the ongoing COVID-19 crisis, no in-person scoping meetings were held. The City received scoping comments on the NOP from the following parties:

CAL FIRE
Central Valley Regional Water Quality Control Board
Central Valley Flood Protection Board
Butte County Air Quality Management District
State of California Native American Heritage Commission
Woody Elliott
John Merz

The City, with assistance from the Butte County Resource Conservation District and the CSU, Chico Ecological Reserves, prepared this Draft PEIR, which will be circulated for public review and comment. The Bidwell Park and Playgrounds Commission or Natural Resources Committee will conduct an environmental hearing on the Draft PEIR to receive comments on the document. After the close of the public comment period, the City will complete a Final PEIR, taking the public comments into consideration. The BPPC will consider the Final PEIR and recommend approval or other action to the City Council. At that time, the BPPC would approve the Plan.

The “project,” or discretionary action, addressed in this PEIR is a long-term program that will be implemented in an incremental manner over time, limited to specific properties and utilizing a defined suite of vegetation management tools. Detailed vegetation management work plans have been defined for certain specific areas (these are the key projects, sometimes described as “the shovel-ready projects,”) while for other areas, the work plans are far more general. Specific plans will be developed over time for these remaining areas as the program is implemented.

However, the Plan as it stands provides an adequate level of detail to analyze potential environmental effects of the anticipated work, rule out some categories of impacts, and outline the needed survey, mitigation, and monitoring methodologies to reduce the remaining impacts to below thresholds of significance. In other words, the details of each site's work plan may be finalized later, but the broad outlines of which resource concerns could be impacts, and how best to reduce those impacts below a level of significance, is knowable today. Impacts are analyzed with the help of the CEQA Checklist (CEQA Guidelines, Appendix G), but the City realizes the Checklist does not list every possible impact that could be significant. Therefore, when the City has identified additional impacts that could result from implementation of the program, these are identified with a bold heading in the checklist and assigned an impact number. For example, **[Impact 4.16-c]** is a potential recreational impact that was identified and analyzed.

A primary focus of any PEIR is the programmatic treatment options or project requirements that can be applied to future site-specific work under the Plan. These measures (SPRs) have been designed to provide a range of actions or procedures that the Parks Division can draw upon when needed to reduce environmental impacts due to the presence of a sensitive environmental resource or due to the nature of the vegetation management action.

As noted above, it is not possible to fully evaluate certain impacts today because the nature and extent of the proposed vegetation management actions at a specific work site are not sufficiently defined, and/or information about site-specific resources is lacking. For these situations, the EIR identifies the appropriate subsequent environmental analysis and/or documentation that may be required to ensure consistency with the EIR findings. (See Project Consistency Checklist, Appendix A.)

2.5 IMPLEMENTATION

Implementation of all projects and activities is contingent upon funding from City budget or external grant sources and on direction from the Bidwell Park and Playgrounds Commission. There is no expectation that project implementation will proceed in a certain fixed order or even that “key projects” will be implemented first. However, in general, units will be prioritized based on the wildfire risk assessment (VFMP section 6.1), public comment, BPPC direction, funding availability, and conditions on the ground.

2.6 PERMITS AND APPROVALS; AGENCY RESPONSIBILITIES

Implementation of the proposed Plan will require formal adoption of the Plan by the Bidwell Park and Playgrounds Commission and the City Council. The following permits will be required for at least some elements of the plan:

- Burn permit and smoke management plan from the Butte County Air Quality Management District for prescribed burning of vegetative debris and landscape restoration projects as proposed under the Plan;
- Burn permits from CAL FIRE for prescribed burning;
- A limited amount of work would occur between creek banks; this work would require a Streambed Alteration Agreement from CDFW pursuant to Fish and Wildlife Code §1601;
- Any work on private property will require landowner permission, and the execution of a Letter of Agreement between the Department and the affected landowner(s).
- No 404 or 401 permit would be required under the Clean Water Act (CWA) because vegetation management activities adjacent to Waters of the U.S. would “involve only the cutting or removing of vegetation above the ground (e.g., mowing, rotary cutting, and chainsawing) where the activity neither substantially disturbs the root system nor involves mechanized pushing, dragging, or other similar activities that redeposit excavated soil material.” (CFR §232.2(2)(ii).)
- An encroachment permit may be required from the Central Valley Flood Protection Board for activities in the vicinity of streams (e.g. Big and Little Chico Creek, Dead Horse Slough, Lindo Channel, and others) for “the planting, or removal of vegetation, and any repair or maintenance that involves cutting into the levee.”

3.0 PROPOSED VEGETATIVE FUELS MANAGEMENT PLAN

The proposed Vegetative Fuels Management Plan (Plan) includes various goals, policies, and actions, which are presented in Chapters 4 through 6 of the Plan. The Plan can be found in Appendix B of this PEIR and is incorporated here by reference.

The PEIR only addresses proposed treatments/actions that could result in impacts to the environment, which include the following categories:

- Key projects (Section 3.1 below)
- Programmatic Vegetation Management (Section 3.2 below)
- Vegetation management in Cooperation with Private Landowners (Section 3.3 below)

The proposed Plan also includes several other actions that would not involve any physical impacts to the environment, including public education, interagency coordination, acquisition of funding, and data gathering and management. These activities are not analyzed further.

3.1 Key Projects

The VFMP contains seven “Key Projects,” sometimes called “the shovel-ready projects,” which have received and/or will receive an elevated level of environmental review using the CAL FIRE grant funding. This extra pre-planning and surveying is intended to make these projects easier to fund through future grants (i.e., to make them “shovel-ready”). For this reason, these projects are sometimes called “the shovel-ready projects”. They are listed in VFMP section 5. All have project boundaries and descriptions; in some cases, botanical and cultural resource surveys have been completed. The projects do not necessarily have secured funding sources.

Many of the key projects are derived from suggestions in existing plans that were never able to be carried further toward implementation. For example, the 10 Mile House Key Project helps fulfill BPMMP implementation strategy PS/ES-13, from the “Public Safety/Emergency Services” element: “Fuel breaks should be created and maintained 100 feet on each side of Ten Mile House Road, Musty Buck Road and other locations as appropriate. An overstory canopy to promote shade and wildlife habitat should be maintained.”

3.2 Programmatic Vegetation Management

The fact that a given activity is not listed as part of a Key Project does not mean it will not be considered as a priority or cannot be elevated as a concern by stakeholders or other governments. Any future vegetation management activity can be authorized under this PEIR by utilizing the Project Consistency Checklist to determine whether the future activity is fully or partly within the scope of this PEIR or not. If it is fully within the scope of this PEIR, no further environmental document is needed and the activity can move forward in accordance with its SPRs. If the future activity is partly within the scope of this PEIR but also has new impacts not analyzed in this PEIR, then a supplemental environmental document would be needed (i.e., ND, MND, or EIR), but the

supplemental document could “tier off” this PEIR (i.e., only analyze the parts of the activity not analyzed in this PEIR).

“Programmatic vegetation management” means activities that are not part of a Key Project defined in the VFMP, but are still within the scope of this PEIR. This can include grazing, lop-and-scatter, pile burning, and prescribed burning, among other treatments. These activities are better thought of as a program of treatment and maintenance than as a series of “projects,” so it is appropriate to review them as a program. The types of treatments which will be implemented through programmatic vegetation management are described in detail in VFMP section 4.3 and further refined in this PEIR through development of the SPRs. For a complete listing of SPRs and the treatments to which they apply, see section 3.4 of this PEIR.

3.3 Vegetation Management in Cooperation with Private Landowners

The proposed Plan focuses on City-managed parks, greenways, and open spaces. However, in some areas where parks or greenways adjoin private property, fire hazards cannot be eliminated without cooperation between City managers and adjacent or upstream private landowners. Primarily, this pertains to *Arundo donax* eradication efforts in Little Chico Creek. Because *Arundo donax* rapidly grows to 10-15' high in very dense and continuous stands and readily burns even when green, it creates the the potential for increased fire behavior, and pose a challenge for fire protection because of its heavy, flammable fuel type, attractive secluded location for fire ignitions whether by campers or arsonists, and poor firefighter access because it is usually behind houses, in creek canyons. The Parks Division hopes to cooperate with landowners on a fuel hazard reduction initiative as part of Key Project 6 (VFMP section 5.6). Other places where the Parks Division plans to cooperate with landowners in the future is in Lindo Channel between Manzanita and Longfellow Bridge (this work is part of a FEMA Hazard Mitigation grant submitted by the City of Chico in summer 2019, which has at the time of this writing neither been approved nor denied).

In this PEIR, impacts have been analyzed as if work in and adjacent to Lindo Channel and Little Chico Creek Greenway were to proceed on private land as well as public land. Those are the two corridors where cross-boundary vegetation management issues have been identified. (For example, City arundo removal volunteers in Little Chico Creek have been coordinating with private landowners for years, and the City submitted a FEMA Hazard Mitigation Grant Program application in 2019 to improve defensible space throughout Lindo Channel.) However, any work on private property will require permission and cooperation from the affected landowners. Approval of this PEIR and adoption of the VFMP do not mean the City will be able to do new work on private parcels without the landowner's permission.

3.4 Vegetation Management Methods and Standard Project Requirements

The VFMP describes in detail the various vegetation management methods the City expects to use over many years to reduce the negative effects of parkland fires on structures, lives and natural resources and to create conditions under which fire, when it does occur, can have beneficial effects. These methods can be thought of as a “toolbox”. Most of these tools can be used in any of Chico’s five vegetation communities, although how a given method is applied will look different in different locations. The methods include biological methods (e.g. grazing), hand work (e.g. loppers, hand-pulling, string trimmers and chainsaws), machine work (e.g. mowing tractor, chipper, and masticator work), chemical methods (e.g. herbicides), and prescribed fire.

The City has identified various Standard Project Requirements (SPRs) to reduce environmental impacts of the vegetation management actions. SPRs are a concept developed by CAL FIRE for use in its massive Vegetation Treatment Program Environmental Impact Report (CalVTPEIR, approved Dec. 31, 2019) as well as smaller regional PEIRs. SPRs can be thought of as “best management practices” that an agency or land manager chooses to adopt as binding policies. They then serve as a basis for analysis of impacts. If the project with SPRs incorporated could have significant impacts, then additional mitigation measures are added. In other words, SPRs are incorporated prior to impact analysis, and mitigation measures are added afterward.

The VFMP’s SPRs were developed through consultation with responsible agencies, adapted from existing work plans in Chico parklands and nearby ecological reserves (e.g., BCRCO 2020), or adapted from programmatic EIRs from other areas in California (e.g., CAL FIRE 2020). These SPRs are listed in Appendix C. The application of the SPRs would be specified in the individual work plans for the vegetation management units. After environmental analysis, the City identified rare cases where additional environmental protection measures could be needed to mitigate potentially significant impacts. These additional measures were developed and are presented as mitigation measures in Section 4 as well as Table 1 above.

3.5 Post-Treatment Monitoring and Maintenance

Each future activity work plan will be developed with the assistance of the Project Consistency Checklist, which will generate a list of applicable SPRs for the project manager. This list of SPRs will form a starting point for the composition of a mitigation and monitoring plan, or MMRP. The City will conduct the monitoring for a period specified in the work plan. For most units, the City expects that vegetation thinning and reduction will be needed about 3-5 years after the initial treatment. For some areas, maintenance will need to be done every few years in perpetuity.

Future vegetation management by the City will depend on available funding. Maintenance of vegetation management areas generally involves the same treatments as the original project or activity (sometimes at a lower intensity or narrower scope) and, in the absence of significant changes in resources or their sensitivity at the activity site, would usually be implemented without additional environmental review, since it would remain under the scope of the environmental document that authorized the original work.

The responsibility for maintaining the vegetation in the original work area in a non-hazardous condition, or for conducting future vegetation management generally resides with the City (but may reside with an adjacent landowner, if involved, depending upon the terms of the Letter of Understanding between the City and the landowner). Individual Letters of Understanding will specify if there are any penalties to either party for failure to conduct the agreed-upon post-treatment vegetation management.

4.0 ENVIRONMENTAL IMPACTS, STANDARD PROJECT REQUIREMENTS, AND MITIGATION MEASURES

As noted in Section 1.2, this document represents a Program EIR. A program level document is appropriate because the Plan consists of a long-term program that is applied to various properties throughout the City over the next 10 to 20 years. The Plan will be implemented through site-specific work plans for each future activity, developed using the Project Consistency Checklist. Hence, the objectives of this EIR are to evaluate impacts at a programmatic level, and, if needed, develop broad mitigation measures that can be applied in a site-specific manner to future activities as they are defined. Additional environmental analysis may be required to more fully evaluate the impacts of a future activity, or to adapt and refine the mitigation measure(s) identified in the PEIR. In many or cases, this will be done with the input or consultation of responsible agencies (e.g., CDFW), Tribes (e.g., Mechoopda Indian Tribe of Chico Rancheria) or units of local government (e.g., Butte County Air Quality Management District). Future environmental documents, if needed, would be delivered through the preparation of an EIR Addendum, Supplemental EIR, Negative Declaration, or Mitigated Negative Declaration, depending upon the nature and extent of the required analyses.

Pursuant to CEQA Guidelines §15063, no Initial Study was prepared prior to development of this draft PEIR. Therefore, the resource areas which would normally be analyzed in an Initial Study are analyzed in sections 4.1 through 4.21 below.

Environmental impacts of the proposed Plan are classified in the categories shown below.

Unavoidably Significant Impact (SI). An impact that cannot be reduced below the level of significance given reasonably available and feasible mitigation measures. Such an impact requires a Statement of Overriding Considerations to be issued if the project [program] is approved.

Less Than Significant after Mitigation (LTSM). An impact that is potentially significant, but that can be reduced to below the significance level given reasonably available and feasible mitigation measures. Such an impact requires CEQA Findings to be made if the project [program] is approved.

Less Than Significant impact (LTS). An impact that may be adverse, but does not exceed the significance level and does not require mitigation measures under CEQA. However, mitigation measures that could further lessen the minor adverse impacts may be recommended, if available and feasible.

Impact significance in this PEIR was determined using guidance from the following sources:

- (1) the definitions of "significance" in the *CEQA Guidelines* (Sections 15064, 15065) and *CEQA Statute* (Public Resource Code 21088);
- (2) the thresholds used in the *CEQA Guidelines Environmental Checklist* (Appendix G); and
- (3) for potential impacts not listed above, the judgment of local resource managers.

The following impact assessments take into account the environmental standard practice requirements (SPRs) described in Section 3.4 of this PEIR.

4.1 AESTHETICS

4.1.1 Existing Conditions

Chico’s parklands are managed for aesthetic beauty among other objectives; in the case of Bidwell Park, the City’s obligation to preserve the land’s natural beauty was a specific condition of the deed gift from Annie Bidwell. Bidwell Park’s scenic vistas such as Monkey Face Rock or Salmon Hole overlook are probably at least as well-known as the town’s best-loved architectural features.

Even open spaces whose primary management objective may be flood control or providing a non-motorized transportation corridor are still considered to be better-managed if they are beautiful than if they are ugly, all else being equal. Citizens have a widely if informally recognized right to demand that public spaces not be ugly, and they exercise it vocally. While it has never been possible to satisfy every individual’s aesthetic tastes at once, creating and maintaining beautiful public spaces is a central responsibility of parks managers.

Aesthetic judgements are by their nature subjective. For this reason, aesthetics is one of the few resource areas in which the Courts have explicitly emphasized the validity of non-expert opinion (Ocean View Estates Homeowners Assn. v. Montecito Water District (2004) 116 Cal.App.4th 396). The same dense, shady forest that feels comforting and private to one resident may feel claustrophobic to another. People’s aesthetic judgements are likely to be influenced by their memories, personal histories, culture and geography of origin, and their past traumas, among other things.

The work contemplated in this Program EIR will, indeed, change the way some Chico parklands look, but a change in a vista, by itself, is not sufficient to cause a significant aesthetic impact. For that to happen, the change must be not only substantial but also adverse. In general, implementing the vegetative fuels management plan will reduce tree density, remove branches at and around eye level, and in some cases remove dense stands of vegetation entirely (e.g. arundo), likely eventually replacing it with less-dense alternative vegetation. The overall effect, in almost every case, will be to lift and lengthen sightlines. People will be able to see farther when walking in parks and greenways.

4.1.2 Thresholds of Significance and Impacts

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
a) Except as provided in Public Resources Code § 21099, would the project have a substantial adverse effect on a scenic vista?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

Note: Public Resources Code § 21099 states, “Aesthetic and parking impacts of a residential, mixed-use residential, or employment center project on an infill site within a transit priority area shall not be considered significant impacts on the environment.” This provision does not apply to this program because this program does not involve construction of a residential, mixed-use residential, or employment center project on an infill site within a transit priority area.

Chico parklands have many scenic vistas, especially in Bidwell Park. Viewers may notice temporary, transient impacts to these vistas, such as from smoke for brief periods during prescribed burns. However, these impacts will not be substantial and will be outweighed by the long-term positive aesthetic impacts of the program.

The combination of fuel and vegetation changes within and surrounding the program area during the past century has resulted in a landscape that is less than resilient to wildland fire, drought, insects, and disease. The lack of management activities has contributed to the current condition. Vegetation management activities are expected to shift vegetation densities closer to pre-fire-suppression conditions (although faithfully replicating the way parklands would have looked at some earlier time is not, in itself, an objective). A sense of spaciousness and an improved ability to view wildlife are two often-cited hallmarks of the pre-fire-suppression Sierra-Cascade foothill vegetation communities. Furthermore, when more sunlight reaches the floor of oak woodlands and chaparral communities, improved wildflower viewing opportunities are often the result. Indeed, many famous visitors to pre-fire-suppression California remarked on its open forests, the “parklike” aesthetics of the Sierra Nevada foothills, and – especially – the abundance of flowers and birds.

During treatment activities and immediately afterward, changes to the visual quality of the landscape may be observable. However, the area will not be 100% cleared through management operations. Instead, visitors post-treatment will notice longer sightlines. Where a hiker might previously have been able to see only ten feet into the underbrush, they may be able to see fifty feet or a hundred feet or more. In wilder areas such as upper Bidwell Park, untreated areas will be left to provide textural variety and a desirable habitat mosaic. This mosaic of uneven-aged vegetation and open space will be designed to mimic the pyrodiversity (diversity of fires of different sizes, ages, intensities and effects) that is believed to have promoted California’s high levels of biodiversity.

b) Except as provided in Public Resources Code § 21099, would the project substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a state scenic highway?	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

There is no state scenic highway within view of any Chico parklands. In general, proposed treatments are intended to benefit the visual objectives in the program area.

c) Except as provided in Public Resources Code § 21099, <u>in non-urbanized areas</u> , would the project substantially degrade the existing visual character or quality of public views of the site and its surroundings? (Public views are those that are experienced from publicly accessible vantage point.) If the project is <u>in an urbanized area</u> , would the project conflict with applicable zoning and other regulations governing scenic quality?	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

In general, proposed treatments are expected to improve, not degrade, the aesthetic character of the area. Some trees will be removed, so visitors will notice transient impacts like piles of sawdust or slash waiting to be chipped, burned, or removed. Tree removal will be selective and conducted with the aim of reducing horizontal and vertical canopy connectivity (i.e., the likelihood of crown fires). Therefore, the long-term effects of the treatment will be trees that are less crowded, more able to extend their limbs and achieve their full potential as scenic trees. In addition to improved scenic trees, visitors will also notice longer sightlines and likely more flowers and wildlife.

In upper Bidwell Park, reducing the possibility of stand replacing fires, disease or insect mortality, and improving the resiliency of the vegetation to climate change would improve and maintain the aesthetic integrity of the program area. Furthermore, reducing the severity of future wildfires would improve not just the quality, but the quantity of viewing opportunities by making it less likely trails would be closed in the future due to hazard trees.

In the rest of the program area, reducing the competition between vegetation would enhance the long-term aesthetics by promoting healthy stands of trees and shrubs. While short-term consequences from the proposed activities could include transient aesthetic impacts, medium- and long-term effects would primarily enhance and benefit the resources in the area, including visual quality.

For the portions of the program that are in an urbanized area, the program does not conflict with any applicable zoning or other regulations affecting scenic quality. Chico’s zoning regulations as they affect landscaping and vegetation, the visual character of Chico neighborhoods, and the preservation and enhancement of environmental resources and sensitive natural habitats are found in Title 19 of the Chico Municipal Code, “Land Use and Development Regulations.” These regulations are the primary tool to carry out the goals, objectives, and policies of the Chico General Plan; thus, any land use that is in compliance with these Regulations will also be consistent with the General Plan (CMC 19.01.030(B)). These regulations primarily apply to permitted and non-permitted uses on privately developed parcels. Most of the parcels considered in the Vegetative Fuels Management Plan are zoned as Primary Open Space, Secondary Open Space, or (in the case of the Airport open space) Public Facilities and Services. The Land Use and Development Regulations do not provide any particular standards for vegetation management in such areas. The program does not conflict with any regulations in Title 19 or in the General Plan. Moreover, the program will facilitate implementation of at least 2 General Plan actions or policies that relate to aesthetics:

Action OS-1.1.5 (Control Invasive Species) – Prioritize efforts to remove non-native species within Bidwell Park and other City greenways, and condition new development adjacent to Bidwell Park and greenways to protect native species and habitat from the introduction of invasive species.

and

Policy OS-2.6 (Oak Woodlands) – Protect oak woodlands as open space for sensitive species and habitat

d) Except as provided in Public Resources Code § 21099, would the project create a new source of substantial light or glare which would adversely affect day or nighttime views in the area?	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

Prescribed fire or pile burning activities could create a faint temporary glow on rare nights, but the glow will neither be substantial nor affect day or nighttime views of the area.

Cumulative impacts: The cumulative aesthetic impacts of the program are expected to be negligible or positive.

4.1.3 Consistency with Applicable Local Plans

As discussed above, the program does not conflict with any applicable zoning or other regulations affecting scenic quality. Chico’s zoning regulations as they affect landscaping and vegetation, the visual character of Chico neighborhoods, and the preservation and enhancement of environmental resources and sensitive natural habitats are found in Title 19 of the Chico Municipal Code, “Land Use and

Development Regulations.” These regulations are the primary tool to carry out the goals, objectives, and policies of the Chico General Plan; thus, any land use that is in compliance with these Regulations will also be consistent with the General Plan (CMC 19.01.030(B)). These regulations primarily apply to permitted and non-permitted uses on privately developed parcels.

Parks are regulated differently. For example, Bidwell Park is zoned OS-1 (primary open space) in the Chico Municipal Code. This zoning district usually applies to publicly-owned areas appropriate for permanent open space. The OS-1 zone is consistent with the “Parks” General Plan land use classification. The General Plan sets the policy direction for land use in Bidwell Park and also acknowledges the BPMMP as the more refined guidance document. Whereas the OS-1 zoning designated in the Municipal Code identifies the types of land uses generally considered appropriate, the BPMMP is the more detailed planning document, specifying uses by area and recommending a set of management practices to follow. The General Plan, Municipal Code and BPMMP provide increasing levels of detail and complementary guidance to the BPPC when considering land use questions for Bidwell Park.

As a charter commission, BPPC has authority to utilize all of the City’s planning documents in concert to make discretionary land use decisions for Bidwell Park, subject to City Council concurrence and an appropriate level of environmental review under CEQA. The primary land uses in Bidwell Park are open space and recreation. Both intensive and non-intensive recreation occurs within the Park, with more intensive recreation occurring in Lower Park, where there are more amenities and access points. The area along Big Chico Creek, Middle Park, and Upper Park are oriented more towards non-intensive recreation and open space preservation, consistent with RCA status. Most of the parcels considered in the Vegetative Fuels Management Plan are zoned as Primary Open Space, Secondary Open Space, or (in the case of the Airport open space) Public Facilities and Services. The Land Use and Development Regulations do not provide any particular standards for vegetation management in such areas. The program does not conflict with any regulations in Title 19 or in the General Plan. Moreover, the program will facilitate implementation of at least 2 General Plan actions or policies that relate to aesthetics:

Action OS-1.1.5 (*Control Invasive Species*) – *Prioritize efforts to remove non-native species within Bidwell Park and other City greenways, and condition new development adjacent to Bidwell Park and greenways to protect native species and habitat from the introduction of invasive species.*

and

Policy OS-2.6 (*Oak Woodlands*) – *Protect oak woodlands as open space for sensitive species and habitat*

No changes to land use or zoning are proposed in the Plan.

In Bidwell Park, aesthetics and scenic quality are one of the most important management considerations. This is underscored by the following five relevant objectives and two relevant implementation strategies from the Bidwell Master Management Plan (BPMMP, EDAW 2008a). Responses to these objectives and strategies are provided in non-italic text.

- *O. VR-1. Protect scenic characteristic[s] and aesthetic resources.*

The program is consistent with this objective because Californian vegetation communities are scenic and beautiful when they are maintained at fire-resilient densities. Furthermore, while it is not the goal of the VFMP to prevent all wildfires, VFMP implementation is expected to make future wildfires less intense and less likely to replace entire stands of woodland at one time. Although aesthetic values are subjective, the aftermath of stand-replacing fire is viewed by many as inconsistent with scenic values of parklands.

- *O. VR-3. Use native plants for landscaping in Bidwell Park with few exceptions.*

The VFMP does not contemplate or address landscaping per se, but establishes an order of operations for removing excessive woody vegetation or ladder fuels, whereby any invasives will be removed first before native vegetation is removed.

- *O. VR-4. To the greatest extent possible, limit the use of irrigated turf areas to the Municipal Golf Course, One-Mile Recreation Area, Cedar Grove, Five-Mile Recreation Area, East 4th Street entrance, and Hooker Oak Recreation Area.*

Although it is a well-known and often successful tactic for creating or expanding defensible space, no expansion of irrigated turf is contemplated in the VFMP.

- *O. VS-1. Protect to the maximum extent feasible viewsheds from Park vantage points, particularly those encompassing ridgelines and slopes.*

Visibility will increase in some areas of Bidwell Park if the VFMP is fully implemented. This means that, in theory, some structures that are currently screened from view by bushes or trees could become visible. No new structures or obstacles will be placed in viewsheds, but the number of vantage points from which certain manmade objects (e.g. the powerlines, homes adjacent to the South Rim of Bidwell Park, or cars parked at the Green Gate trailhead) are visible might increase. The slight increase in visibility for some structures from some vantage points will be offset by the aesthetic gains from the program, e.g. more wildflowers, a more sweeping and spacious sense of the canyon, and better wildlife viewing opportunities.

- *O. Upper-11. Preserve and protect the viewshed by protecting vegetation on steep cliffs bordering developed areas.* For a variety of reasons, much vegetation will be left on steep cliffs in many places. For example, the north-facing vegetation communities of the South Rim offer a unique microclimate, with more shade and cooler moister conditions longer into the summer than surrounding areas, that provides habitat for various rare plant species. The presence of these species should not make work impossible to implement on those slopes, but it is likely to impose seasonal limited operating periods, which reduce the number of opportunities to get work done in any given year. Also, very steep slopes are difficult to work on safely.

However, despite these constraints, some work will still be done on slopes. This will result in woody vegetation becoming thinner in places. Furthermore, for public safety reasons, it is reasonable to expect that vegetation immediately below homes will be a higher priority for removal than vegetation which does not screen any homes. This combination of factors could result in some developed areas being visible from more spots in Upper Park after the VFMP is fully implemented, compared to present conditions. The increase in visibility for some structures from some vantage points will be offset by the aesthetic gains from the program, e.g. more wildflowers, a more sweeping and spacious sense of the canyon, and better wildlife viewing opportunities.

- *I. VR-1. Impacts to the visual character of Bidwell Park should be considered when evaluating decisions.*

This VFMP-PEIR process has been developed in order to provide ample opportunity for the public and units of local government to discuss and consider how the visual character of Bidwell Park can best be preserved.

- *I. VR-3. Design standards should blend in with the natural environment. Natural materials such as rock, gravel, logs, and mulch should be used in ways that simulate natural conditions. The choice of using asphalt, concrete, decomposed granite or other alternatives should be based on consideration of aesthetics, environmental effects, and maintenance costs. Consideration should be given to avoiding or minimizing adverse effects and achieving long term resource protection.*

While the VFMP does not include any facilities construction or trails construction, it does incorporate the need to leave logs and downed wood (where they are consistent with fuels loading standards) in a pattern that provides good habitat and enhances the aesthetic value of the area. The BMP of leaving wood chips strewn over an area in a thin layer, for example, rather than in a pile (which is the cheapest and most convenient practice) was designed to satisfy aesthetic concerns as well as concerns relating to soil health and fuels loading.

4.1.4 Mitigation Measures

Because impacts would be less than significant, no mitigation measures are required.

4.1.5 Residual Impact(s)

Not applicable.

4.2 AGRICULTURAL RESOURCES

4.2.1 Existing Conditions

Chico has a strong agricultural heritage, and remnants of historical orchards can often be found scattered throughout modern-day parklands. However, no parklands or open spaces covered in the Vegetative Fuels Management Plan are identified as farmland of statewide or local significance or potential, or as Prime or Unique farmland, by the Department of Conservation's Important Farmland Finder. Also, none of the lands in the VFMP program area are zoned for timberland production or are Williamson Act lands (the Williamson Act, by definition, only protects private lands). However, some lands covered or mentioned in the Vegetative Fuels Management Plan are identified as lands suitable and used for grazing, particularly Bidwell Ranch, parts of the Airport Open Space, and eastern segments of Deadhorse Slough and Little Chico Creek. On lands that are already grazed, grazing intensity and duration will continue to fluctuate from year to year based on weather conditions and biological indicators as established in each unit's grazing plan. On lands that are not yet grazed, some new grazing units could be defined in the process of VFMP implementation. To that end, the VFMP and this EIR specify the SPRs and/or mitigation measures which would need to be incorporated into each future grazing project. However, the VFMP does not impose new restrictions or remove restrictions on what types of grazing is allowed or where grazing is allowed. It simply specifies the management conditions under which grazing can proceed on units where it is already a permitted land use.

4.2.2 Thresholds of Significance and Impacts

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
a) Would the project convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance (Farmland), as shown on the maps prepared pursuant to the Farmland Mapping and Monitoring Program of the California Resources Agency, to non-agricultural use?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

The program is not located on land identified as Prime Farmland, Unique Farmland, or Farmland of Statewide Importance (Farmland).

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
b) Would the project conflict with existing zoning for agricultural use or a Williamson Act contract?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

The program does not include any currently non-permitted uses for parkland, and no land in the program area is under a Williamson Act contract because it is all public land. As such, the program is consistent with the existing zoning and Williamson Act contracts.

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
c) Would the project conflict with existing zoning for, or cause rezoning of forest land (as defined in Public Resources Code §12220(g)), timberland (as defined by Public Resources Code §4526), or timberland zoned Timberland Production (as defined by Government Code §51104(g))?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

The program is not on land zoned for timber production and would not cause rezoning of forest land.

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
d) Would the project result in the loss of forest land or conversion of forest land to non-forest use?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

The program will promote and improve woodlands by removing competition from shade-tolerant brush species and improving the chances that forest resources are not lost as a result of a potential catastrophic wildfire. The proposed action is intended to remove small diameter trees, and enough encroaching brush and chaparral to achieve a healthy and resilient landscape reflected in a fine grain mosaic of conifer and oak woodland habitats that is reflective of traditional knowledge and historic photographs of this area. By facilitating this vegetation composition and structure, Chico parks managers will develop a dynamic ecological community that is expected to be more adaptive to future environmental change (i.e., warmer and drier conditions or climate extremes) than the present overstocked woodland conditions in Upper Park. This should result in healthier stands of oak/gray pine woodlands due to reduced competition with brush that are less likely to succumb to a future wildfire due to reduced fuels and lower burn severity. While most woodland in the plan area is in Upper Park, areas outside Upper Park will not experience loss of forestland either: while individual trees may be removed, wholesale conversion of any forested areas to non-forest is not contemplated in the VFMP.

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
e) Would the project involve other changes in the existing environment, which, due to their location or nature, could result in conversion of farmland to non-agricultural use?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

The program takes place entirely onsite in Chico parklands and requires no improvement or expansion of auxiliary facilities; therefore, the program has no foreseeable indirect, offsite, or cumulative impacts that could degrade or convert forestlands or agricultural lands.

Cumulative impacts: There will be no cumulative agricultural or timberland-related impacts of the program.

4.2.3 Consistency with Applicable Local Plans

The program does not convert or impact any lands designated as agricultural lands in Chico's Sphere of Influence; and does not impose any impermissible uses in agricultural buffer lands as defined in Chico Municipal Code section 19.64.040. The Chico 2030 General Plan (City of Chico 2017) contains the following relevant goal:

Goal OS-5 Preserve agricultural resources for the production of local food and the maintenance of Chico's rural character. The proposed program is consistent with this goal because it does not infringe on, impact, or change the use of any agricultural resource recognized in the General Plan.

4.2.4 Mitigation Measures

Because impacts would be less than significant, no mitigation measures are required.

4.2.5 Residual Impact(s)

Not applicable.

4.3 AIR QUALITY

4.3.1 Existing Conditions

The Federal government and the State of California establish allowable levels of air pollution for several contaminants that are known to harm human health.

Federal standards have been established for these seven pollutants:

1. Carbon monoxide
2. Lead
3. Nitrogen dioxide
4. Ozone
5. Respirable particulate matter less than 10 microns in diameter (PM10)
6. Fine particulate matter less than 2.5 microns in diameter (PM2.5), and
7. Sulfur dioxide

California state standards exist for all of these, plus four more:

1. Sulfates
2. Hydrogen sulfide
3. Vinyl chloride (chloroethene), and
4. Visibility reducing particles

At the Federal level, allowable pollution levels are established by the Environmental Protection Agency under the authority of the Clean Air Act. At the State level, allowable pollution levels -- which may be more stringent than Federal levels -- are established by the California Air Resources Board (CARB) and enforced by thirty-five air quality districts. Each air quality district (or AQD for short) has slightly different rules and regulations, because different air basins have different needs based on factors such as topography, population density, land use and prevailing winds. However, each AQD builds and enforces a regulatory framework designed to keep air in the district from becoming less safe to breathe.

In Butte County, this role is fulfilled by the Butte County Air Quality Management District (BCAQMD). BCAQMD balances the needs of industry, agriculture and land managers with public health and determines what quantities of pollution, particularly from combustion, are allowed to be emitted in any given year. BCAQMD also works to help land managers minimize the amount of pollution resulting from a given activity. For example, the same pile of orchard prunings will emit much less smoke when burned dry than when burned wet, and the same amount of smoke will harm more lungs during an air layer inversion than on a clear day.

Currently, while the air in Butte County meets both the State and federal health-based standards for most listed pollutants, it falls short (or is said to *be in nonattainment*) for others. These include ozone and, at various times, both types of fine particulate matter (PM2.5 and PM10).

Table AIR-1: Butte County – State and Federal Ambient Air Quality Attainment Status:

Pollutant	State Designation	Federal Designation
1-hour ozone	Nonattainment	—
8-hour ozone	Nonattainment	Nonattainment
Carbon monoxide	Attainment	Attainment
Nitrogen Dioxide	Attainment	Attainment
Sulfur Dioxide	Attainment	Attainment
24-Hour PM10	Nonattainment	Attainment
24-Hour PM2.5	No Standard	Attainment
Annual PM10	Attainment	No Standard
Annual PM2.5	Nonattainment	Attainment

Source: Butte County AQMD 2018

There are no class I airsheds within the program area.

It is the responsibility of the Butte County Air Quality Management District to ensure that projects within the County (including inside city limits) do not unacceptably contribute to nonattainment. BCAQMD was consulted about potential air quality impacts from the VFMP during scoping, and the District's two recommendations for mitigating impacts to below a level of significance were adopted into this EIR (see 4.3.4).

Emissions from internal combustion sources. Throughout the Northern Sacramento Valley Air Basin, the major contributor to everyday air pollution is the motor vehicle. (Implementing the VFMP involves some additional vehicle miles traveled, but the increase is not substantial enough to significantly contribute to air pollution.) Certain vehicles or equipment, such as diesel tractors and chippers, can contribute disproportionately to smog precursors, and the choice of a cleaner model of engine can deliver dramatically reduced pollution while offering comparable performance. (See Mitigation Measure AIR-2.)

Emissions from wildland smoke. While emissions from vehicles and heavy equipment are the primary chronic source of air pollution in the region, they are not the most notable acute source. During wildfires, acute air impacts from smoke can be very severe for a period of one or two days to three or more weeks. During the 21st century, Chico air quality has been impacted by severe wildfire smoke for at least several days in most years, forcing sensitive groups to stay indoors, leave the area, and/or invest in costly air purification devices. Wildfires that burn structures and vehicles, such as the 2018 Camp Fire and the 2020 Bear Fire, produce smoke that is even more toxic than fires that burn only vegetation. Reducing smoke impacts from wildfire is a major goal of community-scale vegetation management programs, including prescribed burning programs.

Implementation of the VFMP would create an increase in smoke from prescribed fire, which could have air quality impacts. However, implementation of the VFMP is also expected to create a decrease in wildfire smoke which could offset these impacts. Because prescribed fires can be deliberately ignited at times when atmospheric conditions are ideal for smoke dispersal, they usually have lower smoke impacts per unit burned than wildfires - 80% lower according to one Federal estimate (National Prescribed Fire Act of 2020). Fuel that is consumed in a prescribed fire (or is chipped and returned to the soil, is eaten by a browsing

goat, or is otherwise mechanically removed from the woodland) is not available to burn during a wildfire. So while wildfires would still burn on City property (especially Upper Park), they would produce less net smoke per acre after implementation of the VFMP. It is important to note that smoke impacts can still occur from prescribed fire if winds change and drive more smoke toward sensitive receptors. Careful planning and collaboration between burn managers and the Butte County Air Quality Management District is designed to minimize these impacts. The BCAQMD balances the rights of burners (and the public benefits delivered by burning) with the rights of all Californians to clean air (and the public benefits of not burning).

- The primary issues raised in comments on the notice of preparation that pertain to air resources included the following:
- The BCAQMD acknowledges the need for a Smoke Management Plan (SMP) as noted in the VFMP. It can be assumed that the prescribed burning portion of the program would not conflict with established air quality attainment plans and would not result in a significant impact if prescribed burns are conducted in compliance with an approved SMP.
 - All movable chippers of 50 HP or greater should be registered either with BCAQMD or through the statewide Portable Equipment Registration Program (PERP).

4.3.2 Thresholds of Significance and Impacts

In determining the level of significance, the analysis assumes that the program and any projects within its scope would implement the following standard project requirements (SPRs), as well as any other SPRs listed elsewhere in this document, developed for the program. It also assumes that the program would comply with relevant federal and state laws, regulations, and ordinances.

SPR AIR-1: Smoke Management Plan for All Burns. Unless an exemption (e.g. for very small cultural burn demonstrations) is negotiated at least a week in advance with BCAQMD, all prescribed burns on Chico parklands will have a Smoke Management Plan (SMP) developed for them and approved by BCAQMD before implementation. As part of burn planning, park managers will coordinate prescribed burns with BCAQMD staff in order to choose the optimal conditions with which to burn in order to generate minimal smoke impacts to the community.

SPR AIR-2: Register All Portable Chippers. Portable chippers rated at 50 HP or greater shall be registered either with the District or through the statewide Portable Equipment Registration Program (PERP).

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
a) Would the project conflict with or obstruct implementation of the applicable air quality plan?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

Prescribed burning would produce PM10 and PM2.5. Prescribed burning is regulated by the Butte County Air Quality Management District (BCAQMD) in compliance with the state smoke management plan, Title 17. Prescribed burn projects must submit a Smoke Management Plan to BCAQMD for review and approval (**SPR AIR-1**). The plan is developed to minimize air quality impacts. Burning is done on approved burn days as determined by BCAQMD. This process ensures that there are not any significant smoke impacts to public health from the program.

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
b) Would the project result in a cumulatively considerable net increase of any criteria pollutant for which the project region is non-attainment under an applicable federal or state ambient air quality standard?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

Effects to air quality and visibility, including temporary increases in PM10 and PM2.5, could result from prescribed burning; and a very small increase in air pollutants could result from equipment use under the proposed action. While Butte County is in nonattainment for these pollutants, the effects of the program would not be cumulatively considerable when compared with the baseline scenario of likely future emissions from wildfire under the no-project alternative.

Effects to air quality could result from fugitive dust caused by project implementation. Fugitive dust generally quickly settles back down to the ground and typically does not spread far downwind.

Potential adverse effects from equipment used in project implementation would be very small and would not greatly exceed normal vegetation management activity in a neighborhood. Equipment emissions would disperse quickly over a large area and would be minimized by **SPR AIR-2**.

Effects to visibility from prescribed burning would be temporary, and minimized by burning only during designated burn days when adequate weather conditions would disperse smoke quickly. Most prescribed burning would occur on a single day or over several days. Fire managers are required by the air district to plan for controlling smoke emissions through contingency planning as part of the smoke management plans (**SPR AIR-1**).

Project emissions would temporarily increase air pollutants in the airshed and Butte County. However, their direct, indirect and cumulative effects would be regulated by the BCAQMD in order to prevent adverse impacts and exceedances of health standards. The proposed prescribed fire treatments would reduce future potential wildfire smoke.

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
c) Would the project expose sensitive receptors to substantial pollutant concentrations?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

Smoke management plans require project managers to identify and disclose sensitive receptors that could be affected by the burn. The project managers, in collaboration with the local air quality management district, then identify the atmospheric conditions that would loft or drive smoke away from the sensitive receptors. They incorporate those desirable conditions into the burn prescription. These precautions are part of **SPR AIR-1**. Due to the above factors, the program will not expose sensitive receptors to substantial pollutant concentrations.

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
d) Would the project result in other emissions (such as those leading to odors) adversely affecting a substantial number of people?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

The program will not result in emissions other than those mentioned above.

Cumulative impacts: The cumulative air quality impacts of the program are expected to be less than significant due to ongoing regulation by BCAQMD.

4.3.3 Consistency with Applicable Local Plans

The Bidwell Master Management Plan (BPMMP, 2008) contains the following three relevant objectives and one relevant implementation strategy:

- *O.AQ-1. Protect, preserve, and enhance air quality in Bidwell Park.*
By ensuring that all prescribed burns are conducted in accordance with a smoke management plan, and by reducing the smoke impacts from future wildfires, the VFMP will protect air quality in Bidwell Park.
- *O.AQ-3. Activities within the Park should not adversely affect air quality within the Park and surrounding areas.*
By ensuring that all prescribed burns are conducted in accordance with a smoke management plan, and by ensuring that all chippers with HP greater than 50 are registered with air quality managers, this EIR protects surrounding areas' air quality from being adversely affected by vegetation management activities in Bidwell Park. While vegetation management activities do have impacts, they should be compared to the adverse impacts from not managing vegetation. Unmanaged vegetation eventually burns, and burns at relatively high intensity, with significantly greater smoke impacts than from managed vegetation.
- *I. AQ-3. City of Chico air quality control BMPs and BCAQMD standards shall be applied to applicable activities within the Park.*
See **SPR AIR-1**, above.

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

- *Goal OS-4 Improve air quality for a healthy City and region.*
The program is consistent with this goal because it incorporates SPRs ensuring all activities will be in compliance with BCAQMD air basin plans and will use cleaner options for portable internal combustion chippers.

4.3.4 Mitigation Measures

Since impacts would be less than significant, no mitigation is required.

4.3.5 Residual Impact(s)

Not applicable.

4.4 BIOLOGICAL RESOURCES

4.4.1 Existing Conditions

Chico's parklands are home to thousands of species of plants, animals, and fungi, including some found almost nowhere else. It is humbling to consider that even the incredible biodiversity Chico's parklands contain in the 21st century may be diminished from what they contained in the nineteenth century, before fire suppression and development directly and indirectly impacted the region's natural communities. If humans reverse the legacy of fire suppression, some species will increase in abundance and others will decrease in abundance. This change in relative abundance is an inevitable result of parkland management (or, indeed, of parkland neglect). However, park managers have a legal responsibility to make sure that their actions do not contribute to the decline or disappearance of special-status species or habitats.

CEQA requires the City to consider the impacts of its parkland management on those species and habitats that have been identified by the State, the U.S., or regional or local entities (e.g., regional oak woodland preservation ordinances) as particularly sensitive or vulnerable and have been assigned special legal status based on that determination. Therefore, this section deals with the impacts of program implementation on plant and animal species with special legal status as defined by the State, the U.S., or regional or local entities. The terms "sensitive" and "special status" are used interchangeably.

Relatively common biological resources, such as blue oaks or mixed upland chaparral, are not analyzed with the same detail as special-status species, but they are still important. Through SPRs and the fuel loading specifications in VFMP 4.2 (i.e., the desired conditions) themselves, a framework is developed by which these resources can be conserved and restored to their natural range of variation in terms of age class, abundance, spacing, range, and community diversity.

Finally, it is important to consider that many plant and animal populations may qualify as living cultural resources of special significance to local Tribes, yet have no special legal status as defined by the State, the U.S., or regional or local entities. These resources are addressed through processes and SPRs described in section 4.18, Tribal Cultural Resources.

This section addresses sensitive biological resources that could be affected by implementation of the proposed program. Biological resources include terrestrial vegetation/habitat types and wildlife, aquatic biological resources, sensitive plant communities and habitats, and special-status plant and animal species. Regulatory requirements that pertain to biological resources are summarized. The analysis describes potential direct, indirect, and cumulative impacts from implementation of the proposed program, lists SPRs which must be incorporated to minimize pre-mitigation impacts to species, and identifies mitigation measures for those impacts determined to be significant.

The primary issues raised in comments on the notice of preparation that pertain to biological resources included the following:

- Request for assessment of the flora and fauna within and adjacent to the project footprint, based on occurrences known in the Calif. Natural Diversity Database, other sources such as herbariums and museums, and field surveys done at appropriate seasons
- Request that surveys be performed by qualified biologists, and proposal of appropriate certifications
- Request for a thorough biological analysis of what plant and animal species are to be found in the park/open space/waterways that are being discussed, with detailed mapping.
- Request for review of the compatibility [of] the 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 with the 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.

For this analysis, information about sensitive biological resources known or with potential to occur in the program area is based primarily on review of the following sources: results of previous biological surveys conducted for other projects planned in the program area; a records search of the California Natural Diversity Database (CNDDDB; CDFW 2020); and a list of federally proposed, candidate, threatened, and endangered species that may occur in the program region obtained from the U.S. Fish and Wildlife Service (USFWS) Information for Planning and Consultation (IPaC) system (USFWS 2020). This raw data was refined and sorted based on species’ habitat requirements and known occurrences and can be viewed below in Tables BIO-1-HP, -1-HA, -2-HP, -2-HA, and -3. While the lack of known occurrences within the program area was not interpreted as evidence of a species’ absence, the lack of its required habitat was. In cases where there was reasonable doubt about whether suitable habitat occurs in the program area or not, habitat was presumed present. Sources for this part of the analysis were [CalFlora 2020](#), the [Jepson eFlora 2020](#), the [California Moss eFlora 2020](#), and informal discussions with locally knowledgeable botanists and wildlife biologists including at CDFW. Finally, the species’ conservation needs were analyzed based on life history and phenological data obtained from CDFW, USFWS 2005, Calflora, and the [Consortium of California Herbaria](#) (CCH2 2020)

Regulatory Setting

FEDERAL

Federal Endangered Species Act

Pursuant to the federal Endangered Species Act (ESA; 16 U.S.C. Section 1531 et seq.), USFWS and the National Oceanic and Atmospheric Administration National Marine Fisheries Service (NMFS) regulate the taking of species listed in the ESA as threatened or endangered. In general, persons subject to ESA (including private parties) are prohibited from “taking” endangered or threatened fish and wildlife species on private property, and from “taking” endangered or threatened plants in areas under federal jurisdiction or in violation of state law. Under Section 9 of the ESA, the definition of “take” is to “harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect, or to attempt to engage in any such conduct.” USFWS has also interpreted the definition of “harm” to include significant habitat modification that could result in take.

Two sections of the ESA address take. Section 10 regulates take if a non-federal agency is the lead agency for an action that results in take and no other federal agencies are involved in permitting the action. This is usually the case for the City of Chico. However, if a project would result in take of a federally listed species and federal discretionary action (even if a non-federal agency is the overall lead agency) is involved (i.e., a federal agency must issue a permit), the involved federal agency consults with USFWS under Section 7 of the ESA. Section 7 of the ESA outlines procedures for federal interagency cooperation to protect and conserve federally listed species and designated critical habitat. Section 7(a)(2) requires federal agencies to consult with USFWS and NMFS to ensure that they are not undertaking, funding, permitting, or authorizing actions likely to jeopardize the continued existence of listed species or destroy or adversely modify designated critical habitat.

Clean Water Act

Section 404 of the CWA requires a project applicant to obtain a permit before engaging in any activity that involves any discharge of dredged or fill material into waters of the United States, including wetlands. Fill material is material placed in waters of the United States that has the effect of replacing any portion of

waters of the United States with dry land or changing the bottom elevation of any portion of waters of the United States. Because implementation of the VFMP involves very little ground disturbance, Section 404 of the CWA is not expected to be relevant. However, discharge of non-point-source sediment into local creeks is analyzed in section 4.10, Hydrology and Water Quality. In California, the authority to grant water quality certification is delegated by the State Water Resources Control Board to the nine regional water quality control boards (RWQCBs).

Bald and Golden Eagle Protection Act

Under the Bald and Golden Eagle Protection Act, it is illegal to take bald eagles, including their parts, nests, or eggs unless authorized. “Take” is defined as “pursue, shoot, shoot at, poison, wound, kill, capture, trap, collect, molest or disturb.” Disturb means to agitate or bother a bald or golden eagle to a degree that causes, or is likely to cause (1) injury to an eagle; (2) a decrease in its productivity, by substantially interfering with normal breeding, feeding, or sheltering behavior; or (3) nest abandonment (USFWS 2007:31156). In addition to immediate impacts, this definition also addresses impacts that result from human-induced alterations initiated around a previously used nest site during a time when eagles are not present, if, upon the eagle’s return, such alterations agitate or bother an eagle to a degree that interferes with or interrupts normal breeding, feeding, or sheltering habits, and causes injury, death, or nest abandonment.

Migratory Bird Treaty Act

The Migratory Bird Treaty Act (MBTA), first enacted in 1918, provides for protection of international migratory birds and authorizes the Secretary of the Interior to regulate the taking of migratory birds. The MBTA provides that it shall be unlawful, except as permitted by regulations, to pursue, take, or kill any migratory bird, or any part, nest, or egg of any such bird. Under the MBTA, “take” is defined as “to pursue, hunt, shoot, wound, kill, trap, capture, or collect, or any attempt to carry out these activities.” A take does not include habitat destruction or alteration, as long as there is not a direct taking of birds, nests, eggs, or parts thereof. The current list of species protected by the MBTA can be found in Title 50 of the Code of Federal Regulations (CFR), Section 10.13 (50 CFR 10.13). The list includes nearly all birds native to the United States.

STATE

California Endangered Species Act

Pursuant to CESA, a permit from California Department of Fish and Wildlife (CDFW) is required for projects that could result in the “take” of a plant or animal species that is listed by the state as threatened or endangered. Under CESA, “take” is defined as an activity that would directly or indirectly kill an individual of a species, but the CESA definition of take does not include “harm” or “harass,” like the ESA definition does. As a result, the threshold for take is higher under CESA than under ESA. Authorization for take of state-listed species can be obtained through a California Fish and Game Code Section 2081 incidental take permit.

California Native Plant Protection Act

In addition to CESA, the California Native Plant Protection Act provides protection to endangered and rare plant species, subspecies, and varieties of wild native plants in California. The California Native Plant Protection Act definitions of “endangered” and “rare” closely parallel the CESA definitions of endangered and threatened plant species.

California Fish and Game Code 3503 and 3503.5—Protection of Bird Nests and Raptors

Section 3503 of the Fish and Game Code states that it is unlawful to take, possess, or needlessly destroy the nest or eggs of any bird. Section 3503.5 of the California Fish and Game Code states that it is unlawful to take, possess, or destroy any raptors (i.e., species in the orders Falconiformes and Strigiformes), including their nests or eggs. Typical violations include destruction of active nests as a result of tree removal or disturbance that causes the adults to abandon the nest, resulting in loss of eggs and/or young.

California Fish and Game Code Fully Protected Species

Protection of fully protected species is described in Sections 3511, 4700, 5050, and 5515 of the California Fish and Game Code. These statutes prohibit take or possession of fully protected species and do not provide for authorization of incidental take. CDFW has informed nonfederal agencies and private parties that their actions must avoid take of any fully protected species.

Porter-Cologne Water Quality Control Act

The Porter-Cologne Act requires that each of the nine RWQCBs prepare and periodically update basin plans for water quality control. For the City of Chico, the RWQCB having jurisdiction is the Central Valley Water Board. Each basin plan sets forth water quality standards for surface water and groundwater and actions to control nonpoint and point sources of pollution to achieve and maintain these standards. Basin plans offer an opportunity to protect wetlands through the establishment of water quality objectives. The RWQCB's jurisdiction includes waters of the United States, as well as areas that meet the definition of "waters of the state." "Waters of the state" is defined as any surface water or groundwater, including saline waters, within the boundaries of the state. The RWQCB has the discretion to take jurisdiction over areas not federally protected under CWA Section 404 provided they meet the definition of waters of the state and the State Water Resources Control Board published a new set of procedures for discharges of dredged or fill material into waters of the state on March 22, 2019. Mitigation requiring no net loss of wetlands functions and values of waters of the state typically is required by the RWQCB.

The State Water Resources Control Board has adopted the following definition of wetlands:

An area is wetland if, under normal circumstances, (1) the area has continuous or recurrent saturation of the upper substrate caused by groundwater or shallow surface water or both; (2) the duration of such saturation is sufficient to cause anaerobic conditions in the upper substrate; and (3) the area's vegetation is dominated by hydrophytes unless the area lacks vegetation.

Section 1602 of the California Fish and Game Code

All diversions, obstructions, or changes to the natural flow or bed, channel, or bank of any river, stream, or lake in California that supports wildlife resources are subject to regulation by CDFW under Section 1600 et seq. of the California Fish and Game Code. CDFW's jurisdiction in altered or artificial waterways is based on the value of those waterways to fish and wildlife. Under Section 1602, it is unlawful for any person to substantially divert or obstruct the natural flow or substantially change the bed, channel, or bank of any river, stream, or lake designated by CDFW, or use any material from the streambeds, without first notifying CDFW of such activity and obtaining a final agreement authorizing such activity.

This final agreement is obtained through the development of "a 1600 permit," i.e. a Lake and Streambed Alteration (LSA) permit. A 1600 permit is developed through negotiation between resource specialists acting on behalf of the City and CDFW with the end goal of mitigating impacts while completing projects. These permits commonly stipulate parameters such as: the percentage of stream corridor shading required to be left (i.e., to cool stream temperatures for salmon) after a riparian invasive plant removal project, or the maximum allowable diameter of stems that can be thinned from streamside shrubs. As such, these types of decisions are not in the hands of the City or other project proponent. All such project parameters would be specified in the 1600 permit, so by seeking and complying with the terms of the permit, the implementer would automatically be reducing adverse effects on wildlife and habitat to below a level of significance as viewed by CDFW, a trustee agency pursuant to CEQA §15386(a).

LOCAL

Butte Regional Conservation Plan (BRCP)

The Butte Regional Conservation Plan (BRCP), when adopted, will serve as both a federal Habitat Conservation Plan (HCP) and a state Natural Community Conservation Plan (NCCP). The BRCP will allow project proponents who seek to carry out certain activities (“covered activities”) that might involve take of certain special status-species to pay a fee rather than design project-by-project mitigation measures. The fee would go toward conservation easements on existing agricultural or open space lands, preserving habitat or populations so as to offset the take. Some “covered activities” relevant to vegetation management recurring maintenance include:

- vegetation clearing for fire control and fuel breaks, and the trimming and removal of trees, if necessary, to maintain the existing and new permanent development and the infrastructure and other facilities described above that are within UPAs [Urban Permit Areas, which includes Chico but not the Chico Municipal Airport];
- Maintenance activities on channels, levees, dikes, and retention and detention basins;
- Removal of vegetation and debris from streambeds, channels, storm drainages, flood control facilities, retention and detention basins, ponds, culverts, and associated structures (e.g., inlets, outlets, pipes, trash racks);
- Maintenance of water retention facilities, floodplain enhancement, ditch cleaning, culvert replacements, and vegetation control;
- Vegetation removal and maintenance of stormwater conveyance canals which occurs annually and requires the in-water operation of equipment to mechanically remove emergent and aquatic vegetation and trim trees in channels and canals that transport stormwater runoff from urban areas throughout portions of the City of Chico and other Local Agency jurisdictions.

However, if a vegetation management activity included applying an herbicide or pesticide that might result in take of an endangered species, it would not be a covered activity.

Because the BRCP was not yet adopted at the time of this writing, this EIR analyzes effects from vegetation management as if the BRCP did not exist and was not available to provide mitigation options.

Since all the lands addressed in the VFMP are already conserved and are therefore unavailable for future conservation, VFMP implementation would not change the amount or quality of lands available for future conservation activities in Butte County. VFMP implementation would not hinder future approval or implementation of the BRCP.

The proposed program has been developed in a manner that is consistent with applicable local plans (e.g., general plans), policies, and ordinances to the extent the program is subject to them.

Analysis of Biological Resources Present in Program Area

A wildlife and botanical data review were conducted for this program and the results are summarized in this section. These reviews include federally threatened, endangered, proposed, and candidate species, as well as California threatened, endangered, species of special concern, and rare plant species which have been assigned a California Native Plant Society (CNPS) California Rare Plant Ranking (CRPR).

Species listed as endangered by the U.S. Fish and Wildlife Service (Federal) and California Department of Fish and Wildlife (State) are species currently in danger of extinction throughout all or a significant portion of their range. Species listed as threatened are likely to become endangered within the foreseeable future

throughout all or a significant portion of their range. A proposed species is any species that is proposed in the Federal Register to be listed as a threatened or endangered species under the Endangered Species Act (50 CFR 402.03). A candidate species is a species for which the U.S. Fish and Wildlife Service has on file enough information to warrant or propose listing as endangered or threatened. California species of special concern are wildlife species at risk of becoming threatened or endangered. The California Native Plant Society (CNPS) has developed an inventory of rare plants that is widely accepted as the standard for information on the rarity and endangerment status of California flora.

To develop the following maps and tables, all federal and state threatened endangered, proposed, candidate or sensitive species that could potentially occur within the program area were considered. A 19-quad search was performed on CNDDB (all program quads and all adjacent quads; the results were analyzed by a wildlife biologist and a botanist, who removed species that occur in adjacent quads but have no usable habitat inside the program area. (Searching “adjacent quads” to the program area results in searching an area from Hamilton City to upper Magalia. The resulting data was combined with available endangered species data from the USFWS and CDFW.

Maps BIO-1, -2, -3, and -4 below show the general locations of special-status wildlife and plants already known to exist within the program area, according to the CNDDB. These maps are for reference, not project planning, and they are not presumed to show every sensitive species that may be present in the parklands. The presence and location of many additional species of wildlife and (especially plants, can be and has been determined from CalFlora, herbarium specimens, and other sources. The absence of a species from the CNDDB should not be interpreted as its absence from the program area.

Tables BIO-1-HP (Wildlife and BIO-2-HP (Plants list species who are already known to be present in the program area and also species who are *potentially* present in the program area. A species is considered potentially present if the species’ range includes the program area and the species would find good-quality habitat here.

During scoping, a commenter requested “a thorough biological analysis of what plant and animal species are to be found in the park/open space/waterways that are being discussed, with detailed mapping.” The City found that performing surveys and mapping at this level of detail was not a good use of resources at this time. Surveying the entire program area at once to develop this PEIR would be neither practical (it would take a year and the results would become obsolete, in some cases, with the next nesting season, cost-effective (if a unit was not treated immediately, it would need to be re-surveyed before implementation anyway or customary for a PEIR. Therefore, rather than try to determine if a given species is present in the program area in late 2020 or not, it is more useful to determine whether the species’ habitat is present or not. This was done by one botanist and one wildlife biologist reviewing the CNDDB/IPaC output, researching the habitat needs of each species, and determining whether those habitat needs are met within the program area. Their work is shown in Tables BIO-1-HP, BIO-1-HA, and BIO-2-HP and BIO-2-HA, with the notation “HP” meaning “habitat present” while “HA” means “habitat absent”. The botanist and biologist further researched the life history and phenological data of each species, consulting USFWS/CDFW guidance, California Consortium of Herbaria data, and other sources, to establish guidelines for avoidance or non-disturbance of sensitive species if they are detected.

The only way to know for sure if a species exists in the program area is to have a well-trained and knowledgeable person look for it, during the season it is most conspicuous, using a well-designed survey protocol. This type of survey is a standard project requirement for all future activities that could affect sensitive habitat (see **SPRs BIO-1, 2, and 4**). These surveys form the basis of final project design which must incorporate effective avoidance measures and/or mitigation (see **SPRs BIO-5 and -12 and MM-BIO-1**).

4.4.2 Thresholds of Significance and Impacts

In determining the level of significance, the analysis assumes that the program and any projects within its scope would implement the following standard project requirements (SPRs) developed for the program, as well as any other SPRs listed elsewhere in this document. It also assumes that the program would comply with relevant federal and state laws, regulations, and ordinances.

SPR BIO-1: Review and Survey Project-Specific Biological Resources: The project proponent will require a qualified RPF or biologist to conduct a data review and reconnaissance-level survey prior to treatment. The data reviewed will include the biological resources setting, sensitive species and natural communities tables, and habitat information in the EIR relevant to the location where the treatment will occur. It will also include review of the best available, current data for the area, including species distribution/range information, CNDDB, California Native Plant Society (CNPS) Inventory of Rare and Endangered Plants of California, relevant BIOS queries, and relevant general and regional plans. Reconnaissance-level biological surveys will be general surveys that include visual and auditory inspection for biological resources to help determine the setting present on a treatment site. The qualified surveyor will 1) identify and document sensitive resources, such as riparian or other sensitive habitats, sensitive natural community, wetlands, or wildlife nursery site or habitat (including bird nests); and 2) assess the suitability of habitat for special-status plant and animal species. The surveyor will also record any incidental wildlife or rare plant observations. Habitat assessments will be completed at a time of year that is appropriate for identifying habitat and no more than one year prior to the submittal of the Project Consistency Checklist for each treatment activity, unless it can be demonstrated that habitat assessments older than one year remain valid. Based on the results of the data review and reconnaissance-level survey, the project proponent, in consultation with a qualified RPF or biologist, will determine which one of the following best characterizes the treatment:

1. Suitable Habitat Is Present but Adverse Effects Can Be Clearly Avoided.

If, based on the data review and reconnaissance-level survey, the qualified RPF or biologist determines that suitable habitat for sensitive biological resources is present but adverse effects on the suitable habitat can clearly be avoided through one of the following methods, the avoidance mechanism will be implemented prior to initiating treatment and will remain in effect throughout the treatment:

- a. by physically avoiding the suitable habitat, or
- b. by conducting treatment outside of the season when a sensitive resource could be present within the suitable habitat or outside the season of sensitivity (e.g., outside of special-status bird nesting season, during dormant season of sensitive annual or geophytic plant species, or outside of maternity and rearing season at wildlife nursery sites).

Physical avoidance will include flagging, fencing, stakes, or clear, existing landscape demarcations (e.g., edge of a roadway) to delineate the boundary of the avoidance area around the suitable habitat. For physical avoidance, a buffer may be implemented as determined necessary by the qualified RPF or biologist.

2. Suitable Habitat is Present and Adverse Effects Cannot Be Clearly Avoided.

Further review and surveys will be conducted to determine presence/absence of sensitive biological resources that may be affected, as described in the SPRs below. Further review may include contacting USFWS, NOAA Fisheries, CDFW, CNPS, or local resource agencies as necessary to determine the potential for special-status species or other sensitive biological resources to be affected by the treatment activity. Focused or protocol-level surveys will be conducted as necessary to determine presence/absence. See **SPR BIO-4** for more about protocol-level surveys.

SPR BIO-2: Biological Surveyor Qualifications. All field survey professionals/biological technicians conducting surveys under **SPR BIO-1** and **SPR BIO-4** should demonstrate regionally appropriate

knowledge of species and protocols. Statewide or national certifications or degrees are not a substitute for Butte County-specific biological expertise.

Note: During scoping, a commenter suggested that the City should only base decisions on surveys conducted “by qualified biologists certified by the California Native Plant Society and The Wildlife Society.” The City finds it is not desirable to require CNPS or TWS certification of its biological contractors. To date, CNPS has certified just 29 botanists statewide, fewer than one per county (CNPS 2020). Many Butte County botanists with outstanding ability to complete field surveys in Chico parklands have not chosen to obtain certification, partly because CNPS certification requires statewide botanical knowledge that has no professional value to a botanist who works in a single region of California. Further, relying on certification would hinder the City’s ability to partner with competent student-based crews such as the CSU, Chico Ecological Reserves’ undergraduate and graduate botany experts. The Wildlife Society has certified 2,300 professionals nationwide (TWS 2020), still fewer than one per county.

SPR BIO-3: Integrate EDRR (Early Detection, Rapid Response) Into Reconnaissance-Level

Surveys. During reconnaissance-level surveys, the surveying botanist shall identify any infestations of invasive plant species (i.e., those on the list in section 3-7) so managers can target them for removal during treatment activities. While the City does not have the resources to remove every invasive plant, the City does have an established rubric for prioritizing which invasives to remove (i.e., those with the highest potential to disrupt native ecologies, especially fire ecologies). This rubric is found in section 3-7 of this PEIR. Treatment methods will be selected based on the invasive species present and, subject to CEQA like all other treatments, may include whatever treatment will be most effective in killing or removing the invasive plants and preventing reestablishment based on the life history characteristics of the invasive plant species present. Managers will base treatments on the guidance in section 3-7 and on additional information that may be available to crews and managers in the future.

SPR BIO-4: Protocol-Level Surveys. If **SPR BIO-1** determines that sensitive natural communities or sensitive habitats for plants, wildlife, or both may be present and adverse effects cannot be avoided, the project proponent will require a qualified RPF(s) or biological technician(s) to perform a protocol-level survey of the treatment area prior to the start of treatment activities.

Wildlife surveys - If **SPR BIO-1** determines that suitable habitat is present for wildlife (including nursery sites), and adverse effects cannot clearly be avoided, then focused or protocol-level surveys must be conducted for special-status wildlife species or nursery sites (e.g., bat maternity roosts, deer fawning areas, heron or egret rookeries) with potential to be directly or indirectly affected by a treatment activity. The survey area will be determined by a qualified RPF or biologist based on the species and habitats and any recommended buffer distances in agency protocols.

The qualified RPF or biologist will determine if following an established protocol is required; if so, survey procedures will adhere to methodologies approved by resource agencies and the scientific community, such as those that are available on the CDFW webpage at: <https://www.wildlife.ca.gov/Conservation/Survey-Protocols>. The City or project proponent may consult with CDFW and/or USFWS for technical information regarding appropriate survey protocols. Unless otherwise specified in a protocol, the survey will be conducted no less than 14 days and no more than 30 days before the beginning of implementation. Focused or protocol surveys for a special-status species with potential to occur in the treatment area may not be required if presence of the species is assumed.

Plant surveys - If **SPR BIO-1** determines that suitable habitat is present for special-status plants or sensitive natural communities, and adverse effects cannot clearly be avoided, then focused or protocol-level surveys must be conducted for special-status plant species and sensitive natural communities. Surveys to determine the presence or absence of special-status plant species will be conducted in suitable habitat that

could be affected by the treatment and timed to coincide with the blooming or other appropriate phenological period of the target species (as determined by a qualified RPF or botanist). The survey will follow the methods in the current version of CDFW's "Protocols for Surveying and Evaluating Impacts to Special Status Native Plant Populations and Sensitive Natural Communities."

For potentially occurring special-status plants **not** listed under CESA or ESA, surveys will not be required under the following circumstances:

- (1) If protocol-level surveys, consisting of at least two survey visits (e.g., early blooming season and later blooming season) during a normal weather year, have been completed in the last 5 years and no special-status plants were found, and no treatment activity has occurred following the protocol-level survey, treatment may proceed without additional plant surveys. **Or,**
- (2) If the target special-status plant species is an herbaceous annual, stump-sprouting, or geophyte species, the treatment may be carried out during the dormant season for that species or when the species has completed its annual lifecycle without conducting presence/absence surveys provided the treatment will not alter habitat or destroy seeds, stumps, or roots, rhizomes, bulbs and other underground parts in a way that would make it very difficult or impossible for the target species to reestablish following treatment.

For potentially occurring special-status plants **that are** listed under CESA or ESA, protocol-level surveys to determine presence/absence of the listed species will be conducted in all circumstances, unless determined otherwise by CDFW or USFWS.

SPR-BIO-5: Flag rare plants or wildlife/wildlife nursery sites for avoidance when needed.

BIO-5a: Flagging and Avoiding Sensitive Wildlife or Nursery Sites

If it is determined through application of **SPR BIO-4** that special-status wildlife or occupied wildlife nursery sites (e.g., nests, dens, bat roosts, burrows) are within the treatment boundary and the treatment cannot clearly be applied without harming the wildlife or impacting the nursery sites, the project proponent must physically avoid the area occupied by the wildlife by establishing a no-disturbance buffer around it. This buffer boundary shall be marked with high-visibility flagging, fencing, stakes, paint, or clear, existing landscape demarcations (e.g., edge of a roadway). Buffer size will be determined by a qualified RPF or biologist, in consultation with CDFW and/or USFWS (depending on the potentially affected species), using the most current, commonly accepted science and will consider published agency guidance; however, buffers will generally be a minimum of 500 feet for special-status birds and 100 feet for other special-status wildlife species, unless site conditions indicate a smaller buffer would be sufficient for protection or a larger buffer would be needed. These judgements will depend on plant phenology at the time of treatment (e.g., whether the plants are in a dormant, vegetative, or flowering state), the individual species' vulnerability to the treatment method being used, and environmental conditions and terrain. Buffer size may be adjusted if the qualified RPF or biologist determines that such an adjustment would not be likely to adversely affect (i.e., cause mortality, injury, or disturbance to) the species within the nest, den, burrow, or other occupied site. If a no-disturbance buffer is reduced below these minimum standards around an occupied site, a qualified RPF or biologist will provide the project proponent with a site- and/or treatment activity-specific explanation for the buffer reduction, which will be included in the Project Consistency Checklist. Consideration of factors such as the species' tolerance to disturbance, the presence of natural buffers provided by vegetation or topography, the height of the nest, the locations of foraging territory, the baseline levels of noise and human activity, and the nature of the treatment activity, among other factors, may inform an appropriate buffer size and shape.

When buffers cease to apply. When the qualified RPF or biologist has determined that the young have fledged or dispersed; the nest, den, roost, or other occurrence is no longer active; or reducing/abandoning the buffer would not likely result in disturbance, mortality, or injury, then activity may resume inside the buffer zone. A qualified RPF, biologist, or biological technician will be required to

monitor the effectiveness of the no-disturbance buffer around the nest, den, burrow, or other occurrence during treatment. If treatment activities cause agitated behavior of special-status wildlife, the buffer distance will be increased, or treatment activities modified until the agitated behavior stops. The qualified RPF, biologist, or biological technician will have the authority to stop any treatment activities that could result in mortality, injury or disturbance to special-status species.

Alternatives to buffers If using a physical buffer is not feasible (e.g., for prescribed burning), the project proponent will use a temporal buffer by implementing the treatment outside the sensitive period of the species' life cycle (e.g., outside the breeding or nesting season). For species present year-round, the qualified RPF or biologist will determine the period of time within which prescribed burning could occur that will avoid or minimize mortality, injury, or disturbance of the species, or the burn tactics which would minimize harm (e.g., selecting weather conditions that would loft smoke away from cliffs that shelter bat roosts). The project proponent may consult with CDFW and/or USFWS for technical information regarding appropriate limited operating periods.

While performing review and surveys for SPR BIO-1 and SPR BIO-4, the qualified RPF or biologist/biological technician with knowledge of the special-status wildlife species will identify any habitat features that are necessary for survival (e.g., habitat necessary for breeding, foraging, shelter, movement) of the affected wildlife species (e.g., trees with large cavities, trees with nesting platforms; large raptor nests; downed woody debris). These habitat features will be marked and treatments applied to the features will be designed to minimize or avoid the loss or degradation of suitable habitat for listed species during treatments. Identification and treatment of these features will be based on the life history and habitat requirements of the affected species and the most current, commonly accepted science. The qualified RPF or biologist with knowledge of the special-status wildlife species habitat and life history will review the treatment design with SPRs and applicable impact minimization measures (potentially including others not listed above) to determine if the anticipated residual effects of the treatment would be significant under CEQA because implementation of the treatment will not maintain habitat function of the special-status wildlife species' habitat or because the loss of special-status wildlife would substantially reduce the number or restrict the range of a special-status wildlife species. If it is determined the impact on special-status wildlife would be less than significant, no further mitigation will be required. If it is determined that the loss of special-status wildlife or degradation of occupied habitat would be significant under CEQA after implementing feasible treatment design alternatives and impact minimization measures, then **Mitigation Measure BIO-1a** will be implemented.

However, in cases where a qualified RPF or biologist determines that a non-listed special-status wildlife population would benefit from the treatment, even though some of the non-listed special-status plants may be killed, injured or disturbed during treatment activities, no compensatory mitigation would be required. For a treatment to be considered beneficial to non-listed special-status wildlife, the qualified RPF or biologist will demonstrate with substantial evidence that habitat function is reasonably expected to improve with implementation of the treatment (e.g., by citing scientific studies demonstrating that the species (or similar species) has benefitted from increased sunlight due to canopy opening, eradication of invasive species, or otherwise reduced competition for resources), and the substantial evidence will be included in the Project Consistency Checklist.

Bio-5b: Flagging and Avoiding Special-Status Plants

If it is determined through application of **SPR BIO-4** that special-status plants are within the treatment boundary and the treatment cannot clearly be applied without harming the special-status plants, the project proponent must physically avoid the area occupied by the special-status plants by establishing a no-disturbance buffer around it. This buffer boundary shall be marked with high-visibility flagging, fencing, stakes, paint, or clear, existing landscape demarcations (e.g., edge of a roadway). The no-disturbance buffers will generally be a minimum of 50 feet from special-status plants. However, the size and shape of the buffer zone may be adjusted if a qualified RPF or botanist/City staffer determines that a smaller buffer will be

sufficient to avoid loss of or damaging to special-status plants or that a larger buffer is necessary to sufficiently protect plants from the treatment activity. These judgements will depend on plant phenology at the time of treatment (e.g., whether the plants are in a dormant, vegetative, or flowering state), the individual species' vulnerability to the treatment method being used, and environmental conditions and terrain. Consideration of factors such as site hydrology, changes in light, edge effects, and potential introduction of invasive plants and noxious weeds may inform an appropriate buffer size and shape.

When buffers do not apply. Treatments may be conducted within the buffer if the potentially affected special-status plant species is a geophytic, stump-sprouting, or annual species, and the treatment can be conducted outside of the growing season (e.g., after it has completed its annual life cycle) or during the dormant season using only treatment activities that would not make it difficult or impossible for the plant individuals (for perennial spp.) or population (for annual spp.) to recover. When assessing whether individuals/populations will be able to recover, the qualified RPF/botanist/City staffer will take into account indirect effects from the treatment (e.g. changes in light/shading/air circulation).

The qualified RPF or botanist with knowledge of the special-status plant species habitat and life history will review the treatment design including SPRs and applicable impact minimization measures (potentially including others not listed above) to determine if the anticipated residual effects of the treatment would be significant under CEQA (e.g., because the plant's habitat would be rendered unsuitable post-treatment) or because the loss of special-status plants would substantially reduce the number or restrict the range of a special-status plant species. If it is determined the impact on special-status plants would be less than significant, no further mitigation will be required. If it is determined that the loss of special-status plants or degradation of occupied habitat would be significant under CEQA after implementing feasible treatment design alternatives and impact minimization measures, then **Mitigation Measure BIO-1b** will be implemented.

However, in cases where a qualified RPF or botanist determines that a non-listed special-status plant population would benefit from the treatment, even though some of the non-listed special-status plants may be killed during treatment activities, no compensatory mitigation would be required. For a treatment to be considered beneficial to non-listed special-status plants, the qualified RPF or botanist will demonstrate with substantial evidence that habitat function is reasonably expected to improve with implementation of the treatment (e.g., by citing scientific studies demonstrating that the species (or similar species) has benefitted from increased sunlight due to canopy opening, eradication of invasive species, or otherwise reduced competition for resources), and the substantial evidence will be included in the Project Consistency Checklist.

SPR BIO-6: Require Ecological Knowledge Training for Workers. Crew members and contractors must receive training from a qualified RPF, botanist/biologist, Master Gardener, arborist, or City staffer prior to beginning a treatment activity. The training will describe the appropriate work practices necessary to effectively implement the biological SPRs and mitigation measures and to comply with the applicable environmental laws and regulations. The training will include the identification and avoidance of pertinent special-status species; identification and avoidance of sensitive natural communities and habitats with the potential to occur in the treatment area; impact minimization procedures; identification of noxious weeds in the area; marking protocols (i.e., the meaning of various colors of flagging/paint), and reporting requirements. The training will instruct workers when it is appropriate to stop work and allow wildlife encountered during treatment activities to leave the area unharmed and when it is necessary to report encounters to a qualified staffer.

SPR BIO-7: Prevent Spread of Invasive and Noxious Plants. (1) When mechanically removing invasives, if seeds or other propagules (such as *Arundo* stem nodes) are present, the plan for removal must incorporate a process for sanitary disposal of propagules (e.g. collect seed for separate disposal prior to plant removal, contain debris in some container during transport to avoid spreading propagules, burn debris on site if conditions permit to avoid having to move it, don't dispose of seedy debris elsewhere in park).

Material heading into a chipper should be free of weed seeds and weed propagules first, if the chips will be broadcast back onto Chico parklands.

(2) When leaving an area with infestations of invasive plants and noxious weeds, inspect all equipment for mud or other signs that weed seeds or propagules could be present. Crews must check clothing, footwear, and equipment for any soil, seeds, vegetative matter or other debris or seed-bearing material. Remove the soil or potential seed-bearing material, and leave it inside the infested area or dispose of it in a green waste receptacle or landfill receptacle. All heavy equipment and vehicles that come into contact with infested areas must be checked for soil and seed heads either at the infested location or at a headquarters location before proceeding to the next parklands location. Two valuable training resources on this topic are: Preventing spread on equipment, crews:

<https://www.cal-ipc.org/resources/library/publications/landmanagers/> Preventing spread through transportation: <https://www.cal-ipc.org/resources/library/publications/tuc/>

SPR BIO-8: Trees Marked For Removal by Qualified Personnel. No native tree shall be removed (a “tree” is defined for the purposes of this section as larger than 8” DBH) unless marked beforehand by a qualified arborist, botanist, Registered Professional Forester, or City staff member with adequate training. If the marker and remover are not the same person, it is of paramount importance that tree fellers/removers understand and interpret the marking system the same way as the marker(s).

SPR BIO-9: Refugia and “checkerboarding”; phased implementation. In sensitive natural communities or areas the RPF/biologist/City staffer determines to contain important wildlife forage or cover that would be affected by the treatment, areas to be treated will be treated in phases, in a “checkerboard” pattern. This strategy provides spatial and temporal heterogeneity that promotes a habitat-rich mosaic and leaves refugia for sensitive wildlife, especially pollinators. This SPR applies to hand and mechanical treatments. The size of blocs will be at the discretion of the RPF/biologist/City staffer, or (if applicable) will be planned under the terms of a 1600 permit. An example of phased implementation would be if the City receives grant funding to thin 100 acres of upland mix over 4 years, crews would thin 25 acres per year, in five 5-acre blocs.

SPR BIO-10: Lake and Streambed Alteration Permit (1600 Permit) Needed. Vegetation management in stream corridors requires prior negotiation of a Lake and Streambed Alteration Permit (LSA, or known as a 1600) from CDFW. The definition of the “stream corridor” is the responsibility of CDFW and may include areas which appear to be above the stream banks. LSAs can be negotiated project-by-project, but the City’s preferred alternative is to negotiate a long term routine maintenance (or “master”) agreement to cover all programmatic work in an area for five years. Over the permit life, routine maintenance agreements are more cost-effective in both dollars and staff time than project-by-project negotiations.

When an LSA’s stipulated mitigation measures and project requirements are more stringent than SPRs in this PEIR, the LSA’s requirements shall prevail and shall be considered to reduce to below a level of significance the relevant environmental impacts CDFW addresses in the permit process.

SPR BIO-11: To protect endemic *Polygonum bidwelliae*, no chips or slash shall be piled, burned, or scattered on top of exposed gravel flats made up of basalt or mudflow gravel (“basalt or mudflow vernal flat community”). These areas appear as small (one to several feet in diameter), flat to gently sloping dishlike or ribbonlike open areas, often surrounded by exposed rock, where vegetation is very short or not apparent. They may appear as “bare soil” at first glance but their audible crunch when walked on reveals the “bare soil” to be made up of small basalt pebbles. For a reference example, see the area at the top of the southernmost of the three South Rim Bidwell Park Oak Restoration and Wildfire Resiliency Units.

SPR BIO-12: Protocol for when endangered plants or animals are found. If any new occurrences of plants protected by the California Endangered Species Act (CESA) or Federal Endangered Species Act (ESA) are encountered, then the person in charge on site (qualified City staff person, RPF, or biological technician) will adjust implementation plans, as appropriate. This would include flagging off the new occurrence so it can be avoided, with the appropriate buffer. If the person in charge on site does not know how to proceed, work will stop or move to a different location until a qualified biologist can arrive to assess the situation. If any wildlife protected by the California Endangered Species Act (CESA) or Federal Endangered Species Act (ESA) are encountered, crews will wait for the animal to leave the area on its own. If the animal is unable to leave the site on its own (without being handled), the person in charge will immediately contact CDFW or USFWS, as appropriate.

SPR BIO-13: Chipping. 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. 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 raked or scattered until they are not more than 4" deep. When possible, chip invasive species before seed set. If this is impossible, try to remove and bag for disposal as much invasive weed seed as feasible before chipping. If chips are suspected of having high quantities of weed seed, consider transporting them off-site to a processing destination (i.e., to green waste composting or biomass disposal) rather than leaving them in parklands.

SPR BIO-14: Snags for wildlife. A target of 2-4 snags/acre (on average) should be retained across City woodlands. Snags should be retained where they do not pose a hazard to infrastructure or the public.

SPR BIO-15: Grazing Plans. A grazing plan shall be prepared for each grazing activity. A grazing plan shall specify, at a minimum:

- Stocking rates, e.g. in AUMs, with acceptable tolerances up or down depending on the year's weather/forage
- Species of grazing animal acceptable
- Dates (earliest in/latest out), with trigger points for moving animals (e.g. a certain % bare ground, a certain RDM)
- Monitoring responsibilities and timing (to monitor for trigger points)
- Desired post-grazing conditions (e.g., usually measured in RDM of between 300-800 lbs/ac for grasslands; measured in shrub story canopy closure or shrub height for upland mix)
- % permissible bare ground after grazing is concluded, and how excess bare ground would be remedied
- Whether mother-offspring groups are acceptable or only stockers (stockers are easier to sell so provide more flexibility if weather or forage conditions change suddenly)
- Acceptable means of disposing of dead animals
- List of invasive species whose spread must be limited and specific expectations for how spread will be limited (i.e., flush periods required after animals have been on a unit that contains invasive species, before moving them to a unit that does not)
- Whether there are areas from which animals must be excluded (e.g., areas of blue oak recruitment), means of exclusion, and remedies for failure of exclusion.
- Distance, in feet, to closest riparian corridor/stream (including ephemeral streams) and means of exclusion.

a) Would the project have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special-status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Wildlife or the U.S. Fish and Wildlife Service?	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

The program area is located within the Mud Creek, Big Chico Creek, and Butte Creek Watersheds. The area provides potential habitat to 54 species of special-status wildlife, 50 species of special-status plants, and 6 special-status communities. These species or communities, their habitat, protected status, and avoidance measures are listed in tables BIO-1-HP (wildlife) and BIO-2-HP (plants). Potential adverse impacts to these species are addressed below.

Impacts to Wildlife Resources

Impacts to wildlife resources can be sorted into three categories: direct, indirect, and cumulative.

Direct impacts: All proposed treatments could result in disturbance from human presence, habitat alteration, and noise. The duration of disturbance, caused by the presence of people and machinery, may cause disturbance to wildlife accustomed to lower levels of activity. Mechanized equipment may generate noise sufficient to disturb nesting wildlife and could cause nest site abandonment if conducted without restrictions. Therefore, standard project requirements include (1) defined seasons when disturbance to each type of wildlife is identified as a concern; (2) pre-implementation surveys targeted to discover whether sensitive species are indeed using the area during that season, and (3) avoidance measures to avoid harassing or disturbing the species, which could mean adopting special procedures or could mean suspending the work until the species has left the area or is no longer in a vulnerable life phase.

Direct disturbance, such as mortality to individual animals, is unlikely, due to survey efforts for selected species and incorporation of limited operating periods or restricted operating protocols where appropriate. SPRs require pre-treatment surveys to identify special-status wildlife and habitats. They also require avoidance and protection of certain sensitive habitats, and provide a protocol for altering or suspending operations if previously unknown special-status wildlife are discovered. While implementation of SPRs would minimize impacts, later treatment activities could still harm individuals or populations of special-status wildlife. While direct impacts to special-status wildlife are not expected, if they occurred, they would be a potentially significant impact. Out of an abundance of caution, this PEIR has been designed to provide for mitigating that impact. It is addressed in **MM-BIO-1a**.

Indirect impacts to Wildlife Resources: Indirect impacts occur after an activity is over, as a result of changed conditions in the aftermath of the activity. Examples include reduced canopy density or altered age class distribution of shrubs. If a wildlife species' habitat experiences effects from an activity, the wildlife species could experience indirect impacts which could be beneficial or adverse.

SPRs require pre-treatment surveys to identify special-status wildlife and habitats. They also require avoidance and protection of certain sensitive habitats. While implementation of SPRs would minimize impacts, later treatment activities would still remove vegetation, alter the canopy, and/or lead to alterations in plant or animal communities, which could result in the disturbance to or loss of individuals, reduced breeding productivity of affected species, or loss of habitat function including loss of nest sites. Although indirect impacts to special-status wildlife through the loss of habitat function are not expected, if they occurred, they would be a potentially significant impact. Out of an abundance of

caution, this PEIR has been designed to provide for mitigating that impact. It is addressed in **MM-BIO-1a**.

Cumulative effects to Wildlife Resources: The primary activities that may affect wildlife species within the program boundary involve the manipulation of habitat conditions through hand and machine thinning, herbicide, prescribed fire, and grazing to improve native species habitat, reduce the risk of high intensity catastrophic wildfire, and provide fire resilience to the surrounding community, including the natural community. While the long-term and cumulative effect is expected to be positive for most wildlife species, the program does involve a net reduction in the amount and density of woody vegetation in some parts of City parklands, so this change was examined for potential adverse impacts to wildlife.

The potential for the habitat values of oak woodlands to be diminished by the removal of understory vegetation and lower branches was examined. Native oak woodland vines such as pipevine provide important food and shelter for wildlife. On reviewing the proposed program, biologists noted this program's phased approach will necessarily leave considerable vegetation and brush intact, and observed that in general, trimming up trees and opening some understory vegetation is likely to improve wildlife access to food and eases movement through these areas. As the proposed treatments are either fire or fire surrogates, the disturbance they will introduce is disturbance the native habitats have evolved to tolerate and benefit from. Habitat "patchwork" mosaics with openings and edge habitat, such as those designed by this program, are more beneficial for most generalist wildlife species (mesocarnivores, deer, bats, grassland and shrubland birds) than continuous even-aged structurally homogeneous habitats. Thus, the cumulative impacts of the program on oak woodland habitat would be less than significant.

The potential for reductions in chaparral density to reduce nesting sites for songbirds was examined. A bird biologist reported there are actually few bird species that nest in dense chaparral, and they are all common species. Indeed, dense chaparral is such a widespread and dominant habitat type that it would be surprising if species that are able to utilize it were still rare. However, even common species are important. The VFMP's spatially and temporally phased implementation strategy (see **SPR BIO-9**, "Refugia") reduces impacts on chaparral nesting species by avoiding large clear-cuts. The phased implementation strategy is designed to serve as a surrogate for the patchy, self-limiting fire which is thought to have maintained high populations of deer and black oaks across the Big Chico Creek watershed prior to settlement. Like that fire, it creates a diverse age class structure which provides improved forage and shelter for deer and many other species. Leaving islands of shrubland is also important because it provides nursery sites for new young oaks to establish (Hankins pers. comm.). With SPRs incorporated, the impacts of chaparral reduction on nesting site availability would be less than significant.

The potential reduction in nest sites overall from general canopy reduction was examined. In general, large trees that provide excellent quality habitat will be left. Oaks, which tend to provide the best nesting habitat for most tree-nesting species, will be preferentially retained (VFMP p 42-3) and an additional target of 2-4 snags per acre is set. Most woody vegetation that will be removed is brush and small trees that provide relatively poor nesting sites. With SPRs incorporated, the cumulative impacts of the program on overall nesting site availability would be less than significant.

The potential impacts to pollinators from burning grassland units and/or reducing chaparral density were examined. Biologists noted the current habitat across most of the program area is not high quality to begin with; for example, it is urban, impacted by cars, air pollution, home use pesticides, etc. Additionally, there is no shortage of marginal (i.e., wildland-urban interface) habitat or brush dominated landscapes in this region, so impacts to birds, bees and bats on a landscape scale -- as distinct from

individual disturbance to nests and roost sites, which is carefully avoided through program design features-- will be minimal. Finally and most importantly, the impacts from the proposed disturbances will be short lived (grasslands grow back in 6 months), patchy (treatments are planned in mosaics whose size does not exceed the foraging distance of e.g. bumblebees) and beneficial (burned grasslands tend to stimulate forb growth, and forbs provide pollinator forage whereas grasses do not). Although individuals could be harmed during implementation, the cumulative impacts of the program on sensitive pollinators would be less than significant and are expected to be beneficial.

The potential cumulative impacts to bats were examined. The program SPRs minimize impacts to bats by conducting general and focused surveys, avoiding sensitive roost site areas, and/or working outside of maternity season. Many bat species are versatile and opportunistically utilize available roost sites even in relatively impacted areas, including chimneys, doorways, attic vents, and parkland information kiosks. When surveys and roost site avoidance measures as described in the BIO SPRs are incorporated, impacts to bats are expected to be less than significant.

The potential for surface fuels management to adversely affect wildlife habitat by removing dead wood that provides shelter and food for insects, invertebrates, and reptiles was examined. Surface fuels (dead and downed wood) would normally be partially consumed by fires every one to fifteen years throughout the program area. A heavy accumulation of surface fuels and woody debris is not the parklands' natural state. While this woody debris does provide habitat for many beneficial soil organisms, pollinators and other invertebrates, it also provides habitat for oak pathogens and acorn pests, which is why Native land managers routinely burned under legacy oaks (Hankins 2015). Human firewood gathering and more frequent floods, in addition to regular cultural fire, would have regularly consumed much fallen wood, especially under Valley oak woodlands. The landscape John and Annie Bidwell experienced was likely not very rich in woody debris most of the year.

To restore a more natural distribution of woody debris, the VFMP stipulates that woody material under 8" can be chipped and broadcast to an average depth of 4" or less. By increasing surface-area-to-volume ratios, increasing ground contact, and increasing woody debris' ability to absorb and retain moisture, chipping acts to accelerate nutrient cycling in dry woodlands. For this reason, foresters note chipping can act as a nutrient cycling surrogate for fire, while still providing habitat and cover for reptiles, amphibians and invertebrates. The VFMP specifies that woody debris over 8" diameter may be left onsite at least 10 feet away from the nearest tree or removed, at the discretion of the responsible RPF, City staffer, or biologist. Larger downed tree stems (especially 20+" diameter downed logs) will be left in longer lengths (not bucked), if close to ground contact. Large downed limbs and trees that are not in ground contact would usually be bucked with the minimum number of cuts to get them into ground contact, so the humidity and biological activity of the soil and invertebrate community can begin to initiate the decomposition process. This also increases the fuel moisture of these large limbs, reducing their fire hazard. The cumulative impacts of the program on the food webs supported by downed woody debris would be less than significant.

While the program would not remove any native riparian trees, some invasive trees could be removed from riparian zones, such as catalpa, black walnut, black locust, ailanthus, etc. The potential for a reduction in creekside canopy cover to result in adversely increased stream water temperatures was considered. Since any streamside work would be done under the terms of a 1600 permit, CDFW would stipulate the allowable percentage of canopy cover that could be removed (as well as guidelines for phasing this removal over time to reduce impacts). Therefore, this impact would be considered less than significant because it would only take place to a degree explicitly authorized by the trustee agency, CDFW.

In conclusion, implementation of SPRs would minimize impacts to below a level of significance. However, later treatment activities could still potentially result in the disturbance to or loss of individuals, reduced breeding productivity of affected species, or loss of habitat function. Although cumulative impacts to special-status wildlife are not expected, if they occurred, they would be a potentially significant impact. Out of an abundance of caution, this PEIR has been designed to provide for mitigating that impact. It is addressed in **MM-BIO-1a**.

Aquatic wildlife species No work will be done directly in water (except for rare water drafting to support prescribed fire activities - see **SPR-HYDRO-6**). The beds of perennial streams and lakes will not be altered, and SPRs incorporate setbacks to water features for various implementation activities. However, it is assumed that present and future actions on all lands can, at times, produce indirect negative impacts to aquatic biological resources. There is no expectation that any known thresholds for analysis species would be exceeded by the cumulative effects from all actions. A long-term benefit to aquatic habitat is anticipated as the area trends toward pre-settlement conditions. Pre-settlement conditions, characterized by lower shrub density, sparser trees, and more frequent/extensive but on average lower-intensity fire, have been associated with higher and colder streamflows (David et al 2018, Roche et al 2020).

Impacts to Botanical Resources

Impacts to botanical resources can be sorted into three categories: direct, indirect, and cumulative.

Direct effects occur when plants are physically impacted by management activities. Proposed activities are designed to reduce plant density or kill individual plants by physical damage (mowing, grazing, mastication, burning, herbicide spray, etc). The direct impact of potential concern to a given species depends on that species' characteristics. For example, larger woody plants are more vulnerable to being lopped or cut by untrained workers, while tiny plants do not run that risk (but may run the risk of being suffocated under a pile of wood chips or incinerated under a burn pile). In general, most California native plants tolerate fire for most of the year (some even require fire at the correct time to help them reproduce), but most also have a season when they become temporarily very vulnerable to fire. In the program area, summer, fall and early winter burns tend to have a lower chance of killing or stressing California native plants than spring burns. However, spring burns can still be safely conducted in some vegetation communities, and are a preferred biodiversity management tool in vernal pool communities (CNLM 1996), if the burns are implemented at the right time when native species have already set seed but invasive species such as medusahead have not yet done so.

Annual species need different considerations than perennial species. Readily self-seeding annual species such as *Calycadenia oppositifolia* will be killed by fire in May, but can tolerate and even benefit from fire (including very high-intensity fire) in November, because they are in their dormant phase. Perennial species (e.g. *Brodiaea*, *Balsamorhiza*, *Fritillaria*) can survive mowing and fire even when they are in bloom, although not year after year. These geophytic species regrow from underground storage corms or bulbs each year. It makes sense to protect these geophytic species from having burn piles placed on top of them, as the high-intensity heat of burn piles could harm the corms or bulbs.

Based on these and other species-specific considerations, the program SPRs require a number of precautions to ensure that rare and sensitive plants do not experience direct adverse impacts. With incorporation of SPRs, direct impacts to sensitive plant species are not expected. However, if they occurred, they would be a potentially significant impact. Out of an abundance of caution, this PEIR has been designed to provide for mitigating that impact. It is addressed in **MM-BIO-1b**.

Indirect effects are those that are separated from an action in either time or space. For example, a fall fire may burn over a shade-tolerant plant's seeds when they are dormant, leaving the population unharmed, but the added sunlight the following spring might stress the plant. Or, a herd of goats may pass through an area and leave a bitter-tasting plant unharmed, but the subsequent changes in pasture species composition may make it harder for the plant to compete. Alterations in the grazer, browser, and pollinator community can also change a plant population's success at reproducing and reaching its potential for abundance. When considering the impacts of an activity on a rare plant, managers should consider:

- the possible introduction or promotion of conditions favorable for non- native invasive plants,
- effects to pollinator species,
- changes in shading;
- changes in soil cover that could make it easier or harder for a plant's seeds to establish;
- or other changes to rare plant habitats.

To the extent feasible, managers should also consider why a plant is rare. Some plants are rare because they can only grow on a certain kind of rare soil. Their range cannot be expanded farther than the boundaries of that soil. Others have lost their evolutionary partners (pollinators or dispersers, including dispersal by historical human activity that has since ceased). Their range may also be very challenging to expand. Others, however, may be rare in part because of fire suppression. While the reason for a plant's rarity is not always knowable, plants which are strongly suspected of being rare in part because of fire suppression should be treated with fire in the season and intensity they are thought to be best adapted to. To determine this season and intensity, managers could consult botanists, ecologists, and keepers of traditional ecological knowledge (TEK). Some guidance toward choosing the ideal season for fire for each rare plant species in the program area has been incorporated into Table BIO-2-HP.

One potential indirect impact on native plant species is the possible increased introduction of invasive weeds as a result of future treatment activities. While the VFMP is structured in such a way as to prioritize and accelerate the removal of invasive plants in Chico parklands, any vegetation management activity carries some risk of unintended consequences from entering and manipulating parkland areas, whether the areas are currently dominated by native species or are already highly invaded. The proposed vegetation management actions would reduce the extent of plant cover within the treated areas. Removal of existing vegetation can potentially create conditions favorable for invasion and establishment of weedy plant species. Weedy plant species are opportunistic and are, in most cases, known to establish on denuded soil more quickly than native species in the short-term. Once established, many of the invasive exotic species have the potential to persist in the habitat, excluding native vegetation. The combination of bare soil and increased light from removal of vegetation, especially when coupled with disturbance to the soil surface associated with crews performing the vegetation modification, lead to favorable conditions for exotic species establishment.

To reduce the likelihood of exotic species establishment, the program includes SPRs designed to ensure crews and equipment do not transport weed seeds from one area to another. **SPRs BIO-3** and **-7, HYDRO-6, and SOIL-1 and -2** establish mandatory protocols for surveying and reporting for invasive weeds, preventing the spread of invasive weeds between units, preventing the spread of aquatic invasive organisms during water drafting, and choosing low-weed-seed materials with which to mitigate areas of bare soil after implementation. With these SPRs, the impacts to plant communities *from invasive weeds* will be less than significant.

While implementation of SPRs would minimize impacts, later treatment activities will still remove vegetation, alter the canopy, and/or lead to alterations in plant or animal communities, which could result in indirect impacts to or loss of individuals, reduced reproductive productivity or recruitment of affected species, or loss of habitat function. Although indirect impacts to special-status plants through the loss of habitat function are not expected, if they occurred, they would be a potentially significant impact. Out of an abundance of caution, this PEIR has been designed to provide for mitigating that impact. It is addressed in **MM-BIO-1b**.

Cumulative effects – Botanical Resources: The additive effects of past actions (wildfire suppression, nonnative plant introductions and livestock grazing) have shaped the present landscape and corresponding populations of rare plants. In other words, past actions have caused some species to become rarer and encouraged others to become more common. However, data describing the past distribution and abundance of rare plant species is extremely limited, making it impossible to quantify the effects of historic activities on the resources and conditions that are present today. Furthermore, there are virtually no reference sites remaining in the region where botanists can examine plant communities that have not been subjected to at least some of these past actions.

Thus, plants and plant communities are already experiencing cumulative effects of past land management decisions. As the VFMP program is implemented and similar programs are implemented on adjacent lands (e.g. BCCER) and throughout California, its cumulative effects to botanical resources are expected to be similar to its indirect effects. The effects of future projects would likely be minimal or similar to those described in this analysis if existing SPRs (such as field surveys, protection of known rare species locations, noxious weed mitigations, fire seasonality practices) remain in place. As such, cumulative losses to special-status botanical species are not considered likely. However, if they occurred, they would be a potentially significant impact. Out of an abundance of caution, this PEIR has been designed to provide for mitigating that impact. It is addressed in **MM-BIO-1b**.

b) Would the project have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, or regulations or by the California Department of Fish and Wildlife or the U.S. Fish and Wildlife Service?	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

Six habitat communities identified as sensitive by the California Department of Fish and Wildlife are found within the program area: Great Valley Cottonwood Riparian Forest, Great Valley Mixed Riparian Forest, Great Valley Valley Oak Riparian Forest, Northern Basalt Flow Vernal Pool, Northern Hardpan Vernal Pool, and Northern Volcanic Mud Flow Vernal Pool. Restoring and enhancing the integrity of these ecosystems, especially the three riparian forests, is an expected beneficial impact of this program. Sensitive natural communities need not necessarily be avoided by vegetation management activities; they are always evaluated as part of the CEQA process because projects that include construction or land use changes could have greater impacts if they are in or near sensitive natural communities. SPRs limit the impacts on sensitive natural communities to predominantly beneficial impacts. For example, **SPR BIO-10** mandates that work in a riparian corridor be conducted under the terms of a Lake and Streambed Alteration (1600) agreement with CDFW, which is the trustee agency charged with mapping and protecting all sensitive natural communities in California. **SPRs BIO-7** and **BIO-8** ensure that

workers on the ground will understand their ecological surroundings and the terms under which work can be done, establishes procedures for stopping work if unexpected natural resources are found, and establishes qualifications for tree marking. **SPR-BIO-9** establishes a policy that understory thinning will be done in a “checkerboard” pattern rather than thinning an entire area all at once; this strategy leaves refugia for wildlife, establishes an uneven-aged mosaic of vegetation which results in improved quality habitat and forage for most species, and still reduces extreme fire behavior by reducing horizontal and vertical continuity of fuels. Given the nature of the vegetation management program and its phased implementation over space and time, the impacts of the program on riparian habitat and sensitive natural communities would be **less than significant**.

c) Would the project have a substantial adverse effect on state or federally protected wetlands (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means?	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

The program does not include any removal, filling or alterations in hydrological flow; it consists only of vegetation management. Reductions in vegetation density and restoration of a historical fire regime have been associated with increases in stream and spring flow, which could result in wetlands or seeps appearing where they are not currently present, but this would not be considered an adverse impact. All wetlands and springs will be protected with the same SPRs, regardless of how long they have been visible.

Measures to protect watercourses and the species that inhabit these zones are found in the BIO SPRs but also in the Hydrology section (4.10.2), where they include: **SPRs HYDRO-4 (Minimize Burn Pile Size and Observe Setbacks from Trees, HYDRO-5 (Observe Burn Pile Setbacks From Creeks, HYDRO-6 (Guidelines for Water Drafting, HYDRO-7 (Comply with Water Quality Regulations, and HYDRO-8 (Stream Buffers for Prescribed Fire).**

With SPRs incorporated, the program will avoid any potentially significant effects to wetlands, seeps and watercourses in the program area.

d) Would the project interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites?	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

The program would not interfere with the movement or migration of any native resident or migratory species, nor would it impede the use of any wildlife corridors. The program incorporates detailed SPRs to avoid impacts to native wildlife nursery sites. Due to program design, impacts to special-status wildlife are not expected; however, if they occurred, they would be a potentially significant impact. Out of an abundance of caution, this PEIR has been designed to provide for mitigating that impact. It is addressed in **MM-BIO-1a**.

e) Would the project conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance?	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

Butte County has no oak or native tree protection ordinance save during property development (construction); this program does not involve property development, rezoning, or construction. The VFMP does not address Chico's street trees, which are managed separately from Chico's parklands, open space, and greenways.

The program area lies within the Butte County General Plan Critical Winter Habitat of the East Tehama Deer Herd. The Butte County 2030 General Plan (Butte County 2018) addresses biological resources on lands within the county's jurisdiction. Of the goals found within the plan, Goal COS-10 is applicable: "Facilitate the survival of deer herds in winter and critical winter migratory deer herd ranges." The proposed program does not conflict with the local policy. Although the herd uses the area, any adverse impact from the implementation will be temporary in nature. Over the long term, positive impacts from VFMP implementation are likely to include enhanced forage from a more patchy, uneven age class distribution of chaparral/upland mix, enhancing habitat for the herd in the long-term.

f) Would the project conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan?	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

The Butte Regional Conservation Plan is both a Natural Community Conservation Plan and a Habitat Conservation Plan. It seeks to streamline development and certain other activities by giving implementers the option of paying a simple fee to offset their impacts on sensitive habitats, among other options. Crucial habitat types identified by the plan that are present in the program area include: grassland without vernal pools, blue oak woodland, mixed oak woodland, emergent wetland, chaparral, and valley oak riparian forest. The plan is not yet approved or implemented. VFMP implementation would not hinder future approval or implementation of the plan. Since all the lands addressed in the VFMP are already conserved and are therefore unavailable for future conservation, VFMP implementation would not change the amount or quality of lands available for future conservation activities in Butte County.

Cumulative impacts: The cumulative biological impacts of the program are expected to be less than significant, or less than significant after mitigation. Some cumulative biological impacts would be positive. They have been analyzed at length in 4.4.2(a).

4.4.3 Consistency with Applicable Local Plans

From the Bidwell Park Master Management Plan (EDAW 2008a):

- *O. PF-1. Utilize prescribed fire as a management tool to protect and enhance habitats.*
The proposed program is consistent with this goal because it plans prescribed fires that can take place within the next year to two years (e.g. in Middle or Upper Park blue oak communities to

reduce future flame lengths by reducing star thistle) and also plans projects which increase opportunities for prescribed fire in the future by appropriately thinning units that would not be safe to burn this year, but could be restored to a healthy level of fuel loading and safely burned in the future to enhance habitat. This includes the South Rim Bidwell Park Oak Restoration Wildfire Resiliency units, which are thinning projects designed to enhance opportunities for burning in, and improving the health of, black oak woodlands which occur on south-facing slopes in Upper Park.

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

The program is consistent with this objective because it seeks to restore Upper Park to a state more closely aligned with the likely densities and vegetation species composition it contained prior to and during the time John and Annie Bidwell dwelled in Chico. This baseline, while not necessarily possible to perfectly establish or achieve, is the City's understanding of the term "natural state." Most ecologists agree that prior to settlement by Euro-American immigrants, Sierran woodlands at all elevations experienced more frequent fire than they do today. Pre-settlement fire return intervals are difficult to establish, but are usually estimated at between 5 and 26 years for the vegetation communities of Upper Park (USDA 2012). As of this writing, parts of Upper Park have no record of fire for the last 109 years (FRAP 2019). Long-term fire suppression has resulted in vegetation that is unnaturally dense and in an unnatural abundance of shade-tolerant species compared to shade-intolerant species.

When fire-adapted vegetation is deprived of fire for longer than its usual fire return interval, it becomes susceptible to a higher intensity of fire than is usual for that vegetation type. If a fire occurs in this vegetation during high wind events after a period of prolonged dry weather, there is a potential for extremely high rate of spread, longer-range spotting than usual, and higher tree mortality (sometimes including 100% of the trees in a stand) than would be expected from an average fire. While fire is a natural process, fires with large high-intensity patches (i.e. fires that remove large and continuous stands of trees) are considered outside of the natural range of variation for the Sierra foothills (North 2019). Fires that burn at this intensity often leave behind a changed landscape with a profoundly altered species mix. For this reason, simply allowing Upper Park to burn may not help it remain in its natural state. Rather, fire surrogates such as mechanical thinning should be introduced first, to reverse some of the damage done by fire suppression. After one or more entries of hand or machine crews, fire can be safely reintroduced to sustain the native plant community.

To restore Upper Park to its natural state and manage it that way, the VFMP establishes a range of desirable, fire-resilient densities for each of the main vegetation communities of Upper Park. These densities are expected to be achieved over many years by a combination of hand and machine work, prescribed fire, and biological and chemical treatments. The ranges are intended to be adjusted for individual sites based on aspect and soils, which both influence the rate of plant growth as well as species composition. For example, south- and west-facing slopes naturally tend to have less dense vegetation than north- and east-facing slopes. Rather than trying to impose a fixed vegetation density across Upper Park, management decisions should honor this natural variation.

Two examples of projects that restore and promote Upper Park as open space in its natural state are projects 1 ("Ten-Mile House" Oak Restoration and Wildfire Resilience Project) and 2 ("Dozer Lines" Oak Restoration and Wildfire Resilience Project).

Project 1 will implement understory thinning in black oak stands adjacent to the 10 Mile House trailhead and upper portions of the 10 Mile House Road. The project will thin from below (using hand crews and masticators) 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. (This project also fulfills the BPMMP Implementing Strategy *PS/ES-13*, "Fuel breaks should be created and maintained 100 feet on each side of Ten Mile House Road, Musty Buck Road and other locations as appropriate. An overstory canopy to promote shade and wildlife habitat should be maintained.")

Project 2 will implement the same types of work on two southwest-trending ridges which each had bulldozer firelines installed during the 2017 Santos and 2018 Stoney Fires. Both dozer lines are now fully revegetated and will remain that way unless they are re-used in a future fire suppression emergency. This project aims to create vegetation conditions adjacent to the existing bulldozer fireline alignments which reflect the naturally lower vegetation density usually expected on south- or west-facing slopes and increases firefighter safety in the event the ridges are re-used during future wildfire suppression events. Accumulations of slash and debris adjacent to the ridgelines will be burned during this project, and dead material will be pruned out of trees. (Consuming dead wood in trees is a task that is often accomplished by fire in woodlands that experience their natural fire return interval.) Crews will remove clumps of fire-killed 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. Ideally, these south-facing slopes will be good candidates in 5-10 years for late-season or midwinter prescribed fires which will sustain natural habitat values in the nearby black oak communities and maintain these two ridges in their natural state.

The Bidwell Park Master Management Plan also contains the following relevant “implementing strategy”:

- *I. PF-1. The need for and location of prescribed burning and related vegetation management shall be determined to reduce catastrophic fire risk and to enhance habitat quality.*

The program fulfills this implementing strategy by delineating prescribed burn units that can be burned in accordance with their natural fire intervals to sustain habitat values. The program also provides related vegetation management guidance and standards designed to prepare parklands for fire and to provide aftercare post-fire.

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

- *Goal OS-1 Protect and conserve native species and habitats.*

and

- *Goal OS-2 Connect the community with a network of protected and maintained open space and creekside greenways.*

The proposed program is consistent with these goals because it incorporates several SPRs to protect and conserve native species, ensure sustained or improved habitat function, and maintain the health and condition of the open space and creekside greenways.

Goal OS-6 Provide a healthy and robust urban forest. The VFMP does not address the urban forest (i.e., street trees), but it is consistent with this goal because reducing unhealthily dense understory in native parklands will reduce pest breeding sites and create unfavorable conditions for some pests, fungal and bacterial blights, and viral vectors. This would in turn result in reduced blight and pest pressure on the urban forest.

For consistency with the Butte County General Plan’s designation of Critical Winter Habitat of the East Tehama Deer Herd and the Butte Habitat Conservation Plan, see 4.4.2(e) and (f) above.

4.4.4 Mitigation Measures

Mitigation Measure BIO-1a: Compensatory Mitigation to Special-Status Wildlife, If Applicable

If the provisions of **SPR BIO-5a** cannot be implemented and additional mitigation is necessary to reduce significant impacts, the project proponent will compensate for such impacts to species or habitat by acquiring and/or protecting land that provides (or will provide in the case of restoration) habitat function for affected species that is at least equivalent to the habitat function removed or degraded as a result of the treatment.

Compensation may include:

- 1.) Preserving existing habitat outside of the treatment area in perpetuity; this may entail purchasing mitigation credits and/or lands from a CDFW- or USFWS-approved entity in sufficient quantity to offset the residual significant impacts, generally at a ratio of 1:1 for habitat; and/or
- 2.) Restoring or enhancing existing habitat within the treatment area or outside of the treatment area (including decommissioning roads, adding perching structures, removing existing perching structures, or removing existing movement barriers or other existing features that are adversely affecting the species), and/or
- 3.) In lieu of the measures described above, compensatory mitigation may be satisfied through compliance with permit conditions, or other authorizations obtained by the project proponent (e.g., incidental take permit, if required), if these requirements are equally or more effective than the mitigation identified above.

The project proponent will prepare a Compensatory Mitigation Plan that identifies the residual significant effects that require compensatory mitigation and describes the compensatory mitigation strategy being implemented to reduce residual effects. The project proponent will consult with CDFW and/or any other applicable responsible agency prior to finalizing the Compensatory Mitigation Plan in order to satisfy that responsible agency's requirements (e.g., permits, approvals) within the plan. For species listed under ESA or CESA, the project proponent will submit the mitigation plan to CDFW and/or USFWS for review and comment. For other special-status wildlife species (not listed under ESA or CESA) the project proponent may consult with CDFW and/or USFWS regarding the availability and applicability of compensatory mitigation and other related technical information. The Compensatory Mitigation Plan will include:

- 1.) For preserving existing habitat outside of the treatment area in perpetuity, a summary of the proposed compensation lands (e.g., the number and type of credits, location of mitigation bank or easement), parties responsible for the long-term management of the land, and the legal and funding mechanisms for long-term conservation (e.g., holder of conservation easement or fee title). The project proponent will submit evidence that the necessary mitigation has been implemented or that the project proponent has entered into a legal agreement to implement it and that compensatory habitat will be preserved in perpetuity.
- 2.) For restoring or enhancing habitat within the treatment area or outside of the treatment area, a description of the proposed habitat improvements, success criteria that demonstrate the performance standard of maintained habitat function has been met, legal and funding mechanisms, and parties responsible for long-term management and monitoring of the restored habitat.

If the loss of occupied habitat cannot be offset, and as a result treatment activities would substantially reduce the number or restrict the range of listed wildlife species, then the treatment will not qualify as within the scope of this PEIR.

Mitigation Measure BIO-1b: Compensatory Mitigation to Special-Status Plants, If Applicable

If the provisions of **SPR BIO-5b** cannot be implemented and additional mitigation is necessary to reduce significant impacts, the project proponent will compensate for such impacts to species or habitat by acquiring and/or protecting land that provides (or will provide in the case of restoration) habitat function for affected species that is at least equivalent to the habitat function removed or degraded as a result of the treatment.

Compensation may include:

- 1.) Preserving and enhancing existing populations outside of the treatment area in perpetuity (first priority). If that is not an option because existing populations that can be preserved in perpetuity are not available,
- 2.) Creating populations on mitigation sites outside of the treatment area through seed collection and dispersal (annual species) or transplantation (perennial species) and/or
- 3.) Purchasing mitigation credits from a CDFW- or USFWS-approved conservation or mitigation bank in sufficient quantities to offset the loss of occupied habitat; and/or

4.) If the affected special-status plants are not listed under ESA or CESA, compensatory mitigation may include restoring or enhancing degraded habitats so that they are made suitable to support special-status plant species in the future.

5.) Finally, in lieu of the measures described above, compensatory mitigation may be satisfied through compliance with permit conditions, or other authorizations obtained by the project proponent (e.g., incidental take permit for state-listed plants), if these requirements are equally or more effective than the mitigation identified above.

The project proponent will prepare a Compensatory Mitigation Plan that identifies the residual significant impacts that require compensatory mitigation and describes the compensatory mitigation strategy being implemented and how unavoidable losses of special-status plants will be compensated. The project proponent will consult with CDFW and/or any other applicable responsible agency prior to finalizing the Compensatory Mitigation Plan to satisfy that responsible agency's requirements (e.g., permits, approvals) within the plan. If the special-status plant taxa are listed under ESA or CESA, the plan will be submitted to CDFW and/or USFWS (as appropriate) for review and comment. The Compensatory Mitigation Plan will include:

1.) For compensatory mitigation that includes preservation of existing populations or creation of new populations, a summary of the proposed compensation lands and actions (e.g., the number and type of credits, location of mitigation bank or easement, restoration or enhancement actions), parties responsible for the long-term management of the land, and the legal and funding mechanisms (e.g., holder of conservation easement or fee title). The project proponent will submit evidence that the necessary mitigation has been implemented or that the project proponent has entered into a legal agreement to implement it and that compensatory plant populations will be preserved in perpetuity.

2.) For compensatory mitigation that includes relocation efforts, details on the methods to be used, including collection, storage, propagation, receptor site preparation, installation, long-term protection and management, monitoring and reporting requirements, success criteria, and remedial action responsibilities should the initial effort fail to meet long-term monitoring requirements. After relocation, the extent of occupied area will be substantially similar to the affected occupied habitat and will be suitable for self-producing populations. Re-located/re-established populations will be considered self-producing when habitat conditions allow for plants to reestablish annually for a minimum of 5 years with no human intervention, such as supplemental seeding; and the occupied area is comparable to existing occupied habitat areas in similar habitat types in the region.

3.) For compensatory mitigation that includes dedication of conservation easements, purchase of mitigation credits, or other offsite conservation measures, the details of these measures. This includes information on responsible parties for long-term management, conservation easement holders, long-term management requirements, funding assurances, and success criteria such as those listed above and other details, as appropriate to target the preservation of long term viable populations.

4.) For compensatory mitigation that includes restoring or enhancing habitat within the treatment area or outside of the treatment area, a description of the proposed habitat improvements, success criteria that demonstrate the performance standard of maintained habitat function has been met, legal and funding mechanisms, and parties responsible for long-term management and monitoring of the restored habitat.

If the loss of occupied habitat cannot be offset (e.g., if preservation of existing populations or creation of new populations through relocation efforts are not available for a certain species), and as a result treatment activities would substantially reduce the number or restrict the range of listed plant species, then the treatment will not qualify as within the scope of this PEIR.

4.4.5 Residual Impact(s) No residual impacts after mitigation.

4.5 CULTURAL RESOURCES

This section, in concert with section 4.18, analyzes and evaluates potential impacts caused by the proposed projects to archaeological, historical, pre-historical, and cultural sites.

Cultural resources include districts, sites, buildings, structures, or objects generally older than 50 years and considered to be important to a culture, subculture, or community for scientific, traditional, religious, or other reasons. They also include archeological resources and “tribal cultural resources” (the latter as defined by Assembly Bill [AB] 52, Statutes of 2014, in Public Resources Code [PRC] Section 21074). Tribal Cultural Resources are specifically evaluated in Section 4.18.

Archaeological resources are locations where human activity has measurably altered the earth or left deposits of prehistoric or historic-era physical remains (e.g., stone tools, bottles, former roads, house foundations). Historic-era built-environment resources include standing buildings (e.g., houses, barns, outbuildings, cabins) and intact structures (e.g., dams, bridges, roads, districts), or landscapes. A cultural landscape is defined as a geographic area (including both cultural and natural resources and the wildlife therein), associated with a historic event, activity, or person or exhibiting other cultural or aesthetic values. Tribal cultural resources include sites, features, places, cultural landscapes, sacred places or objects, which are of cultural value to a tribe.

4.5.1 Existing Conditions

The City of Chico and all of its parks and green spaces have been inhabited by humans for at least the past approximately 10,000 years. The Mechoopda are recognized as the first people group to inhabit Chico and some of the surrounding canyons in the foothills. Then, like most areas in California, settlers of mostly European descent began to explore the area for its natural resources (e.g., fur trappers and gold prospectors). As settlers moved into the Chico area, they displaced many of the villages of the indigenous peoples.

The following passage from the Initial Study-Mitigated Negative Declaration for the proposed Big Chico Creek Forest Health Restoration Project (BCRCD 2020) described the history of the program area well:

This project area is located in the ancestral home of Yana (*i.e.*, Yahi), Kojomkawi (*i.e.*, Konkow) and Mechoopda speaking people represented today by several bands within the county and surrounding areas. Local Indigenous peoples frequently burned creating a fire resistant and resilient landscape that was fire-maintained by low to moderate intensity fires that self regulated. Perhaps the first contact between these Tribes and Europeans occurred in 1811, when Padre Abella explored the San Joaquin and Sacramento Valleys. In 1832-3, John Work traveled through the northern Sacramento Valley as part of a fur trapping expedition for the Hudson Bay Company (Riddell 1978). Members of his party transmitted diseases that had a catastrophic effect on native peoples. The mass insurgence of Euroamericans during the Gold Rush in 1848-9 led to additional waves of disease spread, violence, and environmental destruction. In 1851, Native Americans were forced to move on reservations.

Three historic themes relevant to the history of Big Chico Creek Canyon include: lumber and logging, homesteading, and livestock ranching. The Gold Rush (1848-9) brought a wave of immigrants to California. Locally, Big and Little Butte Creeks (the ancestral Mechoopda Village) were among some of the richest gold mining localities in the county while Big Chico Creek was spared the effects of mining due to the fundamentally different geology. The opening of the Humboldt Road in 1864 made available vast tracts of previously inaccessible timberlands. Shipping logs with horse drawn wagons along the Humboldt Wagon Road was inefficient and timber companies sought a better system to transport lumber to sawmills in Chico. The Butte Flume and Lumber Company constructed the Big Chico Creek Flume between 1872 and 1874. The 38-mile long flume ran through Big Chico Creek canyon and was used to transport rough cut lumber

from sawmills in the mountains to the community of Chico (Dennison and Nopel 1998:50-55).

The Homestead Act of 1862 accelerated the settlement of the western territory by granting families 160 acres of surveyed public lands for settlement. Claimants were required to “improve” the plot by building a dwelling and cultivating the land and after 5 years the original filer was entitled to the property, free and clear, except for a small registration fee. A number of homesteads were present within and adjacent what is now Upper Park. Many of these homesteaders conducted livestock ranching.

Arriving well before the Homestead Act, however, John Bidwell was among the area’s earliest permanent English-speaking settlers. He made his first fortune in gold and then applied it to the purchase of Rancho Arroyo Chico. He moved many of the Mechoopda into a village of his own design near current downtown Chico. Many indigenous people were employed by John Bidwell and his wife Annie. Annie dedicated a large amount of time in the constructed Mechoopda Village teaching school and Christianity. However, the nature of the relationship between the Bidwells and the Mechoopda is complex and disputed (Jacobs 1997).

Today the Mechoopda are locally and federally recognized as the first people to inhabit the Chico area and have all the rights and privileges that entails. Specific tribal cultural resources will be discussed further in Section 4.18.

Regulatory Setting

FEDERAL

National Register of Historic Places

The National Register of Historic Places (NRHP) is the nation’s master inventory of known historic properties. It is administered by the National Park Service and includes listings of buildings, structures, sites, objects, and districts that possess historic, architectural, engineering, archaeological, and cultural districts that are considered significant at the national, state, or local level.

The formal criteria (36 CFR 60.4) for determining NRHP eligibility are as follows:

1. The property is at least 50 years old (however, properties under 50 years of age that are of exceptional importance or are contributors to a district can also be included in the NRHP);
2. It retains integrity of location, design, setting, materials, workmanship, feeling, and associations;

and

3. It possesses at least one of the following characteristics:

Criterion A: Association with events that have made a significant contribution to the broad patterns of history (events).

Criterion B: Association with the lives of persons significant in the past (persons).

Criterion C: Distinctive characteristics of a type, period, or method of construction, or represents the work of a master, or possesses high artistic values, or represents a significant, distinguishable entity whose components may lack individual distinction (architecture).

Criterion D Has yielded, or may be likely to yield, information important to prehistory or history (information potential).

Listing in the NRHP does not entail specific protection or assistance for a property but it does guarantee recognition in planning for federal or federally-assisted projects, eligibility for federal tax benefits, and qualification for federal historic preservation assistance. Additionally, project effects on properties listed in the NRHP must be evaluated under CEQA.

The National Register Bulletin also provides guidance in the evaluation of archaeological site significance. If a heritage property cannot be placed within a particular theme or time period, and thereby lacks “focus,” it is considered not eligible for the NRHP. In further expanding upon the generalized NRHP criteria,

evaluation standards for linear features (such as roads, trails, fence lines, railroads, ditches, flumes, etc.) are considered in terms of four related criteria that account for specific elements that define engineering and construction methods of linear features: (1) size and length; (2) presence of distinctive engineering features and associated properties; (3) structural integrity; and (4) setting. The highest probability for NRHP eligibility exists within the intact, longer segments, where multiple criteria coincide.

STATE

California Register of Historical Resources

All properties in California that are listed in or formally determined eligible for listing in the NRHP are eligible for the California Register of Historical Resources (CRHR). The CRHR is a listing of State of California resources that are significant within the context of California's history. The CRHR is a statewide program of similar scope and with similar criteria for inclusion as those used for the NRHP. In addition, properties designated under municipal or county ordinances are also eligible for listing in the CRHR.

A historic resource must be significant at the local, state, or national level under one or more of the criteria defined in the California Code of Regulations Title 15, Chapter 11.5, Section 4850 to be included in the CRHR. The CRHR criteria are similar to the NRHP criteria and are tied to CEQA because any resource that meets the criteria below is considered a significant historical resource under CEQA. As noted above, all resources listed in or formally determined eligible for the NRHP are automatically listed in the CRHR.

The CRHR uses four evaluation criteria:

1. Is associated with events or patterns of events that have made a significant contribution to the broad patterns of local or regional history, or the cultural heritage of California or the United States.
2. Is associated with the lives of persons important to local, California, or national history.
3. Embodies the distinctive characteristics of a type, period, region, or method of construction, or represents the work of a master, or possesses high artistic values.
4. Has yielded, or has the potential to yield, information important to the prehistory or history of the local area, California or the nation.

Similar to the NRHP, a resource must meet one of the above criteria and retain integrity. The CRHR uses the same seven aspects of integrity as the NRHP.

California Environmental Quality Act

CEQA requires public agencies to consider the effects of their actions on "historical resources," "unique archaeological resources," and "tribal cultural resources." Pursuant to PRC Section 21084.1, a "project that may cause a substantial adverse change in the significance of an historical resource is a project that may have a significant effect on the environment." PRC Section 21083.2 requires agencies to determine whether projects would have effects on unique archaeological resources. PRC Section 21084.2 further establishes that "[a] project with an effect that may cause a substantial adverse change in the significance of a tribal cultural resource is a project that may have a significant effect on the environment."

"Historical resource" is a term with a defined statutory meaning (PRC Section 21084.1); determining significant impacts to historical and archaeological resources is described in the State CEQA Guidelines, Sections 15064.5[a] and [b]). Under State CEQA Guidelines Section 15064.5(a), historical resources include the following:

1. A resource listed, or determined to be eligible by the State Historical Resources Commission for listing, in the California Register of Historical Resources (PRC Section 5024.1).
2. A resource included in a local register of historical resources, as defined in Section 5020.1(k) of the Public Resources Code or identified as significant in a historical resource survey meeting the

requirements of Section 5024.1(g) of the Public Resources Code, will be presumed to be historically or culturally significant. Public agencies must treat any such resource as significant unless the preponderance of evidence demonstrates that it is not historically or culturally significant.

3. Any object, building, structure, site, area, place, record, or manuscript which a lead agency determines to be historically significant or significant in the architectural, engineering, scientific, economic, agricultural, educational, social, political, military, or cultural annals of California may be considered to be a historical resource, provided the lead agency's determination is supported by substantial evidence in light of the whole record. Generally, a resource will be considered by the lead agency to be historically significant if the resource meets the criteria for listing in the California Register of Historical Resources (PRC Section 5024.1).

4. The fact that a resource is not listed in or determined to be eligible for listing in the California Register of Historical Resources, not included in a local register of historical resources (pursuant to Section 5020.1(k) of the Public Resources Code), or identified in a historical resources survey (meeting the criteria in Section 5024.1(g) of the Public Resources Code) does not preclude a lead agency from determining that the resource may be an historical resource as defined in PRC Section 5020.1(j) or 5024.1.

Unique Archaeological Resources

CEQA also requires lead agencies to consider whether projects will impact unique archaeological resources. PRC Section 21083.2(g) states that unique archaeological resource means an archaeological artifact, object, or site about which it can be clearly demonstrated that, without merely adding to the current body of knowledge, there is a high probability that it meets any of the following criteria:

1. Contains information needed to answer important scientific research questions and that there is a demonstrable public interest in that information.
2. Has a special and particular quality such as being the oldest of its type or the best available example of its type.
3. Is directly associated with a scientifically recognized important prehistoric or historic event or person

Tribal Cultural Resources

CEQA also requires lead agencies to consider whether projects will impact tribal cultural resources. PRC Section 21074 states the following:

a) "Tribal cultural resources" are either of the following:

- 1) Sites, features, places, cultural landscapes, sacred places, and objects with cultural value to a California Native American tribe that are either of the following:
 - A) Included or determined to be eligible for inclusion in the California Register of Historical Resources.
 - B) Included in a local register of historical resources as defined in subdivision (k) of Section 5020.1.
- 2) A resource determined by the lead agency, in its discretion and supported by substantial evidence, to be significant pursuant to criteria set forth in subdivision (c) of Section 5024.1. In applying the criteria set forth in subdivision (c) of Section 5024.1 for the purposes of this paragraph, the lead agency shall consider the significance of the resource to a California Native American tribe.

b) A cultural landscape that meets the criteria of subdivision (a) is a tribal cultural resource to the extent that the landscape is geographically defined in terms of the size and scope of the landscape.

c) A historical resource described in Section 21084.1, a unique archaeological resource as defined in subdivision (g) of Section 21083.2, or a "non-unique archaeological resource" as defined in subdivision (h) of Section 21083.2 may also be a tribal cultural resource if it conforms with the criteria of subdivision (a).

California Native American Historical, Cultural, and Sacred Sites Act

The California Native American Historical, Cultural, and Sacred Sites Act applies to both state and private

lands. The Act requires that upon discovery of human remains, construction or excavation activity cease and the County coroner be notified. If the remains are of a Native American, the coroner must notify NAHC, which notifies and has the authority to designate the most likely descendant (MLD) of the deceased. The Act stipulates the procedures the descendants may follow for treating or disposing of the remains and associated grave goods.

Health and Safety Code Sections 7050.5 and 7052

Section 7050.5 of the Health and Safety Code requires that construction or excavation be stopped in the vicinity of discovered human remains until the coroner can determine whether the remains are those of a Native American. If determined to be Native American, the coroner must contact the NAHC. Section 7052 states that the disturbance of Native American cemeteries is a felony.

Public Resources Code Section 5097

PRC Section 5097 specifies the procedures to be followed in the event of the unexpected discovery of human remains on non-federal land. The disposition of Native American burial falls within the jurisdiction of the NAHC. PRC Section 5097.5 states the following:

No person shall knowingly and willfully excavate upon, or remove, destroy, injure, or deface any historic or prehistoric ruins, burial grounds, archaeological or vertebrate paleontological site, including fossilized footprints, inscriptions made by human agency, or any other archaeological, paleontological or historical feature, situated on public lands, except with the express permission of the public agency having jurisdiction over such lands. Violation of this section is a misdemeanor.

Public Resources Code Section 21080.3

AB 52, signed by the California Governor in September of 2014, established a new class of resources under CEQA: “tribal cultural resources,” defined in PRC 21074. Pursuant to PRC Sections 21080.3.1, 21080.3.2, and 21082.3, lead agencies undertaking CEQA review must, upon written request of a California Native American Tribe, begin consultation before the release of an environmental impact report, negative declaration, or mitigated negative declaration.

PRC Section 21080.3.2 states:

Within 14 days of determining that a project application is complete, or to undertake a project, the lead agency must provide formal notification, in writing, to the tribes that have requested notification of proposed projects in the lead agency’s jurisdiction. If it wishes to engage in consultation on the project, the tribe must respond to the lead agency within 30 days of receipt of the formal notification. The lead agency must begin the consultation process with the tribes that have requested consultation within 30 days of receiving the request for consultation. Consultation concludes when either: 1) the parties agree to measures to mitigate or avoid a significant effect, if a significant effect exists, on a tribal cultural resource, or 2) a party, acting in good faith and after reasonable effort, concludes that mutual agreement cannot be reached.

If the lead agency determines that a project may cause a substantial adverse change to a tribal cultural resource, and measures are not otherwise identified in the consultation process, provisions under PRC Section 21084.3(b) describe mitigation measures that may avoid or minimize the significant adverse impacts. Examples include:

- (1) Avoidance and preservation of the resources in place, including, but not limited to, planning and construction to avoid the resources and protect the cultural and natural context, or planning greenspace, parks, or other open space, to incorporate the resources with culturally appropriate protection and management criteria.

- (2) Treating the resource with culturally appropriate dignity taking into account the tribal cultural values and meaning of the resource, including, but not limited to, the following:
 - (A) Protecting the cultural character and integrity of the resource.
 - (B) Protecting the traditional use of the resource.
 - (C) Protecting the confidentiality of the resource.
- (3) Permanent conservation easements or other interests in real property, with culturally appropriate management criteria for the purposes of preserving or utilizing the resources or places.
- (4) Protecting the resource.

4.5.2 Thresholds of Significance and Impacts

In determining the level of significance, the analysis assumes that the program and any projects within its scope would implement the following standard project requirements (SPRs), as well as any other SPRs listed elsewhere in this document, developed for the program. It also assumes that all work would comply with relevant federal and state laws, regulations, and ordinances.

SPR CUL-1: Consultation with Mechoopda Indian Tribe of Chico Rancheria prior to implementation of the project or activity. In accordance with BPMMP Appendix D, Mechoopda Indian Tribe of Chico Rancheria will be consulted prior to activity implementation (not just in Bidwell Park, but anywhere on Chico parklands) so that they may inform project implementers of cultural resources to be protected during implementation.

SPR CUL-2: Archaeological surveys where applicable prior to implementation of projects.

Archaeological surveys will be conducted by a qualified archaeologist prior to the implementation of any activity that includes ground disturbance, *or* if requested by a Tribe or other government.

For the purposes of this section, “ground disturbance” does not include:

- (a) activity that is part of routine trail, road or infrastructural maintenance.
- (b) hand-dug fireline that removes only the duff layer down to bare mineral soil
- (c) Planting plugs, cuttings and scratched-in seed of native plants

Archaeological surveys, if performed, will include archaeological records pull from the California Historical Resource Information System.

SPR CUL-3: Avoidance of cultural/archaeological resources. Cultural resources present within the program area have not been formally evaluated to determine eligibility for listing on the CRHR. For the purposes of this program, these cultural resources will be assumed potentially eligible for state and federal registers and will be avoided. Project proponents will ensure that cultural resources are not adversely affected by management activities. If cultural resources cannot be avoided and disturbance will occur within the recorded site limits then the site(s) will be formally evaluated to determine if they meet the regulatory criteria for eligibility to the CRHR. If a site meets the criteria for eligibility to the CRHR, then it is protected, and no disturbance to the site can take place.

SPR CUL-4: Protocol in case of unanticipated discovery of cultural resources. If a cultural resource is discovered within a project area after the project has been approved, the following procedures apply:

1. Project activities within 100 feet of the newly discovered cultural resource shall be immediately halted.
2. A qualified professional archaeologist shall be immediately notified.

3. The archaeologist shall evaluate the new discovery and develop appropriate protection measures.
4. The archaeologist shall investigate how the project was reviewed for cultural resources to determine if the cultural resource should have been identified earlier.
5. The archaeologist shall ensure that the newly discovered site is recorded and its discovery and protection measures are documented in the project files.
6. If the newly discovered site is a Native American Archaeological or Cultural Site, the Archaeologist shall notify the appropriate Native American tribal group and the NAHC, if appropriate.

SPR CUL-5: Protocol in case of encountering human remains. If human remains are encountered, all work must stop in the immediate vicinity of the discovered remains and the County Coroner and a qualified archaeologist must be notified immediately so that an evaluation can be performed. If the remains are deemed to be Native American and prehistoric, the Native American Heritage Commission must be contacted by the Coroner so that a “Most Likely Descendant” can be designated and further recommendations regarding treatment of the remains can be provided. Mechoopda will also be contacted.

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
a) Would the project cause a substantial adverse change in the significance of a historical or archaeological resource pursuant to § 15064.5?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

Direct and Indirect Effects: Direct effects to cultural resources are those that physically alter, damage, or destroy all or part of a resource. Indirect effects are those that alter characteristics of the surrounding environment that contribute to the resource’s significance; introduce visual or audible elements out of character with the property or that alters its setting; or neglect a resource to the extent that it deteriorates or is destroyed.

The program with SPRs incorporated is not expected to have an adverse effect on archaeological or cultural resources.

Cumulative Effects: Successful utilization of standard protection measures will result in no significant cumulative impacts to heritage resources within the program area.

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
b) Would the project disturb any human remains, including those interred outside of formal cemeteries?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

At present there is no activity planned that would cause ground disturbance. However, in case one is developed, standard project requirements integrated into program design protect identified sites, and reduce the impacts of potential inadvertent site discoveries that by their nature cannot be predicted and thus cannot be avoided.

4.5.3 Consistency with Applicable Local Plans

BPMMP

Appendix D-Cultural Resource Management Plan (CRMP) Outline

Unfortunately, this part of the master plan is only in outline form and has not been formally completed. The main concept discussed in this outline is that of consultation with the Mechoopda Tribe prior to project implementation. This PEIR follows the CRMP outline fairly closely and takes into account the setting, goals, impacts, mitigation through management, and how to handle unanticipated discoveries.

Appendix K: Cultural Resources (Confidential)

These are archaeological survey records that archaeologists will use to complete future surveys prior to implementation of the projects list. These are confidential in order to protect these irreplaceable resources. Appendix K will reduce the cost of future archaeological survey records requests as these are already in the domain of the City.

Consistency with local plans is further discussed in section 4.18.

4.5.4 Mitigation Measures

Since impacts would be less than significant, no mitigation measures are needed.

4.5.5 Residual Impact(s)

None.

4.6 ENERGY

4.6.1 Existing Conditions

The City of Chico is committed to analyzing and tracking its energy usage, as attested by its development of an energy use inventory that served as the baseline for its [Climate Action Plan \(CAP\)](#) that outlines strategies, organized within a flexible ten-year framework, for a significant reduction of greenhouse gas (GHG) emissions that are directly and indirectly generated by local activities. The CAP includes actions to reduce transportation fuel, energy and water consumption, and to reduce waste sent to the landfill. CAP implementation is intended to help the City achieve its GHG reduction goal of 25% below 2005 emission levels by the end of 2020. This goal translates to an emissions target of 385,749 metric tons CO2 equivalent (MtCO2e) for 2020.

In summer 2015, the City of Chico completed a GHG inventory for the period 2005-2012 (ISD 2015).The inventory analyzed carbon dioxide (CO2) emissions from fuel use, electricity use, and waste. It showed that by the end of 2012, the Chico community had already reduced its emissions to a level 11.5% below 2005 levels. The inventory analyzed the energy usage of the entire community, not City municipal operations in particular. Communitywide, the largest source of CO2 was transportation (54 percent), followed by the commercial sector (23 percent), the residential sector (19 percent), the waste sector (4 percent), and the industrial sector (less than 1 percent).

The 2015 report did not investigate what share of the Chico incorporated area’s energy usage is accounted for by City operations in particular. However, a 2008 analysis of 2005 energy use determined that City operations and facilities accounted for about 1 percent of the overall community emissions. Within the City operations and facilities, the key contributors to CO2 were emissions associated with the vehicle fleet (26 percent), followed by the water/sewage sector (25 percent), the employee commute sector (22 percent), the streetlights sector (13 percent), the buildings sector (12 percent), and the waste sector (2 percent) (City of Chico 2017, 4.14-9). Within this subset of City transportation emissions, the Parks division accounted for just 4.6%.

If the relative energy usage by the various City departments and the wider community has remained roughly constant since 2005, then Parks Division transportation-related emissions continue to account for (1% x 26% x 4.6% =) 0.0001196, or 0.012%, of the entire community’s usage. Thus, even if implementation of the VFMP resulted in a doubling of Parks Division vehicle-related emissions, which is considered unlikely, that would still only result in an increased energy usage of 0.012% communitywide. The City’s CAP assumes that under a “business-as-usual” scenario, communitywide energy use for transportation would increase by 2.31% annually, or 192.5 times a doubling of Parks division emissions.

4.6.2 Thresholds of Significance and Impacts

a) Would the project result in potentially significant environmental impact due to wasteful, inefficient, or unnecessary consumption of energy resources, during project construction or operation?	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

The project locations range from remote to highly accessible. While any project activity will require transport of personnel and equipment to the project site, the program will not result in wasteful or inefficient energy use. Equipment that cannot be securely left on site overnight can be returned to the centrally located Chico Public Works Yard. Some work may be performed by contractors or crews

traveling to the project site from a distant area, but only in cases where no local contractors or crews are available to do the work cost-effectively. The program is likely to result in slowing the rate of wildfire spread and providing a defensible space where crews can stop fire before it spreads to assets in Chico, Cohasset or Forest Ranch; therefore, the program could reduce the overall amount of energy and fuel spent combating wildfires. The program will not violate or obstruct any State or local renewable energy or energy efficiency plan; all operations will comply with law.

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
b) Would the project conflict with or obstruct a state or local plan for renewable energy or energy efficiency?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
The program will not violate or obstruct any State or local renewable energy or energy efficiency plan; all operations will comply with law.				

Cumulative impacts: The cumulative energy impacts of the program are expected to be negligible or positive.

4.6.3 Consistency with Applicable Local Plans

The program is consistent with the Chico Climate Action Plan and does not conflict with any of the actions or policies in the Chico 2030 General Plan (City of Chico 2017) section dealing with “Energy Use and Climate Change”.

4.6.4 Mitigation Measures No mitigation measures are required because no significant impacts are expected.

4.6.5 Residual Impact(s) Not applicable.

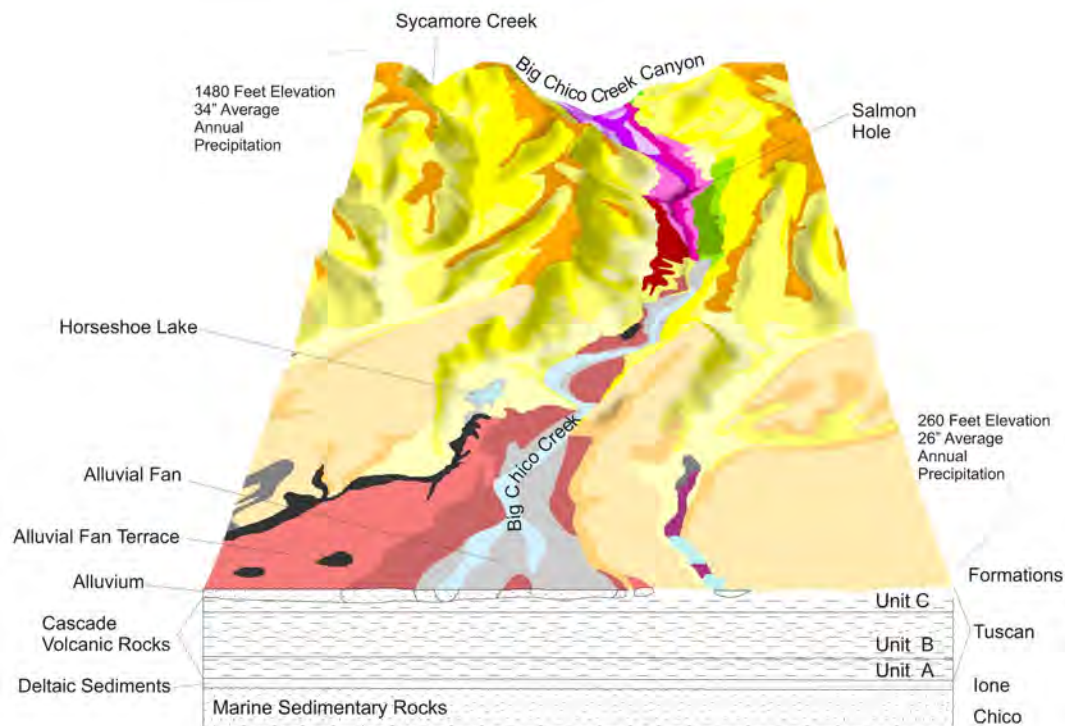
4.7 GEOLOGY AND SOILS

4.7.1 Existing Conditions

The soils of the VFMP program area are diverse (see graphic next page, and Soils maps 1-4). Out on the Valley floor, deep, durable alluvium supports huge valley oak forests (and highly productive agriculture); these deep soils are highly resilient to disturbance. These deep loamy soils are interspersed with pockets of very heavy clay, some of which support vernal pool communities (as do some loamy soils that happen to overlie a water-impervious duripan). This variation in soil composition and in depth to hardpan is one of the factors that gives the Sacramento Valley its biological richness.

Rising from the Valley floor, deeper alluvial soils transition into the bedrock-controlled soils of the foothills. These soils are often shallow (less than 20 cm deep), and their thin A horizons (or colloquially, thin topsoil) can be seen in the low vegetation they support and their relatively diminutive (“scraggly”) blue oaks. In bedrock-controlled areas, pockets of deeper soil can be seen with the naked eye because they support obviously taller grasses and forbs, a phenomenon expressed in the proverb “big plants, big soils”. Here in the bedrock-controlled parts of Upper Park, blue oaks can grow large if they happen to germinate on a pocket of deeper soil or their taproot finds a fissure in the hard bedrock. Blue oaks in Upper Park can often be seen growing in lines, disclosing the bedrock fissures they have discovered. (Star thistle grows in lines on the same soils for the same reason.) Shallow soils are widespread in Upper Park on ridgetops and canyon slopes; a map of soil depth can be viewed in Soil Map 6. In general, the sparse vegetation growth on shallow soils means they will not be targeted for heavy vegetation management traffic during implementation of the VFMP.

The denser woodlands in Upper Park developed on much deeper soils. These deeper soils are derived from colluvium, which is formed when rocks fall from Upper Park’s Lovejoy and Tuscan formation cliffs to the slopes below, where they eventually form deep, well-drained soils. These soils support thick woodlands of live oak, gray pine, and brush species, so they are likely to be frequent targets of vegetation management activities.



Geologic formations are conceptual, for illustrative purposes only, and are not to scale.

Legend	
Flood Plain	991 XEROFUVENTS, 0 TO 4 PERCENT SLOPES FREQUENTLY FLOODED
Alluvial Fan	447 CHARGER FINE SANDY LOAM, 0 TO 1 PERCENT SLOPES
Alluvial Fan Terraces	
100	ANITA-GALT COMPLEX, 0 TO 3 PERCENT SLOPES
300	REDSLUFF GRAVELLY LOAM, 0 TO 2 PERCENT SLOPES
302	REDTOUGH GRAVELLY LOAM, 0 TO 2 PERCENT SLOPES
Strath Terraces	
675	CLEARHAYES-HAMSLOUGH COMPLEX, 0 TO 2 PERCENT SLOPES
676	CARHART-ANITA TAXADJUNCT COMPLEX, 0 TO 12 PERCENT SLOPES
677	TUSCAN-FALLAGER-ANITA, GRAVELLY DURIPAN, COMPLEX, 0 TO 3 PERCENT SLOPES
Volcanic Ridgetops	
619	CARHART TAXADJUNCT, 0 TO 2 PERCENT SLOPES
614	DOEMILL-JOKERST COMPLEX, 0 TO 3 PERCENT SLOPES
615	DOEMILL-JOKERST COMPLEX, 3 TO 8 PERCENT SLOPES
620	DOEMILL-JOKERST-ULTIC HAPLOXERALS, THERMIC, COMPLEX, 3 TO 8 PERCENT SLOPES
621	DOEMILL-JOKERST-ULTIC HAPLOXERALS, THERMIC, COMPLEX, 8 TO 15 PERCENT SLOPES
Side Slopes on Volcanic Ridges	
616	JOKERST-DOEMILL-TYPIC HAPLOXERALS COMPLEX, 8 TO 15 PERCENT SLOPES
617	JOKERST-DOEMILL-TYPIC HAPLOXERALS COMPLEX, 15 TO 30 PERCENT SLOPES
687	XERORTHENTS, SHALLOW-TYPIC HAPLOXERALS COMPLEX, 2 TO 15 PERCENT SLOPES
622	XERORTHENTS, SHALLOW-TYPIC HAPLOXERALS-ROCK OUTCROP, CLIFFS, COMPLEX, 15 TO 30 PERCENT SLOPES
623	XERORTHENTS, SHALLOW-TYPIC HAPLOXERALS-ROCK OUTCROP, CLIFFS, COMPLEX, 30 TO 50 PERCENT SLOPES
626	ULTIC HAPLOXERALS-ROCK STRIPE-ROCK OUTCROP, CLIFFS, COMPLEX, 30 TO 50 PERCENT SLOPES
642	CHINACAMP GRAVELLY LOAM, 3 TO 15 PERCENT SLOPES
643	CHINACAMP GRAVELLY LOAM, 15 TO 30 PERCENT SLOPES
Basalt Flows and Escarpments in Canyons	
340	ROCK OUTCROP-THERMAL ROCKS-CAMPBELL HILLS COMPLEX, 2 TO 15 PERCENT SLOPES
656	ROCK OUTCROP, CLIFFS-COALCANYON TAXADJUNCT COMPLEX, 15 TO 50 PERCENT SLOPES
Basalt Colluvium in Canyons	
646	COALCANYON TAXADJUNCT VERY GRAVELLY LOAM, 3 TO 15 PERCENT SLOPES
647	COALCANYON TAXADJUNCT VERY GRAVELLY LOAM, 15 TO 30 PERCENT SLOPES
648	COALCANYON TAXADJUNCT VERY GRAVELLY LOAM, 30 TO 50 PERCENT SLOPES
999	WATER

Block diagram 1.

Source: USDA-NRCS: "Soil Survey of Butte Area, California, Parts of Butte and Plumas Counties". By Dean W. Burkett and Andrew E. Conlin, Soil Scientists, Natural Resources Conservation Service.

4.7.2 Thresholds of Significance and Impacts

Soils' resilience to impacts depends on a number of factors, such as their composition (mix of particle sizes, which affects how well-drained they are), chemistry (parent material), steepness, and depth to bedrock or hardpan. As described above, most Upper Park soils that are deep enough to support dense woody vegetation are also generally deep enough to stand up to vegetation management activities. However, clay soils and crustlike soils found in other parts of the program area are more vulnerable and require extra care in planning (see SPRs below). In general, the soils most vulnerable to degradation by vegetation management activities are:

- 1.) Soils that are very thin over bedrock or duripan, because soils less than 20" deep do not have enough volume to withstand alteration while still maintaining the ability to receive water. After impacts to these soils, water that originally flowed subsurface can travel overland and become an erosive force. These shallow soils lose resilience to impacts when they are wet but regain it when they dry.
- 2.) Heavy clays (but only when wet). Clays are extremely resistant to degradation when dry. Examples of heavy clays in the program area include the Anita-Galt clay which underlies Wildwood Vernal Pools Preserve and Bosquejo Clay which can be found beneath the grasslands south of the airport on both sides of Cohasset Rd.
- 3.) Very steep soils. The steeper the slope, the greater the velocity of water runoff. The same soil that is resilient to impacts if it is level can lose that resilience if the slope is steep enough. For this reason, special operational constraints usually apply to steep slopes, such as not using masticators on slopes greater than 30%, using shorter grazing durations on steep slopes, or taking extra care to scatter straw or slash over steep exposed soil. (See SPRs).
- 4.) Soils with a high erodibility rating. Since parklands are not ag lands, the Natural Resource Conservation Service (NRCS)' determinations concerning highly erodible lands (or HELs) do not apply. However, wildland soils receive their own erodibility ratings ("Erosion Hazard, Off-Road, Off-Trail"), designed to indicate the hazard of soil loss from wildland areas after disturbance activities that expose 50 to 75 percent of the soil surface through logging, grazing, mining, or other kinds of disturbance. These ratings are based on slope, soil erosion factor ("K," which is an index of detachability based on texture and other characteristics), and an index of rainfall erosivity ("R"). Soils in the program area with moderate (14.5% of program area), severe (17.1% of program area), or very severe (0.1% of program area) erodibility ratings are all in Upper Park. All soils rated as "severe" or "very severe" have a slope greater than 30%, which means heavy equipment (e.g., masticators) will not be used in vegetation management on these soils. Soil erodability ratings can be viewed in Soils Map 5.
- 5.) Other factors. Even soils with low erodability ratings and low slopes can experience significant erosion (TrailLabs 2020, 14) depending on the level of disturbance. Regular surveillance and adaptive management to remediate soil disturbance is a best practice and is built into several of the following standard practice requirements.

In determining the level of significance, the analysis assumes that the program and any projects within its scope would implement the following standard project requirements (SPRs), as well as any other SPRs listed elsewhere in this document, developed for the program. It also assumes that all work would comply with relevant federal and state laws, regulations, and ordinances.

SPR HYDRO-1: Wet Weather Suspensions of Mechanical Treatment: Mechanical work will be limited based on the Parks' existing Adaptive Wet Weather Protocol (City of Chico 2015), as follows: If at least 1/4 inch of rain falls in a 24 hour period, the project implementer will suspend mechanical treatments for at least

one day. This suspension will continue for each subsequent day that there is rain or a 70% or more forecast of additional rain *or* conditions remain wet, as described in the . "Wet" means that more than 25% of the project area has puddles or mud, or a person walking on the project site leaves visible footprints ¼" deep or deeper. Mechanical treatments may resume when less than 25% of the project area has puddles or mud, or a person walking on the project site no longer leaves visible footprints ¼" deep. This SPR applies only to mechanical treatment methods. If a future 1600 maintenance agreement establishes more stringent wet weather limitations, then the more stringent limitations will take precedence. For more detail on the decision process to allow or not allow mechanical treatment on a given day, see 4.10.2.

SPR SOIL-1: Slope restrictions for mechanical equipment. Ground-based equipment (e.g., masticators, feller-bunchers) will be restricted to slopes less than 30%. This mitigation measure automatically excludes heavy equipment from all program area soils with erodibility ratings of "severe" or "very severe". Exceptions may be made for short pitches of 100 feet slope distance, up to 50 percent slope. Exposed soils resulting from ground based equipment on slopes over 30% slope shall be 90% covered with operational slash or low-weed-seed hay/straw to a minimum 2" depth prior to the winter period (Nov. 15 – April 1). This will occur after the conclusion of each individual operation and prior to each winter period for the life of the project. When areas over 30% slope occur in a project area, then the following methods shall be used to keep operators out of areas over 30% slope: flagging, mapping, and/or meeting with equipment operators. Hand work crews may work on slopes of any steepness, constrained only by crew supervisor judgement about personnel safety.

SPR SOIL-2: Remediate exposed soil. On moderately or severely erodible soils (see map 5), after concluding any activities that incidentally disturbed the ground, crews shall cover exposed soil by scattering native slash, lopped vegetation, wood chips, or (if no on-site material is available), a low-weed-seed straw such as rice straw. The final percentage of exposed soil after scattering is complete shall be no more than 10%. This only applies on slopes, not flat areas (to avoid inadvertently covering up sensitive plants such as *Polygonum bidwelliae* in the "basalt or mudflow vernal flat community" which looks "like bare dirt" for most of the year). This mitigation measure does not apply to naturally bare rocky areas.

SPR SOIL-3: Minimize impacts from hand-cleared firelines. When identifying firelines,

- (1) existing trails and features shall be used as firelines whenever possible.
- (2) When construction of new fireline is necessary, firelines steeper than 30% slope shall be abated after the prescribed fire is finished. Firelines can be abated by scattering rice straw, chips, lop-and-scatter material, and/or leaves until exposed soil is no greater than 10%.
- (3) Firelines less steep than 30% slope, not abated, and not built as part of a trails project to Parks trail specifications, shall be obstructed using boulders or logs to discourage their use as unofficial trails until they naturally re-vegetate.

SPR SOIL-4: Blade work as incidental maintenance only. Bladed tractors shall not drop their blades off-road. Bladed tractors may only be present to perform maintenance repairs of incidental road damage caused by vegetation management equipment.

a) Would the project directly or indirectly cause potential substantial adverse effects, including the risk of loss, injury, or death involving rupture of a known earthquake fault, as delineated on the most recent Alquist-Priolo Earthquake Fault Zoning Map issued by the State Geologist for the area or based on other substantial evidence of a known fault? (Refer to California Geological Survey Special Publication 42.)	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

The program area is not in or near any Earthquake Fault Zone as delineated on the most recent California Geological Survey Map (publicly searchable at <https://maps.conservation.ca.gov/cgs/EQZApp/> and last accessed Sept. 30, 2020).

b) Would the project directly or indirectly cause potential substantial adverse effects, including the risk of loss, injury, or death involving strong seismic ground shaking?	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

Although the program is in a seismically active area (as is true for all of Northern California), it does not include any blasting, new construction, or any other impact strong enough to influence seismic activity.

c) Would the project directly or indirectly cause potential substantial adverse effects, including the risk of loss, injury, or death involving seismic-related ground failure, including liquefaction?	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

Although the program is in a seismically active area (as is true for all of Northern California), it does not include any blasting, new construction, or any other impact strong enough to influence seismic activity or expose people to unreasonable seismic risk.

d) Would the project directly or indirectly cause potential substantial adverse effects, including the risk of loss, injury, or death involving landslides?	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

See answer to (f) below. The extremely small risk of landslides after mitigation would remain confined to the steeper and more remote project locations; this remoteness further decreases the impact of any possible landslide.

e) Would the project result in substantial soil erosion or the loss of topsoil?	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Erosion is sometimes increased after a fire, including after prescribed fire. However, because prescribed fires

under the program are likely to be relatively small and patchy, erosion impacts should be less than significant. Furthermore, any post-fire erosion impacts from the project are expected to be less significant than impacts from the no-project alternative, i.e., catastrophic wildfire consuming close to 100% of the accumulated fuels on a site.

With regard to other treatment activities such as hand work and machine work and their potential impacts on soils, the program area has been analyzed for the prevalence and location of soils particularly sensitive to erosion. **SPRs HYDRO-1** and **SOIL-1** through **-4** have been designed to reduce the risk of substantial loss of topsoil or erosion. For creekside arundo removal projects, this impact could be significant without mitigation, but **MM-HYDRO-1** addresses this impact and reduces it to below a level of significance.

f) Would the project be located on a geologic unit or soil that is unstable, or that would become unstable as a result of the project, and potentially result in on- or off-site landslide, lateral spreading, subsidence, liquefaction, or collapse?	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Land management operations associated with this program are unlikely to increase the risk of landslide in the area. Soils in the area are not known for their unstable or liquefactive characteristics, but erosion is a natural process and resultant small landslides and slumps are a normal part of the local landscape. The soil in the watershed most known for slumps and landslides is the yellow sandstone that is part of the Chico formation; however, while this soil is well known from further up the canyon, it does not surface inside City of Chico lands.

Mitigation measures **HYDRO-1** and **SOIL-1** through **-4** have been designed to reduce the chance of human-caused slides to an insignificant level. Creeks are by their nature dynamic environments where banks can shift and slump if they are undercut by water and/or they lose their connective vegetation. For the Little Chico Creek arundo removal project, this impact could be potentially significant without mitigation, but **MM-SOIL-1** addresses this impact and reduces it to below a level of significance.

g) Would the project be located on expansive soil, as defined in Table 18-1-B of the Uniform Building Code (1994, as updated), creating substantial direct or indirect risks to life or property?	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

While parts of the program area (including Lower and Middle Parks, Little Chico Creek, Lindo Channel, Teichert Ponds, Comanche Creek Greenway, and many small parcels scattered across the developed landscape of Chico town proper) are located on expansive soils, as is most of Chico itself, there is no building or road construction or relocation involved with this program. Expansive soils are only a hazard to buildings, roads and bridges; they pose no special hazard to individuals using open land or natural-surface trails.

h) Would the project have soils incapable of adequately supporting the use of septic tanks or alternative waste water disposal systems where sewers are not available for the disposal of waste water?	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

The program does not involve the installation of septic tanks or alternative waste water disposal systems.

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
i) Would the project directly or indirectly destroy a unique paleontological resource or site or unique geologic feature?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

There are unique paleontological resources/sites or unique geologic features within the program area; they are marine fossils associated with the hard gray rocks of the Chico Formation. Vegetation management activities in the plan would not affect these resources because no disturbance to rock formations is expected (see below).

Cumulative impacts: The cumulative impacts of the program on soils and geological resources are expected to be negligible.

4.7.3 Consistency with Applicable Local Plans

The Bidwell Park Master Management Plan (EDAW 2008a) contains the following relevant goals and objectives:

Goal: *Conserve and protect the varied and complex physical resources and natural processes of Bidwell Park and surrounding areas to the extent feasible.*

Geology/ Soils Objectives:

- **O. G/S-1.** *Periodically assess soil conservation and soil erosion potential (including the potential for degradation of water quality and physical habitat in Big Chico Creek) to determine and modify protective measures. Priority shall be given to those high use erodible and/or sensitive areas.*

This EIR complies with this 2008 objective by mapping the most erodible soils in the project area using the latest Web Soil Survey data (2020) and designing special mitigation measures that apply to those soils.

- **O. G/S-2.** *Preserve unique geologic resources within the Park.*

The program complies with this objective by specifying where slash and chips should **not** be scattered in order to preserve the unique geologic features and biological communities of the parklands.

- **O. G/S-3.** *Conserve shallow Park soils to the maximum extent feasible.*

The program addresses this objective through **SPR HYDRO-1**, Suspend Mechanical Operations in Wet Weather.

- **I. G/S-4.** *Unique geological resources within the Park should be identified and protected, including fossils.*

Ordinary vegetation management activities do not include activities that could compromise fossil-bearing rock. Vegetation management equipment such as mowers and masticators usually do not move, shatter, score or incise rock; in fact, rocky areas are usually actively avoided by masticator crews because of the danger of damage to the equipment. Hand crews do not move or damage fossil resources in the course of their work. Fuel-management-related damage to fossils and other unique geological resources is most likely to occur during fire suppression activities, when heavier equipment such as backhoes are brought into parklands during emergency conditions. To the extent implementation of the VFMP reduces the need for emergency fire suppression activities in Chico's parklands, the project is expected to result in increased protection for unique geological resources including fossils.

- **I. G/S-5.** *Areas of active erosion shall be identified and methods shall be developed for controlling the erosion and restoring those sites.*

Ongoing monitoring of erosive sites is beyond the scope of a vegetation management plan, but the VFMP and this EIR provide useful guidelines for how crews can address erosion or erodible soils during their work, e.g. by scattering lopped material and/or chips in the correct places.

- **I. G/S-6.** *The condition and erodibility of Park soils shall be assessed when planning and managing current and projected recreational opportunities.*

This Plan/PEIR do not directly construct recreational infrastructure, but firelines are frequently re-used as trails. **SPR SOIL-3** addresses and mitigates impacts from fireline construction to discourage future recreational use of fireline and ensure firelines do not contribute to soil erosion.

4.7.4 Mitigation Measures Since impacts would be less than significant, no mitigation is required.

4.7.5 Residual Impact(s) Not applicable.

The generous assistance of Andrew Conlin, NRCS soil scientist and co-author of the Butte Soil Survey, is gratefully acknowledged by the author of this section. Any remaining errors are the responsibility of the author.

4.8 GREENHOUSE GAS EMISSIONS

4.8.1 Existing Conditions

The City of Chico is committed to reducing GHG emissions to 25% below 2005 levels by the end of 2020. This translates to an emissions goal of 385,749 metric tons CO₂ equivalent (MtCO₂e), or less, for 2020. To achieve that goal, the City created a [Climate Action Plan \(CAP\)](#) which outlines strategies, organized within a flexible ten-year framework, to significantly reduce greenhouse gas (GHG) emissions that are directly and indirectly generated by local activities. The CAP includes actions to reduce transportation fuel, energy and water consumption, and to reduce waste sent to the landfill.

In summer 2015, the City of Chico completed a GHG inventory for the period 2005-2012 titled City of Chico Greenhouse Gas & Criteria Air Pollutant Emissions Inventory (ISD 2015). The inventory analyzed carbon dioxide (CO₂) emissions from fuel use, electricity use, and waste. The report concluded that Chico (the entire community including City government, not just government itself) was responsible for approximately 610,951 metric tons of CO₂ in 2005. The report did not analyze GHG emissions from wildfire smoke, nor did it analyze GHG sequestration from vegetation growth on City lands.

In 2005, City operations and facilities accounted for about 1 percent of the overall community emissions. Within the City operations and facilities, the key contributors to CO₂ were emissions associated with the vehicle fleet (26 percent), followed by the water/sewage sector (25 percent), the employee commute sector (22 percent), the streetlights sector (13 percent), the buildings sector (12 percent), and the waste sector (2 percent). Of the vehicle fleet emissions, the Parks Division was responsible for 4.6%. If the *relative* energy usage by the various City departments and the wider community has remained roughly constant since 2005, then Parks Division transportation-related emissions continue to account for $(1\% \times 26\% \times 4.6\% =) 0.0001196$, or 0.012%, of the entire community's usage.

Thus, even if implementation of the VFMP resulted in a doubling of Parks Division vehicle-related emissions, which is considered unlikely, that would still only result in an increased energy usage of 0.012% communitywide. The City's CAP assumes that under a "business-as-usual" scenario, communitywide energy use for transportation would increase by 2.31% annually, or 192.5 times a doubling of Parks division emissions.

To analyze emissions from vegetation management in context, it is essential to examine the climate forcing impacts of unmanaged wildfires. Wildfire emissions can easily destroy any progress made in reducing transportation and energy sector emissions. (In 2000 and 2018, for example, California's wildfire emissions were 6.1 million MtCO₂e and 45.5 million MtCO₂e, respectively, while transportation emissions in the state were about 180 million MtCO₂e and 170 million MtCO₂e, respectively. (CARB 2020a and CARB 2020b.)) The surge in wildfire emissions was almost four times the size of the reduction in transportation sector emissions.)

Wildfires are inevitable, but emissions per acre are partially under human control. Wildfire emissions depend critically on how much fuel is present and ready to burn. An acre of grassland cannot

release as much carbon when it burns as an acre of dense shrubland burning under the same conditions. (According to widely cited estimates, 1,000 acres of chaparral that burns every 30 years produces 11,000 metric tons CO₂e (Stephens et al 2017). This estimate is likely conservative because it does not include black carbon (PM₁₀ or PM_{2.5}), which have short-term climate-forcing effects.) By thinning Chico parklands' shrub communities and oak woodland communities, managers can make some carbon unavailable for combustion. For example, when woody vegetation is chipped and returned to the soil, some of its carbon will be sequestered long-term. When vegetation is burned under prescription in conditions that do not support complete combustion, more carbon remains on the land in the form of durable charcoal or islands of unconsumed vegetation that are now surrounded by natural firebreaks.

4.8.2 Thresholds of Significance and Impacts

a) Would the project generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment?	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

Three of the most important greenhouse gases (GHG) resulting from human activity are carbon dioxide (CO₂), methane (CH₄) and nitrous oxide (N₂O). They are produced (released) by both natural processes and human activity. They can also be absorbed (sequestered) by natural processes and (more rarely, but technically achievable) by human activity. Greenhouse gases are so called because they trap the sun's heat within the Earth's atmosphere, keeping the planet's surface warmer than it would otherwise be. Increases of atmospheric greenhouse gases result in additional warming of the Earth's atmosphere.

Burning of vegetation as proposed in this vegetation management program will result in greenhouse gas emissions, as well as a very small increase from increased equipment use. However, if the vegetation is never managed, it will still burn eventually, most likely at relatively high severity. To the extent that either or both proposed GHG-emitting activities (i.e., prescribed fire and equipment use) can lessen the intensity of or reduce the acres burned in wildfires, implementation of the VFMP can reduce the total carbon emissions from the wildland when compared to the no-project alternative.

Historic pictures and accounts indicate that the program area at the time of European settlement in the 19th and early 20th century was more of an open conifer and oak woodland where fire could creep through the understory at low intensity. The program area today is characterized by a decrease in average tree size, increase in the number of trees per acre, and a dense understory of evergreen sclerophyll shrubs in genera such as *Ceanothus* and *Arctostaphylos*. These vegetation communities are noted for their tendency to burn all at once in stand-replacing fires.

Fires occurring at intervals greater than about 20 years are often high intensity because of the large

amount of fuel existing in shrub tops. On average, the biomass accumulation of habitats like Upper Parks's "upland mix" is about 15 to 20 tons per acre (Bolsinger 1989). The carbon component of the biomass accounts for about 50% of the mass. Therefore, the biomass contains 7.5 to 10 tons per acre of carbon (27.5 to 36.7 tons per acre CO₂ equivalent) in biomass. At some point the carbon stored in the biomass will be released through respiration, decay, or combustion. Although some of the carbon will be added to the soil, most will be released to the atmosphere. Humans can increase the proportion of carbon that is

- (1) sequestered in the soil (e.g. by chipping vegetation and returning the chips to full ground contact so they decompose well), and/or
- (2) locked up in long-lived (200+ year life span) trees (e.g. by promoting a woodland structure of widely spaced trees that have room to grow large and do not support high-intensity fire; this is only possible on sites that can support such a woodland structure, as opposed to chaparral.

Prescribed fire and forest/woodland fuel reduction treatments are ways to help maintain a widely spaced, long-lived woodland (and thus build carbon stocks) over time. By reducing the probability of catastrophic wildfire, management operations can increase the probability of survival for some of the vegetation within the program area (as well as vegetation adjacent to parklands), allowing the remaining vegetation to continue to sequester carbon. The carbon released by the management treatments will be resequenced by the remaining vegetation and new vegetation following the treatment. This has the potential to reduce the massive spike in short term emissions from wildfire and spread emissions over a longer time period -- "flattening the curve" of climate-forcing emissions from Chico parklands.

After program treatments are completed, a substantial amount of carbon would remain sequestered below and above ground in the program area. In addition, program treatments would accelerate carbon sequestration within the parklands over the long term, compared to the no-project alternative. Therefore, the net effects of the program on greenhouse gas emissions are less than significant.

Cumulative effects: Cumulative effects include a discussion of the combined, incremental effects of human activities. For green house gas emissions and carbon sequestration, the area for consideration is the airshed and at the county level. Past and present emission producing activities and carbon sequestration are considered as the current condition of the air and carbon resource. Project emissions would temporarily increase greenhouse gas emissions in the airshed and Butte County. However, their direct, indirect and cumulative effects would be regulated by the Butte County Air Quality Management District in order to prevent adverse impacts and exceedances of health standards. The proposed treatments would reduce future potential wildfire smoke and greenhouse gas emissions, and reduce potential loss of sequestered carbon.

b) Would the project conflict with an applicable plan, policy or regulation adopted for the purpose of reducing the emissions of greenhouse gases?	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

As described above, The City of Chico [Climate Action Plan \(CAP\)](#) contains implementation strategies for reducing GHG emissions to 25% below 2005 levels by the end of 2020. This translates

to an emissions goal of 385,749 metric tons CO₂ equivalent (MtCO₂e), or less, for 2020. Chico is currently in Phase II of implementation of this CAP. The proposed program does not conflict with or obstruct the implementation of any of the CAP's action items.

4.8.3 Consistency with Applicable Local Plans The program is consistent with the Chico Climate Action Plan and does not conflict with any of the actions or policies in the Chico 2030 General Plan (City of Chico 2017) section dealing with "Energy Use and Climate Change". It supports one of the Chico 2030 General Plan goals dealing with "Energy Use and Climate Change" (*Policy S-4.4 (Vegetation Management) – Support vegetation management and weed abatement programs that reduce fire hazards.*) This policy is considered a climate change adaptation policy because climate change is expected to increase the frequency and severity of wildfire (City of Chico 2012 1-7).

4.8.4 Mitigation Measures None needed.

4.8.5 Residual Impact(s) Not applicable.

4.9 HAZARDS AND HAZARDOUS MATERIALS

4.9.1 Existing Conditions Chico, its residents, and its parkland users are exposed to a variety of hazards, natural and man-made. **Natural** hazards in the program area include wildfire, flooding, hazard trees (defined as snags or unstable trees that are likely to fall on trails or structures), poor footing on trails, and dangerous plants and animals such as rattlesnakes, ticks, mosquito-borne illnesses, and guardian oak (*Toxicodendron diversilobum*). **Human-made** hazards in the program area (i.e., Chico's parklands, greenways, and open space) include hazardous litter and garbage (e.g. broken glass or used needles); human-caused illegal fire ignition; and a handful of legacy hazardous waste sites. The latter have been abated in accordance with California law and are considered no longer in need of monitoring unless the sites are disturbed. (See 4.9.2(d).)

Wildfire and flooding: The proposed program is designed to reduce the intensity of, and allow parkland users and residents more time to evacuate from wildfire (including illegally human-caused fires). It is not expected to have a significant influence on flooding.

Hazard trees: Prescribed fire and other vegetation management techniques may sometimes kill trees. Tree mortality is not an inherent problem, depending on tree density and age class mixture. Indeed, killing some percentage of the trees in an area is sometimes a stated objective of prescribed fire. The proposed program could produce tree mortality and snags. Snags are only hazard trees if their location makes them a potential hazard to trails (defined in most recent City guidelines as trees whose distance to a system or non-system trail, or to a road, is 150% or less of the tree's height). Hazard trees will be avoided or abated in accordance with **SPR HAZ-2** or **SPR HAZ-3**, as appropriate.

Natural biological hazards in the park: The proposed program will not increase the population of rattlesnakes, ticks, or *Toxicodendron*, but if off-trail travel is more attractive after program implementation, more parkland users could encounter these existing hazards.

Hazardous garbage in creeks and parkways: Program implementation, to the extent it raises sightlines along City greenways and thereby makes hazardous garbage more visible or reachable, could expose more residents and greenway users to hazardous garbage in the short term. However, over the long term, better visual access into the greenways is expected to reduce the incidence of illegal dumping/littering, or at least the residency time of the average piece of garbage. Vegetation management is not, in itself, a solution or strategy to address littering or illegal dumping.

Various chemicals used in parks maintenance can be hazardous if mishandled, including herbicides, fuel and oil. California law includes stringent safeguards to reduce the impacts to the environment from the transportation, handling, and use of these substances. To ensure these substances are handled only by people who thoroughly understand California and local law, all herbicide treatment applications on Chico parklands must be done under the responsibility of a Qualified Applicator.

(An Applicator is someone who holds either a Qualified Applicator's License (QAL) if doing business as a contractor, or a Qualified Applicator's Certificate (QAC) if a volunteer or City employee.) Contractors must also be working under a Pest Control Business license. All Applicators must have documented training, which consists of safety training, an initial exam, and at least 10 hours of continuing education per year in topics [specific to the type of license](#) the Applicator holds. QAC and QAL holders complete the same exam and continuing education requirements, but QAL holders pay a slightly higher fee for the right to operate their own pest control business. Volunteers who apply herbicides at the City's direction must still possess at least a QAC and meet all the training requirements, but they do not need a Pest Control Business License (since they are not doing business).

In addition to State and County law, the City of Chico utilizes several additional City policies or standard project requirements to reduce hazards to the environment and the public. For example, the City of Chico utilizes only herbicides that carry the “Caution” signal word, which represents the lowest level of risk to the environment and public. (As background: all pesticides sold in California, including pesticides registered for use by organic farmers, have a signal word on their label that is either Caution, Warning, or Danger: no herbicide is available legally for sale in California without one of these three signal words.) The City of Chico’s specific policies and SPRs are listed in detail below.

4.9.2 Thresholds of Significance and Impacts

In determining the level of significance, the analysis assumes that the program and any projects within its scope would implement the following standard project requirements (SPRs), as well as any other SPRs listed elsewhere in this document, developed for the program. It also assumes that all work would comply with relevant federal and state laws, regulations, and ordinances.

SPR HAZ-1: Buffers to Water Features for Fuel and Oil Handling. No accelerants will be used within 100' of a perennial stream (HYDRO-8). Furthermore, to reduce the potential impacts from any inadvertent spill of fuel or oil, no equipment shall refuel, be cleaned, or lubricated within the following buffers, unless on an established road:

	Slope = 0-30%	Slope = 30-50%	Slope > 50%
Big Chico Creek	150	150	150
Perennial streams that don't have fish but may have aquatic life like frogs; this includes all springs with surface water and all ponds/lakes	50	75	100
Intermittent streams	25	50	50

SPR HAZ-2: Pre-Activity Hazard Tree Prevention. Before each prescribed fire project, unit prep crews will identify trees likely to be killed by the fire that are also likely to become hazard trees (e.g., trees whose distance to a road or trail is less than 150% of the tree’s height). If keeping the tree alive is the desired condition based on fuel loading guidelines and burn planning review, then crews will take protective measures to help these trees survive the fire. These could include ringing (i.e., clearing a ring down to bare mineral soil around the base of the tree), removing ladder fuels, or other means. If keeping the trees alive is not the desired condition based on fuel loading guidelines and burn planning review, then crews will not take protective measures, but **SPR-HAZ-3** (below) will still apply.

SPR HAZ-3: Post-Activity Hazard Tree Mitigation. After each prescribed fire project, any hazard trees produced by the fire will be abated in accordance with the City of Chico’s post-fire hazard tree marking and removal guidelines.

SPR HAZ-4: Only ‘Caution’ Signal Word Herbicides. Only herbicides bearing the Caution signal word (i.e. not Warning or Danger labelled) are used by the City of Chico. Additionally, no products containing imidacloprid, regardless of signal word, shall be applied onto or into City of Chico public trees (BPPC action taken 10/29/18); and no products containing glyphosate shall be applied upon or within City Plaza and Caper Acres (City Council action taken 10/15/19).

In Chico parklands, no 'Restricted' chemicals are used. Exception: Certain additive Crop Oils (adjuvants) may be used when they have a Warning label, if that label has been applied due to potential eye damage from spray, a concern to the Applicator which does not reflect a concern to public, pets, or the environment.

SPR HAZ-5: Indicator Dye Needed for Herbicide Applications. An indicator dye shall always be added to the herbicide tank mix to help the applicator identify areas that have been treated and better monitor the overall application.

SPR HAZ-6: Integrated Pest Management. The City utilizes the principles of integrated pest management (IPM), hires pest management contractors who are skilled in IPM, and is developing a citywide IPM policy. will seek to employ the safest effective method for controlling invasives with minimal environmental impact. 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. The lowest recommended rate to achieve vegetation management objectives of both herbicides and surfactants should be utilized to achieve desired control.

SPR HAZ-7: Herbicide Use: Role of Pest Control Adviser. Herbicides will always be applied in accordance with their label. However, herbicides law allows for herbicides to be applied for off-label uses *if* under the prescription of a licensed Pest Control Advisor (PCA), whose recommendation itself includes a “certification that alternatives and mitigation measures that would substantially lessen any significant adverse impact on the environment have been considered and, if feasible, adopted” (CCR 6556).

a) Would the project create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials?	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

Project operations would involve the routine transportation, use, or disposal of gasoline, oil and diesel used in the power equipment and as a fuel for torches, and herbicides for noxious weed treatments. **SPR HAZ-1** is designed to ensure that an accidental spill of fuel or oil will not harm the environment. Operations will follow all label handling guidelines and all applicable state and federal laws. The herbicide labelling program operated by the State of California’s Department of Pesticide Regulation (DPR) is certified as having functional equivalency to an EIR, pursuant to CEQA statute §21080.5 (DPR 2015). Thus, the use of an herbicide in accordance with a label issued by DPR ensures no significant impact will occur under CEQA. Herbicide labels are the law.

b) Would the project create a significant hazard to the public or the environment through reasonably foreseeable upset and/or accident conditions involving the release of hazardous materials into the environment?	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

Equipment used to implement the program will be fueled with diesel fuel. A spill of this fuel could be hazardous to the environment. **SPR HAZ-1** is designed to ensure that an accidental spill will not harm the environment.

The program does not present any unusual risks because all fuels and herbicides will be handled in accordance with the law.

The proposed program includes the use of herbicides to control invasive weeds. Herbicides can be hazardous if not used in accordance with the law. Since VFMP implementation would only include the use of “Caution” labelled herbicide, used in full accordance with the law, no significant hazard to the public or the environment is expected.

The vegetation management issues in Chico's natural parks have been subject to fuels reduction efforts by many organizations over decades, giving managers the opportunity to experience the tradeoffs (safety, environmental impacts, effectiveness, unintended consequences, cost, etc) between different tools including herbicide. Herbicide is used when the results of this experience and available science indicate it is the most effective tool available given the site constraints. For example: herbicide is the best tool for eliminating tree of heaven because mechanical means are either ineffective (cutting stems results in root sprouts) and/or cause greater impact (stump removal disturbs soil with consequent weed invasion) and/or are much more costly (stump grinding, repeated sprout removal).

All proposed herbicide applications from implementation of the VFMP would comply with all applicable state and federal regulations for the safe use of pesticides (including label requirements). Herbicide label requirements are the law and stipulate buffers to watercourses, required PPE, required precautions when mixing or refilling pumps, licensing and continuing education requirement that must be met by applicators, etc. As such, all these topics are outside of the City's purview and need not be stipulated as mitigations.

Beyond compliance with the law, the City does voluntarily impose two additional best management practices as standard project requirements, on all its herbicide applications (see SPRs HAZ-3 and HAZ-4, above). Both are described in the VFMP.

c) Would the project emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one- quarter mile of an existing or proposed school?	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

No. While some parts of the program area are within ¼ mile of a school, the program would not handle hazardous materials or waste other than vehicle fuel and oil, which are already present in the school environment. “Caution”-labelled herbicides would be used, in accordance with their labels, when they are the most effective alternative in support of benefits such as wildfire risk reduction, floodway conveyance clearance, improving wildlife habitat and native biodiversity, improving recreational values, etc. As such (i.e., when used in accordance with the label) no hazard would result from use of these herbicides.

d) Would the project be located on a site which is included on a list of hazardous materials sites compiled pursuant to Government Code § 65962.5 and, as a result, would it create a significant hazard to the public or the environment?	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

Hazardous materials sites compiled pursuant to Government Code § 65962.5 are listed on the State of California’s Department of Hazardous Substance Control’s (DTSC’s) “Envirostor” website, colloquially known as the “Cortese List.” The list is publicly searchable at <https://www.envirostor.dtsc.ca.gov/public/>. 57 hazardous materials sites on this list exist in the City of Chico. The majority are on private land and will not be affected by the program. The following sites are on City of Chico-owned lands or are very close to and potentially affected by vegetation management on City of Chico lands (for example, if a truck needed to drive through the hazardous materials site to access a City of Chico site, or if a City of Chico project tree were to fall across a property line):

- 1.) Bidwell Park Gun Range (Envirostor ID 04860001). This 13-acre site is located adjacent to Horseshoe Lake in Bidwell City Park, Chico. The site was utilized since World War II as a small arms gun range. In 1949, the Department of Defense transferred the property to the City of Chico where it was used as a gun club trap and skeet shooting range. Contamination from lead bullets and polycyclic aromatic hydrocarbons (PAHs) from the clay targets has contaminated the gun range area and has also migrated down into lake sediments. The affected area of the park is approximately 16 acres of equestrian and hiking trails, and a lake utilized for fishing (stocked once a year for a fishing derby). Investigations conducted for the City of Chico have shown contamination of soil, surface water, and lake sediments. A human health risk assessment has been prepared. The City of Chico finalized a Voluntary Cleanup Program agreement which provides DTSC's oversight for a time-critical removal action to address the current risk followed by additional investigation to determine the total extent of contamination and necessary remediation. A Removal Action Workplan which included excavation and off-site disposal of PAH contaminated soil and excavation and on-site consolidation and capping of lead contaminated soil was completed February 11, 2005. Removal Action field work began during May 2005 and was completed in October 2005.

Once the removal work was completed, a covenant to restrict land uses on the site was filed in November 2009 between the City and the DTSC. The covenant restricts certain future uses of the site, such as daycare center or hospital (except veterinary), and forbids activities that disturb the soil below a certain depth or interfere with the Department’s prerogative to monitor the site. None of the activities contemplated in the VFMP would violate the covenant, as no ground-disturbing vegetation management work would be

conducted in the Horseshoe Lake area.

- 2.) Chico Municipal Airport (Envirostor ID 04450006). A former manufacturer of lead and aluminum flexible tubes and aerosol cans, Victor Industries, leased several buildings located on the property of the Chico Municipal Airport (Airport) from 1947 to 1958. These buildings had previously been occupied and used by the United States military. At its facility, close to where the intersection of Liberator St and Hiller Ave are today, Victor Industries used trichloroethylene (TCE) daily to clean the production lines and manufactured parts. In 1984, TCE and tetrachloroethylene (PCE), were detected at concentrations up to 543 micrograms per liter and 12 microg/L, respectively, in public drinking water supply wells that are located on the Airport property. Subsequently, the affected wells were abandoned; however, contamination persisted and various volatile organic compounds (VOCs) including TCE continued to be found in water, soil, and soil vapor on the site. The contamination plume from the site generally trended southwest toward Sycamore Creek. In the 1980s and 1990s, interim remedial actions were conducted at the airport, including groundwater monitoring and installation of a soil vapor extraction system and an air sparging system. The systems operated until 1997 when low influent concentrations were reached.

In 2000, a focused Feasibility Study (FS) was submitted, which evaluated additional alternatives for groundwater conditions at the airport. This data was the basis for a Final Remedial Action Plan (RAP) that was submitted in 2002. As part of the 2002 Consent Decree (CD), the City of Chico assumed the role of the party responsible for implementing the RAP and complying with several conditions of the CD. For the next 6 years, the City worked to implement the requirements of the CD (i.e., the remedial actions of the RAP, which was to include building new wells to extract and treat the groundwater). However, due to biological issues involving endangered species, engineering design challenges and easement/access issues, the City was not able to implement these actions as planned, so it approached DTSC with a recommendation of modifying part of the remedy. DTSC concurred with the City's recommendation and after a year of operation, the interim groundwater extraction and treatment system from the existing older well known as BCV-27 was made permanent. The BCV-27 interim system, which intercepts the groundwater plume about halfway between its source and Sycamore Creek, operated since July 2007 and has been successful in containing the TCE plume and substantially reducing TCE concentrations in the groundwater (DTSC 2011).

Since the finalization of the 2011 Amended RAP, the City completed development of the 2016 Operation and Maintenance Manual and signed an O&M Agreement, as required under the CD.

Because of endangered species restrictions, (most of the grassland overlying the formerly contaminated area is a vernal pools complex), airport zone restrictions, and the non-woody nature of the grassland vegetation community that completely surrounds the Airport, very little vegetation management activity is contemplated there under the VFMP. The groundwater contamination issues at the site have been largely remediated and are now subject to ongoing routine monitoring. No vegetation management activities on Airport lands are reasonably expected to affect groundwater contaminant levels or release groundwater-based contaminants into the environment.

- 3.) West Property (Envirostor ID 04490017). Little information is available about this property, which is close to where Dead Horse Slough passes under Bruce Rd. It is unclear from the database which parcel near the intersection of Bruce and Humboldt Roads is indicated by

“West Property.” Whatever parcel it was, it was sampled by DTSC in December 1990. No excess levels of contaminants were detected, and no contaminants of concern are noted in the Envirostor database; nor does that database note whatever past activities which might have led to concern. The database merely notes this parcel would require additional assessment prior to a land use change. No land use change is contemplated for this property in the VFMP.

- 4.) Humboldt Road Burn Dump (Envirostor ID 04490014). This property affects the City’s lands along Dead Horse Slough east of Bruce Rd. The Envirostor database states,

The Humboldt Road Burn Dump (Site) is located on approximately 157 acres near the intersections of Bruce Road, Humboldt Road and Highway 32 in Chico, California. The City of Chico owned and operated the landfill/burn dump from the early 1900s to approximately 1965 when the Butte County Neal Road landfill was opened. Smaller scale illegal dumping is believed to have continued at the Site beyond 1965. The Site consisted of a primary disposal area, which has been covered with an unknown depth of soil, and other exposed disposal piles scattered over 13 parcels. Excavation and grading occurred through portions of the Site in 1982 related to installation of a sewer system and in 1986 related to the extension of Bruce Road. Undeveloped and open rangeland are the predominant land uses surrounding the Site, with residences approximately 1500 feet away and a junior high school within 2000 feet. The south branch of Dead Horse Slough is the principal drainage for the Site. It originates in the foothills east of Chico, and flows into Little Chico Creek approximately 2 miles west of the Site. Little Chico Creek passes through the urban center of the City of Chico. Dead Horse Slough is an intermittent stream which meanders through the landfill refuse and contamination. Analysis of soil samples collected from the Site indicated that lead is the primary contaminant of concern with elevated levels throughout the entire Site. Other chemicals detected in soil include arsenic, antimony, dieldrin (a pesticide) and low concentrations of dioxin. At the request of the City of Chico, the HRBD is being investigated and remediated in accordance with the Site Designation Process under Assembly Bill (AB) 2061. Pursuant to AB 2061 the Central Valley Regional Water Quality Control Board (RWQCB) has been designated as the Administering Agency for coordinating and administering all state and local laws, ordinances, regulations, and standards governing the response to hazardous substances releases. DTSC, as a support agency under AB 2061, is providing technical and process consultation to the Administering Agency. At the request of the RWQCB, DTSC is also providing public participation and toxicology support.

The above narrative is not dated, but it was likely written around the time responsibility for site remediation was “referred” (or transferred) to the RWQCB, which was in March 2005. The CVRWQCB assigned the site the case number 1852800, conducted excavation activities from June 1, 2005 to August 11, 2005, and listed its status as “Completed- Case Closed” as of 2/7/2006 (SWRCB 2020). Therefore, no impacts would be expected from future vegetation management at this site.

e) For a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project result in a safety hazard or excessive noise for people residing or working in the project area?	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

Some of the program area is within the Airport Overlay for the Chico Municipal Airport. Furthermore, a total of 1,903.3 acres is within 2 miles of the airport. These approximately 1,903

acres include the Airport itself, the approximately 32.6 acre parcel of open space and softball fields south of Grumman Ave, Foothill Ranch preserve and parts of Bidwell Ranch preserve, and various very small miscellaneous parcels scattered throughout neighborhoods north of East Ave. Vegetation management on these lands would be confined to mowing, weed-whacking (e.g. with a gas-powered string trimmer) and possibly grazing. No safety hazard or excessive noise above usual vegetation management noise, frequently heard in neighborhoods, would be generated.

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
f) Would the project impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
The program does not interfere with an evacuation plan because projects will seldom block or close any public road, and if temporary closures are necessary they will be reversible in moments (i.e., as quickly as any woody vegetation can be cleared from the road) rather than days (as might be the case for e.g. construction projects). Furthermore, in the case of an emergency requiring evacuation, a small number of people would be on the project site, so their evacuation would only add one or two vehicles to the roads that service the area. This increase in evacuation traffic would be insignificant. The program is intended to slow future wildfire rate of spread, giving Chico (and Forest Ranch and Cohasset) residents <i>more</i> time to evacuate during any future wildfire event.				
g) Would the project expose people or structures, either directly or indirectly, to a significant risk of loss, injury, or death involving wildland fires?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
The program involves some prescribed fire, i.e., intentional fire ignition. However, the ignitions will take place under such controlled conditions and with such advanced levels of professional supervision that the risk of wildfire escape is not significant. While about 1-1.5% of prescribed fires do “escape” control, most escapes do not cause loss, injury, or death, and the vast majority of human-caused wildfires do not start as prescribed fires. Furthermore, the program will decrease future wildfire hazards. This is because the thinner, patchier fuel profile post-program is expected to slow future wildfire rate of spread, <i>decreasing</i> the exposure of people and structures to risks from wildfire. SPRs have been designed to minimize the risk and consequences of unwanted fire start from program implementation; these are found in section 4.20.2.				

4.9.3 Consistency with Applicable Local Plans

The Bidwell Park Master Management Plan (EDAW 2008a) does not mention fuel or oil, or hazards in the park, except to suggest the eucalyptus growing near the Deer Pens be removed because of fire hazard. (These trees still stand, pending funding to remove them safely; their risk as a fire hazard is matched by their risk as a fall hazard, as they are too close to structures and high-use areas to be allowed to fall in their own time following a low-cost treatment method such as herbicide or girdling.) The BPMMP Natural Resources Management Plan (Appendix C to the BPMMP) explains and supports the usefulness of herbicides in certain common situations and states,

All herbicides should be applied by licensed applicators and other personnel in accordance with herbicide label directions and in compliance with all state and local regulations. Herbicides should be selected based on their efficacy in controlling the invasive plant, their safety for applicators and

members of the general public, and toxicity levels to other non-targeted organisms.

This program is consistent with the above guidance through implementation of SPRs HAZ-4, HAZ-5, and HAZ-6, and the invasive plant control outlines in Section 3.7, which are based on years of experience assessing a particular species' response to approved, "Caution"-labelled herbicides and other methods of control. The BPMMP goes on to suggest,

Signs should be posted in areas planned for herbicide treatments at least 24 hours prior and following herbicide applications. These signs should list the chemicals to be applied, areas to be treated, potential public health risks, and steps the public can take to minimize exposure.

Since the approval of the BPMMP, the need to update this guidance has become apparent. While each herbicide carries its own "re-entry interval" during which workers or the public should not interact with the sprayed area, the herbicides used by the City usually carry a re-entry interval of minutes (often expressed on labels as "until the spray has dried") (DPR 2007). The herbicide Applicator is within view working in the treated area during that time to keep people and pets away. Providing courtesy public notification 24 hours prior to and after each herbicide application is not required by any law or local ordinance, is not consistent with "Caution"-labelled herbicides' level of risk, and conveys a misleading impression about the level of risk. Additionally, the labor and coordination cost of putting up and taking down courtesy public notification signage can exceed the cost of the treatment itself, reducing the amount of management the City can undertake in any given year. As always, the City will continue to notify the public of pesticide applications according to the State and County regulations addressing public risk for the pesticide being used.

4.9.4 Mitigation Measures Because no impacts are potentially significant, no mitigation measures are required.

4.9.5 Residual Impact(s) None remaining after mitigation.

4.10 HYDROLOGY AND WATER QUALITY

4.10.1 Existing Conditions

The U.S. Geological Survey, or USGS, has divided the United States, including Butte County, into useful hydrologic units distinguished by hydrologic unit codes (HUCs). The largest commonly used units are HUC4 units, so called because they have just four digits. The entire program area is within HUC4 = 1802, the Sacramento River. The smallest commonly used units are HUC12, so called because they have 12 digits. HUC12s are usually between 10,000-20,000 acres and often correspond well with a community's sense of watershed scale. The program area sprawls across seven HUC12s. From roughly north to south, they are: 180201570603 (Rock Creek); 180201570602 (Maple Branch-Mud Creek), 180201570601 (Sycamore Creek); 180201570604 (Kusal Slough - Mud Creek); 180201570503 (Lower Big Chico Creek); 180201580302 (Little Chico Creek, which, like Comanche Creek, is hydrologically part of the Butte Creek watershed); and finally 180201580301 (Comanche Creek).

This section addresses common and sensitive hydrological resources that could be affected by implementation of the proposed program. Hydrological resources include wetlands (including both seasonal and permanent wetlands), streams and river, open water bodies such as ponds, and the water quality of the water in those waterbodies. Water quality describes characteristics including toxicity, pollution, pH, turbidity or clarity, and temperature. Regulatory requirements that pertain to biological resources are summarized. The analysis describes any potential direct, indirect, and cumulative impacts from implementation of the proposed program .

The primary issues raised in comments on the notice of preparation that pertain to hydrological resources included the following:

- The Central Valley Regional Water Quality Control Board submitted a comment explaining the scope of Clean Water Act Section 401 and the circumstances under which it applies, as well as how to develop an application. These comments are summarized below in “Regulatory Setting”. Subsequent informal consultation with the CVRWQCB disclosed that unless ground-disturbing activities beyond those currently contemplated in the VFMP are proposed, no 401/404 permit would be required.
- The Central Valley Flood Protection Board submitted a comment explaining its jurisdiction over the entire Central Valley including all tributaries and distributaries of the Sacramento River, and stated that a Board permit may be required prior to “the planting, or removal of vegetation, and any repair or maintenance that involves cutting into the levee.” This comment was noted and the CVFPB added to section 2.6 of this PEIR, “Permits and Approvals.”

Regulatory setting

FEDERAL

Clean Water Act:

The federal Water Pollution Control Act, commonly referred to as the Clean Water Act (CWA),

provides for the restoration and maintenance of the physical, chemical, and biological integrity of the nation's waters. Applicable sections of the CWA are summarized below.

Section 404

Section 404 of the CWA prohibits the discharge of fill material into waters of the United States, including wetlands, except as permitted under separate regulations by the U.S. Army Corps of Engineers (USACE) and EPA. To discharge dredged or fill material into waters of the United States, including wetlands, Section 404 requires projects to receive authorization from the Secretary of the Army, acting through USACE. Waters of the United States are generally defined as "waters which are currently used, or were used in the past, or may be susceptible to use in interstate or foreign commerce, including all waters which are subject to the ebb and flow of the tide; territorial seas and tributaries to such waters." All of Chico's urban creeks are "waters of the United States" but no dredging or discharge of fill material to these waters is contemplated through implementation of the VFMP.

Section 401

Similarly, Section 401 of the CWA also regulates any project that may result in a discharge of dredged or fill material to waters of the state. To comply with Section 401, implementers submit an application with the State or Regional Water Board. Discharges of dredged or fill material often occur when work is conducted in waters. Examples include, but are not limited to, development projects that fill in a water, dredging to maintain channel capacity, and activities that change the volume, grade, or capacity of an aquatic resource. However, no work of this nature is contemplated under the VFMP. Therefore, submittal of applications under Section 401 is not expected to be necessary for projects that are within the scope of this EIR.

Section 402

Section 402 of the CWA establishes the National Pollutant Discharge Elimination System (NPDES) permit program to regulate discharges of pollutants into waters of the United States. This is only for point source discharges so it does not apply to the VFMP.

Section 303(d)

Section 303(d) of the CWA requires states to develop lists of water bodies that do not attain water quality objectives after implementation of required levels of treatment by point source dischargers (municipalities and industries). Section 303(d) requires that a state develop a total maximum daily load (TMDL) for each of the listed pollutants. A TMDL is the amount of an identified pollutant that a water body can receive and still comply with water quality objectives. A TMDL is also a plan to reduce loading of a specific pollutant from various sources to achieve compliance with water quality objectives. The EPA must either approve a TMDL prepared by a state or disapprove a state's TMDL and issue its own. A TMDL represents a goal that may be implemented by adjusting pollutant discharge requirements in individual NPDES permits or by establishing nonpoint source controls. NPDES permit limits for listed pollutants must be consistent with the waste load allocation prescribed in the TMDL. After implementation of a TMDL, it is anticipated that the problems that led to placement of a given pollutant on the Section 303(d) list would be remediated. Locally relevant 303(d) listed water bodies are shown below. There is no TMDL for sediment on Big Chico Creek or other Chico area creeks.

WATER BODY NAME	ESTIMATED MILES AFFECTED	POLLUTANT	POLLUTANT CATEGORY	POTENTIAL SOURCES
Sacramento River (Red Bluff to Knights Landing)	81.77	Mercury	Metals/Metalloids	Source Unknown
Butte Creek (Butte County)	94.1915	pH	Miscellaneous	Source Unknown
Mud Creek (Butte County)	15	Toxicity	Toxicity	Source Unknown
Big Chico Creek (Butte and Tehama Counties)	45	Mercury	Metals/Metalloids	Source Unknown
Butte Creek (Butte County)	94.1915	Mercury	Metals/Metalloids	Source Unknown
Sacramento River (Red Bluff to Knights Landing)	81.77	PCBs (Polychlorinated biphenyls)	Other Organics	Source Unknown
Sacramento River (Red Bluff to Knights Landing)	81.77	Toxicity	Toxicity	Source Unknown
Sacramento River (Red Bluff to Knights Landing)	81.77	DDT (Dichlorodiphenyltrichloroethane)	Pesticides	Source Unknown
Sacramento River (Red Bluff to Knights Landing)	81.77	Dieldrin	Pesticides	Source Unknown

Source for table: CVWQCB 2014-2016 Integrated Report (most current available as of mid-November 2020).

Downloadable online at

https://www.waterboards.ca.gov/centralvalley/water_issues/tmdl/impaired_waters_list/#intrpt2014_2016.

Program activities will not result in additional impacts to these listings. However, while not scheduled for development of any TMDL under Section 303(d), sediment and trash are still two pollutants of primary community concern in Chico and they could be influenced by implementation of the VFMP. They are addressed below in sections 4.10.2-5.

STATE RWQCB

In California, both federal and state clean water laws are implemented (enforced) through the nine Regional Water Quality Control Boards. Chico is in the Central Valley region. The Central Valley Regional Water Quality Control Board thus has the authority and responsibility to ensure Chico's compliance with the federal and state clean water laws through the development of and adherence to the Water Board's Basin Plans and other regulations. Basin Plans are documents that establish beneficial uses and water quality objectives (WQOs) to protect those uses. They also develop an implementation program to achieve the established WQOs. The Basin Plan applicable to the PAW is the Central Valley (Region 5) Regional Water Board's "Water Quality Control Plan for the Sacramento and San Joaquin River Basins" (CVRWQCB, 2016). Table II-1 of the Basin Plan lists the main waterbodies within the region as well as the associated beneficial uses, and Section III of the Basin Plan establishes the WQOs to protect the designated beneficial uses. The beneficial uses of Chico's major creeks are summarized in the following table.

Table 1. Beneficial Uses for Waterbodies in the Planning Area Watershed														
Surface Waterbody	Tributary	Municipal Water Supply (MUN)	Agriculture		Recreation			Freshwater Habitat		Migration		Spawning		Wildlife
			Irrigation (AGR)	Stock Watering (AGR)	Contact (REC-1)	Canoeing and Rafting (REC-1)	Other, Non-Contact REC-2	Warm (WARM)	Cold (COLD)	Warm (MIGR)	Cold (MIGR)	Warm (SPWN)	Cold (SPWN)	
Rock Creek	Big Chico Creek	X	X	X	X	X	X	X	X		X	X	X	X
Mud Creek	Big Chico Creek	X	X	X	X	X	X	X	X		X	X	X	X
Lindo Channel	Big Chico Creek	X	X	X	X	X	X	X	X		X	X	X	X
Big Chico Creek	Sacramento River		X	X	X	X	X	X	X		X	X	X	X
Little Chico Creek	Butte Creek ^(a)	X	X	X	X	X		X	X		X	X		X
Comanche Creek	Butte Creek	X	X	X	X	X		X	X		X	X		X
^(a) Little Chico Creek is tributary to Butte Creek, but was noted to have beneficial uses similar to that of Big Chico Creek (CSU Chico, 2002). The only difference between beneficial uses for Butte Creek and Big Chico Creek is that Big Chico Creek has the Rec-2 beneficial Use and the Cold Spawning beneficial use.														

Source for table: West Yost Associates 2017. While municipal water supply is listed as a beneficial use for several of the waterbodies, none of them is actually used for municipal water supply, nor are there any plans to develop them for this use.

In addition to these beneficial uses, the creeks are used to convey flood flows and storm drainage away from urbanized areas to the Sacramento River. Most waterways in Chico have been modified from their natural state to some extent. In some cases, this has altered the waterways' abilities to provide their beneficial uses, such as freshwater habitat, migration, spawning, and wildlife.

Nonpoint source activities have the potential to impact waters of the state; most commonly, such impacts are in the form of erosion and resultant sediment being discharged to a surface waterbody. Nonpoint source sediment contributions are a possibility from this proposed program, so standard practice requirements and several mitigation measures have been developed to ensure impacts to water quality stay below a level of significance.

CDFW

While water quality is the purview of the Water Boards, in-stream habitat is the concern of the California Department of Fish and Game (CDFW). Vegetation management in streams may only be done under the terms of a Lake and Streambed Alteration Permit from CDFW. This permit is also known as an LSA or more affectionately as "a 1600". The definition of what is "in a stream" is the

responsibility of CDFW and may include areas on top of streambanks which might not be popularly viewed as “in stream”. LSA permits usually cost several thousand dollars, stipulate what project-specific mitigations must be implemented in order to complete the project, and can be negotiated on either a project-by-project basis or on a programmatic or “master” basis (i.e., routine maintenance agreement). The City of Chico currently does not hold any master agreements with CDFW, but is in the process of developing one for each of the City’s five urban creeks. (These are Mud/Sycamore, Lindo Channel, Big Chico, Little Chico, and Comanche Creek.)

1600 permits come with their own stipulated mitigation measures and project requirements designed to reduce, eliminate, or mitigate adverse effects of the particular project in the specific site. For example, a 1600 permit would stipulate the percentage of stream corridor shading required to be left (i.e., to cool stream temperatures for salmon) after a riparian invasive plant removal project. As such, this type of decision is not in the hands of the City or other project proponent. All such project parameters would be specified in the 1600 permit, so by seeking and complying with the terms of the permit, the implementer would automatically be reducing adverse effects on wildlife and habitat to below a level of significance as viewed by CDFW, a trustee agency pursuant to CEQA §15386(a).

DWR

A third state agency, the Department of Water Resources (DWR), is concerned with ensuring the safe conveyance of floodwaters so that they do not damage property or take lives. DWR has flood clearance responsibility in all or part of four Chico creeks (Mud, Little Chico, Lindo Channel, and Big Chico, but not Comanche). In these creeks, DWR clears downed wood and often vegetation (which can include spraying, mastication, etc) to remove obstructions to floodwaters flow. DWR holds master agreements with CDFW that enable DWR to perform this regular clearance in a way that does not cause unacceptable impacts to in-stream habitat. DWR does not act in a regulatory role toward the City (i.e., stipulating what activities the City can and cannot undertake); however, it is critical for efficient vegetation management work that the City coordinate with DWR because DWR is the other chief implementer of vegetation management activities in Chico’s creekways.

DWR’s activities to reduce flood hazard along a creekway do not always reduce fire hazard (nor are they designed to) so the City may still need to re-enter the same areas to perform vegetation management work. When the City does so, City staff will first need to negotiate the terms and conditions of that work through the 1600 process with CDFW.

LOCAL

Storm Water Resource Plan (SWRP)

The City of Chico developed a [Storm Water Resources Plan](#) (SWRP; West Yost Associates 2018) which covers all the watersheds that drain through the City. The purpose of the SWRP is to protect storm water quality by reducing pollutants and trash and to identify stormwater management priorities on a watershed basis. Sediment and waterway trash were identified as the two top community priorities. The SWRP lists a number of watershed improvements the City hopes to secure funds for and implement over the next 20 years. Of relevance to the VFMP are a “Teichert Ponds Improvement Project” targeted for 2021 (if grant funding can be secured); a “Little Chico Creek 21st Century Management Plan” and a “Comanche Creek Management Plan” scheduled for 2024; and a “Big Chico Creek 21st Century Management Plan” scheduled for 2028. These projects could have relevance to vegetation management in and around the creekways if they include reshaping or altering the creekways to improve stormwater conditions, but none of these projects is

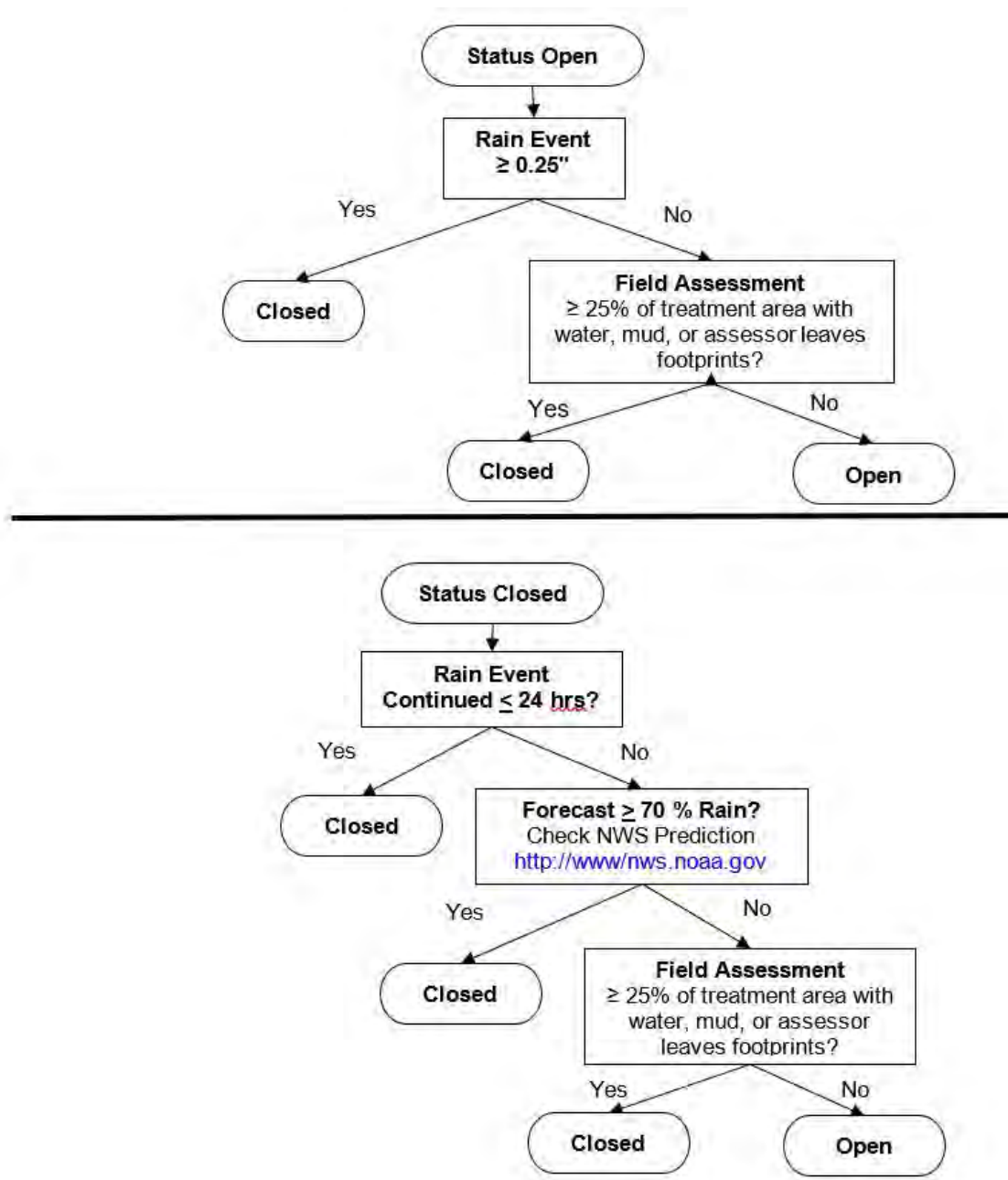
funded yet.

4.10.2 Thresholds of Significance and Impacts

In determining the level of significance, the analysis assumes that the program and any projects within its scope would implement the following standard project requirements (SPRs) developed for the program under the Hydrology resource area, as well as any other SPRs developed for the program under other resource areas. (In particular, **SPRs SOIL-1** through **-4**, in PEIR section 4.7.2 above, are relevant to the Hydrology resource area.) The analysis also assumes that all work would comply with relevant federal and state laws, regulations, and ordinances.

SPR HYDRO-1: Wet Weather Suspensions of Mechanical Treatment. Mechanical work will be limited based on the Parks' existing Adaptive Wet Weather Protocol (City of Chico 2015), as follows: If at least 1/4 inch of rain falls in a 24 hour period, the project implementer will suspend mechanical treatments for at least one day. This suspension will continue for each subsequent day that there is rain or a 70% or more forecast of additional rain *or* conditions remain wet, as described in the City's Adaptive Wet Weather Plan (City of Chico 2015). "Wet" means that more than 25% of the project area has puddles or mud, or a person walking on the project site leaves visible footprints 1/4" deep or deeper. Mechanical treatments may resume when less than 25% of the project area has puddles or mud, or a person walking on the project site no longer leaves visible footprints 1/4" deep. This SPR applies only to mechanical treatment methods. If a future 1600 maintenance agreement establishes more stringent wet weather limitations, then the more stringent limitations will take precedence.

Figure HYDRO- 1. Procedures for Closing and Reopening Areas to Mechanical Treatment.



SPR HYDRO-2: No grading or construction. With the exception of maintenance repairs to mitigate incidental road damage caused by vegetation management equipment, no machine ground disturbance, such as grading, reshaping of channels, extraction of stumps, emplacement or replacement of culverts, or construction of roads, is within the scope of this EIR. Bladed tractors may be present on roads only, when necessary to reverse incidental damage caused by other equipment.

SPR HYDRO-3: Erosion Monitoring. The project implementer will inspect treatment areas for the proper implementation of erosion control SPRs and mitigations before the rainy season. The implementer shall re-inspect the treatment area after the first large winter storm event of the season (i.e., ≥ 1.5 inches in 24 hours) and/or at least once annually, to evaluate the function of erosion control measures. Any area of erosion that will result in substantial sediment discharge will be remediated. This SPR applies to mechanical and understory burning treatment methods.

SPR HYDRO-4: Minimize Burn Pile Size and Observe Setbacks from Trees. The project implementer will not create burn piles that exceed 4 feet in length, width, or diameter. In addition, burn piles will not occupy more than 15 percent of the total treatment area. Burn piles shall be at least 4' from any living tree, to avoid cooking the tree's tissues with the heat of the fire.

SPR HYDRO-5: Observe Burn Pile Setbacks From Creeks. When building burn piles, the project implementer will observe the following setbacks from water features:

- (a) Ephemeral streams: 25'
- (b) Spring heads and pocket wetlands: 50'
- (c) Streams that support no fish (but may support amphibians): 50'
- (d) Streams that support fish: 75'

SPR HYDRO-6: Guidelines for Water Drafting. From time to time, it may be necessary to draft water from on-site creeks or ponds to support vegetation management operations. Water drafting involves drawing water from sources such as a lake, pond, or stream into a pump and could serve to provide a supply of water for dust abatement or fire suppression in treatment areas that are inaccessible to water trucks or are not in close proximity to fire hydrants. The project proponent and project implementer, as applicable, will comply with the following requirements and best management practices:

- Water drafting operations shall follow CFPR requirements in 14 CCR Section 963.7(l), which are intended to apply to water drafting operations in watersheds with listed anadromous salmonids but for this PEIR are proposed to apply throughout the program area.
- Vehicles used for water drafting shall only access drafting sites through existing watercourse crossings.
- Water drafting shall be subject to all applicable requirements of Fish and Game Code Section 1600, as determined in consultation with CDFW.
- Water drafting will not impact beneficial uses listed in the Water Quality Control Plan for the Central Valley (Basin Plan) (CVRWQCB 2018).
- In addition to the above (if not required for Section 1600 compliance), the following requirements shall be met for all water drafting operations in the program area:
 - a. The project proponent shall consult with CDFW prior to any water drafting operation to convey and receive any information relevant to the drafting operation.
 - b. Water shall not be drafted by more than one truck simultaneously at the same site.
 - c. In Class I watercourses (i.e., Big Chico Creek and Little Chico Creek), streambed or bank material shall not be excavated for intakes or any other purposes related to drafting.
 - d. All water drafting vehicles shall be checked each day used, and shall be repaired as necessary to prevent leaks of deleterious materials from entering the watercourse.
 - e. Pumps used for drafting shall be capable of being adjusted to comply with specified

withdrawal rates.

f. Operators shall follow all applicable requirements and guidelines to prevent the introduction and spread of aquatic invasive species (AIS). This shall include:

(i) inspecting truck tires, hoses, screens, and any equipment entering the water before and after each drafting operation and removing and properly disposing of any aquatic plants or other aquatic organisms;

(ii) applying water only within the same watershed in which it originated.

g. Intake screens shall be used wherever water is drafted, and shall be kept in good repair. Intakes shall be inspected periodically and kept clean and free of accumulated algae, leaves, or other debris that could block portions of the screen surface and increase approach velocities at any point on the screen.

h. Intakes shall be at least 6 inches above the bottom of the channel and away from submerged vegetation, where practicable. Where not practicable, intakes shall maximize these clearances.

i. At the end of drafting operations, intakes shall be completely removed from the watercourse and disturbed ground, including exposed soil, shall be treated according to Fish and Game Code Section 1600 requirements to minimize erosion.

SPR HYDRO-7: Comply with Water Quality Regulations. The project implementer will comply with all applicable water quality requirements adopted by Central Valley Regional Water Quality Control Board (CVRWQCB) and approved by the SWRCB (i.e., Basin Plan). If applicable, this includes compliance with the conditions of general waste discharge requirements (GWDR) and waste discharge requirement waivers for timber or silviculture activities where these waivers are designed to apply to non-commercial fuel reduction and forest health projects.

SPR HYDRO-8: Stream Buffers for Prescribed Fire. Prescribed fire projects shall use no accelerants (e.g., drip torch fuel) within a 100' buffer to any perennial stream. Backing fire will be used into ephemeral drainages to reduce the intensity of fire in drainages. No discernible direct or indirect effects to water quality would be expected as live vegetation within the buffer would be left to function as a sediment filter strip.

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
a) Would the project violate any water quality standards or waste discharge requirements or otherwise substantially degrade surface or ground water quality?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

With incorporation of **SPR SOIL-1** and the other SPRs, program implementation would not substantially contribute to surface or ground water quality problems. Under these SPRs, which have been established and/or reviewed by a licensed RFP, program activities near creeks will be limited to those that do not have the potential to impact water quality. Implementing these SPRs such as streamside equipment exclusion zones would effectively protect streams from excessive project-generated sediment, assuring that cumulative effects of the program do not adversely affect beneficial uses of water.

b) Would the project substantially decrease groundwater supplies or interfere substantially with groundwater recharge such that the project may impede sustainable groundwater management of the basin?	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
The program involves no increase in water use nor any hydrological or hydromorphological alterations that could impede groundwater recharge. In general, reduction in woody plant density promotes groundwater recharge rather than impeding it.				
c) Would the project substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river or through the addition of impervious surfaces, in a manner which would result in substantial on- or off-site erosion or siltation?	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
The program will not substantially alter drainage patterns or streamcourses or install any new impervious surfaces.				
d) Would the project substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river or through the addition of impervious surfaces, or substantially increase the rate or amount of surface runoff in a manner which would result in on- or off-site flooding?	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
The program will not substantially alter drainage patterns or streamcourses or install any new impervious surfaces.				
e) Would the project substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river or through the addition of impervious surfaces, or substantially increase the rate or amount of surface runoff in a manner which would create or contribute runoff water which would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff?	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
The program will not substantially alter drainage patterns or streamcourses or install any new impervious surfaces.				

f) Would the project substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river or through the addition of impervious surfaces, or substantially increase the rate or amount of surface runoff in a manner which would impede or redirect flows?	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
The program will not substantially alter drainage patterns or streamcourses or install any new impervious surfaces that would affect surface flows. A temporary increase in surface runoff is normal after thinning projects and prescribed fires, but is unlikely to be as extreme as after a catastrophic wildfire.				
g) In flood hazard, tsunami, or seiche zones, would the project risk release of pollutants due to project inundation?	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
The program is not in a tsunami or seiche zone. Parts of the program are in flood hazard zones or ephemeral drainages. The program does not involve the use of any pollutants other than diesel/gasoline fuels and herbicides, which will be handled and stored in such a way as to make spills and contamination very unlikely (see 4.9, Hazards). Flooding of project areas would not result in the release of pollutants because none would be stored or applied there when rain events approached.				
h) Would the project conflict with or obstruct implementation of a water quality control plan or sustainable groundwater management plan?	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
The program does not obstruct implementation of a water quality control plan or sustainable groundwater management plan.				
i) [Impact HYDRO-i] Would the project interfere with streamflow or aquatic community integrity by drafting water from creeks or rivers?	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Water drafting could be necessary from time to time to facilitate prescribed fire operations. With SPR HYDRO-6 incorporated, effects of water drafting would be less than significant.				

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
j) [Impact HYDRO-j] In parts of Little Chico Creek, the only streambank vegetation is Arundo Donax. Will removing the arundo lead to bank instability or collapse that results in hydrological or water quality impacts?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Arundo removal itself will not destabilize the bank (see below). However, after the arundo dies, which will occur over a period of years, those portions of the bank could eventually be left without any stabilizing vegetation, or could be colonized primarily by annual weeds that provide little bank stability (e.g., star thistle, *Melilotus* sweet clover.) Therefore, arundo eradication work will be followed up by a bank restabilization planting protocol including native willows and other plants, as described in MM-SOIL-1.

Arundo donax (a.k.a. giant reed, or simply arundo) is a bamboo-like non-woody cane that can grow fifteen feet high and generally forms dense stands, arising from a thick and extremely heavy root ball that is usually plate-shaped and can be about eight to twelve inches thick and several square feet wide. Dislodging this root ball from the soil is dangerous for bank stability and downstream resources. (While it's not common, there have been documented instances of massive Arundo root balls impacting bridge footings during floods). For this reason, arundo eradication proceeds without disturbing the root ball.

Arundo eradication is a multi-year process. First, crews cut the canes at the base and carry them off-site to a disposal container, such as a roll-off dumpster. Second, surviving canes are sprayed with a "Caution" (i.e., least hazardous available) class of herbicide. This is done on a dry day in the fall, because that is the season when the arundo is at its most vulnerable to herbicide, as it translocates sugars from its leaves into its root ball for the winter. The now-dead canes may need to be removed again the following spring. After that, the cycle repeats, with crews patrolling for surviving shoots, which they cut and/or spray. Gradually, the root ball dies. The root ball is very thick and woody, so it does not disintegrate rapidly, but in time it will lose its grip on the bank and could be dislodged by a high intensity rain or flooding event. This risk cannot be eliminated but it can be minimized by working to stabilize the bank with native plants such as willow.

Arundo eradication work will proceed under a 1600 permit, so any additional or more stringent stipulations in that permit will be implemented.

Cumulative hydrological effects: Potential effects on water quality and cumulative watershed effects may include short-term increases in sediment delivered to streams, particularly after prescribed fire. Although a short-term degradation could occur (as it also does after wildfire), reintroduction of more regular and low-intensity fire into this landscape and associated movement toward a more natural fire regime would have a long-term positive benefit. Program SPRs contribute to the prevention of sediment delivery to streams and impacts to riparian areas. Direct and indirect effects from proposed vegetation treatments are minimal and short in duration, particularly when compared with the no-project alternative, and therefore long term cumulative effects are not expected. **No cumulative impacts.**

4.10.3 Consistency with Applicable Local Plans See 4.10.1 for a discussion of the program's consistency with the City of Chico Stormwater Resource Plan and the Sacramento-San Joaquin Basin Plan.

The Bidwell Park Master Management Plan (EDAW 2008a) contains the following relevant objectives:

Hydrology/ Water Quality Objectives:

- *O. H/WQ-1. Preserve and enhance the Big Chico Creek watershed to maintain surface and groundwater quality for private and public use and for fish and terrestrial wildlife.*

With incorporation of SPRs, implementation of the VFMP would maintain surface and groundwater quality for all beneficial uses. Although some sediment pulses could result from human-led fire that backs into a drainage, the overall sediment contribution is likely to be comparable to, or even less than, what would be expected under the no-project alternative.

- *O. H/WQ-2. Protect hydrologic processes important to maintaining ecological integrity.*

The program does not influence or impact hydrological processes; it does not re-shape fluvial morphologies, nor does it create new roads or trails or impervious surfaces. Fireline construction can divert surface and shallow subsurface water flows, but SPR SOIL-3 has been integrated into fireline construction activities to ensure these hydrological impacts remain non-significant.

- *O. H/WQ-3. Discourage disruptions of natural hydrologic conditions of the Big Chico Creek watershed, other than improvements to the One-Mile Recreation Area, Five-Mile Recreation Area, and related diversion structures.*

Program implementation would not disrupt the natural hydrological conditions of the Big Chico Creek watershed; see above.

- *O. H/WQ-5. Minimize pumping of Big Chico Creek water for irrigation and other purposes.*

Program implementation could require some drafting of water from Big Chico Creek for dust abatement and to improve the safety of prescribed fire operations, but **SPR HYDRO-6** provides comprehensive guidelines for drafting water without adverse effects on stream biology or sediment levels.

- *O. H/WQ-7. Strive to reduce point and non-point source pollution into Big Chico Creek. Additional stormwater outlets into Big Chico Creek should not be permitted.*

The program does not add any stormwater outlets into Big Chico Creek and SPRs have been incorporated into all potentially sediment-producing projects and treatments to reduce their potential to contribute non-point-source pollution to Big Chico Creek.

The Chico 2030 General Plan (City of Chico 2017) includes the following relevant goal:

- *Goal OS-3 Conserve water resources and improve water quality.* The program is consistent with this goal because it integrates SPRs designed to minimize water quantity and quality impacts from all vegetation management projects on City-owned parklands for at least the next 10 years (the expected minimum “life” of this PEIR).

4.10.4 Mitigation Measures

MM-HYDRO-1: Replant Native Vegetation into Arundo Root Balls. To mitigate for Impact 4.10-j, after Little Chico Creek Arundo Eradication (key project # 6) the City shall plant or cause to be planted native willow and other native vegetation along portions of Little Chico Creek where arundo was formerly the dominant vegetation. Native plants can be planted directly into the arundo root ball and should be planted at densities and protocols established in the region as best practices for creeks similar to Little Chico Creek in elevation, hydromorphology, and flow regime. Because streamside work needs to be carried out under the terms of a 1600 permit from CDFW (**SPR BIO-10**) as well as potentially an encroachment permit from CVFPB (if required), this mitigation

measure would still need to be reviewed by CDFW and potentially CVFPB to ensure it adequately mitigates for this potentially significant impact. If CDFW and/or CVFPB stipulated more stringent mitigation under the terms of its/their permit(s), that more stringent mitigation would be applied.

4.10.5 Residual Impact(s) None remaining after mitigation.

4.11 LAND USE AND PLANNING

4.11.1 Existing Conditions

Land uses in and around incorporated Chico, California are governed by the [Chico 2030 General Plan](#) (City of Chico 2017). If a project changes a land use (for example, adding more houses in an agricultural zone, or starting an industrial business in a residential neighborhood), that change would likely go before the Planning Commission, which is responsible for the preparation, oversight and updating of the General Plan. The Commission also makes recommendations to Council on General Plan amendments, rezones, and adoption of neighborhood and specific plans; considers some environmental impact reports and negative declarations; reviews special studies and reports; and approves tentative subdivision maps, planned development permit applications, use permits, and other land use entitlements. Projects that don't change a land use (for example, replacing row crops with a walnut orchard, or replacing one manufacturing use with another) generally do not go before the Planning Commission. Implementation of the VFMP would not change any land use. All currently designated parkland would remain parkland. None of the proposed activities within the VFMP are not currently allowed parkland uses.

4.11.2 Thresholds of Significance and Impacts

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
a) Would the project physically divide an established community?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
The program does not introduce new parklands or new barriers to movement within the community. In general, raising sightlines and reducing vegetation density promotes travel between parts of a community, at least on foot.				
b) Would the project cause a significant environmental impact due to a conflict with any land use plan, policy, or regulation adopted for the purpose of avoiding or mitigating an environmental effect?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

Program activities will not alter any existing land use.

4.11.3 Consistency with Applicable Local Plans

As the program does not change any land use (either directly or indirectly), it is consistent with all local plans.

4.11.4 Mitigation Measures None required.

4.11.5 Residual Impact(s) Not applicable.

4.12 MINERAL RESOURCES

4.12.1 Existing Conditions

Chico parklands are not considered to contain regionally or locally important mineral resources. For example, the California Department of Conservation, Division of Mines and Geology (CDMG), has classified the regional significance of mineral resources in Bidwell Park as “MRZ-1: Areas where adequate information indicates that no significant mineral deposits are present, or where it is judged that little likelihood exists for their presence.” (Source: Bidwell Park Master Management Plan EIR, EDAW 2008a.) Gravel and sand extraction has probably occurred locally on Little Chico Creek, Big Chico Creek, and Sandy Gulch from time to time. However, these areas have been protected as parkland/greenways for decades. Neither their protected status, nor their mineral resources, would be changed in any way through implementation of the VFMP (which does not include any mining or removing minerals or rock/soil off-site). Therefore, no impact on mineral resources is possible through implementation of the VFMP.

4.12.2 Thresholds of Significance and Impacts

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
a) Would the project result in the loss of availability of a known mineral resource that would be of value to the region and the residents of the state?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

The program consists of vegetation management only, and does not limit access to any mineral resources or change the future availability of any mineral resources.

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
b) Would the project result in the loss of availability of a locally important mineral resource recovery site delineated on a local general plan, specific plan, or other land use plan?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

The program consists of vegetation management only, and does not limit access to any mineral resources or change the future availability of any mineral resources.

4.12.3 Consistency with Applicable Local Plans Not applicable.

4.12.4 Mitigation Measures None required.

4.12.5 Residual Impact(s) Not applicable.

4.13 NOISE

4.13.1 Existing Conditions

The general rule governing noise produced on public property in Chico is that “Except as otherwise provided in [chapter 9 of the Chico Municipal Code], no person shall produce, suffer or allow to be produced on public property, by human voice, machine, animal, or device, or any combination of same, a noise level that exceeds sixty (60) dBA at a distance of 25 feet or more from the source. (Chico Municipal Code 9.38.050, Public property noise limits.)

However, this rule does not apply to parks and playgrounds (9.38.015(A)). Noise in parks and playgrounds are subject to park rules and regulations adopted in Chapter 12.04 the Chico Municipal Code, but this chapter does not yet contain limits on noise. Therefore, for the purposes of this PEIR, it will be assumed that noise from vegetation management should be managed similarly to noise from construction and housing maintenance. Construction noise in Chico is limited to a noise level of eighty three (83) decibels (dBA) or less at a distance of twenty-five (25) feet from the source, and can only be lawfully produced between the hours of ten a.m. and six p.m. on Sundays and holidays, and seven a.m. and nine p.m. on other days.

4.13.2 Thresholds of Significance and Impacts

In determining the level of significance, the analysis assumes that the program and any projects within its scope would implement the following standard project requirements (SPRs) developed for the program. The analysis also assumes all work would comply with relevant federal and state laws, regulations, and ordinances.

SPR NOISE-1: Maintain noise-producing equipment properly. Research and label each piece of motorized equipment with its peak operational decibel level. Properly maintain equipment according to manufacturers’ specifications and equip each piece of equipment with noise control, such as mufflers.

SPR-NOISE-2: Ensure equipment noise is below allowable construction noise limits. Ensure that equipment to be used does not emit a noise level of greater than 83 decibels at a distance of 25 feet. Only operate machines that make loud noise (e.g., chainsaws, chippers) between the hours of 10 am -6 pm on Sundays and holidays, and 7 am -9 pm M-Sa excluding holidays.

SPR NOISE-3: Personal Protective Equipment. Ensure all crew members who operate chainsaws, chippers, etc. have adequate ear protection rated for the decibel level of the equipment they are using.

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
a) Would the project result in generation of a substantial temporary or permanent increase in ambient noise levels in the vicinity of the project in excess of standards established in the local general plan or noise ordinance, or in other applicable local, state, or federal standards?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

No impact with SPRs incorporated.

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
b) Would the project result in generation of excessive groundborne vibration or groundborne noise levels?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
The land management activities contemplated in the program will not generate groundborne noise or vibrations.				
c) For a project located within the vicinity of a private airstrip or an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project expose people residing or working in the project area to excessive noise levels?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

Some of the program area is within the Airport Overlay for the Chico Municipal Airport. Furthermore, a total of 1,903.3 acres is within 2 miles of the airport. These approximately 1,903 acres include the Airport itself, the approximately 32.6 acre parcel of open space and softball fields south of Grumman Ave, Foothill Ranch preserve and parts of Bidwell Ranch preserve, and various very small miscellaneous parcels scattered throughout neighborhoods north of East Ave. Vegetation management on these lands would be confined to mowing, weed-whacking (e.g. with a gas-powered string trimmer) and possibly grazing. No safety hazard or excessive noise above usual vegetation management noise, frequently heard in neighborhoods, would be generated.

4.13.3 Consistency with Applicable Local Plans

The Bidwell Park Master Management Plan (BPMMP; EDAW 2008a) contains the following two relevant implementation strategies:

- *I. SLU-4. Noise mitigation for new development near the Park should be required. Construction, operation, and maintenance of noise sources should be addressed as part of the CEQA process.*
The CEQA process requires addressing construction noise. The VFMP program of implementation does not create new development near the park, but is still relevant to the park use experience.
- *I. PRU-5. Minimize excessive noise levels.*
See SPRs.

The BPMMP's associated Master Mitigation Monitoring Program (EDAW 2008b) contains the following mitigation measure (BPMMP-MM-NOISE-1), which today would be considered SPRs, regarding noise:

- ♦ Construction equipment shall be properly maintained and equipped with noise control, such as mufflers, in accordance with manufacturers' specifications

♦ Construction activities shall be limited to the hours of 7:00 a.m.–9:00 p.m., Monday through Saturday, and to 10:00 a.m.–6:00 p.m. on Sundays and holidays.

♦ Construction equipment shall be arranged to minimize travel adjacent to occupied residences and turned off during prolonged periods of non-use.

These standards have been incorporated into SPRs, above, ensuring consistency with the BPMMP.

4.13.4 Mitigation Measures Because the impacts as designed would be less than significant, no further mitigation is needed.

4.13.5 Residual Impact(s) None applicable.

4.14 POPULATION AND HOUSING

4.14.1 Existing Conditions Chico was home to about 103,301 people according to an estimate at peak population a few months after the Camp Fire (USCB 2019). This population, and the related availability of housing, fluctuate with factors such as the destruction and rebuilding of communities in other parts of Butte County and Northern California (e.g. Berry Creek, Redding) and with the expansion and contraction of the CSU-Chico student body (at the time of this writing, at a low ebb thanks to COVID-19-related cancellations of in-person classes).

Some of Chico's population is unhoused. The city's shelter bed deficit is variously estimated at 258 pre-pandemic, 207 during pandemic, and as high as 400 people (City of Chico 2020a). Some members of this unhoused population try to meet their need for shelter by camping in the parks. It is generally illegal to camp in the parks, but the City Council can suspend this prohibition *de facto*, by directing that it not be enforced, as happened in April 2020 during the start of the coronavirus pandemic. City Council voted to rescind this suspension and return to enforcing the no-camping rule on August 26, 2020. The City is in the process of increasing the number of beds available for unhoused people, including by creating a designated legal campground (not on City parklands).

4.14.2 Thresholds of Significance and Impacts

a) Would the project induce substantial unplanned population growth in an area, either directly (for example, by proposing new homes and businesses) or indirectly (for example, through extension of roads or other infrastructure)?	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

The program does not build any new structures, roads, trails, parking areas, or recreational infrastructure. Reducing vegetation density could slightly increase the number of people who are able to enjoy dispersed recreational opportunities in the park at any one time, but this is not likely to result in a substantial increase in either park visitation or population growth.

b) Would the project displace substantial numbers of existing people or housing, necessitating the construction of replacement housing elsewhere?	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

By definition, people who are illegally camping in parks already do need housing. The program will increase visibility distance in the parks and will remove dense thickets of vegetation, especially arundo, especially near existing homes, businesses, and services. These thickets are some of the best illegal camping sites in the park. The program could make it harder or less convenient to illegally camp in the parks. However, this program will not itself increase the need for housing above the baseline need which already existed.

4.14.3 Consistency with Applicable Local Plans The City of Chico has a plan to address homelessness (City of Chico 2020), which involves increasing shelter bed capacity, exploring the feasibility of establishing a Navigation Center, and creating a legal camping space at the Silver Dollar fairgrounds. The program does not impede the implementation of this plan.

4.14.4 Mitigation Measures None required.

4.14.5 Residual Impact(s) Not applicable.

4.15 PUBLIC SERVICES

Public services include fire, parks, police, wastewater, trash collection and recycling, schools, and public health services. Only the first three are addressed in this analysis because police, wastewater, trash collection/recycling, schools, and public health services have no relationship to vegetation management projects unless the projects have growth-inducing impacts. Implementation of the VFMP is not expected to have growth-inducing impacts; it will have no effect on population levels in or around Chico and it does not change any land use designation. Even though some of the above services do occur in parks (for example, trash is collected in parks and police do respond to incidents in parks), there is no reason to believe the demands on these services will increase or decrease after implementation of the program, unless the number of visitors to the parklands/greenways increases or decreases. The potential of program implementation to increase or decrease parklands visitorship was analyzed and it was found the VFMP will neither significantly increase nor decrease parkland visitorship. (See “Recreation,” 4.16.) Readers interested in background information on City services are directed to [chapter 9 of the Chico 2030 General Plan](#) (City of Chico 2017).

4.15.1 Existing Conditions

Fire Chico’s municipal fire department (CFD) has 60 employees (57 uniformed) and operates four fire stations. In the first half of 2018 (the most recent figures available), the CFD responded to 174 fires, arriving on scene in under 8 minutes and 30 seconds 90% of the time (CFD 2018). The CFD’s goal is to cut that response time by two minutes, to six minutes and thirty seconds, a target it met 69% of the time in early 2018. Fire response is challenged when two or more calls come in at the same time, known as *concurrent incidents*. In 2018, concurrent incidents accounted for 8.2% of Station 5’s workload, 4.8 % of Station 4’s, 11.75% of Station 2’s, and 16.4% of Station 1’s. Some of the CFD’s workload is based in Chico’s parklands. In a six-week period in fall 2020 (9/2/20-10/17/20), CFD responded to human-started fires in the parks at least 16 times (City of Chico 2020b).

Parks The Chico 2030 General Plan (City of Chico 2017) defines the acceptable standards for parkland access per capita in Chico. The 2030 General Plan directs standards of 1.5 acres of neighborhood parkland per 1,000 residents (a 75% increase from the 1994 General Plan standard); 2.5 acres of community parkland per 1,000 residents (a 56% increase from the 1994 General Plan standard); and 2.5 acres of greenways per 1,000 residents (a 75% increase from the 1994 General Plan standard). Neighborhood and community parks, for the purposes of the General Plan, are those managed by CARD. (Bidwell Park is not considered a neighborhood or community park for the purposes of the General Plan; it is considered regional open space.) Greenways are managed by the City Parks Division. Based on a 2019 population of 103,301 and a greenways acreage of 248.3 acres (including Lindo Channel, Little Chico Creek, Bidwell Avenue, Deadhorse Slough, and Comanche Creek), Chico was maintaining 2.40 acres of greenway per 1,000 residents in 2019*.

Through these standards, it is the intention of the City (in partnership with CARD) that most residents would be within a convenient walking distance of a neighborhood or community park and have access to open space and greenways. VFMP implementation would not increase or decrease the acreage of parkland available per capita.

*2019 population figures are the latest available, but likely represent an anomalous peak in Chico population between the Camp Fire influx of late 2018 and the COVID-19 student depopulation of 2020. Using 2018 population figures, the greenways acres per capita would have been 2.63.

4.15.2 Thresholds of Significance and Impacts

a) Would the project result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, or the need for new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times, or other performance objectives for any of the following services?

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
For fire protection?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
For police protection?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
For schools?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
For parks?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Other public facilities?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

The program will not impact the provision of, or increase the need for, governmental facilities.

Fire: The program is designed to improve (i.e., reduce) response times for fire departments by slowing fire rate-of-spread, creating defensible fuel profile zones on favorable ridges in Upper Bidwell Park, and improving safe ingress and egress along 10 Mile House Road. The program is expected to reduce the number of ignitions in the park by simultaneously reducing the attractiveness of illegal camping and reducing the available fuel that could catch on fire if a campfire got out of a camper's control. Reducing these parkland ignitions would improve the fire department's ability to respond to other emergencies in the city. Prescribed burning in Upper Park will provide prescribed fire training opportunities for City and Butte County Fire employees. These prescribed fire events will be run using the Incident Command System, with burn bosses who are qualified under the National Wildfire Coordinating Group's charter. As such, any training received on these assignments can be officially credited to the trainee.

These positive impacts might be somewhat offset by increased use of fire department resources for prescribed burning projects that are also part of the plan. Implementing Upper Park Star Thistle burns might require a dedicated engine and a few fire department crew members for an average of 4 days a year.

Police: The program will not impact existing police services.

Schools: The program will not impact existing school services.

Parks: The program does not increase or decrease the amount of parkland in the city, and it does not increase or decrease the parks' recreational infrastructure. With the exception of possible temporary closures for one to several days for prescribed fire activities, the program does not change the number of people who can use the parks per day. It is not expected to increase or decrease the number of visitors to parklands or the amount of time they spend per visit.

In some areas, particularly in the Upland Mix vegetation type and some greenways, program implementation will open sightlines. This will enable park visitors to better see each other and the surrounding landscape. Visitors for whom visual solitude is a very important feature of the park experience might seek out a more remote experience or choose to drive to parks that are further away and are still managed for the anomalously dense, shady forest that has characterized the late-twentieth-century Californian experience. Also, some visitors might choose to wander off-trail. However, since the most intensive vegetation removal is expected to be done on deep, durable soils (because those are the soils that support dense vegetation growth), incidental off-trail travel post-treatment is not expected to negatively impact the parklands' ability to provide services to visitors.

At the same time, visitors for whom low visibility is currently a deterrent to outdoor recreation might increase their parkland visits. Birdwatching and wildflower viewing opportunities might increase, in areas of the parklands that are currently very dense. Many of the most used areas of the parklands, such as One Mile, the Horseshoe Lake area, the Golf Course and the Disc Golf course, are unlikely to undergo any visual change because their vegetative fuels loading is already within the desired range for their vegetation community. Access impacts are further discussed in the Recreation section (4.16) of this document.

Other public facilities: Implementation of the VFMP could increase demand for homelessness services by making it even less attractive to illegally camp in Chico's parks and greenways (because vegetation removal will increase visibility of unauthorized camping). This is not identified as an impact, however, because the City of Chico has already set the goal of having zero people camping in parks and greenways through implementation of its Homeless Opportunities Plan (City of Chico 2020) which includes expanding shelter beds and services and creating a legal camping area at the Silver Dollar fairgrounds. Therefore, this item is marked as having no impact.

4.15.3 Consistency with Applicable Local Plans

The Bidwell Master Management Plan contains the following relevant objectives and implementing strategies in its "Public Safety/Emergency Services" element. Responses are provided in non-italic text.

- *O. PS/ES-6. Use prescribed fire to reduce the risk of catastrophic fires within Bidwell Park.*
The BPMMP explicitly recognizes that prescribed fire is a tool to reduce future fire intensity and rate of spread and thus to reduce demand on emergency services. The VFMP meets this objective by providing the risk analysis and unit identification needed to safely proceed with fire risk reduction wildland prescribed burns in Upper Park.
- *I. PS/ES-6. Information centers, safety and liability signage, and telephone service should be strategically located to reduce emergency response times.*
The VFMP does not address these needs but does not hinder the City's ability to meet

them

- *I. PS/ES-7. A wildfire response plan should be developed that specifies procedures for initial wildfire response and plans for public safety in the event of a wildfire.*

In 2021, CFD is expected to begin preparation of a Community Wildfire Protection Plan (CWPP) specifically for the City of Chico. (While Butte County as a whole has such a plan, Chico does not). This planning process will be an ideal opportunity to plan wildfire response and management, including specifying conditions under which wildfires should be allowed to burn to achieve ecological and public safety goals. Such suppression policy decisions are not under the control of the Parks Division, but it is expected that the VFMP, particularly its wildfire risk assessment developed by Deer Creek Resources, will be useful in CFD's development of a CWPP.

4.15.4 Mitigation Measures Since impacts will be less than significant, no mitigation is required.

4.15.5 Residual Impact(s) Not applicable.

4.16 RECREATION

4.16.1 Existing Conditions

Chico's parklands, greenways and open spaces are used by a wide variety of recreational users, including hikers, runners, mountain bikers, dog-walkers, equestrians, golfers, kite enthusiasts, anglers, birders, botanizers, disc golfers, swimmers, playground capers, tree-climbers, rock climbers, stargazers, and the uncategorizable. Upper Bidwell Park alone, with its 65+ miles of formal and informal trails, was visited by 450,000 cars in 2018 (TrailLabs 2020) and this total does not include recreationists who accessed the park by foot, bicycle, or other means.

Recreational trails are not open 24 hours a day, nor are they open every day of the year. The City maintains a website which lists closures of parkland roads and trails, accessible at <https://chico.ca.us/post/trail-gate-facility-status-and-hours>. Recreational trails and areas may be closed to some or all uses due to wet conditions, extreme fire danger, or road or trail damage.

After wildfire, it is common for some recreational features to be closed for extended periods of time. In the last five years, Upper Park has experienced two wildfires, the Santos (2017) and the Stoney (2018). While neither was considered catastrophic from an ecological point of view, and both had beneficial effects in addition to their adverse recreational impacts, both did result in recreational closures. After the Santos Fire, 10-Mile House Road was closed for a period in the winter for erosion restoration work, and the Pine Trail remained closed until 2020. The Stoney Fire closed down virtually all of Middle and Upper Bidwell Park for four days in 2018 (Friday, July 13-Monday, July 16), including the Golf Course, Rod and Gun Club, Equestrian Center and the Observatory. However, all South side trails and the Peregrine Point Disc Golf Course were closed for months until hazardous trees could be surveyed and felled. The Guardian Trail, which sustained extensive damage, remained closed until 2020.

4.16.2 Thresholds of Significance and Impacts

If prescribed fires and other treatments can deliver ecological and fuels benefits comparable to those of wildfire, but result in shorter recreational impacts and reduce impacts from future wildfires, then the net recreational impact of VFMP implementation would be considered beneficial. However, the proposed vegetation treatments would still have impacts, even if less than significant. For example, the proposed treatments may indirectly affect the recreation setting within the program area by changing the scenic qualities within the treatment areas. For example, the prescribed burning activities would create blackened areas on the landscape in the short term, and more altered vegetation communities (i.e., more openings in the upland mix community; less star thistle in the grassland community) in the long term.

Visitors may notice longer sightlines and this may tempt more people to travel off-trail or find new routes. However, this in itself does not inevitably lead to degradation of facilities (not all off-trail travel is harmful), particularly since the most intensive vegetation removal is expected to be done on deep, durable soils (because those are the soils that support dense vegetation growth). The areas of Chico's parklands that are already experiencing impacts from recreational use, such as some of the

trails on thin South Rim soils that support blue oak woodland, are unlikely to be altered by vegetation management activities because they have little vegetation.

With regard to areas of the parklands that receive substantial treatment (e.g., upland mix areas and some greenways), some parks users may choose to spend less time in these areas post-treatment if one of the parkland qualities they value is the sight privacy afforded by dense vegetation. Other users may spend more time in these areas, if they value the more spacious parkland views and easier access post-treatment. Additionally, many users and landmangers prefer improved sightlines on trails and in proximity to recreational facilities because it improves visibility and reduces the risk of conflict between users.

By temporarily reducing the cover of thick, often impenetrable brush and poison oak, fire improves access to areas of Upper Park which have often been difficult or impossible to visit. For example, the Stoney and Santos Fires both made it possible to hike cross-country with small children from Highway 32 all the way down to Annie Bidwell Trail. Before the fires, this would have been very difficult. Within 3-4 years post-fire, these areas have revegetated and are once again fairly difficult to transect. Similarly, fire in the heavily-vegetated areas provides a window of opportunity to remove trash, old barbed-wire fences, and other hazards which are difficult to find or handle when they are buried in deep brush.

Other long-term benefits of the proposed action, including a more diverse, resilient and sustainable ecosystem, and reduction in the risk of negative impacts to recreation from severe wildfire (e.g. trails being closed for longer while a greater number of hazard trees are felled), have the potential to indirectly benefit recreation. The proposed program is expected to help maintain the settings and opportunities currently valued by the public for recreation within the City's parks.

In determining the level of significance, the analysis assumes that the program and any projects within its scope would implement the following standard project requirements (SPRs) developed for the program, as well as any other SPRs developed for the program under other resource areas. (In particular, **SPR TRANS-1**, in PEIR section 4.17.2 below, is relevant to the Recreation resource area since transportation routes and recreation routes often overlap.) The analysis also assumes all work would comply with relevant federal and state laws, regulations, and ordinances.

SPR REC-1: Advance notice of recreational closures related to vegetation management. The week before closures due to prescribed fire activities are expected, the City will give notice of expected trail or area closures. Upcoming closures will be announced via press release, Parks social media accounts, and the City's website. Due to the weather-dependent nature of prescribed fire, it is usually not possible to specify closure dates accurately in advance. The closed area will be posted in the field on the day of operations. This SPR also applies to non-fire vegetation management activities that could pose a danger to recreational users accessing the unit, such as hazard tree felling and mastication activities.

a) Would the project increase the use of existing neighborhood and regional parks or other recreational facilities such that substantial physical deterioration of the facility would occur or be accelerated?	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

The program is not expected to either significantly increase nor significantly decrease the number of visitors to the parks nor the amount of time they spend there.

b) Would the project include recreational facilities or require the construction or expansion of recreational facilities that might have an adverse physical effect on the environment?	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

The program does not include, construct, or expand any recreational facilities. Some hand-cleared fireline may be constructed around prescribed fire units if qualified burn planners deem it necessary. While fireline and trail have some similarities and fireline is sometimes opportunistically used as trail by both recreationists and wildlife alike, fireline is not constructed to the same standards as trail and is not intended for recreational use. With the incorporation of **SPR SOIL-3**, fireline will not have an adverse physical effect on the environment. In many cases, fireline readily revegetates with little or no intervention post-fire; most hand-dug fireline constructed for the 2018 Stoney Fire is already revegetated as of 2020.

c) [Impact REC-c] Would the project close recreational facilities temporarily or permanently, reducing the public's ability to access the park or conflicting with applicable Parks plans or regulations?	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

During prescribed fire operations and some other vegetation management activities, trails, roads and access areas will need to be temporarily closed. **SPR REC-1** establishes a policy to notice upcoming closures in advance, so recreational users can plan to avoid affected areas. Furthermore, **SPRs HAZ-2, HAZ-3** and **HAZ-4** establish policies to minimize hazard trees and abate the ones that do occur, so trails and facilities can re-open quickly.

In analyzing the significance of an impact, it is appropriate to compare the impact against a current baseline. In the last five years), a large wildfire has impacted Upper Park twice. After wildfire, trails are always closed, for a period between several days and three years. The more severe the fire, the longer the trail closure, because more severe fires kill more trees, and trees are expensive to survey, mark and remove if they are hazardous.

Compared to wildfire, prescribed fire usually kills far fewer large trees that are likely to become hazard trees. This is partly because prescribed fires are deliberately lit and managed under conditions that are likely to keep their intensity relatively low, and partly because unit preparation for prescribed fire often includes identifying and protecting specific large trees managers wish to save. (Common techniques to do this include raking a ring two to six feet in diameter down to bare mineral soil

around the base of the tree, and/or cutting and removing ladder fuels around the tree.) Because of the lower number of hazard trees per acre burned, areas burned in prescribed fire take much less time to re-open than areas burned in wildfire. Mop-up and hazard tree operations are expected to take between two and ten days after prescribed fire, compared to usually several months to years after wildfire. Furthermore, while prescribed fire operations do not mean wildfire never happens again, regular prescribed fires would be expected to greatly reduce the incidence of hazard trees from wildfire. Therefore, the overall and cumulative impacts of the program are expected to be a reduction in the number of days trails are closed due to hazard tree conditions.

For further analysis of the Program's consistency with the "Recreation" element of the BPMMP, see 4.16.3, below.

4.16.3 Consistency with Applicable Local Plans

The Bidwell Park Master Management Plan (BPMMP; EDAW 2008a) lists the following park-wide goal: "Provide appropriate and meaningful recreational activities and facilities in Bidwell Park while protecting, maintaining, and enhancing the natural, aesthetic, and cultural values of Bidwell Park." The VFMP protects future recreational use and access to Bidwell Park by, for example, reducing the likelihood of high-severity wildfire that may close trails for extended periods of time. The VFMP also protects, maintains, and enhances the natural, aesthetic, and cultural values of Bidwell Park without significantly detracting from, or impacting, recreational uses.

The BPMMP contains the following relevant objectives:

- *O. RC-4. Provide for public access and recreation along Creekside Greenways, Park lands, and other public open space.*

The program is compatible with this objective because most vegetation management does not hinder public access and recreation, and may enhance it (by, in some cases, raising sightlines for a safer experience or better views of the natural environment). While some trails and areas will need to be briefly closed for some vegetation management operations (e.g. prescribed fire), they can generally be re-opened much sooner after prescribed fire than after wildfire. The program provides for public access and recreation because it incorporates SPRs that maximize the amount of time parklands are open, given the need for vegetation management, while also maximizing the amount of notice the public receives before any closure, given the difficulty of accurately forecasting burn windows.

- *O. PR-2. Focus the management of the Park on preserving and restoring natural ecological functions and natural resources in conjunction with providing appropriate quality recreational experiences appropriate to the various areas of the Park.*

The program is compatible with this objective because its vegetation management activities have been designed to preserve and restore natural ecological functions, such as patchy, low- and mixed-intensity fire in Upper Park, and natural resources such as black oak woodlands and upland shade-intolerant understory plants in Upper Park, and healthy, well-tended Valley oak woodlands in Lower Park. These vegetation management activities are unlikely to significantly impact the existing permitted recreational experiences in the various areas of the Park.

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

- *Goal PPFS-2: Utilize creeks, greenways and preserves as a framework for a system of open space.*
The program is compatible with this goal because it addresses Chico's open space in a comprehensive, holistic way, regarding all creeks, greenways and preserves as part of a single ecosystem that arises from shared biological, cultural, hydrological and geological resources. This programmatic approach to open space management provides a more watershed-based framework for management, including better opportunities to analyze cumulative impacts, compared to a piecemealed, project-by-project approach.
- *Action PPFS-2.1.4 (Assess Potential Impacts to Creeks) – Through the development and environmental review process, including consultation with state and federal agencies and non-profit organizations, ensure that natural areas and habitat located in and adjacent to the City's creeks are protected and enhanced.*
The program is compatible with this action because it has undertaken a comprehensive environmental review process, including consultation with all relevant agencies and nonprofits, to ensure that creekways' natural resources are protected.

4.16.4 Mitigation Measures

Because impacts would be less than significant, no mitigation measures are required.

4.16.5 Residual Impact(s) Not applicable

4.17 TRANSPORTATION

4.17.1 Existing Conditions

The program area is traversed by a variety of roads and trails. The largest mileage of roads and trails inside the program area is concentrated in Middle and Upper Bidwell Park (i.e., Bidwell Park east of Manzanita Ave), which together account for about half the total program acreage.

Transportation routes, as distinct from recreational routes, are defined for the purposes of this PEIR as routes that connect one human community or part of a human community to another. For example, the Comanche Creek Greenway Phase 2 trail connects neighborhoods on the far southwest of Chico to Park Ave and thence to the rest of Chico, as well as to the Class 1 bikeway that allows intercity travel along the Midway as far as Durham. Similarly, trails in Lower Park and Lindo Channel are used daily as bike and pedestrian transportation routes by shoppers, commuters, students and others.

By contrast, Upper Park trails are out-and-back routes or loops that return the traveler to the original trailhead; they may access sites of natural interest but they can seldom or never be used to commute between homes, businesses, or intermodal transit. (There is currently no trail route connecting, for instance, Upper Park trailheads to Forest Ranch or Cohasset.) For this reason, roads and trails in Middle and Upper Park are discussed in the “Recreation” resource area, (4.16, above), because they play little role as transportation routes. They are not further discussed here.

In addition to being traversed by internal routes, many of the program units are also bounded by roads and bike lanes on their perimeters. Vegetation management work on the perimeters of these units (e.g., Vallambrosa Ave along the north edge of Lower Park) could require temporary closure of up to one lane of traffic plus a bike lane at a time. Such a closure would likely last one or two days per year.

The City maintains a website listing closures of parkland roads and trails, accessible at <https://chico.ca.us/post/trail-gate-facility-status-and-hours>.

4.17.2 Thresholds of Significance and Impacts

In determining the level of significance, the analysis assumes that the program and any projects within its scope would implement the following standard project requirements (SPRs) developed for the program, as well as any other SPRs developed for the program under other resource areas. (In particular, **SPR REC-1**, in PEIR section 4.16.2 above, is relevant to the Transportation resource area since transportation routes and recreation routes often overlap.) The analysis also assumes all work would comply with relevant federal and state laws, regulations, and ordinances.

SPR TRANS-1: Notice of Closures of Transportation Routes. The week before closures due to vegetation management activities are expected, the City will give notice of expected road, lane, bike lane, trail or area closures. Upcoming closures will be announced via press release, Parks social media accounts, and the City's website. Due to the weather-dependent nature of some vegetation management activities, it is usually not possible to specify closure dates accurately in advance.

SPR-TRANS-2: Flag or Sign Road/Lane/Route Closures Per Public Works Protocol. The closed area will be posted in the field on the day of operations in accordance with City of Chico Public Works policies already used for hazard tree removal or any other roadside maintenance that incidentally closes roads or lanes, including through use of signage, cones, a flagger, or additional traffic control personnel as appropriate for the site.

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
a) Would the project conflict with a program, plan, ordinance or policy addressing the circulation system, including transit, roadway, bicycle and pedestrian facilities?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
This program will have little to no impact on traffic circulation patterns. While individual roads could be reduced to one-lane travel for short durations (less than 2 days), and individual sections of bike lane or bike trail could be closed for short periods of time, alternate routes will be available for bike and pedestrian traffic. The program does not conflict with the City of Chico 2030 General Plan, Circulation Element (see below).				

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
b) Would the project conflict or be inconsistent with CEQA Guidelines § 15064.3(b)?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
CEQA Guidelines § 15064.3(b) describes specific considerations for evaluating a project's transportation impacts, stating that "Generally, vehicle miles traveled is the most appropriate measure of transportation impacts. For the purposes of this section, 'vehicle miles traveled' refers to the amount and distance of automobile travel attributable to a project. Other relevant considerations may include the effects of the project on transit and non-motorized travel." In general, "a project's effect on automobile delay does not constitute a significant environmental impact."				

CEQA Guidelines § 15064.3(b) represents a recent shift in the way transportation impacts are analyzed under CEQA. Pursuant to Senate Bill 743, signed into law by Governor Brown on Sept. 27, 2013, the previous system of measuring transportation impacts based primarily on traffic delays experienced by drivers (a metric known as "level of service" or LOS) was largely discarded. Subsequently, projects' impacts have been analyzed based not on whether they make drive times longer or shorter for the same trip, but on whether they increase or reduce the number of car trips people make in the first place. The intent of SB 743 was to incentivize infill, transit hubs, and walkable developments by easing the CEQA process for those projects.

CEQA Guidelines § 15064.3(b) is designed primarily to help communities analyze the increase (or decrease) in vehicle miles traveled that are caused by new housing projects, transit centers, and other developments that people drive to and from. Thus, its relevance to a vegetation management program is limited. While implementation of the VFMP will indeed require some vehicle miles traveled for crews to access project sites around Chico parklands, the increase will be temporary and project- focused and not significant. The program will not result in any sustained change in vehicle miles traveled in the region.

c) Would the project substantially increase hazards due to a geometric design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment)?	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
The program does not include any alteration in the design or use of existing transportation systems.				
d) Would the project result in inadequate emergency access?	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

No. Temporary road closures incidental to implementation will not significantly decrease emergency access because alternate routes will remain available. While an emergency can happen anytime, the impacts of temporary road closures are further reduced because during red flag weather conditions, work will be reduced to early morning hours or will be suspended (see **SPR FIRE-3**). This SPR minimizes the overlap between road closures and peak forecastable emergency access needs.

4.17.3 Consistency with Applicable Local Plans

The Chico 2030 General Plan (City of Chico 2017) Circulation element (Chico General Plan chapter 4) deals with street safety upgrades, and ensuring that future development or redevelopment promotes complete (i.e., bike- and pedestrian-friendly) streets, and utilizes safer circulation patterns such as those that avoid dead-end streets. It contains no targets or guidance for how often transportation routes can or should be closed for vegetation management or other maintenance. Implementation of the VFMP will not hinder the City's efforts to promote innovative circulation and complete streets.

The Bidwell Park Master Management Plan (EDAW 2008a) calls on parks managers to consider adding more options accessible to people with disabilities and to weigh the costs and benefits of opening Upper Park Road for more (or fewer) days of the week, but again does not provide any particular targets or mitigations for road closures that become necessary for parks maintenance. Implementation of the VFMP will not prevent the Parks Division or other project proponents from providing additional accessibility options or from increasing or decreasing the overall availability of Upper Park Road as a route. The BPMMP's "Master Mitigation Monitoring Program" likewise contains no mitigations for transportation impacts, suggesting transportation impacts from construction of the BPMMP's key projects, and from their related vegetation management tasks, were expected to be transient and incidental.

4.17.4 Mitigation Measures

Since impacts are less than significant, no mitigation measures are needed.

4.17.5 Residual Impact(s)

Not applicable.

4.18 TRIBAL CULTURAL RESOURCES

For additional background on the regulatory setting within which Tribal Cultural Resources will be protected and conserved, see section 4.5.

4.18.1 Existing Conditions

The Mechoopda people are recognized as the first people to inhabit the Chico area and its parks. This original relationship to the land is described through the MOU between the City of Chico and Mechoopda Indian Tribe of Chico Rancheria. The MOU states that Mechoopda are to be consulted prior to the development of new open space or land use plans, per SB 18. (AB 52 was not yet law at the time the MOU was signed.) It also sets up the framework for cooperative work between the City and the Tribe to streamline processes for consultation. It also sets up a Tribal Technical Advisor for Native American Consultation in the Department of Planning Services for the City.

Between the BPMMP Appendix D (previously discussed in section 4.5) and the MOU, a framework has been set up for the City of Chico and the Mechoopda Indian Tribe of Chico Rancheria to consult and work together to best protect cultural resources in the City of Chico and all of its open spaces. However, this framework is in the form of outlines, not fully established policies. Through implementation of the VFMP and the frequent tribal consultation it will entail, the City hopes to develop a deeper government-to-government relationship with Mechoopda Tribal government to, in the words of the MOU, “work cooperatively to protect, preserve, enhance, mitigate, and manage archaeological sites, traditional cultural properties, and traditional cultural resources, identified within the jurisdiction and sphere of influence of the City.” (City-Mechoopda Tribe 2008)

Regulatory Setting

Tribal Cultural Resources

CEQA requires lead agencies to consider whether projects will impact tribal cultural resources. PRC Section 21074 states the following:

- a) “Tribal cultural resources” are either of the following:
 - 1) Sites, features, places, cultural landscapes, sacred places, and objects with cultural value to a California Native American tribe that are either of the following:
 - A) Included or determined to be eligible for inclusion in the California Register of Historical Resources.
 - B) Included in a local register of historical resources as defined in subdivision (k) of Section 5020.1.
 - 2) A resource determined by the lead agency, in its discretion and supported by substantial evidence, to be significant pursuant to criteria set forth in subdivision (c) of Section 5024.1. In applying the criteria set forth in subdivision (c) of Section 5024.1 for the purposes of this paragraph, the lead agency shall consider the significance of the resource to a California Native American tribe.
- b) A cultural landscape that meets the criteria of subdivision (a) is a tribal cultural resource to the extent that the landscape is geographically defined in terms of the size and scope of the landscape.
- c) A historical resource described in Section 21084.1, a unique archaeological resource as defined in

subdivision (g) of Section 21083.2, or a “non-unique archaeological resource” as defined in subdivision (h) of Section 21083.2 may also be a tribal cultural resource if it conforms with the criteria of subdivision (a).

California Native American Historical, Cultural, and Sacred Sites Act

The California Native American Historical, Cultural, and Sacred Sites Act applies to both state and private lands. The Act requires that upon discovery of human remains, construction or excavation activity cease and the County coroner be notified. If the remains are of a Native American, the coroner must notify NAHC, which notifies and has the authority to designate the most likely descendant (MLD) of the deceased. The Act stipulates the procedures the descendants may follow for treating or disposing of the remains and associated grave goods.

Health and Safety Code Sections 7050.5 and 7052

Section 7050.5 of the Health and Safety Code requires that construction or excavation be stopped in the vicinity of discovered human remains until the coroner can determine whether the remains are those of a Native American. If determined to be Native American, the coroner must contact the NAHC. Section 7052 states that the disturbance of Native American cemeteries is a felony.

Public Resources Code Section 5097

PRC Section 5097 specifies the procedures to be followed in the event of the unexpected discovery of human remains on non-federal land. The disposition of Native American burial falls within the jurisdiction of the NAHC. PRC Section 5097.5 states the following:

No person shall knowingly and willfully excavate upon, or remove, destroy, injure, or deface any historic or prehistoric ruins, burial grounds, archaeological or vertebrate paleontological site, including fossilized footprints, inscriptions made by human agency, or any other archaeological, paleontological or historical feature, situated on public lands, except with the express permission of the public agency having jurisdiction over such lands. Violation of this section is a misdemeanor.

Public Resources Code Section 21080.3

AB 52, signed by the California Governor in September of 2014, established a new class of resources under CEQA: “tribal cultural resources,” defined in PRC 21074. Pursuant to PRC Sections 21080.3.1, 21080.3.2, and 21082.3, lead agencies undertaking CEQA review must, upon written request of a California Native American Tribe, begin consultation before the release of an environmental impact report, negative declaration, or mitigated negative declaration.

PRC Section 21080.3.2 states:

Within 14 days of determining that a project application is complete, or to undertake a project, the lead agency must provide formal notification, in writing, to the tribes that have requested notification of proposed projects in the lead agency’s jurisdiction. If it wishes to engage in consultation on the project, the tribe must respond to the lead agency within 30 days of receipt of the formal notification. The lead agency must begin the consultation process with the tribes that have requested consultation within 30 days of receiving the request for consultation. Consultation concludes when either: 1) the parties agree to measures to mitigate or avoid a significant effect, if a significant effect exists, on a tribal cultural resource, or 2) a party, acting in good faith and after reasonable effort, concludes that mutual agreement cannot be reached.

If the lead agency determines that a project may cause a substantial adverse change to a tribal

cultural resource, and measures are not otherwise identified in the consultation process, provisions under PRC Section 21084.3(b) describe mitigation measures that may avoid or minimize the significant adverse impacts. Examples include:

- (1) Avoidance and preservation of the resources in place, including, but not limited to, planning and construction to avoid the resources and protect the cultural and natural context, or planning greenspace, parks, or other open space, to incorporate the resources with culturally appropriate protection and management criteria.
- (2) Treating the resource with culturally appropriate dignity taking into account the tribal cultural values and meaning of the resource, including, but not limited to, the following:
 - (A) Protecting the cultural character and integrity of the resource.
 - (B) Protecting the traditional use of the resource.
 - (C) Protecting the confidentiality of the resource.
- (3) Permanent conservation easements or other interests in real property, with culturally appropriate management criteria for the purposes of preserving or utilizing the resources or places.
- (4) Protecting the resource.

4.18.2 Thresholds of Significance and Impacts

In determining the level of significance, the analysis assumes that the program and any projects within its scope would implement the following standard project requirements (SPRs) developed for the program, as well as any other SPRs developed for the program under other resource areas. The analysis also assumes all work would comply with relevant federal and state laws, regulations, and ordinances.

For this section, SPR numbering does not begin with 1, because it is continued from Section 4.5.2.

SPR CUL-6: Gathering of Cultural Materials During Consultation. During consultation with Mechoopda, the project should be described in full so that materials from the project may be collected if desired. Most of the projects currently outlined have some element of vegetation removal. Instead of chipping or throwing vegetation away in green waste, it should be made available to the Mechoopda if they so choose. Parameters on how to do so should be established during consultation. Mechoopda may choose to make those resources available to other interested parties.

SPR CUL-7: Establishment of Ethnobotanical Sites and Gathering Rights. During consultation Mechoopda may be invited out with the archaeologist for surveys if they so choose. During this time ethnobotanical sites may be protected and conserved. If particular ethnobotanical sites are significant due to providing a resource to be gathered, then gathering rights will be established. If ethnobotanical sites are deemed valuable for ceremonial or religious purposes then protections may be made that allows for closures to the public for cultural events.

SPR CUL-8: Mechoopda may send a cultural monitor to be present during any portion of the implementation of any project. Project implementation may not be held up due to cultural monitor scheduling unless the project area has been deemed particularly significant.

Where significance is defined by:

The formal criteria (36 CFR 60.4) for determining NRHP eligibility, as follows:

1. The property is at least 50 years old (however, properties under 50 years of age that are of exceptional importance or are contributors to a district can also be included in the NRHP);

2. It retains integrity of location, design, setting, materials, workmanship, feeling, and associations; and

3. It possesses at least one of the following characteristics:

Criterion A: Association with events that have made a significant contribution to the broad patterns of history (events).

Criterion B: Association with the lives of persons significant in the past (persons).

Criterion C: Distinctive characteristics of a type, period, or method of construction, or represents the work of a master, or possesses high artistic values, or represents a significant, distinguishable entity whose components may lack individual distinction (architecture).

Criterion D: Has yielded, or may be likely to yield, information important to prehistory or history (information potential).

a) Would the project cause a substantial adverse change in the significance of a tribal cultural resource, defined in Public Resources Code § 21074 as either a site, feature, place, cultural landscape that is geographically defined in terms of the size and scope of the landscape, sacred place, or object with cultural value to a California Native American tribe, and that (1) is listed or eligible for listing in the California Register of Historical Resources, or in a local register of historical resources as defined in Public Resources Code § 5020.1(k), or (2) is a resource determined by the lead agency, in its discretion and supported by substantial evidence, to be significant pursuant to criteria set forth in subdivision (c) of Public Resources Code § 5024.1? (In applying the criteria set forth in subdivision (c) of Public Resource Code § 5024.1, the lead agency shall consider the significance of the resource to a California Native American tribe.)

Potentially
Significant
Impact

Less Than
Significant
with Mitigation
Incorporated

Less Than
Significant
Impact

No Impact

☐
☐
☐
☒

The Cal FIRE Native American contact list (Cal FIRE 2020) and CA Native American Heritage Commission contact list (NAHC 2020) identifies the following Tribes and tribal groups as having aboriginal ties to, and interest in, projects that occur in Butte County:

NATIVE AMERICAN HERITAGE COMMISSION
Berry Creek Rancheria of Maidu Indians
Butte Tribal Council
Estom Yumeka Maidu Tribe of the Enterprise
Greenville Rancheria of Maidu Indians
Maidu Cultural and Development Group
Mechoopda Indian Tribe of Chico Rancheria

These Tribes and groups may have sacred sites that are not always identified through archaeological surveys, including cemeteries, places of prayer, and unique geologic features that are important to their creation stories and history. To initiate the process of tribal consultation through which Tribes may confidentially advise other governments of culturally significant sites and how best to avoid or protect them, scoping letters, including a description of the proposed action and an internet link with additional project information was mailed and emailed to the Tribes and groups listed above, as well as the Native American Heritage Commission (NAHC) on Sept 6, 2020.

With input and collaboration from Mechoopda resource managers, the project will enhance living cultural resources (e.g. plants and animals). Cultural SPRs from section 4.5 will be employed and applied to all cultural resources within the project area, including those identified by Tribes as significant. The project would have a positive indirect effect on cultural resources because of reduced potential for high intensity wildfire.

4.18.3 Consistency with Applicable Local Plans

See Section 4.5.3 for additional information.

The BPMMP contains the following items under section 3.5.3, *PARK RESOURCES*:

- *Goal PR-2: Integrate ecological communities, physical and biological resources, and cultural resources with human activities, where appropriate. Use interpretive programs to promote proper stewardship of resources.*
This goal is particularly relevant and realized at Verbena Fields where there are multiple interpretive signs regarding the cultural aspects of the natural resources and landscape, and Mechoopda tribal members already lead volunteer work days, upholding the spirit of the MOU with the City. The VFMP and PEIR provide for further development of this tending relationship, including the eventual reintroduction of cultural fire. With the implementation of the SPRs, the resources

listed above will be protected and enhanced to a state that will merit further interpretive programs.

- *Goal PR-3: Protect natural and cultural resources from human activities, where necessary, based on their environmental and cultural sensitivities.*

This may be one of the more difficult goals set by the BPMMP. The areas that fall under the master management plan are all open to the public, which makes protecting them from human activities more challenging. However the SPR's are set up to protect these resources during vegetation management activities and to establish a stronger framework for collaboration and resource monitoring than has existed in the past. Over time, this framework could lead to more substantial protection for some cultural resources during day-to-day parkland operations, if warranted by resource sensitivity and Tribal direction/policy.

- *I. PR-1. Biological, physical, and cultural resource assessments shall be completed while considering proposed facilities and uses for any area of the Park.*

This PEIR is consistent with this implementation strategy because it incorporates SPRs **CUL-1** and **-2** mandating that Mechoopda will be consulted and cultural assessments will be completed prior to implementation.

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

This PEIR is consistent with this implementation strategy because it incorporates **SPRs CUL-1** and **-2** mandating that Mechoopda will be consulted and cultural assessments will be completed prior to implementation. **SPRs CUL-6** and **-7** provide frameworks for native plant gathering and protection of ethnobotanical sites.

3.5.3.3 CULTURAL RESOURCES:

- *I. CR-6. College and university resources and other groups and organizations should be utilized, as appropriate, to develop cultural resource access policies (information access, physical access) and to implement cultural resource site protection measures.*

This PEIR is consistent with the BPMMP through the implementation of SPR-CUL 2. The records check request and subsequent cultural survey will utilize the college, university and other groups to gain knowledge of the history of the areas being surveyed.

4.18.4 Mitigation Measures

Since impacts would be less than significant, no mitigation is required.

4.18.5 Residual Impact(s)

The desired beneficial residual impact is that more tribal and cultural resources are protected and more of the rights held by the Mechoopda are formally and explicitly established, creating a clear and productive basis for government-to-government collaboration. Mechoopda and the City of Chico have long wanted to establish stronger guidelines around their relationship. Though they have an MOU (City-Mechoopda 2008) and an Outline (i.e., BPMMP Appendix D) for cultural resource management, more concrete guidelines can continue to be established through the implementation of every future activity under this PEIR. No adverse residual impact is expected.

4.19 UTILITIES AND SERVICE SYSTEMS

4.19.1 Existing Conditions

This program will generate woody biomass. The woody byproducts of treatment will consist of brush trimmings, saplings and small tree limbs, some whole trees (particularly invasive trees such as *Ailanthus*), *Arundo* canes. There could also be small amounts of herbaceous waste generated, mostly propagules of invasive species that sometimes need to be removed before treatment to prevent further spread as an unintended consequence of treatment (e.g. milk thistle heads, *Sesbania* pods, piles of yellow star thistle). Depending on the work location, the material can be (a) chipped and broadcasted back onto the treatment area, (b) burned, or (c) transported to a green waste facility where it is either tub-ground into compost feedstock, or landfilled. Invasive plants like arundo are most likely to need to be hauled off to another location to be processed and/or disposed of.

Currently woody biomass (chips, branches, leaves, logs, etc.), can go to 3 locations in Butte County if it cannot be processed on-site:

1. Waste Management's Chico Compost Facility located by the Chico Airport
2. Old Durham Wood located on Oro-Chico Highway
3. Neal Road Recycle and Waste Facility located on Neal Rd.

4.19.2 Thresholds of Significance and Impacts

a) Would the project require or result in the relocation or construction of new or expanded water, wastewater treatment or storm water drainage, electric power, natural gas, or telecommunications facilities, the construction or relocation of which could cause significant environmental effects?	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
				☒

The program will not result in the relocation or construction of any new utilities.

b) Would the project have sufficient water supplies available to serve the project and reasonably foreseeable future development during normal, dry and multiple dry years?	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
	☐	☐	☐	☒

The program is a restoration initiative that will not consume significant amounts of water. Some restoration plantings could be watered for their first year (e.g. post-arundo removal), but the water they consume is expected to be negligible.

c) Would the project result in a determination by the wastewater treatment provider that serves or may serve the project that it has adequate capacity to serve the project's projected demand, in addition to the provider's existing commitments?	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

The program does not involve the use of wastewater or expansion of any facility that currently uses wastewater.

d) Would the project generate solid waste in excess of State or local standards, or in excess of the capacity of local infrastructure, or otherwise impair the attainment of solid waste reduction goals?	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

The program will generate green waste, but not in excess of local capacity. The vast majority of woody vegetation byproducts from treatment activities would be left in place (whole, chipped, or piled and burned). Most of the remainder (e.g., limbs of 8-10" diameter that are too big to chip in place but are not practical to leave on site would go to the airport composting facility. Several roll-off dumpsters' worth of *Arundo* canes per year would be trucked to the Neal Rd facility, a distance of about eight to ten miles from most likely *Arundo* removal sites.

The arundo eradication activities of Project 6 could account for four to ten roll-off (30 yd) containers of Arundo canes being needed to be landfilled per year. Experience has shown that tub-grinding Arundo is not feasible; it needs to be landfilled, unless a biomass-to-energy solution is available. (In Butte County, no woody-biomass-to-energy facility currently exists). Additionally, several pickup-loads of invasive weeds might need to be transported to green waste facility or, if composting operations become temporarily unavailable to safely process invasive weed seeds, they would then need to be landfilled. This small increase in the waste stream would not place a significant strain on any utility or service system.

e) Would the project comply with federal, state, and local management and reduction statutes and regulations related to solid waste?	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

The program will comply with federal, state, and local management reduction statutes and regulations related to organic/green waste. Starting in 2022, California law (SB 1383, Lara, Chapter 395, Statutes of 2016) targets a 50 percent reduction in the landfilling of organic waste in 2022. By 2025, that reduction target is 75 percent. SB 1383 will be implemented in Butte County by the Butte County Department of Public Works (which operates the Neal Rd facility) and Recycle Butte. SB 1383 only affects *Arundo* disposal and some invasive weed propagules because those are the only organic wastes that would be landfilled from the program. As implementing agencies reduce their acceptance of organic waste in line with SB 1383 targets, the City will

comply by diverting *Arundo* waste, etc to either a biochar or outdoor burning destination or to a biomass-to-energy facility, as feasible. Therefore, future activities will be reviewed on a project by project basis to examine compliance with SB 1383, and alternative waste disposal measures such as burning or biomass will be developed as needed. The Project Consistency Checklist will be used to conduct this review.

4.19.3 Consistency with Applicable Local Plans

The Bidwell Park Master Management Plan (EDAW 2008a) contains the following interrelated goals and/or objectives when dealing with invasive plants:

- Reduce existing infestations of invasive plants
- Prevent the spread of invasive plants from current infestation areas into adjacent uninfested areas
- Reduce invasive plant infestations from Park neighbors by enacting an encroachment ordinance that covers both structures and vegetation, similar to the Lindo Channel Encroachment Ordinance
- Enhance and maintain sensitive/special status plant and animal populations by removing invasive plants.

These goals are relevant to this section because in order to accomplish them, it is sometimes necessary to physically remove plant material from the parklands and dispose of it in a phytosanitary way (e.g., a landfill, composting facility, tub grinder, etc). The proposed program will comply with all applicable aspects of SB 1383 as organic waste diversion targets are developed and implemented by Butte County waste handling facilities.

The BPMMP's Vegetation Waste section states that, as of 2008, a majority of the material from downed trees was chipped and used within the Park. Large woody material that could not be chipped was transported to the City's compost facility. The proposed program would continue these practices but also specifies conditions under which downed woody debris should be left in place (**SPR BIO-13**) to provide habitat.

4.19.4 Mitigation Measures

Since impacts would be less than significant as designed, no mitigation measures are needed.

4.19.5 Residual Impact(s)

None applicable.

4.20 WILDFIRE

4.20.1 Existing Conditions

Wildland fire is a natural component of California's ecosystems. All work in fire-adapted ecosystems during fire season carries some risk of exposure to wildfire. To reduce the severity of future fires, managers across the state are seeking ways to increase the pace and scale of re-introduction of prescribed fire (among other management tools). Chico has experienced the same increasing threat from catastrophic wildfire and increase in residential development in the WUI (or adjacent to fire prone habitats) as the rest of fire-adapted California. Understanding the ecological implications of fire in these situations is critical to the development of a fire management plan.

Discussions of wildfire hazard and frequency often center on estimations of the natural fire return interval (FRI), which is sometimes interpreted to count only lightning-ignited fire. In California, it is more useful to speak of the *pre-settlement* fire return interval because the fire regime that shaped Californian natural communities included much fire that was not lightning-ignited. The natural communities that are now Chico parklands evolved with a mix of lightning-ignited fire and also (deliberate, carefully planned) human-led fire. This human-led (or “cultural”) fire was likely ignited at different seasons and under different conditions than most lightning-ignited fire, and shaped vegetation communities in different ways.

The pre-settlement (i.e., pre-1855) fire return interval across Chico parklands is difficult to determine, because (1) fire return interval calculations are usually based on tree scar data, which underestimate fire frequency since not every fire scars every tree, (2) fire return intervals in grasslands are almost impossible to determine with accuracy, and (3) the people who were instrumental in sustaining, and could have accurately reported, the pre-1855 fire return interval were forcibly prevented from managing their lands and transmitting their complete culture to their descendants. U.S. Forest Service estimates place the local pre-settlement FRI at between 5 and 26 years for most of Upper Park (USDA 2012). However, about ⅓ of the South Rim has not experienced a recorded fire since 1911 (FRAP 2019), which, if correct, would mean these lands have missed between 4 and 22 fire returns.

Prescribed or cultural fire and wildfire can all be valuable processes, supporting native species and biological communities while consuming fuels to reduce the severity of future fires. While wildfire is a natural process, and human-led deliberate fire can be a supportive ecological management technique, unwanted and unintentional human-caused fire starts are more likely to pose a risk to public safety and natural resources, particularly under “red flag” conditions. Given the continued population growth within Chico, it is likely that human-caused wildfires will remain common, if not increase, within Chico.

Given the fact that many areas of Bidwell Park are characterized by high fuel loads and steep, irregular topography, it should not be surprising that many parts of the Park are ranked by CalFire as having the potential for extreme wildfire events (CAL FIRE 2007). Potential wildfire behavior in Bidwell Park is summarized in the table below.

Potential Wildfire Behavior Within Bidwell Park			
	LOWER PARK	MIDDLE PARK	UPPER PARK
Surface Fire	10%	60%	25%
Torching Fire	73%	35%	45%
Crown Fire	16%	5%	30%
Source: Deer Creek Resources, 2020			

4.20.2 Thresholds of Significance and Impacts

In determining the level of significance, the analysis assumes that the program and any projects within its scope would implement the following standard project requirements (SPRs), as well as any other SPRs listed elsewhere in this document, developed for the program. It also assumes all work would comply with relevant federal and state laws, regulations, and ordinances.

SPR FIRE-1: Burn plan required for each prescribed fire. A prescribed burn plan will be developed for each proposed prescribed fire prior to implementation.

SPR FIRE-2: Protocol in case of any accidental ignition during program work. If crews accidentally ignite a fire while conducting vegetation management work, they are to call 911 for response from the Fire Department. If the fire's spread is slow and crews can safely extinguish the fire with the tools, water, and fire extinguishers they have on hand, they should attempt to do so. If the fire becomes well-established and the forward spread is clearly beyond control, crews should not engage in firefighting at the head of the fire. If crews are in an area where the location of the fire makes egress impossible, they should move into an area already burned by the fire and wait for conditions to change before attempting to leave the area.

SPR FIRE-3: Work adaptations during "red flag" or high fire danger events.

- (1) During periods of high fire hazard project supervisor shall check the National Fire Danger Rating System (NFDRS) maps at <https://www.wfas.net> daily. If the NFDRS rating for the project area is above 'High', all implementation personnel and contractors shall provide the following equipment: 4BC fire extinguisher or larger on each vehicle, and a complement of fire tools to equip every worker on the project site with at least one tool.
- (2) Every chainsaw operator will carry a fire extinguisher of at least 8oz. Each chipper, mower, or masticator should be equipped with a 4BC fire extinguisher and at least 1 fire tool per operator.
- (3) During NFDRS ratings of 'High' or above, vegetation management crews using chainsaws, masticators, or mowers, should consider working a schedule which starts early in the morning and halts work by 2pm (aka 'hoot-owl').
- (4) During times of high fire hazard, vegetation management crews should not use metal-bladed

weed-eater heads or mowers in dry grass or weeds after 10am.

Above section adapted from the California State Fire Marshall Industrial Operations Fire Prevention Field Guide (1999) <https://osfm.fire.ca.gov/media/8481/fppguidepdf102.pdf>

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
a) If located in or near state responsibility areas or lands classified as very high fire hazard severity zones, would the project substantially impair an adopted emergency response plan or emergency evacuation plan?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

A variety of forest management and fuel reduction techniques, including prescribed burning, will be used to reduce the fuel load of ground fuels, coarse woody debris, as well as a portion of the above ground biomass. The purpose of these proposed treatments is to reduce the risk of large damaging fires by creating conditions that increase the likelihood of low- and moderate-severity fire behavior. These conditions also tend to improve the effectiveness of fire suppression. Thus, if a wildfire does happen to enter an area that was treated, the wildfire may be contained sooner with the reduced area burned at high intensity. The reduced number of acres or fire intensity will have benefits to other resources, including environmental resources, public health, and public and firefighter safety.

The program places such small and incidental demands on local roads and fire protection services that it will not substantially impair an adopted emergency response plan or emergency evacuation plan.

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
b) If located in or near state responsibility areas or lands classified as very high fire hazard severity zones, would the project due to slope, prevailing winds, and other factors, exacerbate wildfire risks, and thereby expose project occupants to, pollutant concentrations from a wildfire or the uncontrolled spread of a wildfire?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

A prescribed burn plan will be developed for each proposed prescribed fire prior to implementation that outlines the parameters (timing, weather, fuel moisture, etc...) necessary to implement the project to ensure that the fire does not escape the project perimeter. Burn plans also identify suppression protocols and contingency resources needed if the fire escapes control. All prescribed fire activities carry a risk of fire escape, but the project design has reduced this risk below a significant level. By conducting burns with highly trained fire professionals on site, the program reduces the risk of wildfire below the level of risk associated with the no-project alternative. Burn prescriptions will be developed for each project which minimize the potential for the fire to spot outside of fire lines. Tree ringing (clearing fuel away from the base of legacy trees, if present) in advance of burning will reduce mortality of designated legacy trees. Perimeter fire lines (roads and existing trails) will be in place and black-line will be added to strengthen control lines as needed. Furthermore, by reducing fuels while leaving slope and other factors unchanged, the project will reduce, not exacerbate the effects of any future wildfire. Project implementers will be trained fire professionals who are routinely exposed to some fire pollutants in the course of their duties, but adequate burn planning and [SPR AIR-1](#) (all prescribed burns

will have a Smoke Management Plan developed in collaboration with BCAQMD) will reduce the health harms to below a level of significance for both fire professionals and area residents alike.

c) If located in or near state responsibility areas or lands classified as very high fire hazard severity zones, would the project require the installation or maintenance of associated infrastructure (such as roads, fuel breaks, emergency water sources, power lines or other utilities) that may exacerbate fire risk or that may result in temporary or ongoing impacts to the environment?	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

The program does not include road maintenance but will require some use of roads, which comes with an extremely small incidental fire risk. If crews accidentally ignite a fire while in the parklands conducting fuels reduction treatment they are to call 911 for response from the Fire Department.

d) If located in or near state responsibility areas or lands classified as very high fire hazard severity zones, would the project expose people or structures to significant risks, including downslope or downstream flooding or landslides, as a result of runoff, post-fire slope instability, or drainage changes?	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

Any firelines constructed to facilitate prescribed burning shall be recontoured following use to reduce any potential for the concentration of rainfall/runoff from firelines, mitigating the hazard of erosion/flooding and landslides resulting from the prescribed fire component of the program. Furthermore, by reducing the likely severity of future fires, the program potentially reduces the future flooding/landslide hazard to people and structures downstream, compared to the no-project alternative.

4.20.3 Consistency with Applicable Local Plans

The Bidwell Park Master Management Plan (EDAW 2008a) contains the following relevant items:

- *I.PF-1. The need for and location of prescribed burning and related vegetation management shall be determined to reduce catastrophic fire risk and to enhance habitat quality.*
The program is consistent with this implementation strategy because it bases its program of work on a detailed wildfire hazard assessment conducted by Deer Creek Resources in 2020, compiled from LiDAR data, aerial imagery, and field surveys.
- *I.PF-2. The fire management guidelines contained in Section 5 of the Natural Resources Management Plan (Appendix C) shall be implemented.*
The fire management guidelines in Section 5 of the NRMP establish wildfire prevention, fuels management, wildfire detection and reporting, and wildfire pre-suppression and suppression actions the City should undertake.

For wildfire prevention, the NRMP suggests the City should appoint a fire prevention officer whose duties include increasing coordination and communication with local fire agencies as well as developing educational programs on fire safety for the public. Additionally, the City should place signs indicating fire danger status at key points within the Park. The Program does not do either of those things but it does not obstruct them from being done. Finally, the NRMP states the City should continue to coordinate with Pacific Gas & Electric's (PG&E's) efforts to clear vegetation around power transmission lines within the Park as well as ensuring vegetation clearance within and around areas the public is likely to congregate. The VFMP contains specific standards for defensible space around various parkland infrastructure (VFMP section 4.2.)

For fuels management, the NRMP suggests "the Park Division should develop a fuels management program." That fuels management program is the VFMP and this PEIR. The NRMP goes on to say that 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. The VFMP fulfills this strategy via development of the Deer Creek Resources LiDAR-based wildfire risk assessment map (VFMP section 6.1). The NRMP states, "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. Although prescribed burning is one method of fuel reduction, other techniques may also be appropriate. Other techniques to consider include mechanical methods (e.g., chaining, mastication), biological methods (e.g., goat grazing), and chemical methods (e.g., herbicide applications)." The VFMP and this PEIR prioritize invasives for removal over natives and establish an "order of operations" by which crews will remove highest-priority invasives first, then less ecologically damaging non-natives, then (if needed) native plants, until acceptable fuel loading standards are met.

The NRMP goes on to state, "*Fuel management treatments designed specifically to protect oak woodlands should focus on removing fuels at the base of oak trees. (Note, however, that potential adverse effects to sensitive resources, such as Butte County checkerbloom which frequently grows around the base of oak trees, should also be taken into consideration.) Some of the most problematic fuels are small-diameter dead wood not in contact with the ground and thick, waxy or resinous leaves such as those of buckbrush, toyon, bay (Umbellularia californica), manzanita, scrub oak, interior live oak, and conifers (needles). These fuels generate enough quick heat to kill mature oak woodland trees, which, in the absence of those fuels, are seldom substantially damaged or consumed in a wildfire. An equally bad source of fire damage comes from slow-burning ground fuels like duff or dry logs that often accumulate on the uphill side of trees and generate localized heat for long periods after the passing of the fire front. Fuels management efforts should focus on removing these types of fuels from selected areas of the Park, subject to available funding.*"

The NRMP states, "*Whenever possible, fuels treatments should be designed to produce multiple benefits (e.g., reduce wildfire risk, improve plant and wildlife habitat, remove invasive plants, protect sensitive resources).*" By emphasizing fuels treatments that redress the historic exclusion of frequent low-severity fires, the VFMP and this PEIR have been designed to result in projects that produce multiple co-benefits for natural resources and public safety.

For wildfire detection and reporting, the NRMP speculated that improvements in cell phone coverage would eventually reduce wildfire reporting times as citizens became able to call in fires themselves. The NRMP suggested that instructions for reporting a wildfire be posted at high-use locations around Bidwell Park.

For wildfire pre-suppression and suppression, the NRMP offered a number of suggestions about how CFD and Parks staff can continue to cooperate to share the responsibility for responding to fires and keeping parks users safe. None of these recommendations pertain to vegetation management or are hindered by the vegetation management activities of the Plan.

- *I. PF-3. A prescribed burn program which includes post-burn monitoring and adaptive management should be developed to determine long-term habitat and ecosystem effects, to evaluate the success in meeting objectives, and to make adjustments to the program to improve successes and reduce detrimental effects.*
Prescribed fire is a cyclical process, and the need to plan for multiple re-entries provides opportunities to monitor the effects of past fires and plan to improve results next time. By providing programmatic standards and programmatic environmental review for prescribed burning, the VFMP and this PEIR encourage repeat treatments and facilitate monitoring.

4.20.4 Mitigation Measures

Since impacts would be less than significant as designed, no mitigation measures are needed.

4.20.5 Residual Impact(s) Not applicable

4.21 MANDATORY FINDINGS OF SIGNIFICANCE

This section of the CEQA checklist is designed to prevent significant impacts from being overlooked just because they may not have fit smoothly into any other resource topic. It contains questions that must be analyzed for every project, regardless of project type.

4.21.1 Existing Conditions

Chico is a city planted on a fire-adapted landscape. Just as coastal cities have little choice but pay attention to tides and coastal storms, Butte County land managers and residents have little choice but to attend to the arrangement of fuels in their environment. Fuels management techniques, such as prescribed fire and mechanical thinning, all have some impacts, but choosing to interact with fire only by suppressing it also has profound environmental and public safety impacts. Because vegetation is not static, but continues to grow and accumulate fuel until it burns unless humans intervene first, it makes little sense to compare the impacts of a planned restoration program to existing conditions on the day of analysis. Rather, the impacts or outcome of a restoration program should be compared to future conditions that are reasonably foreseeable if the program is not undertaken.

4.21.2 Thresholds of Significance and Impacts

a) Would the project have the potential to substantially degrade the quality of the environment, substantially reduce the habitat of a fish or wildlife species, cause a fish or wildlife population to drop below self-sustaining levels, threaten to eliminate a plant or animal community, substantially reduce the number or restrict the range of an endangered, rare, or threatened species, or eliminate important examples of the major periods of California history or prehistory?	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

No. The implementation of the proposed land management techniques and careful, deliberate reintroduction of fire is expected to promote biodiversity as it has done on other projects in comparable vegetation communities in the Big Chico Creek and neighboring watersheds. The program will result in some species being less abundant and some being more abundant, but these shifts in abundance will be within the natural range of variation and will not lead to listing of any species. Careful study has resulted in a program design extremely unlikely, in the opinion of wildlife and botany specialists, to substantially degrade the quality of the environment, substantially reduce the habitat of a fish or wildlife species, cause a fish or wildlife population to drop below self-sustaining levels to eliminate a plant or animal community, or substantially reduce the number or restrict the range of a rare or endangered plant or animal.

The program, with SPRs and tribal consultation incorporated, will reintroduce a Native American land management tool to the landscape while not eliminating any important examples of the major periods of California history or prehistory.

b) Would the project have impacts that are individually limited, but cumulatively considerable? (“Cumulatively considerable” means that the incremental effects of a project are considerable when viewed in connection with the effects of past projects, the effects of other current projects, and the effects of probable future projects.)

Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

The program is part of a wider socio-ecological movement to reduce woodland density and rekindle human-led fire across Butte County, the Sierra Nevada, and the fire-adapted West. Wide-scale fuels density reduction and reintroduction of prescribed fire is a stated goal of the State of California, as expressed in objectives of the City of Chico (e.g., Bidwell Park Master Management Plan), California Board of Forestry/CAL FIRE, the Sierra Nevada Conservancy, the Natural Resources Agency, and numerous other agencies. The cumulative effects of this wide-scale vegetation management movement are expected to be, overall, ecologically positive, and to generally reflect the effects and impacts analyzed above across the twenty resource topics of this PEIR. Notable cumulative impacts could include:

- Some species will be less abundant statewide. This is not necessarily a negative impact. In general, most species that will lose abundance are currently very abundant, in some cases so much so that their very abundance is considered detrimental to local ecologies and/or biodiversity. These species that will lose abundance belong to the small group of California native species that are adapted to take advantage of current conditions, i.e. long-term fire suppression and/or levels of woodland density and shading that are significantly higher than the historical range of variation in most areas. Many, perhaps most, Sierra Nevada foothills native species are not adapted to thrive in current conditions. On the contrary, their potential for abundance or health is being suppressed by current conditions. For this reason, the expected cumulative impact of the statewide vegetation management movement for *most* Sierra Nevada foothills species that are currently rare is that some will stay about as rare (with the incorporation of SPRs and mitigation measures) while others will become more abundant.
- Some drainages could experience transient peaks in siltation. The hydrology of a watershed can be impacted by vegetation management in at least two ways: first, prescribed fire on sloping lands can result in a transient peak in sediment runoff the following wet season; and second, reducing the density of woody vegetation in a watershed can lead to more of the rainfall in that watershed joining streams as runoff. This can increase streamflows. Higher streamflows could erode banks and carry more sediment to the sea, unless vegetation (such as grassland or wetland sinks) intercepts them first and slows the flows down. The proposed program incorporates SPRs to reduce unwanted siltation from prescribed fire activities. However, it takes place in the context of a statewide movement to reduce the density of woody vegetation across most of California, and a cumulative effect of this movement could be to increase winter streamflows, perhaps causing them to trend back toward higher levels characteristic of late nineteenth-century streamflows.
- Air quality impacts could be felt, especially by sensitive populations. While the proposed program incorporates smoke management plans to reduce impacts from smoke on sensitive receptors, the program takes place in a context of statewide increases in smoke that could

have cumulative impacts on sensitive receptors. However, air quality impacts from deliberate vegetation management through prescribed and cultural fire will be less than significant when compared to the likely catastrophic air quality impacts of continuing to suppress wildfire and human-led fire as has been done for the last century.

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
c) Would the project have environmental effects that would cause substantial adverse effects on human beings, either directly or indirectly?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
This program does not have environmental effects which will cause substantial adverse effects on human beings.				

4.21.3 Consistency with Applicable Local Plans

All applicable local plans have been analyzed above in the preceding twenty resource topics.

4.21.4 Mitigation Measures

Since impacts would be less than significant, no mitigation measures are needed.

4.21.5 Residual Impact(s) Not applicable.

5.0 EIR PREPARERS

City of Chico, Public Works Department, Parks Division

Linda Herman Park and Natural Resources Manager
Shane RomainPark Services Coordinator

Consultants and Contributors

Wolfy Rougle, M.P.A.Conservation Project Coordinator, Butte County RCD
Rhianna Dutra, RPF (#3098)..... CSU, Chico Ecological Reserves
Eli Goodsell, M.....Director, CSU Ecological Reserves
Trevor Ramsey..... Field technician, CSU Ecological Reserves
Paul Lackovic GIS Manager, Deer Creek Resources
Zeke Lunder.....Pyrogeographer, Deer Creek Resources
Spencer HolmesGIS Specialist, Deer Creek Resources
Lillian Trejo..... Field technician, Deer Creek Resources
Carrie Wendt, M.S. Wildlife Biologist, Point Blue Conservation Science
Trevor ShermanConsulting Technician, Butte County Fire Safe Council
Diane McCombs, R.P.A.Owner, McCombs Archaeological Services
Jim Dempsey, M.S..... Owner, Dempsey Vegetation Management
California Pest Control Business lic. #38907, Qualified Applicator License #104070 in Categories ABCEF

6.0 REFERENCES

- Ascent Environmental. 2020 (April). “[Draft] Tahoe Program Timber Environmental Impact Report.” State Clearinghouse No. 2019069054. Prepared for CAL FIRE and Tahoe Fire and Fuels Team.
- BCRCD (Butte County Resource Conservation District). 2020 (April). “Initial Study-Mitigated Negative Declaration for the proposed Big Chico Creek Forest Health Restoration Project, Butte County, California.” Lead author: Tim Keesey. Prepared on behalf of landowners and Butte County Fire Safe Council.
- Bolsinger, C.L. 1989. Shrubs of California Chaparral, Timberland, and Woodland: Area Ownership, and Stand Characteristics. Resource Bulletin PNW-RB-160. Portland, OR: U.S. Department of Agriculture, Forest Service, Pacific Northwest Research Station. 50 p.
- Butte County. 2018. The Butte County 2030 General Plan. Available online at <https://www.buttecounty.net/dds/Planning/GeneralPlan/Chapters> . Adopted (County Resolution 10-152, Final EIR Certified under Resolution 10-150): October 26, 2010. Amended (County Resolution 12-124, Supplemental Final EIR Certified under Resolution 12-123): November 6, 2012.
- California Department of Forestry and Fire Protection (CAL FIRE) Native American Contact List 2020 (January). Butte County.
- California Moss eFlora. 2020. Searchable at https://ucjeps.berkeley.edu/CA_moss_eflora/. A project of the University Herbarium, University of California, Berkeley.
- CAL FIRE. 2007. “State Responsibility Area Fire Hazard Severity Zone Maps: Butte County”. Office of the State Fire Marshal. Available online at <https://osfm.fire.ca.gov/divisions/wildfire-planning-engineering/wildland-hazards-building-codes/fire-hazard-severity-zones-maps/>
- CAL FIRE and Tahoe Fire and Fuels Team. 2020 (April). Draft Tahoe Program Timberland Environmental Impact Report. Prepared with the technical assistance of Ascent Environmental.
- CalFlora. 2020. “Calflora: information on wild California plants.” Searchable online at <https://www.calflora.org/>.
- CARB (California Air Resources Board). 2020a. 2020 Edition, California Greenhouse Gas Emission Inventory: 2000 – 2018: Trends of Emissions and Other Indicators. Available online at <https://ww2.arb.ca.gov/ghg-inventory-data>.
- CARB (California Air Resources Board). 2020b. “California Wildfire Burn Acreage and Preliminary Emissions Estimates.” Available online at <https://ww2.arb.ca.gov/wildfire-emissions>.

- CCH2 (California Consortium of Herbaria). 2020. "Specimen Data from the Consortium of California Herbaria.". Available online at <https://www.cch2.org/portal/index.php> .
- CDFW (California Department of Fish and Wildlife). 2012 (March 7). Staff report on burrowing owl mitigation. Unpublished report. Sacramento, California, USA. Viewable online at <https://nrm.dfg.ca.gov/FileHandler.ashx?DocumentID=83843&inline=true>
- CDFW. 2020. California Natural Diversity DataBase (<https://apps.wildlife.ca.gov/bios/?tool=cnddbQuick>) custom search for quads: Vina, Richardson Springs NW, Campbell Mound, Cohasset, Stirling City; Foster Island, Nord, Richardson Springs, Paradise West, Paradise East; , Hamilton City, Ord Ferry, Chico, Hamlin Canyon, Cherokee; and Glenn, Llano Seco, Nelson, and Shippee.
- CFD (Chico Fire Department). 2018. "C.A.N. Report (Chief's Bi-Annual Report), Vol. 1." Available online at <https://www.chico.ca.us/sites/main/files/file-attachments/bi-annualreportjan-june2018finalwgoodlink.pdf?1577086381>.
- CNLM (The Center for Natural Lands Management). 1996 (December). "Land Management Plan for the City of Chico Doe Mill Butte County Meadowfoam Preserve". Prepared for City of Chico Planning Division.
- CNPS (California Native Plant Society), Rare Plant Program. 2020. Inventory of Rare and Endangered Plants of California (online edition, v8-03 0.39). Website <http://www.rareplants.cnps.org> [accessed 29 November 2020]
- CSFM (California State Fire Marshal). 1999. Industrial Operations Fire Prevention Field Guide <https://osfm.fire.ca.gov/media/8481/fppguidepdf102.pdf>
- City of Chico. 2012 (Sept. 24). City of Chico 2020 Climate Action Plan. Prepared by: Linda Herman and Fletcher Alexander and City of Chico General Services Department. Available online at <http://chicosustainability.org/climate-action/climate-action-plan/>
- City of Chico. 2015. Adaptive Wet Weather Trail Management Plan (Revised 2015). Bidwell Park, Chico, California. December 3, 2015. Public Works Department, Parks Division. Chico, California.
- City of Chico. 2017 (last amended). "Chico 2030 General Plan." Originally published 2011. Available online at <https://www.chico.ca.us/post/chico-2030-general-plan>.
- City of Chico. 2020a (Sept. 22). "Homeless Opportunities Plan." PowerPoint presentation, City Council meeting, Agenda item 2.1. With accompanying staff report prepared by Suzi Kochems, Homeless Services Coordinator.
- City of Chico. 2020b (Nov. 21). "Fire Incidents, September 2020" and "Significant Incidents, October 2020." Internal data, Parks Division (unpublished).
- City of Santa Barbara. 2004 (February). Draft Environmental Impact Report, Wildland Fire Plan. Community Development Department and Fire Department. Prepared with the technical assistance of URS Corporation. 160 pp.

- CSURF: California State University Research Foundation. 2000. A Resource Inventory of Upper Bidwell Park Expansion Area. Prepared for the City of Chico, Park Division.
- CVRWQCB (Central Valley Regional Water Quality Control Board). 2018. “The Water Quality Control Plan (Basin Plan) for the California Regional Water Quality Control Board Central Valley Region: The Sacramento River Basin and the San Joaquin River Basin.” Fifth Edition: revised May 2018 (with amendments).
- David, A. T., Asarian, J. E., & Lake, F. K. 2018. Wildfire smoke cools summer river and stream water temperatures. *Water Resources Research*, 54, 7273–7290.
<https://doi.org/10.1029/2018WR022964>
- Dennison, Bill, and Dave Nopel. 1998. Logging, Lumber, and Livelihood in a Small Corner of the West: Butte Meadows, Chico, Meadows, and Jonesville, CA. Chico, Butte Meadows – Jonesville Community Association.
- DPR (Department of Pesticide Regulation). 2007. “Restricted Entry Intervals.” Bulletin ENF-001 (Rev. 7/07). Available online at https://www.cdpr.ca.gov/docs/enforce/bulletins/rei_doc.pdf.
- DPR (Department of Pesticide Regulation). 2015. “Pesticide Use Enforcement Program Standards Compendium, Volume 3, Restricted Materials and Permitting.” Last revised Feb, 2015 and available online at https://www.cdpr.ca.gov/docs/enforce/compend/vol_3/chap3.pdf
- DTSC (California State Department of Toxic Substances Control). 2011. “A Draft Amended Remedial Action Plan for Chico Municipal Airport is Available for Public Review.” Available online at https://dtsc.ca.gov/wp-content/uploads/sites/31/2017/11/ChicoMunicipalAirport_FS_AmendedD RAP_0311.pdf.
- EDAW. 2008a. Bidwell Park Master Management Plan. Prepared for City of Chico. Available online at <https://chico.ca.us/post/bidwell-park-master-management-plan>
- EDAW. 2008b. Bidwell Park Master Management Plan Update, including Trails Plan, Horseshoe Lake area concept plan, and Cedar Grove Area concept plan projects, Program Environmental Impact Report master mitigation monitoring program.” Available online at <https://chico.ca.us/sites/main/files/file-attachments/bpmmpmitigationprogram.pdf?1578446648>
- FRAP (Fire and Resource Assessment Program). 2019. “Firep19_1” and “Rxburn19_1”. Geospatial vector data compiled by CAL FIRE, USFS, BLM, NPS, and local agencies. Available from <https://frap.fire.ca.gov/frap-projects/fire-perimeters/>.
- Hankins, Don L. 2015. Restoring indigenous prescribed fires to California oak woodlands. In: Standiford, Richard B.; Purcell, Kathryn L., tech. cords. Proceedings of the seventh California oak symposium: managing oak woodlands in a dynamic world. Gen. Tech. Rep. PSW-GTR-251. Berkeley, CA: U.S. Department of Agriculture, Forest Service, Pacific Southwest Research Station: 123-129
- ISD (Institute for Sustainable Development) at CSU, Chico. 2015. “City of Chico, CA Community-Wide Greenhouse Gas Emissions Inventory, 2005 - 2012.” Prepared by Fletcher Alexander and

collaborators.

Jacobs, Margaret D. 1997. "Resistance to Rescue: The Indians of Bahapki and Mrs. Annie E. K. Bidwell".

University of Nebraska-Lincoln Faculty Publications, Department of History. 16.

<https://digitalcommons.unl.edu/historyfacpub/16>

Jepson eFlora. 2020. Searchable at <https://ucjeps.berkeley.edu/eflora/>. A project of the Jepson Herbarium, University of California, Berkeley.

National Prescribed Fire Act of 2020, S. 4625, 116th Cong., § 2 (2020).

North, Malcolm. Apr. 5, 2019. "Fire and Reforestation in California." PowerPoint presentation to Spring 2019 Fire MOU Partnership meeting, held 9 am-5 pm at McClellan Wildfire Training Center. Organized by California Fire Science Consortium.

Riddell, F.A. 1978 Maidu and Konkow. In Handbook of North American Indians: California 8:370-386. Smithsonian, Washington.

Roche, James W., Ma, Qin, Rubgee, Joseph, and Roger C. Bales. 2020. Evapotranspiration mapping for forest management in California's Sierra Nevada. *Frontiers in Forests and Global Change*, 30 June 2020. <https://doi.org/10.3389/ffgc.2020.00069>

Stephens, Scott L.; Martin, Robert E.; and Nicholas E. Clinton. 2017. Prehistoric fire area and emissions from California's forests, woodlands, shrublands, and grasslands. *Forest Ecology and Management* 251 (2007) 205–216.

SWRCB (State Water Resources Control Board). 2020. Geotracker website for operational unit SL185282854; accessible online at https://geotracker.waterboards.ca.gov/profile_report.asp?global_id=SL185282854

TrailLabs Co. 2020. "DRAFT REPORT: Upper Bidwell Park Baseline Trail Condition Surveys: Summary of Findings." Draft presented for review by the Bidwell Park and Playgrounds Committee at its Sept. 28, 2020 meeting. Available online at https://www.chico.ca.us/sites/main/files/file-attachments/complete_bppc_packet_public_20_0928.pdf?1601058960.

USCB (United States Census Bureau). 2019. "City and town population totals: 2010-2019." Accessible on the Internet at <https://www.census.gov/data/tables/time-series/demo/popest/2010s-total-cities-and-towns.html>

USDA -Forest Service – Pacific Southwest Research Station. 2012. "FRID_2012." Vector digital data developed at McClellan, CA: Remote Sensing Lab. Available for GIS download at <http://www.fs.usda.gov/detail/r5/landmanagement/gis/?cid=STELPRDB5327836>.

USFWS. 1996. Programmatic Formal Endangered Species Act Consultation on Issuance of 404 Permits for Projects with Relatively Small Effects on Listed Vernal Pool Crustaceans Within the Jurisdiction of the Sacramento Field Office, California. Service File No. 1-1-96-F-1. U. S. Fish and Wildlife Service, Sacramento Field Office, CA. February 19, 1996.

- USFWS (U.S. Fish and Wildlife Service). 2005. Recovery Plan for Vernal Pool Ecosystems of California and Southern Oregon. Portland, Oregon. xxvi + 606 pages.
Available online at <https://fws.gov/sacramento/es/Recovery-Planning/Vernal-Pool/>.
- USFWS. 2017. Framework for Assessing Impacts to the Valley Elderberry Longhorn Beetle (*Desmocerus californicus dimorphus*). U.S. Fish and Wildlife Service; Sacramento, California. 28 pp.
- USFWS (U.S. Fish and Wildlife Service). 2020 (Sept. 18). "IPaC Resource List." Custom generated for shapefile of City of Chico VFMP footprint.
- Wells, Michael & Hathaway, Stacie & Simovich, Marie. 1997. Resilience of anostracan cysts to fire. *Hydrobiologia*. 359. 199-202. 10.1023/A:1003129929767.
- West Yost Associates. 2017 (Aug. 24). "City of Chico Storm Water Resource Plan Water Quality Technical Memorandum." By Natalie Muradian.
- West Yost Associates. 2018 (August). "City of Chico Stormwater Resource Plan." Prepared for City of Chico; Project No. 755-10-17-01. Available online at https://www.chico.ca.us/sites/main/files/file-attachments/chico_swrp_final_-_nov_2018_for_posting_red.pdf?1602190942.

Appendix A



Project Consistency Checklist

PROJECT CONSISTENCY CHECKLIST

A. 1 INTRODUCTION

The City of Chico Vegetative Fuels Management Plan (VFMP) Programmatic Environmental Impact Report (PEIR) provides for the implementation of land management and fuel reduction activities and associated environmental protections that would occur within the approximately 6,400-acre program area to reduce catastrophic wildfire risks and improve parklands health and resiliency. The later treatment activities covered by the PEIR, as well as details about the program area, are described in Chapter 2, “Program Description” of the PEIR and in Chapter 4 of the VFMP. The PEIR has been prepared under the direction of the lead agency, City of Chico, in accordance with the requirements of the California Environmental Quality Act (CEQA) (Public Resources Code [PRC] Section 21000 et seq.) and the State CEQA Guidelines (California Code of Regulations [CCR], Title 14, Section 15000 et seq.). The document was prepared in coordination with the California Department of Forestry and Fire Protection (CAL FIRE), the Butte County Resource Conservation District, and the Big Chico Creek Ecological Reserve, a neighboring land manager with a role in managing vegetation and wildfire fuel in the Big Chico Creek canyon upstream from City of Chico lands. The PEIR functions as a Program EIR in accordance with State CEQA Guidelines Section 15168 for CEQA review of later treatment activities. Each project implemented using the PEIR is subject to CEQA. Because no projects contemplated in the Plan have a commercial purpose, none are subject to the Z’berg-Nejedly Forest Practice Act (FPA) or the California Forest Practice Rules (CFPR).

Before implementing a future activity as part of the VFMP, the City of Chico or other project proponents will use the Project Consistency Checklist below to determine whether or not the future activity is a later activity within the scope of the analysis in this PEIR or requires its own independent environmental review (State CEQA Guidelines Section 15168[c]). The Project Consistency Checklist will be used:

- to document the evaluation of the site and the resources present;
- to evaluate each later treatment activity intended to implement the PEIR to determine whether the later treatment activity is consistent with the description of treatment methods contained in the PEIR, is within the geographic limits of the program area, and whether the effects on the environment were examined in the PEIR (State CEQA Guidelines Section 15168[c][1]).
- to evaluate whether the later treatment activity would
 - (1) cause any new impact not discussed in this PEIR,
 - (2) cause any substantially more severe *significant or cumulative* impact than was addressed in the PEIR, or
 - (3) identify an effective new mitigation measure or alternative that is substantially different from those in the PEIR or found infeasible in the PEIR, but that now is feasible, and that the City declines to implement (State CEQA Guidelines Section 15162[a]).

If the proposed activity’s effects on the environment were examined in the PEIR and none of the above-outlined outcomes are determined, the impacts of the later treatment activity can be found to be within the scope of this PEIR, and the City of Chico may approve the activity using the PEIR without any additional environmental document (State CEQA Guidelines Section 15168[c][1], [2], and [4]).

If a later treatment activity would have effects that were not examined in this PEIR, this checklist would serve as the initial study to determine whether the new impact would require preparation of an EIR, MND, or ND. The determination as to whether an ND, MND, or EIR is required for impacts that are not within the scope of this PEIR is subject to the “fair argument” standard. (Under this standard, an EIR is required when there is a fair argument, based on substantial evidence in the record, that the proposed treatment project may have a significant effect on the environment.) If a later analysis is required, it may tier from the PEIR where additional analysis is not required as provided in State CEQA Guidelines Section 15152.

Even if they are within the scope of this PEIR, later treatment activities could still require permits or approvals from other state, regional, or local agencies (e.g., California Department of Fish and Wildlife, Department of Water Resources), which are described in Section 2.6, “Required Permits and Approvals,” of the PEIR. SPRs in this PEIR require the City or project proponent to secure these permits or approvals before implementation.

A. 2.1 Documenting Whether a Proposed Treatment is Within the Scope of the PEIR

A proposed vegetation management or fuel reduction activity is within the scope of the PEIR when it meets all of the following qualifications:

- ▶ Treatment Methods. The proposed treatment methods are consistent with the treatment methods described in Chapter 2, “Program Description” of the PEIR.
- ▶ Geographic Area. The proposed treatment site is within the geographic limits of the program area described in Chapter 2, “Program Description” of the PEIR.
- ▶ Environmental Impacts. The environmental effects of the proposed treatment have been covered in the PEIR and none of the criteria for preparation of subsequent CEQA documentation are met (State CEQA Guidelines Sections 15168(c)(2), 15162).

A. 2.2 Documenting Whether Impacts of a Proposed Treatment are Within the Scope of the PEIR

For the checklist to adequately document the impacts that are within the scope of this PEIR and do not require additional CEQA review and documentation, the checklist must demonstrate the following:

- ▶ Relevant PEIR Analysis. Identify the specific sections and impact numbers from this PEIR that contain information relevant to the proposed treatment activity.
- ▶ Additional Studies Prepared and References Cited. Attach to the completed checklist any site-specific studies, reports, and survey results used in support of the within-the-scope finding or impact significance determination, if less severe than that identified in the PEIR. Include copies of references cited in the checklist, which will be made available to the public by the project proponent upon request.
- ▶ Standard Project Requirements. For all projects, identify each SPR that is relevant to the treatment, which will demonstrate that the SPR will be integrated into treatment design.

► **Environmental Impacts.** Identify which impacts in the PEIR would occur from implementation of the later treatment activity. Because the intent of the PEIR is to disclose any and all potentially significant impacts that are reasonably foreseeable to occur from any of the treatments within the program area, it is expected that, due to site-specific conditions, many proposed vegetation management or fuel reduction projects will result in impacts less severe than those identified in the PEIR. If an impact identified as potentially significant in the PEIR would be less than significant for the later treatment project, the project proponent may demonstrate with substantial evidence in the checklist that the project impact is less than significant and mitigation measure(s) are not needed. Alternatively, a project proponent may rely on the impact significance determination in the PEIR, and, for potentially significant impacts, apply the relevant mitigation measures.

Environmental effects of a future activity are not necessarily limited to those identified in the checklist, which merely lists all effects disclosed in this PEIR. For this reason, the checklist includes a space for the consideration of “New Impacts” under each resource area. The small amount of space provided under “New Impacts” is not intended to suggest new impacts would not or could not be found; the checklist is intended to be filled out electronically, so users will be able to add as much space as they need.

► **Mitigation Measures.** Identify each mitigation measure from the PEIR that is relevant to the proposed treatment activity. In the checklist, explain any components of the mitigation measures that are not applicable to the treatment. For any significance determination that is different than the PEIR, describe how each measure will address site-specific conditions and reduce the impact of the proposed treatment activity.

A. 2. 3 Providing Substantial Evidence

The impact determinations and within-the-scope findings in the checklist, as well as any explanation for planned deviations, identified parameters, or feasibility determinations associated with SPRs and mitigation measures, must be based on substantial evidence. (“Substantial evidence” is defined in Section 15384(b) of the CEQA Guidelines as “facts, reasonable assumptions predicated upon facts, and expert opinion supported by facts”). Therefore, the checklist will include analytical discussions of the conclusions reached. Discussions need not be lengthy, but they must be sufficient. Portions of the PEIR relied on for conclusions should be identified by section number and, if applicable, impact number, SPR number, etc. Ancillary information (e.g., site-specific surveys) not included in the PEIR but relied on for conclusions or required by PEIR measures will be attached to the completed checklist. A list of references cited in the checklist that are not cited in the PEIR will be included with the checklist.

STANDARD PROJECT REQUIREMENTS, MITIGATION MEASURES, AND MONITORING AND REPORTING

The analysis must consider the measures identified in the VFMP PEIR that will avoid, reduce, or otherwise mitigate potential impacts of the project. These measures take the form of SPRs and mitigation measures. Some SPRs and mitigation measures apply to all projects, while others only apply to projects that include specific treatment methods or locations. Section 3.4 of this PEIR provides a comprehensive list of SPRs and mitigation measures applicable to each treatment method.

Some SPRs need to be applied during preparation of the checklist (primarily SPRs BIO-1-4). To help the person who is completing the checklist, checklist questions based on these SPRs have been inserted in front of the impact analysis table.

Other SPRs need to be applied prior to treatment (e.g., SPR HAZ-3), during treatment implementation (e.g., SPRs HYDRO-4, -5, and -6) or immediately after treatment as a step in mop-up (e.g., SPR HAZ-4). The checklist is designed to help the City or project proponent organize all these SPRs into one place.

Next, the project proponent should complete a Mitigation Monitoring and Reporting Program (MMRP) for the treatment activity that would verify that all applicable SPRs and mitigation measures will be implemented, specify the timing of implementation for each, and identify the entity responsible for implementing and verifying or enforcing each measure. The MMRP should be included as an attachment to the checklist.

RESOURCE AREAS

The environmental resource areas in the checklist are the same as those analyzed in Chapter 4, “Environmental Impacts and Mitigation Measures,” of the PEIR. For each resource area, the project proponent will consider:

- 1.) which impacts apply to the activity, based on the type of activity and the location;
- 2.) which SPRs apply to the activity, based on the type of activity and the location;
- 3.) which MMs apply to the activity, if any, based on the type of activity and the location;
- 4.) whether required SPRs (and/or mitigation measures) listed in the PEIR would be effective in avoiding, reducing, or mitigating environmental impacts of the future activity. (Again, this consideration will take into account the proposed activities and the specific resources on the proposed activity site(s).)
- 5.) Whether the remaining impacts, if any, are more significant than in the PEIR *AND*
- 6.) Whether the proposed activity could have any new impacts not listed in the PEIR.

Written explanations supporting all conclusions should be provided in the discussion following the checklist questions for each resource area. The “discussion” need not be lengthy, only sufficient to justify why the future activity would or would not have impacts not analyzed in the PEIR.

The checklist questions presented for each resource area identify, for each impact addressed in the PEIR, whether the impact applies to the later treatment activity and if so, identify the SPRs and/or mitigation measures that are applicable to the treatment activity. The checklist is also intended to identify whether the impact significance determination for the treatment activity is different than the impact significance determination in the PEIR. If it is different, the checklist will identify whether the difference constitutes a substantially more severe significant impact and is therefore not within the scope of the PEIR.

If it is determined that a substantially more severe significant impact that cannot be mitigated to a less-than-significant level would result from a later treatment activity, an EIR must be prepared. However, if one or more new mitigation measures incorporated into the project would mitigate the effects to a less-than-significant effect on the environment, then preparation of an MND would be appropriate. The ND, MND, or EIR may be limited to examining the impacts that are not within the scope of the PEIR and may tier from the PEIR where additional analysis is not required as provided in State CEQA Guidelines Section 15152.

“New” impacts are effects on the environment that were not addressed in the PEIR. For each new impact listed in the checklist, the project proponent should indicate whether the impact would be one of the following:

- ▶ New Impact that is Less Than Significant: The project would result in a new impact that is not analyzed in the PEIR; however, the impact would not be significant. In this case, the impact is not “within the scope” of the PEIR and, pursuant to CEQA Guidelines Section 15168(d), a subsequent ND could be prepared to document the new impact and substantial evidence supporting the less-than-significant conclusion, along with the checklist documenting the rest of the “within-the-scope” impacts.
- ▶ New Impact that is Less Than Significant with Mitigation Incorporated: The project would result in a new significant impact that is not analyzed in the PEIR, but due to the project proponent’s willingness to incorporate new mitigation into the proposed project, the impact is clearly less than significant with feasible mitigation. In this case, the impact is not “within the scope” of the PEIR and an MND could be prepared consistent with CEQA Guidelines Section 15168(d). This section allows for use of a subsequent MND to document the new impact and substantial evidence supporting the less-than-significant conclusion, along with the checklist documenting the rest of the “within-the-scope” impacts.
- ▶ New Impact that is Potentially Significant: The project would result in a new significant impact that is not analyzed in the PEIR (which would be subject to the “fair argument” standard as a new impact), and the impact cannot be clearly mitigated to less than significant. In this circumstance, the impact is not “within the scope” of the PEIR, and preparation of a new EIR is required. The new EIR will cover the new potentially significant or significant impact(s) and need not further evaluate significant impacts already covered in the PEIR, which are documented in the checklist.

In summary, when additional environmental documentation is needed to augment the City of Chico VFMP PEIR for CEQA compliance for a later treatment activity, the checklist and accompanying analysis would serve the same function as an initial study that defines the topics to be addressed in the EIR, MND, or ND to cover the impacts that are not within the scope of the PEIR, as directed by State CEQA Guidelines Section 15168(d)(1).

ENVIRONMENTAL CHECKLIST

TREATMENT ACTIVITY INFORMATION

1. Project Title:
2. Project Proponent Name:
3. Contact Person Information and Phone Number/Email:
4. Project Location: [cross streets or other landmarks]
5. Total Area to be Treated (acres)
6. Description of Project: (Describe the whole action involved, including equipment to be used and planned duration of treatments (include multiple years if applicable) Provide cross references to specific subsections from Chapter 2 of the PEIR and/or Chapter 4 of the VFMP to demonstrate that treatments are consistent with those analyzed in the PEIR. Attach additional sheets if necessary.)

Treatment Description

[insert narrative description here]

Project Types *[see description in Sections 3.1 and 3.2 of the PEIR; provide detail in description of Initial Treatment]*

☐ Programmatic Vegetation Management Activity

☐ Planned VFMP Key Project

Treatment Methods *[see description in Section 2.2 of the PEIR, check every applicable category; include number of acres subject to each treatment activity, provide detail in description of Initial Treatment]*

☐ Prescribed Burning (Understory), _____ acres

☐ Prescribed Burning (Pile Burning)

☐ Mechanical Treatment, _____ acres Describe: _____

☐ Manual Treatment, _____ acres Describe: _____

☐ Grazing, _____ acres

☐ Herbicide application, _____ acres Describe: _____

Vegetation Community or Communities

☐ Grassland, _____ acres

☐ Riparian, _____ acres

☐ Valley Oak, _____ acres

☐ Upland Mix, _____ acres

☐ Blue Oak-Gray Pine, _____ acres

7. Other Public Agencies Whose Approval is Required: (e.g., permits)

[attach list if needed; note status of any required approvals (permits) and level of environmental documentation for permits, if applicable (e.g., CDFW 1600)]

DETERMINATION (To be completed by the project proponent)

On the basis of this checklist and the substantial evidence supporting it:

☐

I find that all of the effects of the proposed project (a) have been covered in the City of Chico Vegetative Fuels Management Plan PEIR, and (b) all applicable Standard Project Requirements and mitigation measures identified in the PEIR will be implemented. The proposed project is, therefore, **WITHIN THE SCOPE** of the VFMP PEIR. **NO ADDITIONAL CEQA DOCUMENTATION** is required.

☐

I find that the proposed project will have effects that were not covered in the VFMP PEIR. However, these effects are less than significant without any mitigation beyond what is already required pursuant to the PEIR. A **NEGATIVE DECLARATION** will be prepared.

☐

I find that the proposed project will have effects that were not covered in the VFMP PEIR or will have effects that are substantially more severe than those covered in the PEIR. Although these effects may be significant in the absence of additional mitigation beyond the PEIR's measures, revisions to the proposed project or additional mitigation measures have been agreed to by the project proponent that would avoid or reduce the effects so that clearly no significant effects would occur. A **MITIGATED NEGATIVE DECLARATION** will be prepared.

☐

I find that the proposed project will have significant environmental effects that are (a) new and were not covered in the VFMP PEIR and/or (b) substantially more severe than those covered in the VFMP PEIR. Because one or more effects may be significant and cannot be clearly mitigated to less than significant, an **ENVIRONMENTAL IMPACT REPORT** will be prepared.

Signature

Date

Printed Name

Title

City of Chico

EVALUATION OF ENVIRONMENTAL IMPACTS

1. Refer to the applicable resource analysis section in the City of Chico Vegetative Fuels Management Plan PEIR for relevant information on each environmental topic.
2. A brief explanation is required for each impact, including impacts that have been identified in the PEIR as well as any new impacts that are specific to the proposed project or activity.
3. The discussion of each impact identified in the PEIR that is also applicable to the proposed treatment project should generally include the following information:
 - ▶ Explain whether the proposed treatment is consistent with the treatment types and activities addressed in the PEIR.
 - ▶ Identify SPRs and mitigation measures applicable to the treatment project.
 - ▶ (If applicable) For SPRs or mitigation measures that allow some flexibility in how they are applied, explain which components (or which level/degree/version) of the SPR or mitigation measure would be applied. Explain why it is appropriate to apply this SPR or mitigation measure in this way, based on the site- and/or treatment activity.
 - ▶ Briefly describe the final impact of the proposed treatment project.
 - ▶ (If applicable) Explain why the impact significance in the checklist is different than that found in the PEIR.
 - ▶ (If applicable) Explain why the SPR(s) or mitigation measures developed for this impact in the PEIR do not apply to this project. For example, where a potentially significant impact was identified in the PEIR, but the impact could not be potentially significant for the proposed treatment activity on the proposed site.
4. If the project proponent has determined that a new impact would occur, then the checklist answers for the new impact must indicate whether the impact is potentially significant, less than significant with mitigation, or less than significant without the need for mitigation.
5. “Potentially Significant” is appropriate if there is substantial evidence that a new impact may be significant. If there are one or more “Potentially Significant” new impacts identified, or if any impact would constitute a substantially more severe significant impact than was covered in the PEIR, an EIR is required unless one or more mitigation measures incorporated into the project would mitigate the effects to a point where clearly no significant effect on the environment would occur, in which case an MND would be appropriate. An ND could be prepared, if the new impact would be less than significant even without mitigation. The analysis of any new impact to support adoption of an ND or MND, along with the analysis of impacts that are within the scope, would be documented in the PSA checklist. If a later EIR is prepared, it could be limited in its scope to the new significant impact(s) or substantially more severe significant impact(s), with the remainder of the impacts that are within the scope of the PEIR being documented in the checklist and attached to the EIR as an appendix. When preparing any environmental document, the environmental analysis should incorporate by reference pertinent portions of the analysis from the VFMP PEIR and focus the environmental analysis solely on issues that were not addressed in the PEIR.
6. Project proponents should incorporate into the checklist references to information sources for potential impacts, when they are available. Include a list of references cited in the checklist, and make copies of such references available to the public upon request.

A. 4. I AESTHETICS

Environmental Impact Covered In the PEIR	Identify Impact Significance in the PEIR ¹	Identify Location of Impact Analysis in the PEIR	Does the Impact Apply to the Treatment Project?	List SPRs Applicable to the Treatment Project ²	List MMs Applicable to the Treatment Project ²	Identify Impact Significance for Treatment Project	Would this be a Substantially More Severe Significant Impact than Identified in the PEIR?	Is this Impact Within the Scope of the PEIR?
Impact AES-a: Have a substantial adverse effect on a scenic vista?	LTS	Section 4.1.2 (a)						
Impact AES-b: Adversely affect views from a scenic highway? (none in program area as of 2020)	NI	Section 4.1.2 (b)						
Impact AES-c: Significantly degrade the existing visual character or quality of public views of the site and its surroundings?	NI	Section 4.1.2 (c)						
Impact AES-d: New light or glare?	NI	Section 4.1.2 (d)						

¹ Impact levels: NI = No impact LTS = Less than significant PS = Potentially significant LTSM = Less than significant with Mitigation SU = Significant and unavoidable ²None: there are no SPRs and/or MMs identified in the PEIR for this impact. N/A: there are SPRs and/or MMs identified in the PEIR for this impact, but none are applicable to the treatment project.

New Impacts: Would the treatment result in other impacts to aesthetics that are not evaluated in the VFMP PEIR?	Yes <input type="checkbox"/>	No <input type="checkbox"/>	If yes, complete row(s) below and discussion
[identify new impact(s) below, if any, number them: AES-e, AES-f, etc; add rows as needed]	Potentially Significant	Less Than Significant with Mitigation Incorporated	Less than Significant
	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

(a) Discussion of impacts listed in the PEIR that also apply to this treatment activity, *if applicable*

Impact AES-a

Impact AES-c

Impact AES-b

Impact AES-d

(b) Discussion of any new impacts from New Impacts table above, *if applicable*

Impact AES-...

A. 4. 2 AGRICULTURE AND FORESTRY RESOURCES

Environmental Impact Covered In the PEIR	Identify Impact Significance in the PEIR ¹	Identify Location of Impact Analysis in the PEIR	Does the Impact Apply to the Treatment Project?	List SPRs Applicable to the Treatment Project ²	List MMs Applicable to the Treatment Project ²	Identify Impact Significance for Treatment Project	Would this be a Substantially More Severe Significant Impact than Identified in the PEIR?	Is this Impact Within the Scope of the PEIR?
Would the project:								
Impact AG-a: Convert prime farmland to non-farm use? (None in City of Chico-owned program area as of 2020)	NI	Section 4.2.2 (a)						
Impact AG-b: Conflict with existing zoning for ag use or Williamson Act (applies to private lands only, if any)?	NI	Section 4.2.2 (b)						
Impact AG-c: Cause rezoning of or conflict with zoning for forestland? (None in program area as of 2020)	NI	Section 4.2.2 (c)						
Impact AG-d: Result in loss of forestland/ conversion of forestland to non- forest use	NI	Section 4.2.2 (d)						

¹ Impact levels: NI = No impact LTS = Less than significant PS = Potentially significant LTSM = Less than significant with Mitigation SU = Significant and unavoidable ²None: there are no SPRs and/or MMs identified in the PEIR for this impact. N/A: there are SPRs and/or MMs identified in the PEIR for this impact, but none are applicable to the treatment project.

New Impacts: Would the treatment result in other impacts to agriculture or forestry that are not evaluated in the VFMP PEIR?	<input type="checkbox"/> Yes	<input type="checkbox"/> No	If yes, complete row(s) below and discussion	
[identify new impact(s) below, if any, number them: AG-e, AG-f, etc; add rows as needed]	Potentially Significant	Less Than Significant with Mitigation Incorporated	Less than Significant	
	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	

(a) Discussion of impacts listed in the PEIR that also apply to this treatment activity, *if applicable*

N/a

(b) Discussion of any new impacts from New Impacts table above, *if applicable*

A. 4. 3 AIR QUALITY

Environmental Impact Covered In the PEIR	Identify Impact Significance in the PEIR ¹	Identify Location of Impact Analysis in the PEIR	Does the Impact Apply to the Treatment Project?	List SPRs Applicable to the Treatment Project ²	List MMs Applicable to the Treatment Project ²	Identify Impact Significance for Treatment Project	Would this be a Substantially More Severe Significant Impact than Identified in the PEIR?	Is this Impact Within the Scope of the PEIR?
Would the project:								
Impact AIR-a: conflict with or obstruct implementation of the applicable air quality plan?	LTS	Section 4.3.2(a)						
Impact AIR-b: result in a cumulatively considerable net increase of any criteria pollutant for which the project region is non-attainment under an applicable federal or state ambient air quality standard?	LTS	Section 4.3.2(b)						
Impact AIR-c: expose sensitive receptors to substantial pollutant concentrations?	LTS	Section 4.3.2(c)						
Impact AIR-d: Expose People to Objectionable Odors	NI	Section 4.3.2(d)						

¹ Impact levels: NI = No impact LTS = Less than significant PS = Potentially significant LTSM = Less than significant with Mitigation SU = Significant and unavoidable ²None: there are no SPRs and/or MMs identified in the PEIR for this impact. N/A: there are SPRs and/or MMs identified in the PEIR for this impact, but none are applicable to the treatment project.

New Impacts: Would the treatment result in other impacts to air quality that are not evaluated in the VFMP PEIR?	<input type="checkbox"/> Yes	<input type="checkbox"/> No	If yes, complete row(s) below and discussion	
[identify new impact(s) below, if any; number them: AIR-e, AIR-f, etc; add rows as needed]	Potentially Significant	Less Than Significant with Mitigation Incorporated	Less than Significant	
	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	

(a) Discussion of impacts listed in the PEIR that also apply to this treatment activity, *if applicable*

Impact AIR-a

Impact AIR-c

Impact AIR-b

Impact AIR-d

(b) Discussion of any new impacts from New Impacts table above, *if applicable*

A. 4. 4 BIOLOGICAL RESOURCES

Yes

No

Have adequate recent reconnaissance-level surveys been conducted for the activity area, to identify suitable habitat for special-status species, as described in SPR-BIO-1?

☐
☐

If “no,” complete adequate reconnaissance-level surveys first to allow you to complete the rest of this form.

What were the results of the reconnaissance-level surveys? (Check one of the 3)

☐

1. No suitable habitat present for any sensitive species

2. Suitable Habitat Is Present but Adverse Effects Can Be Clearly Avoided.

List species and why adverse effects can be avoided for each species (e.g., “physically avoid clearly demarcated habitat area,” “treat outside of bird nesting season”/”burn during dormant season of sensitive annual or geophytic plant species,” etc). Add more rows if needed and attach additional documentation or maps if helpful

Species	How adverse effects will be avoided

OR

☐

3. Suitable Habitat is Present and Adverse Effects Cannot Be Clearly Avoided.

If box 3 is checked, then a protocol-level survey must be conducted. Attach survey report/map and summarize results below. Create additional rows if helpful

Species	Protocol-level survey conducted: date and results (present/absent)	Adverse effects avoidable/unavoidable? (A/U)	If avoidable , say how adverse effects will be avoided; cite source for guidance (e.g., CDFW, botany consultant)

Do any unavoidable adverse impacts remain?

Yes

☐

No

☐

If “no,” then you may enter “LTS” in both BIO-a and BIO-d, and the activity is within the scope of the VFMP PEIR unless the activity will have other significant impacts or new impacts not listed in the VFMP PEIR.

If “Yes,” will mitigation measure **MM-BIO-1** reduce the impacts to below a level of significance?

Yes ☐

No ☐

(Attach documentation from relevant trustee or responsible agency explaining why the mitigation measures are sufficient)

If “yes,” then you may enter “LTSM,” in both BIO-a and BIO-d, and the activity is within the scope of the VFMP PEIR unless the activity will have other significant impacts or new impacts not listed in the VFMP PEIR.

If “no,” the City or project proponent must prepare a supplementary EIR.

Environmental Impact Covered In the PEIR	Identify Impact Significance in the PEIR ¹	Identify Location of Impact Analysis in the PEIR	Does the Impact Apply to the Treatment Project?	List SPRs Applicable to the Treatment Project ²	List MMs Applicable to the Treatment Project ²	Identify Impact Significance for Treatment Project	Would this be a Substantially More Severe Significant Impact than Identified in the PEIR?	Is this Impact Within the Scope of the PEIR?
Would the project:								
Impact BIO-a: have a substantial adverse effect, either directly, or through habitat modifications, on any species identified as a candidate, sensitive, or special-status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Wildlife or the U.S. Fish and Wildlife Service?	LTSM	Impact 3.6-1, pp. 3.6-36 through 3.6-41						
Impact BIO-b: have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, or regulations or by the California Department of Fish and Wildlife or the U.S. Fish and Wildlife Service?	LTS	Impact 3.6-2, pp. 3.6-41 through 3.5-55						
Impact BIO-c: have a substantial adverse effect on state or federally protected wetlands (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means?	NI	Impact 3.6-3, pp. 3.6-56 through 3.6-58						
Impact BIO-d: interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites?	LTSM	Impact 3.6-4, pp. 3.6-58 through 3.6-59						

Impact BIO-e: conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance?	NI	Impact 3.6-5, pp. 3.6-59 through 3.6-61						
Impact BIO-f: conflict with an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local/regional/ state habitat conservation plan?	NI	Impact 3.6-6, pp. 3.6-61 through 3.6-64						

¹ Impact levels: NI = No impact LTS = Less than significant PS = Potentially significant LTSM = Less than significant with Mitigation SU = Significant and unavoidable ²None: there are no SPRs and/or MMs identified in the PEIR for this impact. N/A: there are SPRs and/or MMs identified in the PEIR for this impact, but none are applicable to the treatment project.

New Biological Resources Impacts: Would the treatment result in other impacts to biological resources that are not evaluated in the VFMP PEIR?	Yes <input type="checkbox"/>	No <input type="checkbox"/>	If yes, complete row(s) below and discussion	
[identify new impacts below, if applicable; number them: BIO-g, BIO-h, etc; add rows as needed]	Potentially Significant	Less Than Significant with Mitigation Incorporated	Less than Significant	
	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	

(a) Discussion of impacts listed in the PEIR that also apply to this treatment activity, *if applicable*

Impact BIO-a

Impact BIO-b

Impact BIO-c

Impact BIO-d

Impact BIO-e

Impact BIO-f

(b) Discussion of any new impacts from New Impacts table above, *if applicable*

A. 4. 5 CULTURAL RESOURCES and TRIBAL CULTURAL RESOURCES

Have you consulted with the Mechoopda Indian Tribe of Chico Rancheria about this activity, as described in SPR-CUL-1?

Yes

☐

No

☐

If “no,” consult with them first to allow you to complete the rest of this form.

What were the results of the conversation? (Check one of the 3)

☐

1. Mechoopda declined to be consulted or indicated no cultural resources present

☐

2. Mechoopda indicated cultural resources present, but adverse effects can be clearly avoided.

List resources and why adverse effects can be avoided for each species (e.g., “physically avoid flagged area,” etc.) Add more rows if needed and attach additional documentation or maps if helpful. **NOTE:** This section and its supporting documentation, if it includes information submitted by the Tribe during the consultation process, may be kept confidential pursuant to subdivision (r) of Section 6254 of, and Section 6254.10 of, the Government Code, and subdivision (d) of Section 15120 of Title 14 of the California Code of Regulations.

Resource descptn/site #	How adverse effects will be avoided

OR

☐

3. Cultural resources are present and adverse effects cannot be clearly avoided.

If box 3 **is not** checked, then you may enter “NP” in CUL-c, and the activity is within the scope of the VFMP PEIR unless the activity will have other significant impacts or new impacts not listed in the VFMP PEIR.

If box 3 **is** checked, continue consultation until you have a plan that avoids/protects the resources (attach plan). If you cannot protect the resources, either change the project area boundary to exclude the resources or formally evaluate the resources' eligibility for CRHR. (This will require a new CEQA document, e.g. a supplemental EIR. No project which does not avoid adverse impacts to a tribal cultural resource can be under the scope of the VFMP PEIR.)

Environmental Impact Covered In the PEIR	Identify Impact Significance in the PEIR	Identify Location of Impact Analysis in the PEIR	Does the Impact Apply to the Treatment Project?	List SPRs and CFPRs Applicable to the Treatment Project ²	List MMs Applicable to the Treatment Project ²	Identify Impact Significance for Treatment Project	Would this be a Substantially More Severe Significant Impact than Identified in the PEIR?	Is this Impact Within the Scope of the PEIR?
Would the project:								
Impact CUL-a: cause a substantial adverse change in the significance of a historical or archaeological resource pursuant to § 15064.5?	LTS	4.5.2(a)						

Impact CUL-b: disturb any human remains, including those interred outside of formal cemeteries?	LTS	4.5.2(b)						
Impact CUL-c: cause a substantial adverse change in the significance of a tribal cultural resource, defined in Public Resources Code § 21074 as either a site, feature, place, cultural landscape that is geographically defined in terms of the size and scope of the landscape, sacred place, or object with cultural value to a California Native American tribe, and that is either (1) listed or eligible for listing in the California Register of Historical Resources, or in a local register of historical resources as defined in Public Resources Code § 5020.1(k), OR (2) a resource determined by the lead agency, in its discretion and supported by substantial evidence, to be significant pursuant to criteria set forth in subdivision (c) of Public Resources Code § 5024.1? (In applying the criteria set forth in subdivision (c) of Public Resource Code § 5024.1, the lead agency shall consider the significance of the resource to a California Native American tribe.)	NI	4.18.2(a)						

¹ Impact levels: NI = No impact LTS = Less than significant PS = Potentially significant LTSM = Less than significant with Mitigation SU = Significant and unavoidable ²None: there are no SPRs and/or MMs identified in the PEIR for this impact. N/A: there are SPRs and/or MMs identified in the PEIR for this impact, but none are applicable to the treatment project.

New Archaeological , Historical, or Tribal Cultural Resource Impacts: Would the treatment result in other impacts to archaeological, historical, and tribal cultural resources that are not evaluated in the VFMP PEIR?	Yes <input type="checkbox"/>	No <input type="checkbox"/>	If yes, complete row(s) below and discussion	
[identify new impacts below, if applicable; label them: CUL-d, CUL-e, etc, add rows as needed]	Potentially Significant	Less Than Significant with Mitigation Incorporated	Less than Significant	
	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	

(a) Discussion of impacts listed in the PEIR that also apply to this treatment activity, *if applicable*

Impact CUL-a

Impact CUL-b

Impact CUL-c

(b) Discussion of any new impacts from New Impacts table above, *if applicable*

A. 4. 6 ENERGY

Environmental Impact Covered In the PEIR	Identify Impact Significance in the PEIR ¹	Identify Location of Impact Analysis in the PEIR	Does the Impact Apply to the Treatment Project?	List SPRs and CFPRs Applicable to the Treatment Project ²	List MMs Applicable to the Treatment Project ²	Identify Impact Significance for Treatment Project	Would this be a Substantially More Severe Significant Impact than Identified in the PEIR?	Is this Impact Within the Scope of the PEIR?
Would the project:								
Impact ENER-a: Result in Wasteful, Inefficient, or Unnecessary Consumption of Energy that causes potentially significant environmental impact	NI	4.6.2(a)						
Impact ENER-b: Conflict with or Obstruct a State or Local Plan for Renewable Energy or Energy Efficiency	NI	4.6.2(b)						

¹ Impact levels: NI = No impact LTS = Less than significant PS = Potentially significant LTSM = Less than significant with Mitigation SU = Significant and unavoidable ²None: there are no SPRs and/or MMs identified in the PEIR for this impact. N/A: there are SPRs and/or MMs identified in the PEIR for this impact, but none are applicable to the treatment project.

New Impacts: Would the treatment result in other impacts from energy use that are not evaluated in the VFMP PEIR?	Yes <input type="checkbox"/>	No <input type="checkbox"/>	If yes, complete row(s) below and discussion
[identify new impact(s) below, if any, number them: ENER-c, ENER-d, etc; add rows as needed]	Potentially Significant	Less Than Significant with Mitigation Incorporated	Less than Significant
	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

(a) Discussion of impacts listed in the PEIR that also apply to this treatment activity, *if applicable*

Impact ENER-a

Impact ENER-b

(b) Discussion of any new impacts from New Impacts table above, *if applicable*

A. 4. 7 GEOLOGY AND SOILS

Environmental Impact Covered In the PEIR	Identify Impact Significance in the PEIR	Identify Location of Impact Analysis in the PEIR	Does the Impact Apply to the Treatment Project?	List SPRs and CFPRs Applicable to the Treatment Project ²	List MMs Applicable to the Treatment Project ²	Identify Impact Significance for Treatment Project	Would this be a Substantially More Severe Significant Impact than Identified in the PEIR?	Is this Impact Within the Scope of the PEIR?
Would the project:								
Impacts SOIL-a-c: In earthquake zone, cause seismic problems, or expose people to seismic activity?	NI	4.7.2(a-c)						
Impact SOIL-d: Directly or indirectly cause potential substantial adverse effects, including the risk of loss, injury, or death involving landslides?	LTS	4.7.2(d)						
Impact SOIL-e: result in substantial soil erosion or the loss of topsoil?	LTSM	4.7.2(e)						
Impact SOIL-f: would soil become unstable as a result of the project, and potentially result in on- or off-site landslide, lateral spreading, subsidence, liquefaction, or collapse?	LTSM	4.7.2(f)						
Impact SOIL-g: Located on expansive soil?	NI	4.7.2(g)						
Impact SOIL-h: Soils incapable of supporting sewer/septic systems needed to serve the project?	NI	4.7.2(h)						
Impact SOIL-i: directly or indirectly destroy a unique paleontological resource or site or unique geologic feature?	NI	4.7.2(i)						

¹ Impact levels: NI = No impact LTS = Less than significant PS = Potentially significant LTSM = Less than significant with Mitigation SU = Significant and unavoidable ²None: there are no SPRs and/or MMs identified in the PEIR for this impact. N/A: there are SPRs and/or MMs identified in the PEIR for this impact, but none are applicable to the treatment project.

New Geology/Soils Impacts: Would the treatment result in other impacts to geology or soils that are not evaluated in the VFMP PEIR?	<input type="checkbox"/> Yes	<input type="checkbox"/> No	If yes, complete row(s) below and discussion	
[identify new impact(s) below, if any, number them: SOIL-j, SOIL-k, etc; add rows as needed]	Potentially Significant	Less Than Significant with Mitigation Incorporated	Less than Significant	
	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	

(a) Discussion of impacts listed in the PEIR that also apply to this treatment activity, *if applicable*

Impact SOIL-a-c

Impact SOIL-d

Impact SOIL-e

Impact SOIL-f

Impact SOIL-g

Impact SOIL-h

Impact SOIL-i

(b) Discussion of any new impacts from New Impacts table above, *if applicable*

A.4. 8 GREENHOUSE GAS EMISSIONS AND CLIMATE CHANGE

Environmental Impact Covered In the PEIR	Identify Impact Significance in the PEIR ¹	Identify Location of Impact Analysis in the PEIR	Does the Impact Apply to the Treatment Project?	List SPRs Applicable to the Treatment Project ²	List MMs Applicable to the Treatment Project ²	Identify Impact Significance for Treatment Project	Would this be a Substantially More Severe Significant Impact than Identified in the PEIR?	Is this Impact Within the Scope of the PEIR?
Would the project:								
Impact GHG-a: Generate GHG emissions through treatment activities?	LTS	4.8.2(a)						
Impact GHG-b: Conflict with applicable plan adopted for the purpose of reducing the emissions of GHGs	LTS	4.8.2(b)						

¹ Impact levels: NI = No impact LTS = Less than significant PS = Potentially significant LTSM = Less than significant with Mitigation SU = Significant and unavoidable ²None: there are no SPRs and/or MMs identified in the PEIR for this impact. N/A: there are SPRs and/or MMs identified in the PEIR for this impact, but none are applicable to the treatment project.

New Greenhouse Gas Emissions and Climate Change Impacts: Would the treatment result in other impacts related to greenhouse gas emissions and climate change that are not evaluated in the VFMP PEIR?	Yes <input type="checkbox"/>	No <input type="checkbox"/>	If yes, complete row(s) below and discussion
[identify new impact(s) below, if any, number them: GHG-c, GHG-d, etc; add rows as needed]	Potentially Significant	Less Than Significant with Mitigation Incorporated	Less than Significant
	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

- (a) Discussion of impacts listed in the PEIR that also apply to this treatment activity, *if applicable*

Impact GHG-a

Impact GHG-b

- (b) Discussion of any new impacts from New Impacts table above, *if applicable*

A. 4. 9 HAZARDS AND HAZARDOUS MATERIALS

Environmental Impact Covered In the PEIR	Identify Impact Significance in the PEIR	Identify Location of Impact Analysis in the PEIR	Does the Impact Apply to the Treatment Project?	List SPRs Applicable to the Treatment Project ²	List MMs Applicable to the Treatment Project ²	Identify Impact Significance for Treatment Project	Would this be a Substantially More Severe Significant Impact than Identified in the PEIR?	Is this Impact Within the Scope of the PEIR?
Would the project:								
Impact HAZ-a-b: Create significant hazard from the routine transport, use, or disposal of hazardous materials or reasonably foreseeable accidents/spills?	LTS	4.9.2(a-b)						
Impact HAZ-c: Emit or handle hazardous materials within ¼ mile of a school	LTS	4.9.2(c)						
Impact HAZ-d: Located on a listed hazmat site?	NI	4.9.2(d)						
Impact HAZ-e: Create noise or safety conflicts with an airport?	NI	4.9.2(e)						
Impact HAZ-f: Interfere with an adopted emergency response plan or emergency evacuation plan?	NI	4.9.2(f)						
Impact HAZ-g: Expose people or structures to loss, injury, or death involving wildland fires?	LTS	4.9.2(g)						

¹ Impact levels: NI = No impact LTS = Less than significant PS = Potentially significant LTSM = Less than significant with Mitigation SU = Significant and unavoidable ²None: there are no SPRs and/or MMs identified in the PEIR for this impact. N/A: there are SPRs and/or MMs identified in the PEIR for this impact, but none are applicable to the treatment project.

New Hazards and Hazardous Materials Impacts: Would the treatment result in, or expose people to, other environmental hazards that are not evaluated in the VFMP PEIR?	Yes <input type="checkbox"/>	No <input type="checkbox"/>	If yes, complete row(s) below and discussion	
[identify new impact(s) below, if any, number them: HAZ-h, HAZ-i, etc; add rows as needed]	Potentially Significant	Less Than Significant with Mitigation Incorporated	Less than Significant	
	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	

(a) Discussion of impacts listed in the PEIR that also apply to this treatment activity, *if applicable*

Impact HAZ-a, b

Impact HAZ-c

Impact HAZ-d

Impact HAZ-e

Impact HAZ-f

Impact HAZ-g

(b) Discussion of any new impacts from New Impacts table above, *if applicable*

A. 4. 10 HYDROLOGY AND WATER QUALITY

Environmental Impact Covered In the PEIR	Identify Impact Significance in the PEIR	Identify Location of Impact Analysis in the PEIR	Does the Impact Apply to the Treatment Project?	List SPRs Applicable to the Treatment Project ²	List MMs Applicable to the Treatment Project ²	Identify Impact Significance for Treatment Project	Would this be a Substantially More Severe Significant Impact than Identified in the PEIR?	Is this Impact Within the Scope of the PEIR?
Would the project:								
Impact HYDRO-a: violate any water quality or waste discharge standards or otherwise substantially degrade surface or ground water quality?	LTS	4.10.2(a)						
Impact HYDRO-b: Impose groundwater impacts?	NI	4.10.2(b)						
Impacts HYDRO-c-d-e-f: Substantially alter existing drainage patterns, e.g. by altering streamcourses or installing impervious surfaces, in a way that overwhelms stormwater drainage systems, or results in on-or off-site flooding or erosion or siltation, or impedes or redirects flows?	NI	4.10.2(c-f)						
Impact HYDRO-g: Risk release of pollutants in the event of inundation?	LTS	4.10.2(g)						
Impact HYDRO-h: Conflict with an existing water quality plan or SGMP?	LTS	Impact 4.10.2(h)						
[Impact HYDRO-i] Diminish streamflow or aquatic community integrity by drafting water from creeks or rivers? (See SPR HYDRO-6)	LTS	Impact 4.10.2(i)						

[Impact HYDRO-j] Cause hydrological or water quality impacts through bank instability or collapse related to arundo removal?	LTSM	Impact 4.10.2(j)						
--	------	------------------	--	--	--	--	--	--

¹ Impact levels: NI = No impact LTS = Less than significant PS = Potentially significant LTSM = Less than significant with Mitigation SU = Significant and unavoidable ²None: there are no SPRs and/or MMs identified in the PEIR for this impact. N/A: there are SPRs and/or MMs identified in the PEIR for this impact, but none are applicable to the treatment project.

New Hydrology and Water Quality Impacts: Would the treatment result in other hydrological impacts not evaluated in the VFMP PEIR?	Yes <input type="checkbox"/>	No <input type="checkbox"/>	If yes, complete row(s) below and discussion	
[identify new impact(s) below, if any, number them: HYDRO-i, HYDRO-j, etc; add rows as needed]	Potentially Significant	Less Than Significant with Mitigation Incorporated	Less than Significant	
	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	

[a] Discussion of impacts listed in the PEIR that also apply to this treatment activity, ***if applicable***

Impact HYDRO-a

Impact HYDRO-b

Impact HYDRO-c-f

Impact HYDRO-g

Impact HYDRO-h

[b] Discussion of any new impacts from New Impacts table above, ***if applicable***

A. 4. II LAND USE AND PLANNING

Environmental Impact Covered In the PEIR	Identify Impact Significance in the PEIR ¹	Identify Location of Impact Analysis in the PEIR	Does the Impact Apply to the Treatment Project?	List SPRs Applicable to the Treatment Project ²	List MMs Applicable to the Treatment Project ²	Identify Impact Significance for Treatment Project	Would this be a Substantially More Severe Significant Impact than Identified in the PEIR?	Is this Impact Within the Scope of the PEIR?
Would the project:								
Impact PLAN-a: Physically divide an established community?	NI	4.11.2(a)						
Impact PLAN-b: conflict with any land use plan or policy?	NI	4.11.2(b)						

¹ Impact levels: NI = No impact LTS = Less than significant PS = Potentially significant LTSM = Less than significant with Mitigation SU = Significant and unavoidable ²None: there are no SPRs and/or MMs identified in the PEIR for this impact. N/A: there are SPRs and/or MMs identified in the PEIR for this impact, but none are applicable to the treatment project.

New Land Use and Planning Impacts: Would the treatment result in other impacts related to conflicts with land use and planning that are not evaluated in the VFMP PEIR?	Yes <input type="checkbox"/>	No <input type="checkbox"/>	If yes, complete row(s) below and discussion
[identify new impact(s) below, if any, number them: PLAN-c, PLAN-d, etc; add rows as needed]	Potentially Significant	Less Than Significant with Mitigation Incorporated	Less than Significant
	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

(a) Discussion of impacts listed in the PEIR that also apply to this treatment activity, *if applicable*

Impact PLAN-a

Impact PLAN-b

(b) Discussion of any new impacts from New Impacts table above, *if applicable*

A. 4. 12 MINERAL RESOURCES

Environmental Impact Covered In the PEIR	Identify Impact Significance in the PEIR ¹	Identify Location of Impact Analysis in the PEIR	Does the Impact Apply to the Treatment Project?	List SPRs Applicable to the Treatment Project ²	List MMs Applicable to the Treatment Project ²	Identify Impact Significance for Treatment Project	Would this be a Substantially More Severe Significant Impact than Identified in the PEIR?	Is this Impact Within the Scope of the PEIR?
Would the project:								
Impact MIN-a,b: Make unavailable a regionally valuable mineral resource or a mineral recovery site delineated on a local land use plan?	NI	4.12.2(a,b)						

¹ Impact levels: NI = No impact LTS = Less than significant PS = Potentially significant LTSM = Less than significant with Mitigation SU = Significant and unavoidable ²None: there are no SPRs and/or MMs identified in the PEIR for this impact. N/A: there are SPRs and/or MMs identified in the PEIR for this impact, but none are applicable to the treatment project.

New Mineral Resources Impacts: Would the treatment result in other impacts related to mineral resources, not evaluated in the VFMP PEIR?	Yes <input type="checkbox"/>	No <input type="checkbox"/>	If yes, complete row(s) below and discussion
[identify new impact(s) below, if any, number them: MIN-c, MIN-d, etc; add rows as needed]	Potentially Significant	Less Than Significant with Mitigation Incorporated	Less than Significant
	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

(a) Discussion of impacts listed in the PEIR that also apply to this treatment activity, *if applicable*

Impact MIN-a

Impact MIN-b

(b) Discussion of any new impacts from New Impacts table above, *if applicable*

A. 4. 13 NOISE AND VIBRATION

Environmental Impact Covered In the PEIR	Identify Impact Significance in the PEIR ¹	Identify Location of Impact Analysis in the PEIR	Does the Impact Apply to the Treatment Project?	List SPRs Applicable to the Treatment Project ²	List MMs Applicable to the Treatment Project ²	Identify Impact Significance for Treatment Project	Would this be a Substantially More Severe Significant Impact than Identified in the PEIR?	Is this Impact Within the Scope of the PEIR?
Would the project:								
Impact NOISE-a: Cause noise in excess of standards in local noise ordinance?	NI	4.13.2(a)						
Impact NOISE-b: result in generation of excessive groundborne vibration or groundborne noise levels	NI	4.13.2(b)						
Impact NOISE-c: near an airport (within SOI or 2 miles), expose people residing or working in the project area to excessive noise levels?	LTS	4.13.2(c)						

¹ Impact levels: NI = No impact LTS = Less than significant PS = Potentially significant LTSM = Less than significant with Mitigation SU = Significant and unavoidable ²None: there are no SPRs and/or MMs identified in the PEIR for this impact. N/A: there are SPRs and/or MMs identified in the PEIR for this impact, but none are applicable to the treatment project.

New Noise and Vibration Impacts: Would the treatment result in other noise/ vibration-related impacts that are not evaluated in the VFMP PEIR?	Yes	No	If yes, complete row(s) below and discussion	
[identify new impact(s) here, if applicable; label them: NOISE-d, NOISE-e, etc; add rows as needed]	Potentially Significant	Less Than Significant with Mitigation Incorporated	Less than Significant	
	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	

(a) Discussion of impacts listed in the PEIR that also apply to this treatment activity, *if applicable*

Impact NOISE-a

Impact NOISE-b

Impact NOISE-c

(b) Discussion of any new impacts from New Impacts table above, *if applicable*

A. 4.14 POPULATION AND HOUSING

Environmental Impact Covered In the PEIR	Identify Impact Significance in the PEIR ¹	Identify Location of Impact Analysis in the PEIR	Does the Impact Apply to the Treatment Project?	List SPRs Applicable to the Treatment Project ²	List MMs Applicable to the Treatment Project ²	Identify Impact Significance for Treatment Project	Would this be a Substantially More Severe Significant Impact than Identified in the PEIR?	Is this Impact Within the Scope of the PEIR?
Would the project:								
Impact POP-a: Induce substantial unplanned population growth?	NI	4.14.2(a)						
Impact POP-b: Displace substantial numbers of people, requiring construction of replacement housing elsewhere?	LTS	4.14.2(b)						

¹ Impact levels: NI = No impact LTS = Less than significant PS = Potentially significant LTSM = Less than significant with Mitigation SU = Significant and unavoidable ²None: there are no SPRs and/or MMs identified in the PEIR for this impact. N/A: there are SPRs and/or MMs identified in the PEIR for this impact, but none are applicable to the treatment project.

New Population and Housing Impacts: Would the treatment result in other impacts related to population and housing that are not evaluated in the VFMP PEIR?	Yes <input type="checkbox"/>	No <input type="checkbox"/>	If yes, complete row(s) below and discussion
[identify new impact(s) below, if any, number them: POP-c, POP-d, etc; add rows as needed]	Potentially Significant	Less Than Significant with Mitigation Incorporated	Less than Significant
	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

(a) Discussion of impacts listed in the PEIR that also apply to this treatment activity, *if applicable*

Impact POP-a

Impact POP-b

(b) Discussion of any new impacts from New Impacts table above, *if applicable*

A. 4. 15 PUBLIC SERVICES

Environmental Impact Covered In the PEIR	Identify Impact Significance in the PEIR ¹	Identify Location of Impact Analysis in the PEIR	Does the Impact Apply to the Treatment Project?	List SPRs Applicable to the Treatment Project ²	List MMs Applicable to the Treatment Project ²	Identify Impact Significance for Treatment Project	Would this be a Substantially More Severe Significant Impact than Identified in the PEIR?	Is this Impact Within the Scope of the PEIR?
Would the project:								
Impact SERV-a: cause adverse impacts from providing or needing to provide new municipal services?	LTS for fire and parks, NI for all others	4.15.2(a)						

¹ Impact levels: NI = No impact LTS = Less than significant PS = Potentially significant LTSM = Less than significant with Mitigation SU = Significant and unavoidable ²None: there are no SPRs and/or MMs identified in the PEIR for this impact. N/A: there are SPRs and/or MMs identified in the PEIR for this impact, but none are applicable to the treatment project.

New Public Services Impacts: Would the treatment result in other impacts related to public services that are not evaluated in the VFMP PEIR?	Yes <input type="checkbox"/>	No <input type="checkbox"/>	If yes, complete row(s) below and discussion
[identify new impact(s) below, if any, number them: SERV-b, etc; add rows as needed]	Potentially Significant	Less Than Significant with Mitigation Incorporated	Less than Significant
	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

(a) Discussion of impacts listed in the PEIR that also apply to this treatment activity, *if applicable*

Impact SERV-a

(b) Discussion of any new impacts from New Impacts table above, *if applicable*

A. 4. 16 RECREATION

Environmental Impact Covered In the PEIR	Identify Impact Significance in the PEIR ¹	Identify Location of Impact Analysis in the PEIR	Does the Impact Apply to the Treatment Project?	List SPRs Applicable to the Treatment Project ²	List MMs Applicable to the Treatment Project ²	Identify Impact Significance for Treatment Project	Would this be a Substantially More Severe Significant Impact than Identified in the PEIR?	Is this Impact Within the Scope of the PEIR?
Would the project:								
Impact REC-a: Increase use of recreational facilities, causing their physical deterioration ?	NI	4.16.2(a)						
Impact REC-b: Harm the environment by building new or expanded recreational facilities?	NI	4.16.2(b)						
Impact REC-c: Would the project close recreational facilities temporarily or permanently, reducing the public's ability to access the park or conflicting with applicable Parks plans or regulations?	LTS	4.16.2(c)						

¹ Impact levels: NI = No impact LTS = Less than significant PS = Potentially significant LTSM = Less than significant with Mitigation SU = Significant and unavoidable ²None: there are no SPRs and/or MMs identified in the PEIR for this impact. N/A: there are SPRs and/or MMs identified in the PEIR for this impact, but none are applicable to the treatment project.

New Recreation Impacts: Would the treatment result in other impacts to recreation that are not evaluated in the VFMP PEIR?	Yes	No	If yes, complete row(s) below and discussion	
[identify new impact(s) below, if any, number them: REC-d, etc; add rows as needed]	<input type="checkbox"/>	<input type="checkbox"/>	Potentially Significant	Less Than Significant with Mitigation Incorporated
	<input type="checkbox"/>	<input type="checkbox"/>		

(a) Discussion of impacts listed in the PEIR that also apply to this treatment activity, *if applicable*

Impact REC-a

Impact REC-b

Impact REC-c

(b) Discussion of any new impacts from New Impacts table above, *if applicable*

A. 4. 17 TRANSPORTATION

Environmental Impact Covered In the PEIR	Identify Impact Significance in the PEIR	Identify Location of Impact Analysis in the PEIR	Does the Impact Apply to the Treatment Project?	List SPRs Applicable to the Treatment Project ²	List MMs Applicable to the Treatment Project ²	Identify Impact Significance for Treatment Project	Would this be a Substantially More Severe Significant Impact than Identified in the PEIR?	Is this Impact Within the Scope of the PEIR?
Would the project:								
Impact 3.15-1: conflict with a program, plan, ordinance or policy addressing the circulation system, including transit, roadway, bicycle and pedestrian facilities?	LTS	4.17.2(a)						
Impact TRANS-2: Result in a locally significant or sustained increase in vehicle miles traveled?	LTS	4.17.2(b)						
Impact TRANS-4: substantially increase hazards due to a transportation system use incompatible with current uses (e.g., farm equipment on a bike path)?	NI	4.17.2(c)						
Impact TRANS-4: Result in inadequate emergency access?	LTS	4.17.2(d)						

¹ Impact levels: NI = No impact LTS = Less than significant PS = Potentially significant LTSM = Less than significant with Mitigation SU = Significant and unavoidable ²None: there are no SPRs and/or MMs identified in the PEIR for this impact. N/A: there are SPRs and/or MMs identified in the PEIR for this impact, but none are applicable to the treatment project.

New Transportation Impacts: Would the treatment result in other impacts to transportation that are not evaluated in the VFMP PEIR?	Yes <input type="checkbox"/>	No <input type="checkbox"/>	If yes, complete row(s) below and discussion	
[identify new impacts below, if applicable; number them: TRANS-e, TRANS-f, etc; add rows as needed]	Potentially Significant	Less Than Significant with Mitigation Incorporated	Less than Significant	
	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	

(a) Discussion of impacts listed in the PEIR that also apply to this treatment activity, *if applicable*

Impact TRANS-a

Impact TRANS-b

Impact TRANS-c

Impact TRANS-d

(b) Discussion of any new impacts from New Impacts table above, *if applicable*

A. 4. 18 TRIBAL CULTURAL RESOURCES: All impacts/checklist items have been moved into A. 4. 5, above

A. 4. 19 UTILITIES AND SERVICE SYSTEMS

Environmental Impact Covered In the PEIR	Identify Impact Significance in the PEIR ¹	Identify Location of Impact Analysis in the PEIR	Does the Impact Apply to the Treatment Project?	List SPRs Applicable to the Treatment Project ²	List MMs Applicable to the Treatment Project ²	Identify Impact Significance for Treatment Project	Would this be a Substantially More Severe Significant Impact than Identified in the PEIR?	Is this Impact Within the Scope of the PEIR?
Would the project:								
Impact UTL-a: cause relocation/construction of new/expanded water, wastewater treatment, storm water drainage, or utility/communications facilities?	NI	4.19.2(a)						
Impact UTL-b: have sufficient water supplies including in droughts?	NI	4.19.2(b)						
Impact UTL-c: increase demand for wastewater treatment beyond current treatment capacity?	NI	4.19.2(c)						
Impact UTL-d: generate solid waste in excess of State or local standards/capacity, or otherwise impair the attainment of solid waste reduction goals, including AB 1383 ?	LTS	4.19.2(d)						
Impact UTL-e: comply with federal, state, and local management and reduction statutes and regulations related to solid waste?	NI	4.19.2(e)						

¹ Impact levels: NI = No impact LTS = Less than significant PS = Potentially significant LTSM = Less than significant with Mitigation SU = Significant and unavoidable ²None: there are no SPRs and/or MMs identified in the PEIR for this impact. N/A: there are SPRs and/or MMs identified in the PEIR for this impact, but none are applicable to the treatment project.

New Utilities/Solid Waste/Green Waste Impacts: Would the treatment result in other waste-related impacts not evaluated in the VFMP PEIR?	Yes <input type="checkbox"/>	No <input type="checkbox"/>	If yes, complete row(s) below and discussion		
[identify new impacts below, if applicable; label them: UTL-f, UTL-g, etc; add rows as needed]	Potentially Significant	Less Than Significant with Mitigation Incorporated	Less than Significant		
	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		

(a) Discussion of impacts listed in the PEIR that also apply to this treatment activity, *if applicable*

Impact UTL-a

Impact UTL-b

Impact UTL-c

Impact UTL-d

Impact UTL-e

(b) Discussion of any new impacts from New Impacts table above, *if applicable*

4.20 WILDFIRE

Environmental Impact Covered In the PEIR	Identify Impact Significance in the PEIR ¹	Identify Location of Impact Analysis in the PEIR	Does the Impact Apply to the Treatment Project?	List SPRs Applicable to the Treatment Project ²	List MMs Applicable to the Treatment Project ²	Identify Impact Significance for Treatment Project	Would this be a Substantially More Severe Significant Impact than Identified in the PEIR?	Is this Impact Within the Scope of the PEIR?
Impact FIRE-a: substantially impair an adopted emergency response plan or emergency evacuation plan?	LTS	4.20.2(a)						
Impact FIRE-b: exacerbate wildfire risks and thereby expose people to hazards?	LTS	4.20.2(b)						
Impact FIRE-c: require installation or maintenance of infrastructure (such as roads, fuel breaks, emergency water sources, power lines or other utilities) that may exacerbate fire risk?	NI	4.20.2(c)						
Impact FIRE-d: expose people or structures to significant risks, including downslope or downstream flooding or landslides, as a result of runoff, post-fire slope instability, or drainage changes?	LTS	4.20.2(d)						

¹ Impact levels: NI = No impact LTS = Less than significant PS = Potentially significant LTSM = Less than significant with Mitigation SU = Significant and unavoidable ²None: there are no SPRs and/or MMs identified in the PEIR for this impact. N/A: there are SPRs and/or MMs identified in the PEIR for this impact, but none are applicable to the treatment project.

New Wildfire Impacts: Would the treatment result in other wildfire impacts that are not evaluated in the VFMP PEIR?	Yes <input type="checkbox"/>	No <input type="checkbox"/>	If yes, complete row(s) below and discussion	
[identify new impacts below, if applicable; number them: FIRE-e, FIRE-f, etc.; add rows as needed]	Potentially Significant	Less Than Significant with Mitigation Incorporated	Less than Significant	
	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	

(a) Discussion of impacts listed in the PEIR that also apply to this treatment activity, *if applicable*

Impact FIRE-a

Impact FIRE-b

Impact FIRE-c

Impact FIRE-d

(b) Discussion of any new impacts from New Impacts table above, *if applicable*

A. 4. 21 MANDATORY FINDINGS OF SIGNIFICANCE

Environmental Impact Covered In the PEIR	Identify Impact Significance in the PEIR ¹	Identify Location of Impact Analysis in the PEIR	Does the Impact Apply to the Treatment Project?	List SPRs Applicable to the Treatment Project ²	List MMs Applicable to the Treatment Project ²	Identify Impact Significance for Treatment Project	Would this be a Substantially More Severe Significant Impact than Identified in the PEIR?	Is this Impact Within the Scope of the PEIR?
Would the project:								
Impact MAND-a: substantially degrade the quality of the environment, cause a fish or wildlife population to drop below self- sustaining levels, threaten to eliminate a plant or animal community, or eliminate important examples of the major periods of California history or prehistory?	LTS	4.21.2(a)						
Impact MAND-b: Have impacts that are individually limited, but cumulatively considerable?	LTS	4.21.2(b)						
Impact MAND-c: Cause substantial adverse effects on human beings, either directly or indirectly?	NI	4.21.2(c)						

¹ Impact levels: NI = No impact LTS = Less than significant PS = Potentially significant LTSM = Less than significant with Mitigation SU = Significant and unavoidable ²None: there are no SPRs and/or MMs identified in the PEIR for this impact. N/A: there are SPRs and/or MMs identified in the PEIR for this impact, but none are applicable to the treatment project.

New Findings of Mandatory Significance: Would the treatment result in other impacts that must be analyzed under findings of mandatory significance that were not part of the CEQA code when the VFMP PEIR was written?	Yes <input type="checkbox"/>	No <input type="checkbox"/>	If yes, complete row(s) below and discussion
[identify new impact(s) below, if applicable; number them: MAND-d, MAND-e, etc; add new rows if necessary]	Potentially Significant	Less Than Significant with Mitigation Incorporated	Less than Significant
	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

(a) Discussion of impacts listed in the PEIR that also apply to this treatment activity, *if applicable*

Impact MAND-a

Impact MAND-b

Impact MAND-c

(b) Discussion of any new impacts from New Impacts table above, *if applicable*

Appendix B

Vegetative Fuels Management Plan, December 2020

~~SECOND~~ Third 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**

CONTENTS

1 Introduction.

- 1.1 Purpose
- 1.2 Scope.
- 1.3 Connection to other Plans.
- 1.4 How this plan was developed
- 1.5 Abbreviations and Special Terms used in this Plan

2 Introduction to Chico's natural parks.

- 2.1 Bidwell Park
- 2.2 Preserves and conserved parcels: Bidwell Ranch, Foothill Park Preserve, Wildwood Vernal Pool Preserve, and conserved parcels of Hillview, South Chico, and Eaton Road.
- 2.3 Comanche Creek Greenway
- 2.4 Teichert Ponds
- 2.5 Verbena Fields

3 Introduction to the City's other green space.

- 3.1 Airport green space.
- 3.2 Lindo Channel a.k.a. Sandy Gulch
- 3.3 Little Chico Creek
- 3.4 South Dead Horse Slough
- 3.5 Miscellaneous City green space parcels.

4 Vegetation Management.

- 4.1 Vegetation Zones.
- 4.2 Fuel loading standards by zone.
- 4.3 Vegetation management tools and techniques.
 - 4.3.1 Biological techniques
 - 4.3.2 Hand labor techniques
 - 4.3.3 Machine work
 - 4.3.4 Chemical techniques
 - 4.3.5 Prescribed Fire and Cultural Fire

5 ~~Key Shovel-Ready~~ 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
- 5.6 Little Chico Creek Arundo Management

6 Appendices

- 6.1 Fire Risk Assessment by Deer Creek Resources
- 6.2 Task Prioritization
- 6.3 Species Prioritization for Fuels Reduction
- 6.4 Miscellaneous Parcels Survey Results
- 6.5 A Note On CEQA
- 6.6 Table of Parklands and Planning Status

7 Bibliography/References

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, [native biodiversity \(i.e., parklands free from invasive species\)](#), 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.

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 Chicanos 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 BCRC 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.

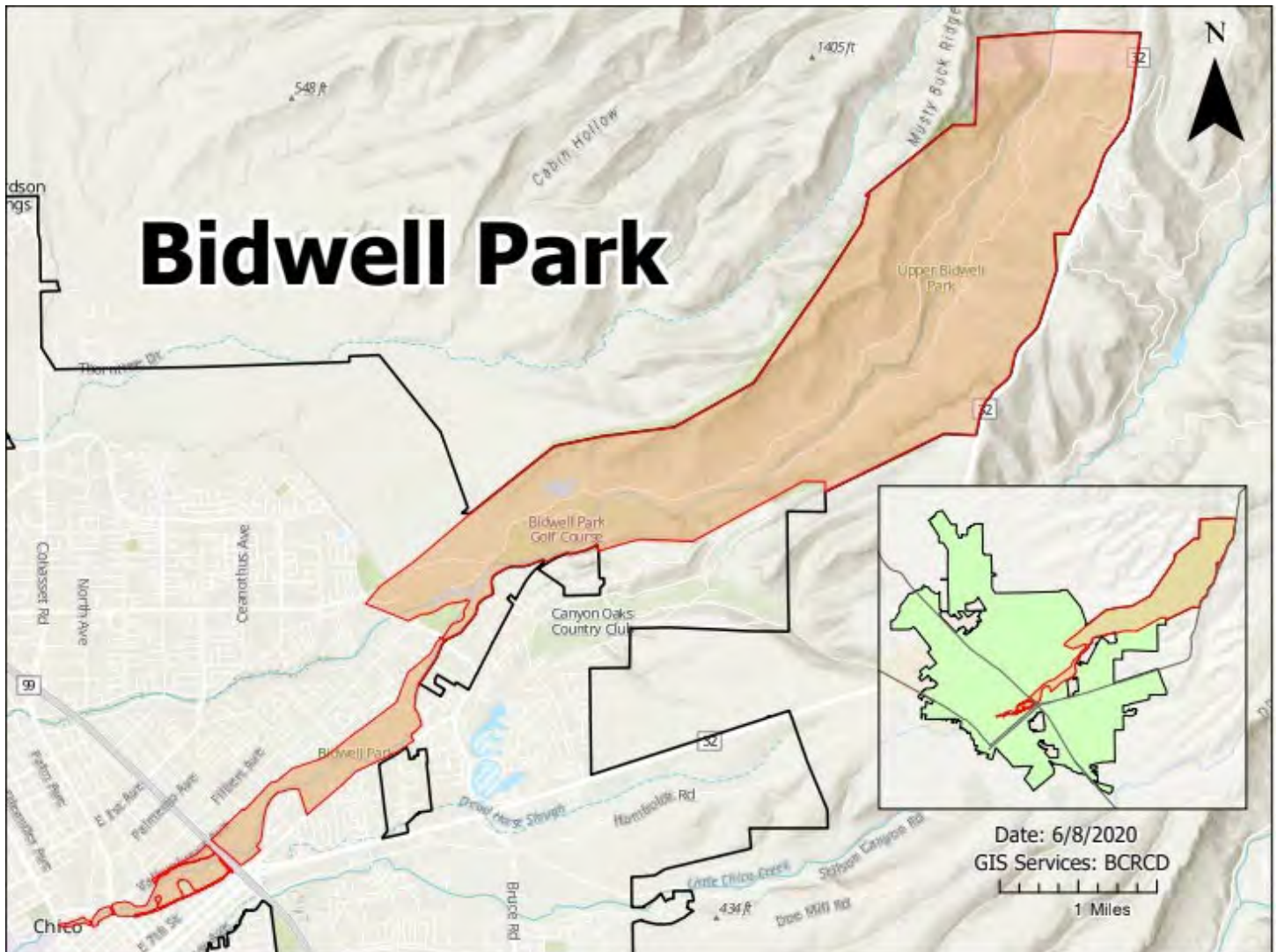
By natural values, we mean:

- 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 [crown](#) 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.

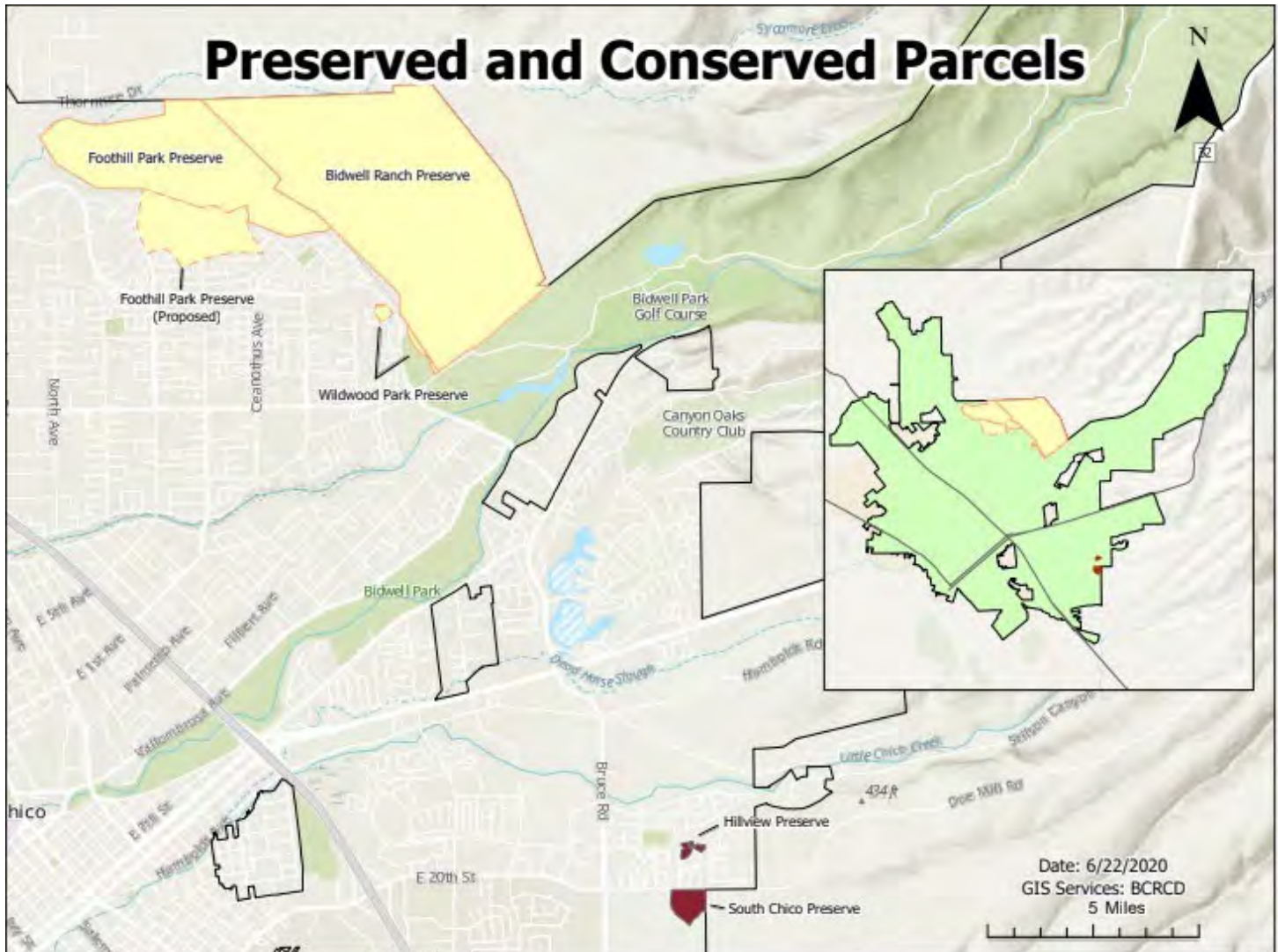
Lower Park is defined as the part of the Park west of Manzanita Ave. Middle Park is defined as the area east of Manzanita Ave but west of the ridge just east of the Horseshoe Lake area (i.e., Parking Lot E).~~In Lower and Middle Park, a higher management level is appropriate than in Upper Park. That's~~ These areas encompass 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. They also~~ 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

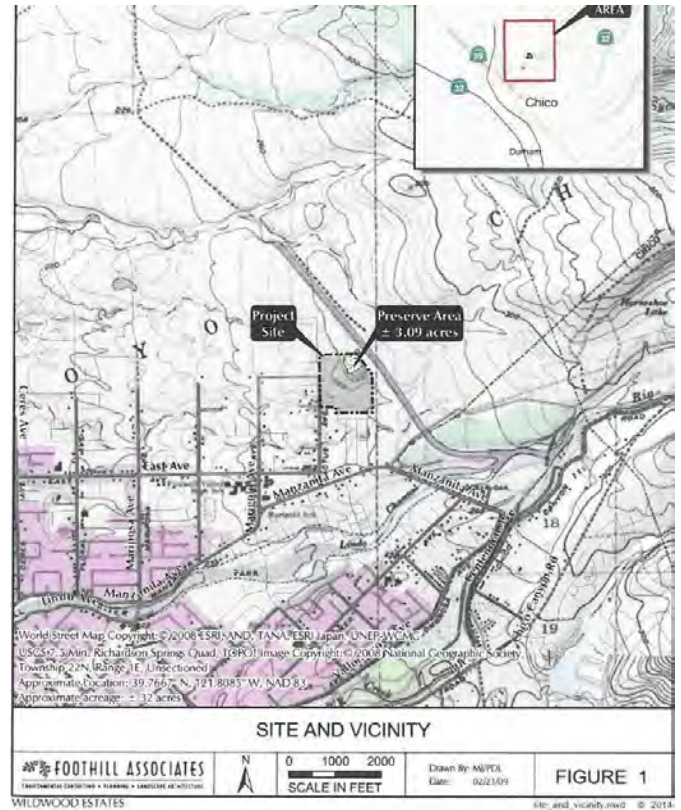
March 5, 2008
Page 35

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.



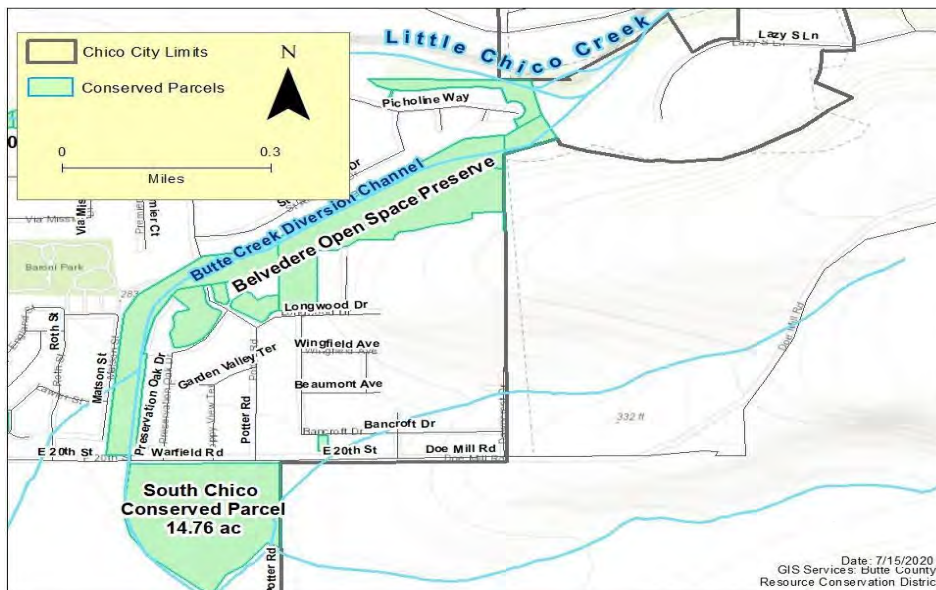
Wildwood Vernal Pool Preserve consists of 3.1 acres between Wildwood Neighborhood Park and the Sycamore Diversion Channel (map at right). It has a detailed management plan (Foothill Associates 2014). The plan states, “If, at any time, conditions at the Preserve become a fire hazard, the Preserve Manager 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.



The **South Chico conserved area** (14.8 acres, see map below), also known as the Doe Mill Butte County Meadowfoam Preserve, is located on the south side of East 20th Street, and east side of the Little Chico Creek to Butte Creek diversion canal. This parcel has a detailed management plan (CNLM 1996), providing expert ecological guidance on managing the parcel to promote the endangered Butte County Meadowfoam (*Limnanthes floccosa ssp. californica*).

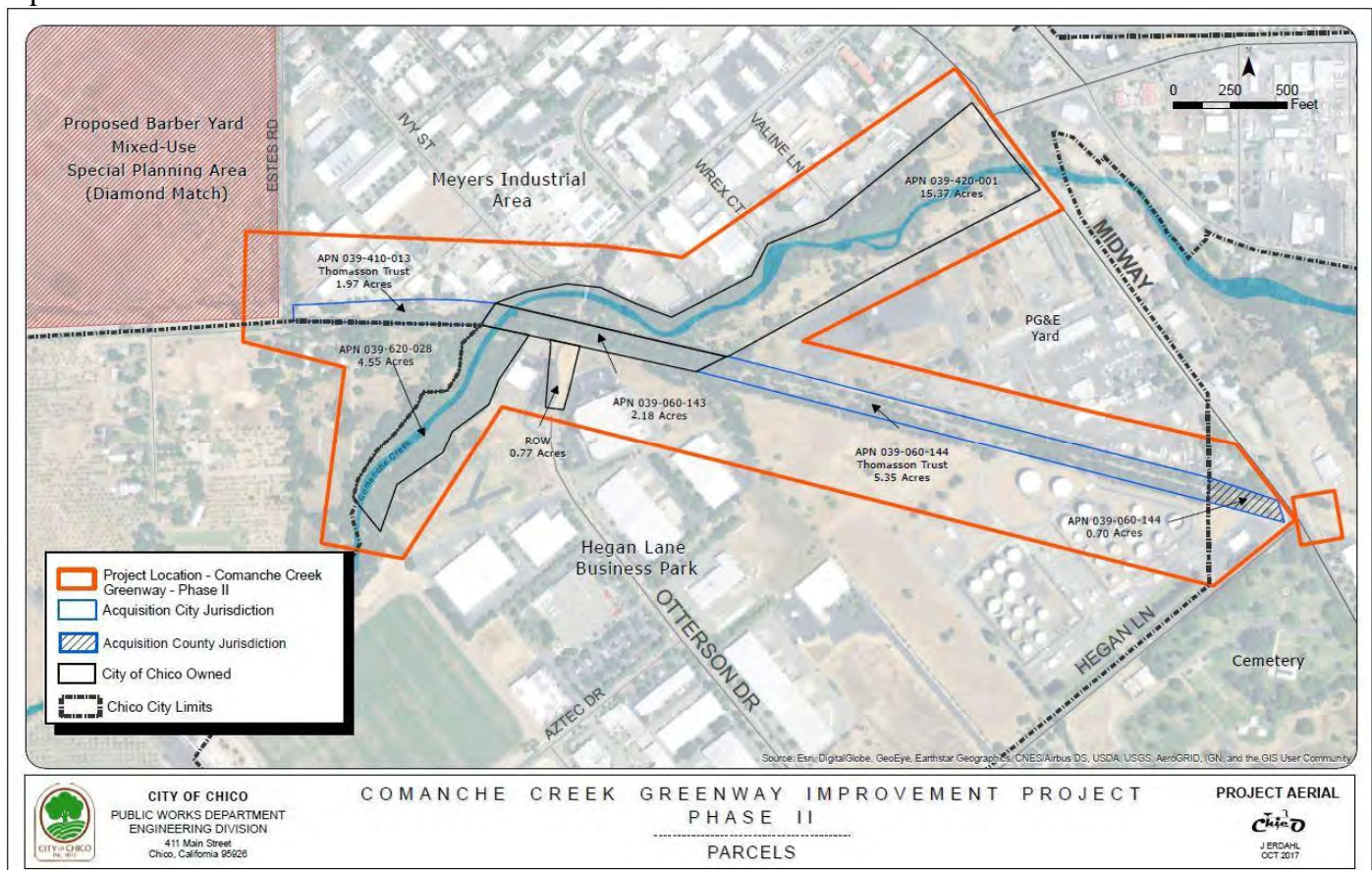
Some open space preserves have no management plans. One is **Hillview, a.k.a. Belvedere open space preserve** (27.6 acres when including the canal) located in the Hillview Terrace subdivision along the Little Chico Creek to Butte Creek diversion canal. Maintenance is funded by a maintenance district, but there is no management plan. Now that this Plan is complete, vegetation in both this areas (which falls into the Grassland vegetation type, see 4.1) will be able to be managed under the 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.~~



|

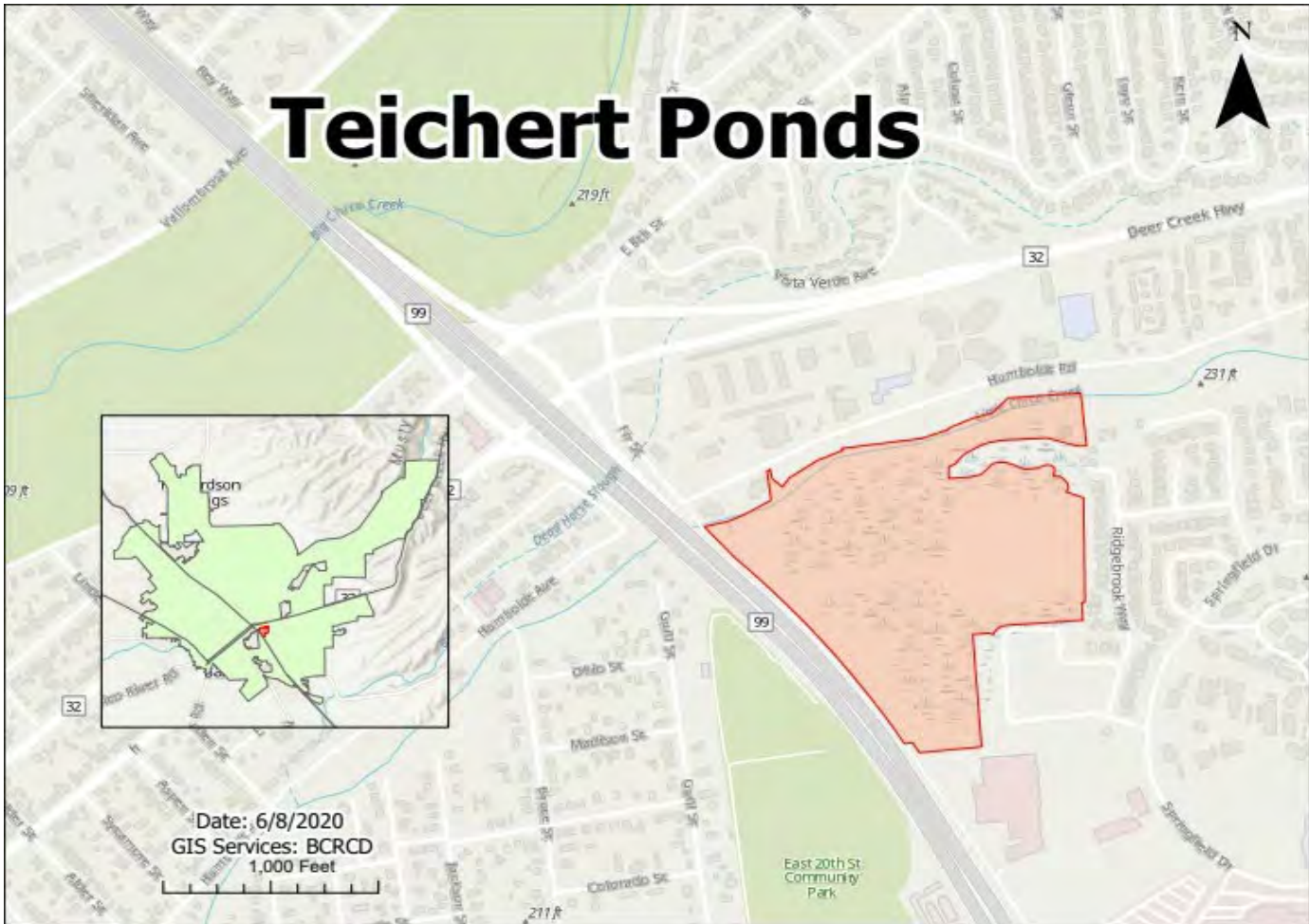
2.52.3 Comanche Creek Greenway

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.

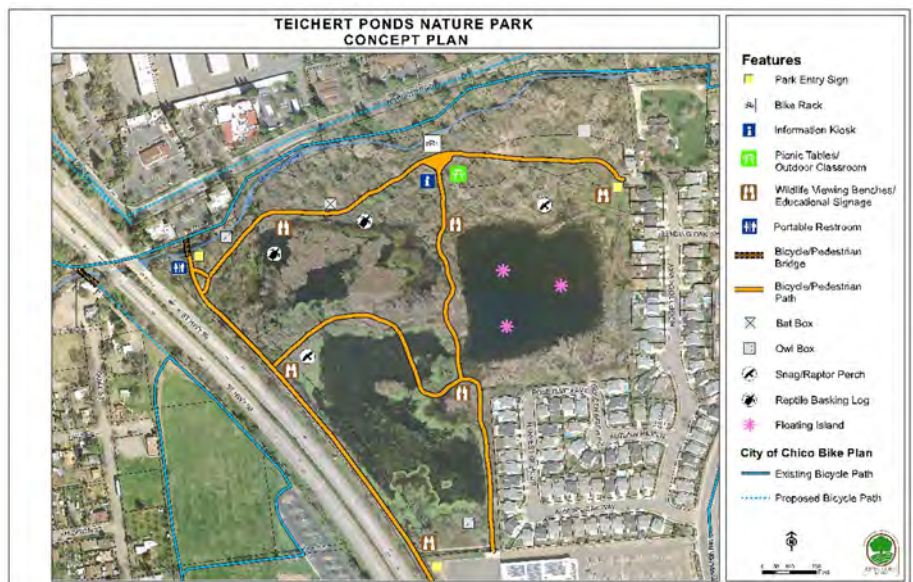
2.62.4 Teichert Ponds



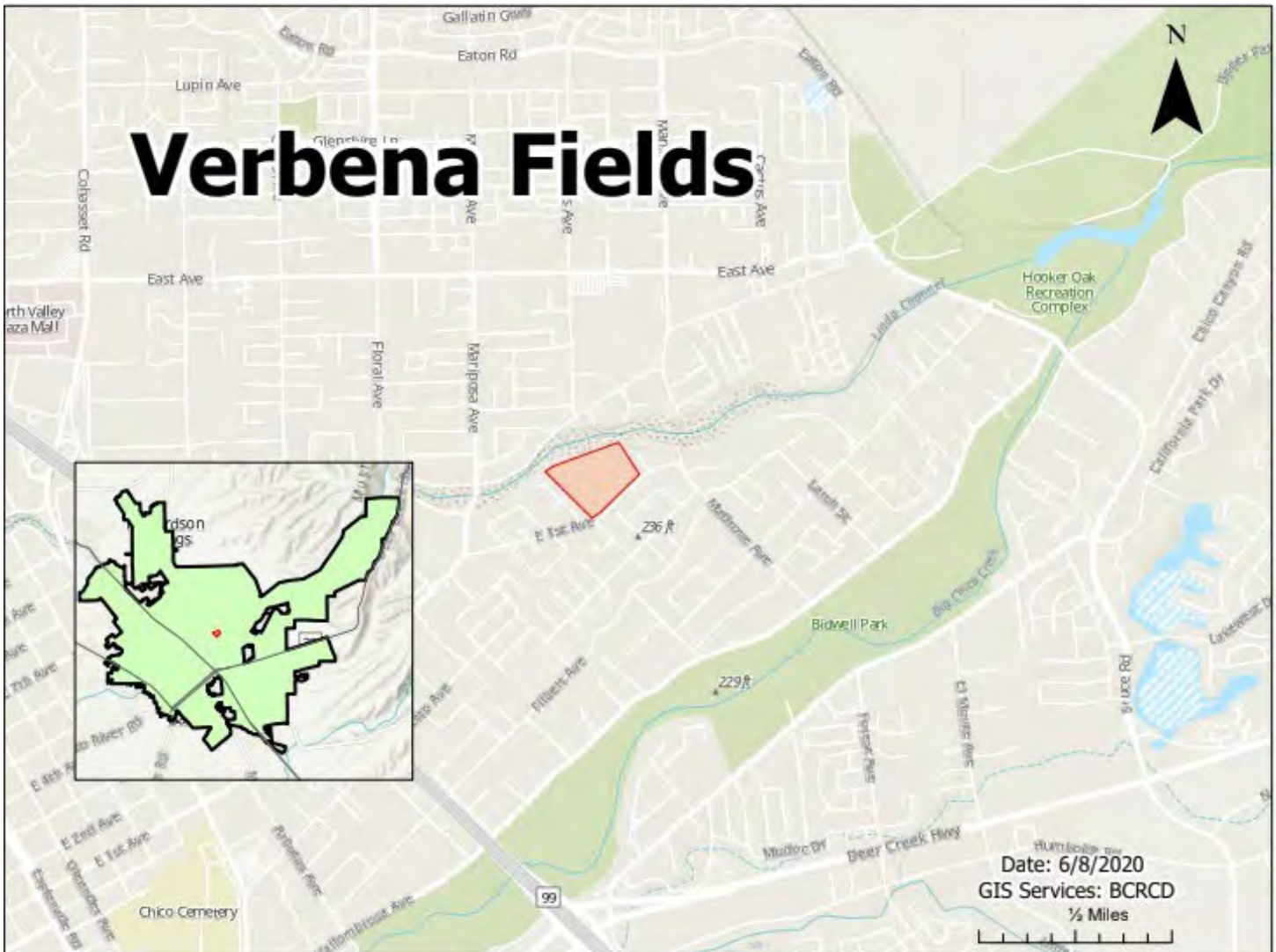
Teichert Ponds is currently maintained for use as stormwater detention hydrologically connected to Little Chico Creek. The Habitat Development Plan (Restoration Resources 2008) addresses stormwater detention, recreation, and habitat enhancement, including management of invasive species, but it does not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



2.72.5 Verbenas Fields

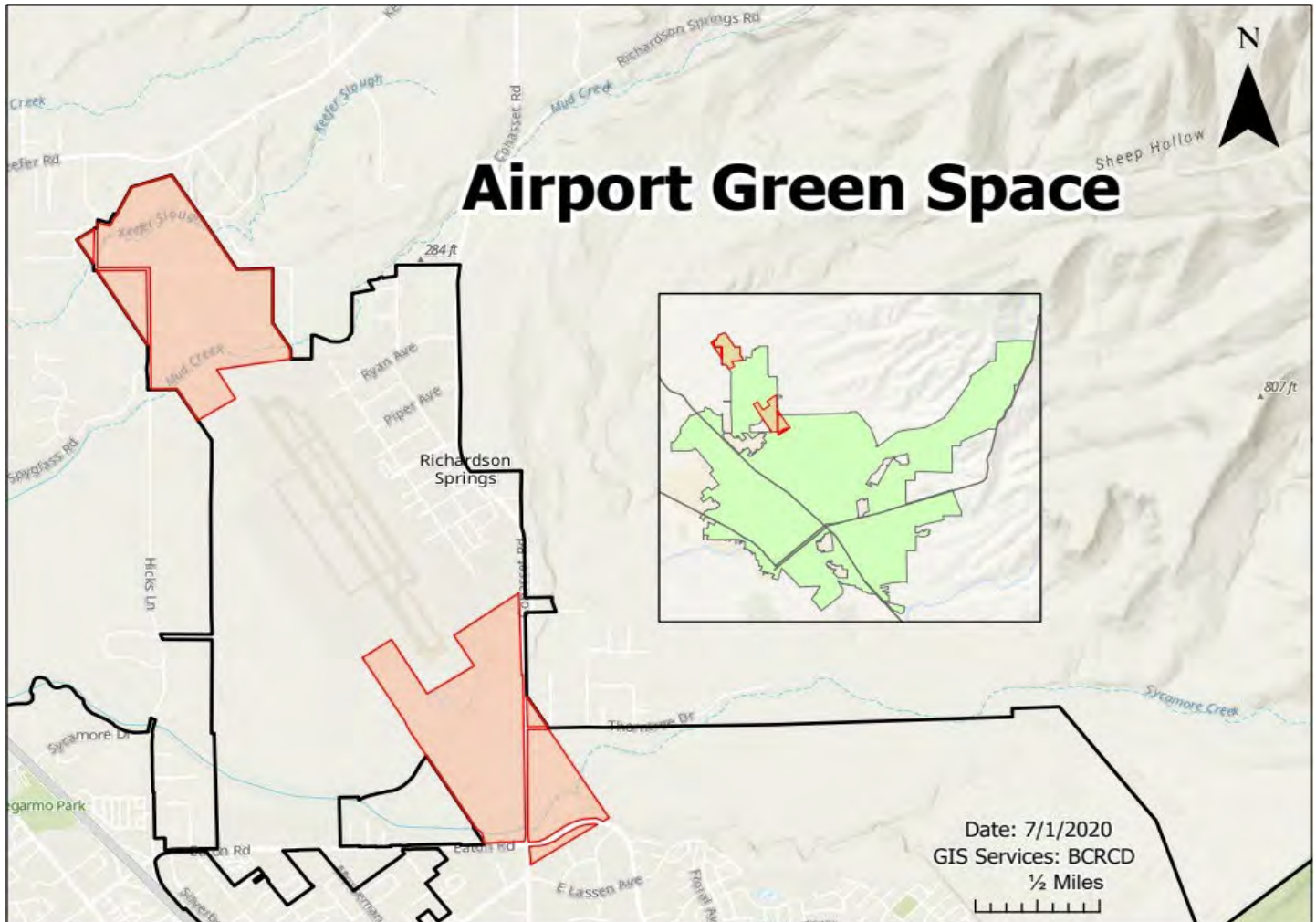


This 13.4-acre site is located along Lindo Channel. Once a gravel mining site, it was recontoured as a flood overflow basin and restored as a unique natural and interpretive park focused on plants of significance to the Mechoopda people, the original inhabitants of Chico. Mechoopda people still maintain, gather, and care for the living cultural resources here such as deer grass and willow. Maintenance projects in and around Verbenas 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, Verbenas 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 Verbenas 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 Verbenas 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.

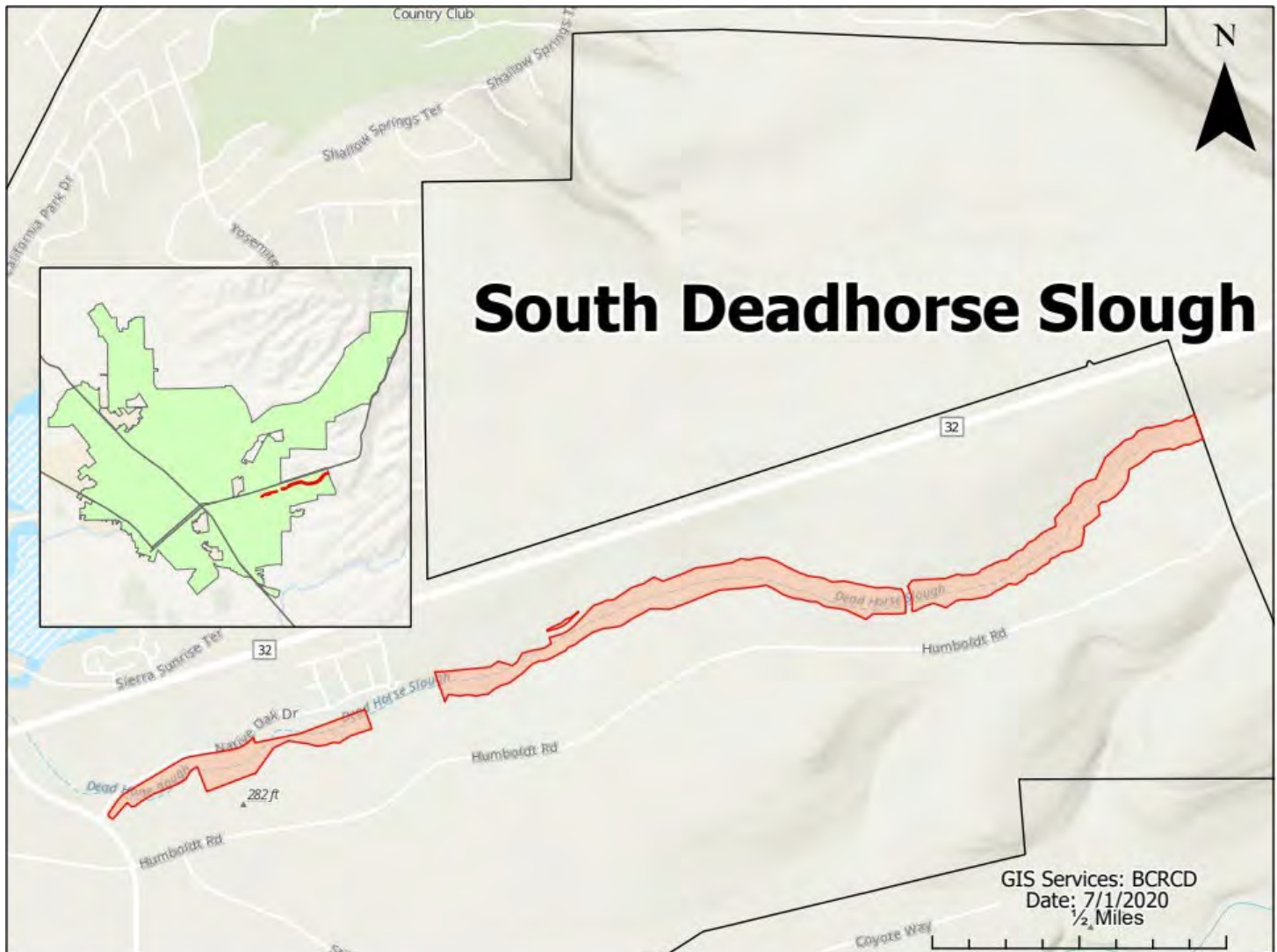
On Little Chico Creek, giant reed (*Arundo donax*) or Arundo forms large stands in places. Reducing this infestation has long been a City goal, because Arundo displaces native vegetation, displaces native vegetation habitat for a wide variety of animals, and creates very attractive spaces to light illegal 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).

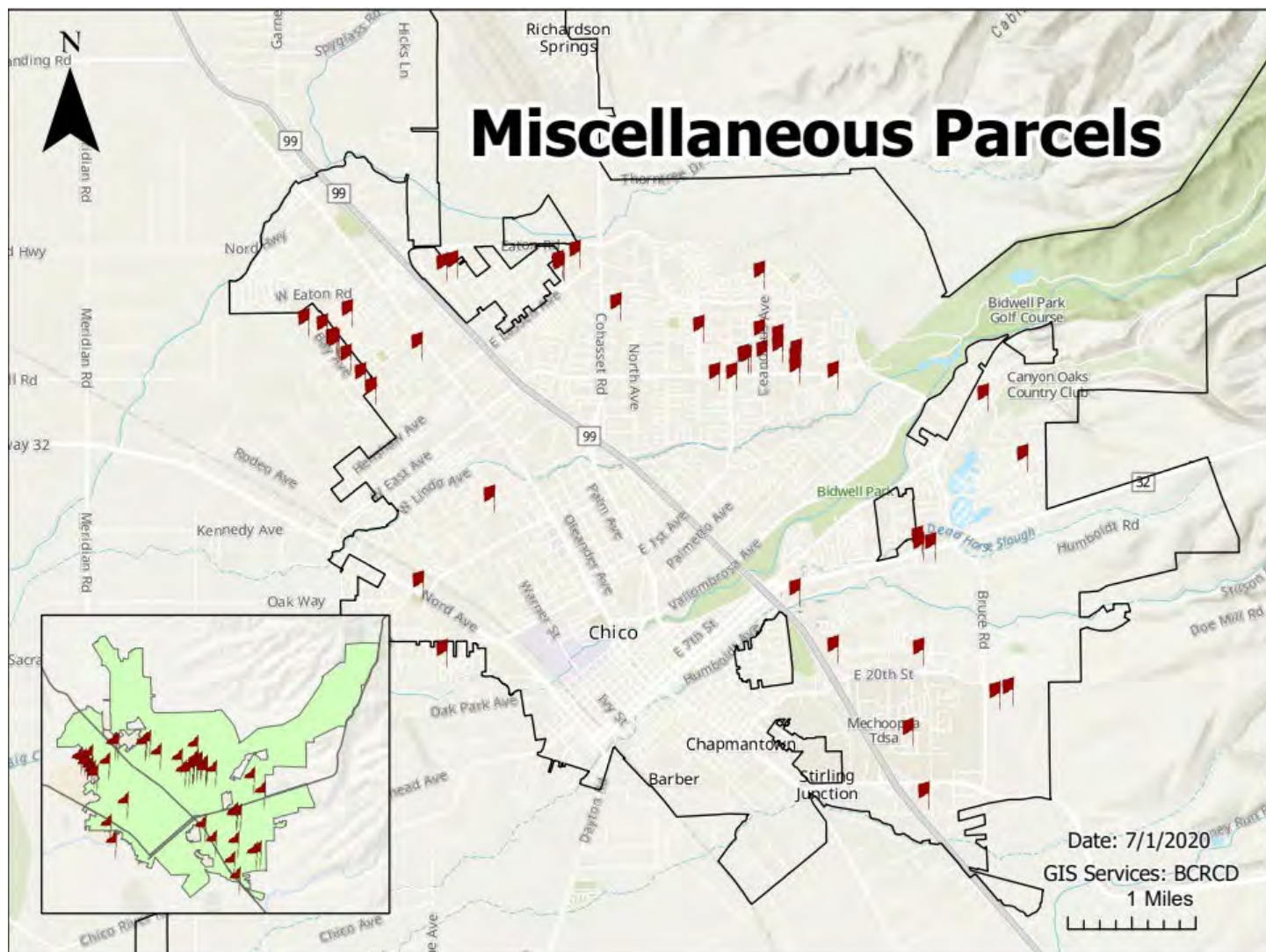
Several Arundo stands on the banks of Little Chico Creek are surely in part within the OHWM. When work needs to be done in that area, this is dealt with via the CDFW 1600 (LSA) permit (see section 3.2). The details of this implementation strategy are something to work out with CDFW via the 1600 permit, 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.

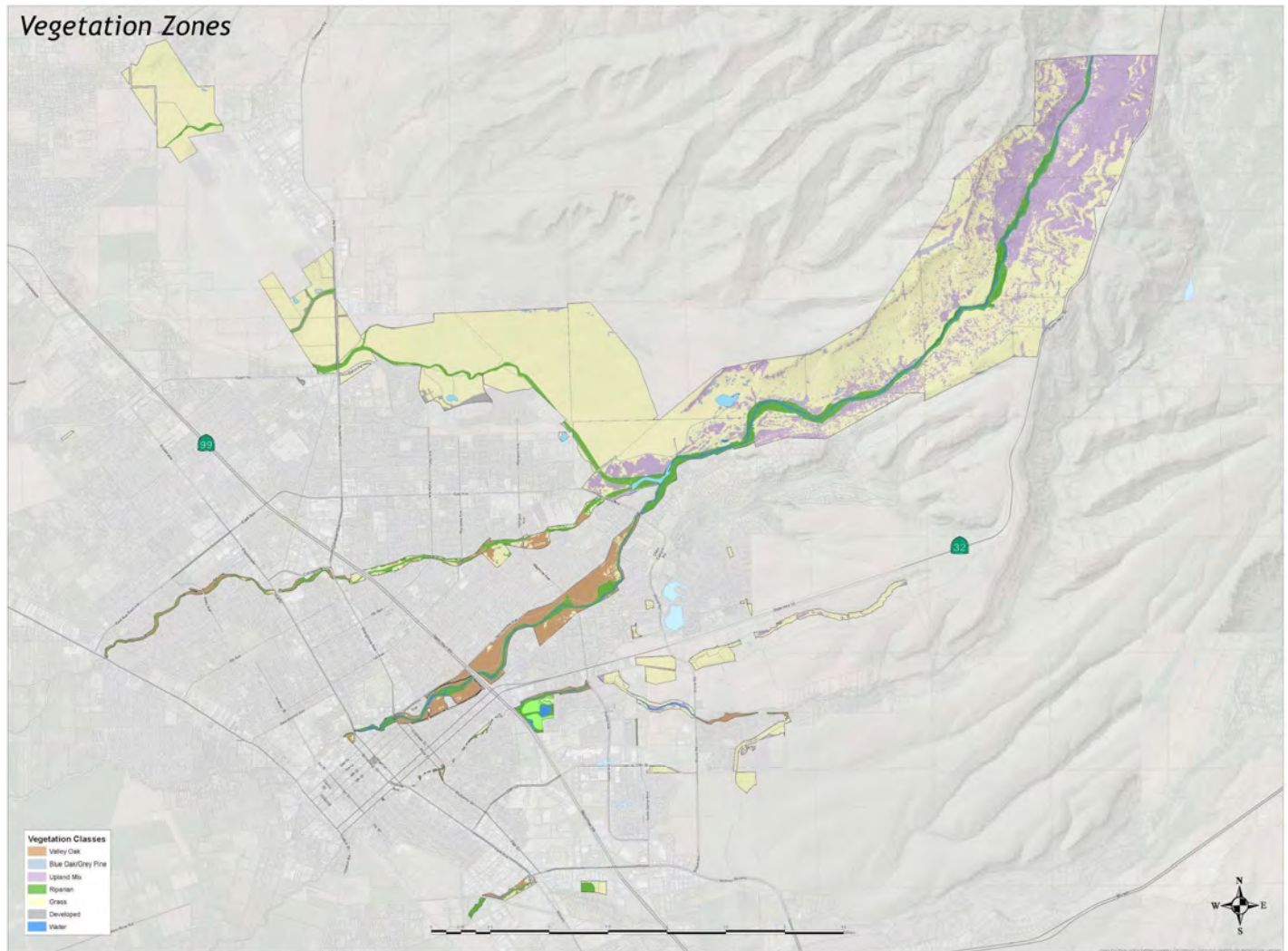
3.5 Miscellaneous City Green Space Parcels.



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, Chicanos 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 iconic](#) 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-Comanche 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. In the core area, 50' either way from the centerline of the project:
 - 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. In the area 50-100 feet from the centerline of the project:
 - 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. In areas within the overall fuel break project area, farther than 100 feet from project centerline:
 - 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 sprouts 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

- Manage weed infestations/mitigate weed impacts of cleanup activities.
- 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.
- Build habitat piles in areas not directly adjacent to roads and trails.
- Collect and spread seeds of desired plants.
- 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 auroguttatus*), 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. Any native trees to be removed (a “tree” is defined for the purposes of this section as larger than 8” DBH) are marked beforehand by a qualified arborist, botanist, Registered Professional Forester, or City staff with adequate training. ~~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 ~~should be 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, trail(s), 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. [Herbicides can be mixed or batched together for better performance. In the latter case, When used after grazing or mechanical cutting, the herbicides can 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, h~~ 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. Key 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.

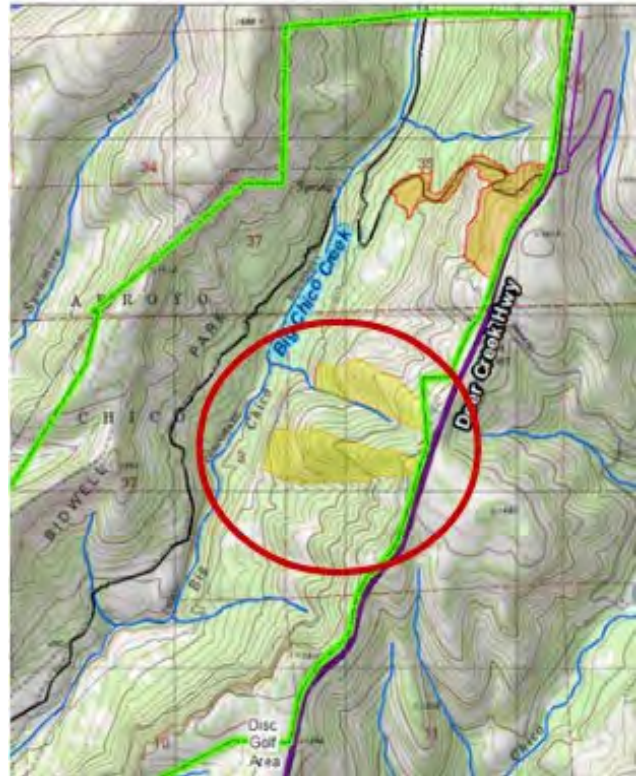
The project will thin from below to create open understory conditions under mature black oak trees, remove decadent understory vegetation in the margins of the black oak stands, and create conditions which may allow future understory burns to be used to maintain open conditions in the black oaks. Additionally, 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

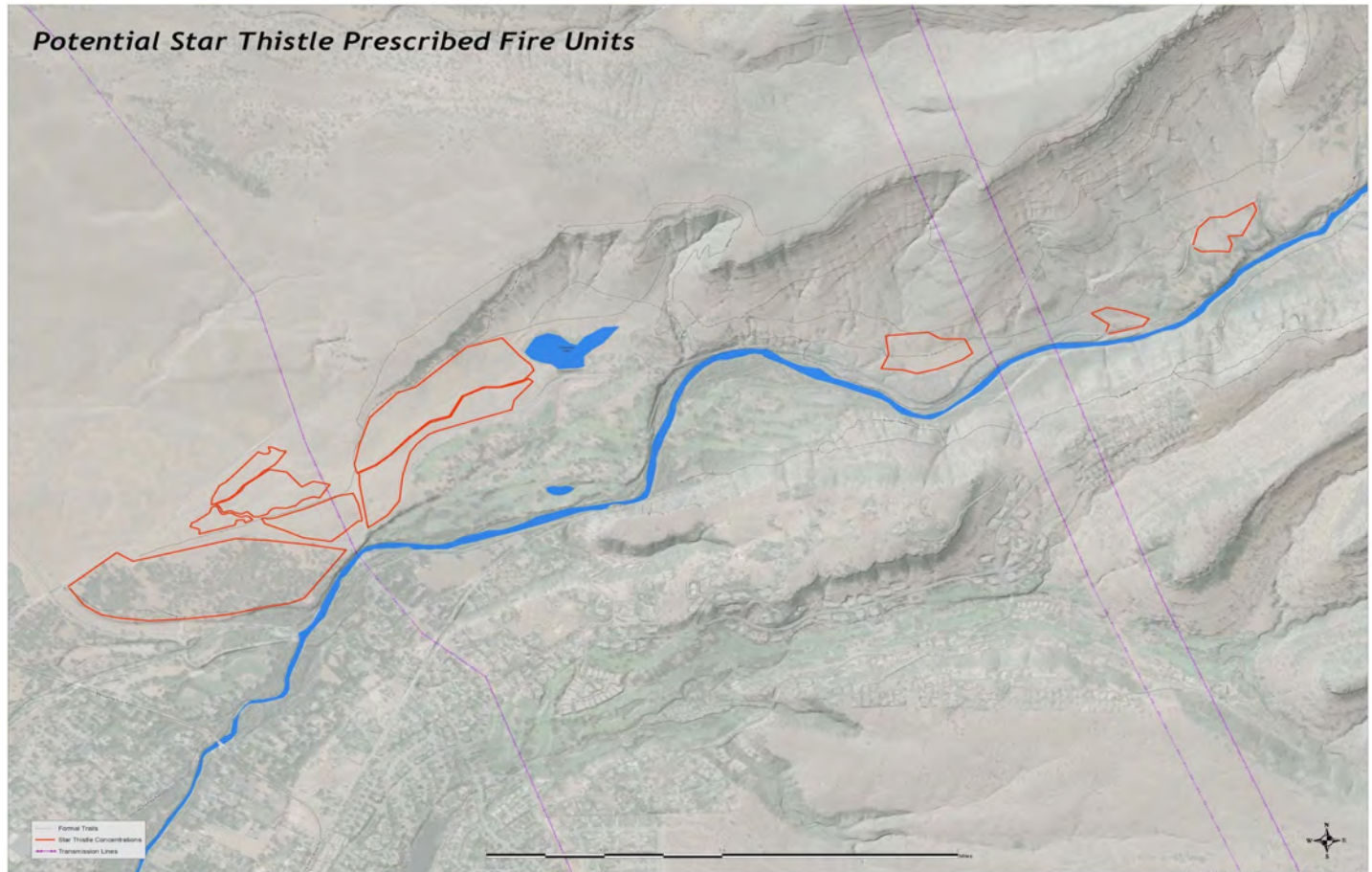
This project will implement thinning and postfire restoration activities to improve the utility of two key fireline locations on the South Rim of Bidwell Park.

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 solstitialis*) 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 solstitialis*) 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 increase 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.

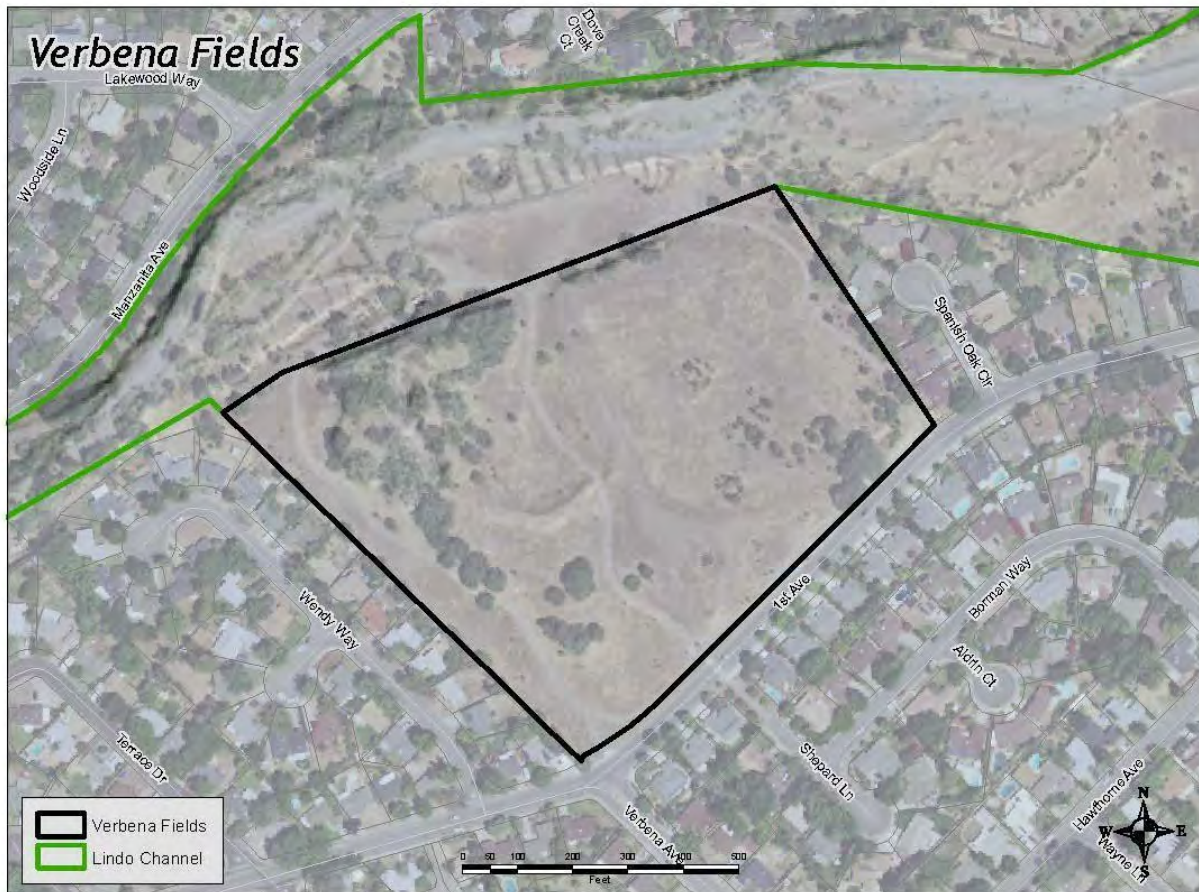
Regulatory Permits Needed

- 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



In channel: Reduce fire danger, enhance riparian area, improve willow health by removing dead fuels



On banks: Remove invasive broom, prune back ladder fuels, raise sightlines for safety



In meadow: Promote Mechoopda heritage through cultural burning



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" diameter can be removed where it is necessary to reduce fuel connectivity. Chipped depth will not exceed 4 inches 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 [it is expected](#) treatments will get less and less intensive over time.

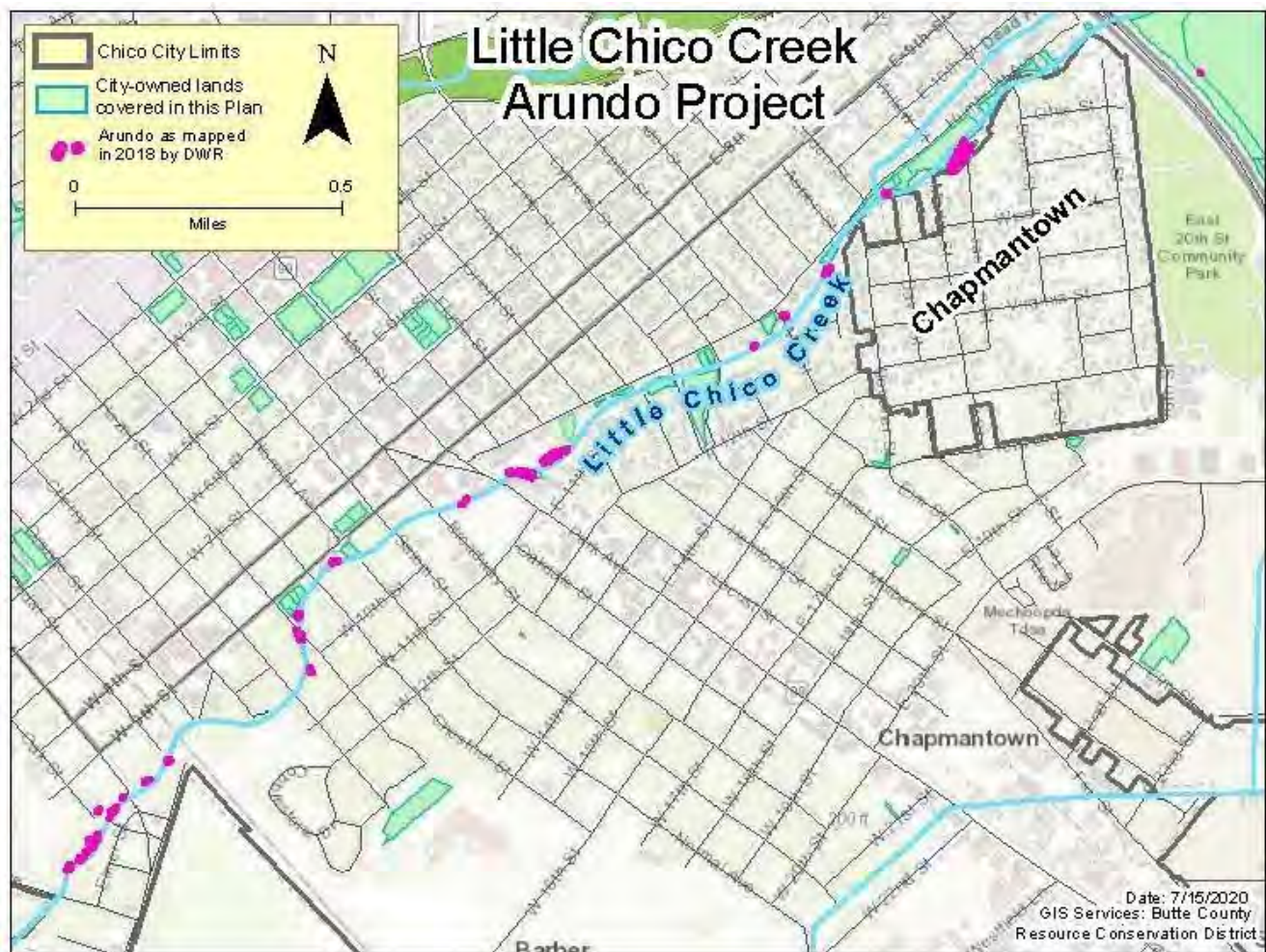
There are large populations of elderberry plants throughout the riparian corridor alongside the Lindo Channel. Elderberry is currently federally protected due to the Valley Elderberry Longhorn Beetle (VELB)'s dependency on these plants. Management around these plants must defer to USFWS guidelines as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

5.7 Lower Park Thinning

The citywide fire risk assessment conducted for this VFMP disclosed areas of dense ladder fuels in Lower Park. Speaking at a July, 2020 BPPC meeting, Deer Creek Resources described how under the right (rare) weather conditions, a hot fire could move from Lower Park to adjacent neighborhoods and potentially burn several homes. A wind-driven fire along this corridor, while a low-probability event, could result in structure losses. Therefore, a thinning project to address the densest areas in this corridor has been added to the VFMP.

This area of the Park contains outstanding examples of Valley oak riparian woodland and is rich in tribal cultural resources including orchard oaks. Improving fire safety and stewarding native biodiversity are not incompatible goals; in fact, in Lower Park they can be accomplished at the same time.

Utilizing a holistic approach to vegetative fuels management, the City can choose to focus not just on removing unwanted plants, but also on actively cultivating and stewarding the biodiverse and fire-adapted Valley Oak woodland understory that would be resistant to re-invasion. The Lower Park project consists of the following work:

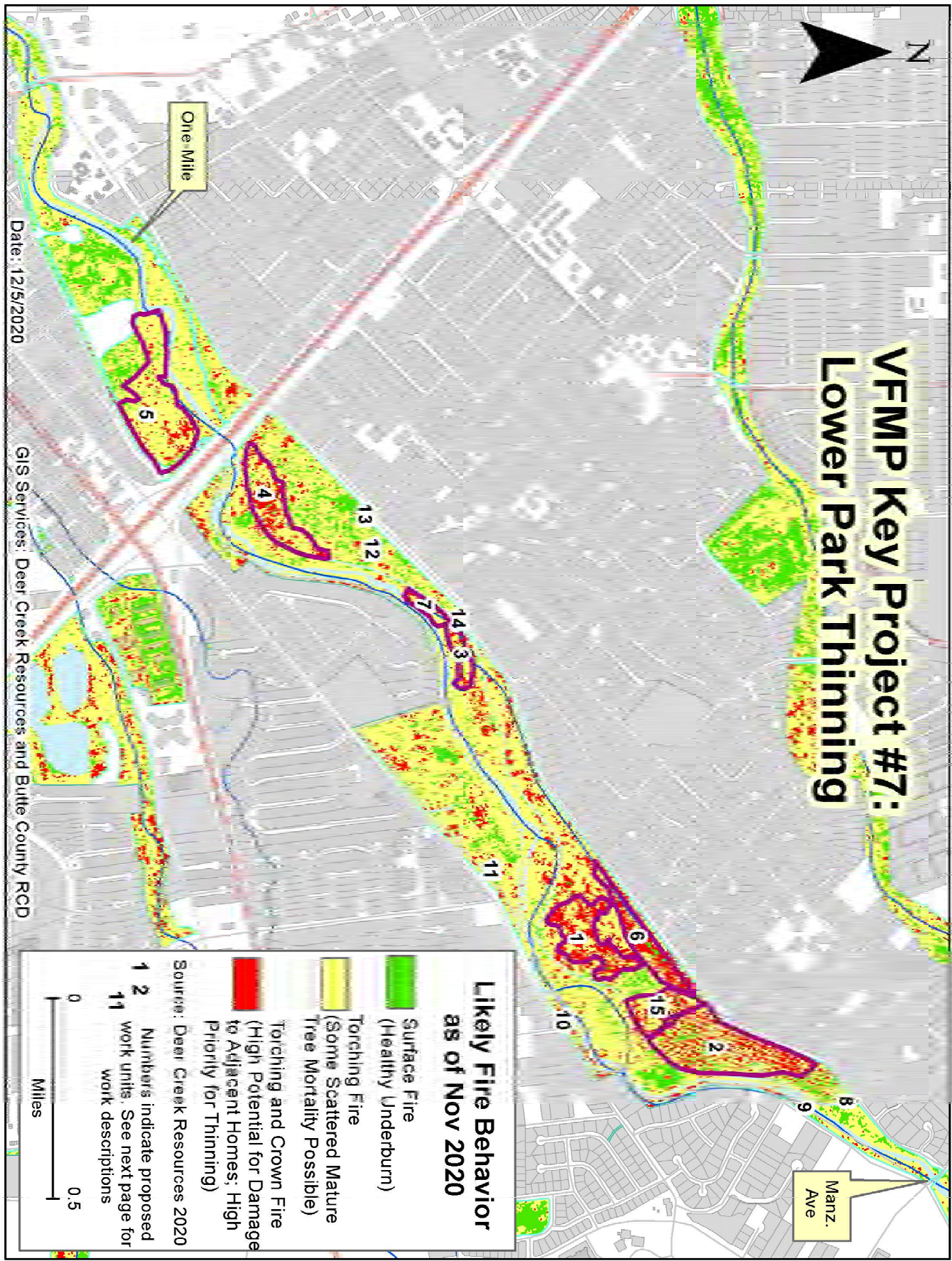
-Reduce ladder fuels, especially invasive plum, blackberry, and walnut, using ecologically trained hand crews (e.g., BCCER or Mechoopda crews).

-Target invasives first for removal, removing native plants as a last resort.

-As invasives recede, cultivate a healthy valley oak understory by establishing and maintaining an optimum balance of grasses, wildflowers, and coarse woody debris. This understory provides rich forage for pollinators, supports a health soil ecosystem, and contributes to Valley oak health by allowing natural processes to keep acorn pathogens in check. This restoration goal may best be accomplished by creating areas for Mechoopda-led cultivation of plants of cultural significance, such as native geophytes and graminoids.

-Utilize Mechoopda-led cultural fire to maintain and nourish “orchard oaks”. Orchard Oaks is the term used to describe the small percentage of oaks that produce a large majority of the acorns and play a keystone role in their woodland communities. These oaks have historically been cultivated with micro-fires (often as small as twenty feet by twenty feet) that cycle nutrients, limit pests and pathogens, increase the abundance and vitality of plants of cultural significance, and encourage better oak reproductive success. Lower Park, with its excellent water access and visibility, is an ideal place to safely re-introduce cultural fire and provides outstanding education opportunities.

|



LEGEND FOR WORK UNITS IN LOWER PARK THINNING PROJECT

1. Understory Thin. Target plums, blackberry, and small walnut. Objective is a more open grassland understory, like the area directly to the east.
2. Orchard Oak Restoration. Use fire to increase geophytes (bulbing wildflowers) and other important cultural species in open grassland openings.
3. Understory thin, reduce ladder fuels. Ignition prevention in high-impact camping area.
4. Understory thin, reduce ladder fuels. Ignition prevention in high-impact camping area.
5. Understory thin, reduce ladder fuels. Ignition prevention in high-impact camping area.
6. Understory thin.
7. Understory thin, reduce ladder fuels. Ignition prevention in high-impact camping area.
8. Cultural fire, demonstration area.
9. Cultural fire, demonstration area. Use fire to facilitate riparian restoration and improve conditions for culturally significant plants.
10. Cultural fire, demonstration area. Use fire to facilitate riparian restoration and improve conditions for culturally significant plants.
11. Potential grassland restoration and management projects.
12. Opportunities to use prescribed fire for hazard reduction, oak savannah maintenance, and acorn enhancement.
13. Oak underburning demonstration site
14. Oak underburning demonstration site
15. Orchard Oak Restoration. Understory thin to maintain Valley Oak savanna.

Project design: Zeke Lunder with consultation from Mechoopda Indian Tribe of Chico Rancheria and

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 as well as on several comments from the public. There is no specific a new Lower Park project has been included in Section 5 as Project 5.7., 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, t Thinning work there 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.



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.

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:

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 ([not currently a problem in Chico parklands but a watch list plant](#)).
- ***Genista monspessulana***, French broom. ([not currently a problem in Chico parklands but a watch list plant](#))
- ***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, [and Virginia creeper](#), ~~early 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 fuel 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 Established to protect endangered Butte County Meadowfoam. Detailed management plan (CNLM 1996).
South Deadhorse Slough	51.43	No management plan
Verbena Fields	13.38	No current management plan Maintenance plan (Cole 2010).
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, Jeremy 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.

[CNLM \(The Center for Natural Lands Management\). 1996 \(December\). "Land Management Plan for the City of Chico Doe Mill Butte County Meadowfoam Preserve". Prepared for City of Chico Planning Division.](#)

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

[Cole, Roger. 2010. "Verbena Maintenance Plan – Final." Interactive Design under contract to City of Chico.](#)

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 Pitcarin, 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.

Appendix C

Standard Project Requirements

Aesthetics: No SPRs applicable.

Agriculture and Timberlands: No SPRs applicable.

Air quality:

SPR AIR-1: Smoke Management Plan for All Burns. Unless an exemption (e.g. for very small cultural burn demonstrations) is negotiated in advance with BCAQMD, all prescribed burns on Chico parklands will have a Smoke Management Plan (SMP) developed for them and approved by BCAQMD before implementation. As part of burn planning, park managers will coordinate prescribed burns with BCAQMD staff in order to choose the optimal conditions with which to burn in order to generate minimal smoke impacts to the community. **Applies to treatment types:** Prescribed Fire. **Applies to vegetation communities:** All.

SPR AIR-2: Register All Portable Chippers. Portable chippers rated at 50 HP or greater shall be registered either with the District or through the statewide Portable Equipment Registration Program (PERP). **Applies to treatment types:** Machine Work. **Applies to vegetation communities:** Valley Oak, Blue Oak-Gray Pine, Upland Mix, Riparian.

Biological Resources:

SPR BIO-1: Review and Survey Project-Specific Biological Resources: The project proponent will require a qualified RPF or biologist to conduct a data review and reconnaissance-level survey prior to treatment. The data reviewed will include the biological resources setting, sensitive species and natural communities tables, and habitat information in the EIR relevant to the location where the treatment will occur. It will also include review of the best available, current data for the area, including species distribution/range information, CNDDB, California Native Plant Society (CNPS) Inventory of Rare and Endangered Plants of California, relevant BIOS queries, and relevant general and regional plans. Reconnaissance-level biological surveys will be general surveys that include visual and auditory inspection for biological resources to help determine the setting present on a treatment site. The qualified surveyor will 1) identify and document sensitive resources, such as riparian or other sensitive habitats, sensitive natural community, wetlands, or wildlife nursery site or habitat (including bird nests); and 2) assess the suitability of habitat for special-status plant and animal species. The surveyor will also record any incidental wildlife or rare plant observations. Habitat assessments will be completed at a time of year that is appropriate for identifying habitat and no more than one year prior to the submittal of the Project Consistency Checklist for each treatment activity, unless it can be demonstrated that habitat assessments older than one year remain valid. Based on the results of the data review and reconnaissance-level survey, the project proponent, in consultation with a qualified RPF or biologist, will determine which one of the following best characterizes the treatment:

1. Suitable Habitat Is Present but Adverse Effects Can Be Clearly Avoided.

If, based on the data review and reconnaissance-level survey, the qualified RPF or biologist determines that suitable habitat for sensitive biological resources is present but adverse effects on the suitable habitat can clearly be avoided through one of the following methods, the avoidance mechanism will be implemented prior to initiating treatment and will remain in effect throughout the treatment:

- a. by physically avoiding the suitable habitat, or

b. by conducting treatment outside of the season when a sensitive resource could be present within the suitable habitat or outside the season of sensitivity (e.g., outside of special-status bird nesting season, during dormant season of sensitive annual or geophytic plant species, or outside of maternity and rearing season at wildlife nursery sites).

Physical avoidance will include flagging, fencing, stakes, or clear, existing landscape demarcations (e.g., edge of a roadway) to delineate the boundary of the avoidance area around the suitable habitat. For physical avoidance, a buffer may be implemented as determined necessary by the qualified RPF or biologist.

2. Suitable Habitat is Present and Adverse Effects Cannot Be Clearly Avoided.

Further review and surveys will be conducted to determine presence/absence of sensitive biological resources that may be affected, as described in the SPRs below. Further review may include contacting USFWS, NOAA Fisheries, CDFW, CNPS, or local resource agencies as necessary to determine the potential for special-status species or other sensitive biological resources to be affected by the treatment activity. Focused or protocol-level surveys will be conducted as necessary to determine presence/absence. See **SPR BIO-4** for more about protocol-level surveys.

Applies to treatment types: All. **Applies to vegetation communities:** All.

SPR BIO-2: Biological Surveyor Qualifications. All field survey professionals/biological technicians conducting surveys under **SPR BIO-1** and **SPR BIO-4** should demonstrate regionally appropriate knowledge of species and protocols. Statewide or national certifications or degrees are not a substitute for Butte County-specific biological expertise.

Note: During scoping, a commenter suggested that the City should only base decisions on surveys conducted “by qualified biologists certified by the California Native Plant Society and The Wildlife Society.” The City finds it is not desirable to require CNPS or TWS certification of its biological contractors. To date, CNPS has certified just 29 botanists statewide, fewer than one per county (CNPS 2020). Many Butte County botanists with outstanding ability to complete field surveys in Chico parklands have not chosen to obtain certification, partly because CNPS certification requires statewide botanical knowledge that has no professional value to a botanist who works in a single region of California. Further, relying on certification would hinder the City’s ability to partner with competent student-based crews such as the CSU, Chico Ecological Reserves’ undergraduate and graduate botany experts. The Wildlife Society has certified 2,300 professionals nationwide (TWS 2020), still fewer than one per county.

Applies to treatment types: All. **Applies to vegetation communities:** All.

SPR BIO-3: Integrate EDRR (Early Detection, Rapid Response) Into Reconnaissance-Level Surveys. During reconnaissance-level surveys, the surveying botanist shall identify any infestations of invasive plant species (i.e., those on the list in section 3-7) so managers can target them for removal during treatment activities. While the City does not have the resources to remove every invasive plant, the City does have an established rubric for prioritizing which invasives to remove (i.e., those with the highest potential to disrupt native ecologies, especially fire ecologies). This rubric is found in section 3-7 of this PEIR. Treatment methods will be selected based on the invasive species present and, subject to CEQA like all other treatments, may include whatever treatment will be most effective in killing or removing the invasive plants and preventing reestablishment based on the life history characteristics of the invasive plant species present.

Managers will base treatments on the guidance in section 3-7 and on additional information that may be available to crews and managers in the future.

Applies to treatment types: All. **Applies to vegetation communities:** All.

SPR BIO-4: Protocol-Level Surveys. If **SPR BIO-1** determines that sensitive natural communities or sensitive habitats for plants, wildlife, or both may be present and adverse effects cannot be avoided, the project proponent will require a qualified RPF(s) or biological technician(s) to perform a protocol-level survey of the treatment area prior to the start of treatment activities.

Wildlife surveys If **SPR BIO-1** determines that suitable habitat is present for wildlife (including nursery sites), and adverse effects cannot clearly be avoided, then focused or protocol-level surveys must be conducted for special-status wildlife species or nursery sites (e.g., bat maternity roosts, deer fawning areas, heron or egret rookeries) with potential to be directly or indirectly affected by a treatment activity. The survey area will be determined by a qualified RPF or biologist based on the species and habitats and any recommended buffer distances in agency protocols.

The qualified RPF or biologist will determine if following an established protocol is required; if so, survey procedures will adhere to methodologies approved by resource agencies and the scientific community, such as those that are available on the CDFW webpage at:

<https://www.wildlife.ca.gov/Conservation/Survey-Protocols>. The City or project proponent may consult with CDFW and/or USFWS for technical information regarding appropriate survey protocols. Unless otherwise specified in a protocol, the survey will be conducted no less than 14 days and no more than 30 days before the beginning of implementation. Focused or protocol surveys for a special-status species with potential to occur in the treatment area may not be required if presence of the species is assumed.

Plant surveys If **SPR BIO-1** determines that suitable habitat is present for special-status plants or sensitive natural communities, and adverse effects cannot clearly be avoided, then focused or protocol-level surveys must be conducted for special-status plant species and sensitive natural communities. Surveys to determine the presence or absence of special-status plant species will be conducted in suitable habitat that could be affected by the treatment and timed to coincide with the blooming or other appropriate phenological period of the target species (as determined by a qualified RPF or botanist). The survey will follow the methods in the current version of CDFW's "Protocols for Surveying and Evaluating Impacts to Special Status Native Plant Populations and Sensitive Natural Communities."

For potentially occurring special-status plants **not** listed under CESA or ESA, surveys will not be required under the following circumstances:

- (1) If protocol-level surveys, consisting of at least two survey visits (e.g., early blooming season and later blooming season) during a normal weather year, have been completed in the last 5 years and no special-status plants were found, and no treatment activity has occurred following the protocol-level survey, treatment may proceed without additional plant surveys. **Or,**
- (2) If the target special-status plant species is an herbaceous annual, stump-sprouting, or geophyte species, the treatment may be carried out during the dormant season for that species or when the species has completed its annual lifecycle without conducting presence/absence

surveys provided the treatment will not alter habitat or destroy seeds, stumps, or roots, rhizomes, bulbs and other underground parts in a way that would make it very difficult or impossible for the target species to reestablish following treatment.

For potentially occurring special-status plants *that are* listed under CESA or ESA, protocol-level surveys to determine presence/absence of the listed species will be conducted in all circumstances, unless determined otherwise by CDFW or USFWS.

Applies to treatment types: All. **Applies to vegetation communities:** All.

SPR-BIO-5: Flag rare plants or wildlife/wildlife nursery sites for avoidance when needed.

BIO-5a: Flagging and Avoiding Sensitive Wildlife or Nursery Sites

If it is determined through application of **SPR BIO-4** that special-status wildlife or occupied wildlife nursery sites (e.g., nests, dens, bat roosts, burrows) are within the treatment boundary and the treatment cannot clearly be applied without harming the wildlife or impacting the nursery sites, the project proponent must physically avoid the area occupied by the wildlife by establishing a no-disturbance buffer around it. This buffer boundary shall be marked with high-visibility flagging, fencing, stakes, paint, or clear, existing landscape demarcations (e.g., edge of a roadway). Buffer size will be determined by a qualified RPF or biologist, in consultation with CDFW and/or USFWS (depending on the potentially affected species), using the most current, commonly accepted science and will consider published agency guidance; however, buffers will generally be a minimum of 500 feet for special-status birds and 100 feet for other special-status wildlife species, unless site conditions indicate a smaller buffer would be sufficient for protection or a larger buffer would be needed. These judgements will depend on plant phenology at the time of treatment (e.g., whether the plants are in a dormant, vegetative, or flowering state), the individual species' vulnerability to the treatment method being used, and environmental conditions and terrain. Buffer size may be adjusted if the qualified RPF or biologist determines that such an adjustment would not be likely to adversely affect (i.e., cause mortality, injury, or disturbance to) the species within the nest, den, burrow, or other occupied site. If a no-disturbance buffer is reduced below these minimum standards around an occupied site, a qualified RPF or biologist will provide the project proponent with a site- and/or treatment activity-specific explanation for the buffer reduction, which will be included in the Project Consistency Checklist. Consideration of factors such as the species' tolerance to disturbance, the presence of natural buffers provided by vegetation or topography, the height of the nest, the locations of foraging territory, the baseline levels of noise and human activity, and the nature of the treatment activity, among other factors, may inform an appropriate buffer size and shape.

When buffers cease to apply. When the qualified RPF or biologist has determined that the young have fledged or dispersed; the nest, den, roost, or other occurrence is no longer active; or reducing/abandoning the buffer would not likely result in disturbance, mortality, or injury, then activity may resume inside the buffer zone. A qualified RPF, biologist, or biological technician will be required to monitor the effectiveness of the no-disturbance buffer around the nest, den, burrow, or other occurrence during treatment. If treatment activities cause agitated behavior of special-status wildlife, the buffer distance will be increased, or treatment activities modified until the agitated behavior stops. The qualified RPF, biologist, or biological technician will have the authority to stop any treatment activities that could result in mortality, injury or disturbance to special-status species.

Alternatives to buffers If using a physical buffer is not feasible (e.g., for prescribed burning), the project proponent will use a temporal buffer by implementing the treatment outside the sensitive period of the species' life cycle (e.g., outside the breeding or nesting season). For species present year-round, the qualified RPF or biologist will determine the period of time within which prescribed

burning could occur that will avoid or minimize mortality, injury, or disturbance of the species, or the burn tactics which would minimize harm (e.g., selecting weather conditions that would loft smoke away from cliffs that shelter bat roosts). The project proponent may consult with CDFW and/or USFWS for technical information regarding appropriate limited operating periods.

While performing review and surveys for SPR BIO-1 and SPR BIO-4, the qualified RPF or biologist/biological technician with knowledge of the special-status wildlife species will identify any habitat features that are necessary for survival (e.g., habitat necessary for breeding, foraging, shelter, movement) of the affected wildlife species (e.g., trees with large cavities, trees with nesting platforms; large raptor nests; downed woody debris). These habitat features will be marked and treatments applied to the features will be designed to minimize or avoid the loss or degradation of suitable habitat for listed species during treatments. Identification and treatment of these features will be based on the life history and habitat requirements of the affected species and the most current, commonly accepted science. The qualified RPF or biologist with knowledge of the special-status wildlife species habitat and life history will review the treatment design with SPRs and applicable impact minimization measures (potentially including others not listed above) to determine if the anticipated residual effects of the treatment would be significant under CEQA because implementation of the treatment will not maintain habitat function of the special-status wildlife species' habitat or because the loss of special-status wildlife would substantially reduce the number or restrict the range of a special-status wildlife species. If the project proponent determines the impact on special-status wildlife would be less than significant, no further mitigation will be required. If the project proponent determines that the loss of special-status wildlife or degradation of occupied habitat would be significant under CEQA after implementing feasible treatment design alternatives and impact minimization measures, then **Mitigation Measure BIO-1a** will be implemented.

However, in cases where a qualified RPF or biologist determines that a non-listed special-status wildlife population would benefit from the treatment, even though some of the non-listed special-status plants may be killed, injured or disturbed during treatment activities, no compensatory mitigation would be required. For a treatment to be considered beneficial to non-listed special-status wildlife, the qualified RPF or biologist will demonstrate with substantial evidence that habitat function is reasonably expected to improve with implementation of the treatment (e.g., by citing scientific studies demonstrating that the species (or similar species) has benefitted from increased sunlight due to canopy opening, eradication of invasive species, or otherwise reduced competition for resources), and the substantial evidence will be included in the Project Consistency Checklist.

Bio-5b: Flagging and Avoiding Special-Status Plants

If it is determined through application of **SPR BIO-4** that special-status plants are within the treatment boundary and the treatment cannot clearly be applied without harming the special-status plants, the project proponent must physically avoid the area occupied by the special-status plants by establishing a no-disturbance buffer around it. This buffer boundary shall be marked with high-visibility flagging, fencing, stakes, paint, or clear, existing landscape demarcations (e.g., edge of a roadway). The no-disturbance buffers will generally be a minimum of 50 feet from special-status plants. However, the size and shape of the buffer zone may be adjusted if a qualified RPF or botanist/City staffer determines that a smaller buffer will be sufficient to avoid loss of or damaging to special-status plants or that a larger buffer is necessary to sufficiently protect plants from the treatment activity. These judgements will depend on plant phenology at the time of treatment (e.g., whether the plants are in a dormant, vegetative, or flowering state), the individual species'

vulnerability to the treatment method being used, and environmental conditions and terrain. Consideration of factors such as site hydrology, changes in light, edge effects, and potential introduction of invasive plants and noxious weeds may inform an appropriate buffer size and shape.

When buffers do not apply. Treatments may be conducted within the buffer if the potentially affected special-status plant species is a geophytic, stump-sprouting, or annual species, and the treatment can be conducted outside of the growing season (e.g., after it has completed its annual life cycle) or during the dormant season using only treatment activities that would not make it difficult or impossible for the plant individuals (for perennial spp.) or population (for annual spp.) to recover. When assessing whether individuals/populations will be able to recover, the qualified RPF/botanist/City staffer will take into account indirect effects from the treatment (e.g. changes in light/shading/air circulation).

The qualified RPF or botanist with knowledge of the special-status plant species habitat and life history will review the treatment design including SPRs and applicable impact minimization measures (potentially including others not listed above) to determine if the anticipated residual effects of the treatment would be significant under CEQA (e.g., because the plant's habitat would be rendered unsuitable post-treatment) or because the loss of special-status plants would substantially reduce the number or restrict the range of a special-status plant species. If the project proponent determines the impact on special-status plants would be less than significant, no further mitigation will be required. If the project proponent determines that the loss of special-status plants or degradation of occupied habitat would be significant under CEQA after implementing feasible treatment design alternatives and impact minimization measures, then **Mitigation Measure BIO-1b** will be implemented.

However, in cases where a qualified RPF or botanist determines that a non-listed special-status plant population would benefit from the treatment, even though some of the non-listed special-status plants may be killed during treatment activities, no compensatory mitigation would be required. For a treatment to be considered beneficial to non-listed special-status plants, the qualified RPF or botanist will demonstrate with substantial evidence that habitat function is reasonably expected to improve with implementation of the treatment (e.g., by citing scientific studies demonstrating that the species (or similar species) has benefitted from increased sunlight due to canopy opening, eradication of invasive species, or otherwise reduced competition for resources), and the substantial evidence will be included in the Project Consistency Checklist.

Applies to treatment types: All. **Applies to vegetation communities:** All.

SPR BIO-6: Require Ecological Knowledge Training for Workers. Crew members and contractors must receive training from a qualified RPF, botanist/biologist, Master Gardener, arborist, or City staffer prior to beginning a treatment activity. The training will describe the appropriate work practices necessary to effectively implement the biological SPRs and mitigation measures and to comply with the applicable environmental laws and regulations. The training will include the identification and avoidance of pertinent special-status species; identification and avoidance of sensitive natural communities and habitats with the potential to occur in the treatment area; impact minimization procedures; identification of noxious weeds in the area; marking protocols (i.e., the meaning of various colors of flagging/paint), and reporting requirements. The training will instruct workers when it is appropriate to stop work and allow wildlife encountered during treatment activities to leave the area unharmed and when it is necessary to report encounters to a qualified staffer.

Applies to treatment types: All. **Applies to vegetation communities:** All.

SPR BIO-7: Prevent Spread of Invasive and Noxious Plants. (1) When mechanically removing invasives, if seeds or other propagules (such as Arundo stem nodes) are present, the plan for removal must incorporate a process for sanitary disposal of propagules (e.g. collect seed for separate disposal prior to plant removal, contain debris in some container during transport to avoid spreading propagules, burn debris on site if conditions permit to avoid having to move it, don't dispose of seedy debris elsewhere in park). Material heading into a chipper should be free of weed seeds and weed propagules first, if the chips will be broadcast back onto Chico parklands.

(2) When leaving an area with infestations of invasive plants and noxious weeds, inspect all equipment for mud or other signs that weed seeds or propagules could be present. Crews must check clothing, footwear, and equipment for any soil, seeds, vegetative matter or other debris or seed-bearing material. Remove the soil or potential seed-bearing material, and leave it inside the infested area or dispose of it in a green waste receptacle or landfill receptacle. All heavy equipment and vehicles that come into contact with infested areas must be checked for soil and seed heads either at the infested location or at a headquarters location before proceeding to the next parklands location. Two valuable training resources on this topic are: Preventing spread on equipment, crews: <https://www.cal-ipc.org/resources/library/publications/landmanagers/> Preventing spread through transportation: <https://www.cal-ipc.org/resources/library/publications/tuc/>

Applies to treatment types: All. **Applies to vegetation communities:** All.

SPR BIO-8: Trees Marked For Removal by Qualified Personnel. No native tree shall be removed (a “tree” is defined for the purposes of this section as larger than 8” DBH) unless marked beforehand by a qualified arborist, botanist, Registered Professional Forester, or City staff member with adequate training. If the marker and remover are not the same person, it is of paramount importance that tree fellers/removers understand and interpret the marking system the same way as the marker(s). **Applies to treatment types:** Hand work, machine work. **Applies to vegetation communities:** All.

SPR BIO-9: Refugia and “checkerboarding”; phased implementation. In sensitive natural communities or areas the RPF/biologist/City staffer determines to contain important wildlife forage or cover that would be affected by the treatment, areas to be treated will be treated in phases, in a “checkerboard” pattern. This strategy provides spatial and temporal heterogeneity that promotes a habitat-rich mosaic and leaves refugia for sensitive wildlife, especially pollinators. This SPR applies to hand and mechanical treatments. The size of blocs will be at the discretion of the RPF/biologist/City staffer, or (if applicable) will be planned under the terms of a 1600 permit. An example of phased implementation would be if the City receives grant funding to thin 100 acres of upland mix over 4 years, crews would thin 25 acres per year, in five 5-acre blocs. **Applies to treatment types:** All. **Applies to vegetation communities:** All.

SPR BIO-10: Lake and Streambed Alteration Permit (1600 Permit) Needed. Vegetation management in stream corridors requires prior negotiation of a Lake and Streambed Alteration Permit (LSA, or known as a 1600) from CDFW. The definition of the “stream corridor” is the responsibility of CDFW and may include areas which appear to be above the stream banks. LSAs can be negotiated project-by-project, but the City’s preferred alternative is to negotiate a long term routine maintenance (or “master”) agreement to cover all programmatic work in an area for five years. Over the permit life, routine maintenance agreements are more cost-effective in both dollars and staff time than project-by-project negotiations.

When an LSA’s stipulated mitigation measures and project requirements are more stringent

than SPRs in this PEIR, the LSA's requirements shall prevail and shall be considered to reduce to below a level of significance the relevant environmental impacts CDFW addresses in the permit process. **Applies to treatment types:** All. **Applies to vegetation communities:** All.

SPR BIO-11: To protect endemic *Polygonum bidwelliae*, no chips or slash shall be piled, burned, or scattered on top of exposed gravel flats made up of basalt or mudflow gravel ("basalt or mudflow vernal flat community"). These areas appear as small (one to several feet in diameter), flat to gently sloping dishlike or ribbonlike open areas, often surrounded by exposed rock, where vegetation is very short or not apparent. They may appear as "bare soil" at first glance but their audible crunch when walked on reveals the "bare soil" to be made up of small basalt pebbles. For a reference example, see the area at the top of the southernmost of the three South Rim Bidwell Park Oak Restoration and Wildfire Resiliency Units. **Applies to treatment types:** Hand Work, Machine Work, Prescribed Fire (with regards to building piles to burn). **Applies to vegetation communities:** Blue Oak-Gray Pine, Upland Mix.

SPR BIO-12: Protocol for when endangered plants or animals are found. If any new occurrences of plants protected by the California Endangered Species Act (CESA) or Federal Endangered Species Act (ESA) are encountered, then the person in charge on site (qualified City staff person, RPF, or biological technician) will adjust implementation plans, as appropriate. This would include flagging off the new occurrence so it can be avoided, with the appropriate buffer. If the person in charge on site does not know how to proceed, work will stop or move to a different location until a qualified biologist can arrive to assess the situation. If any wildlife protected by the California Endangered Species Act (CESA) or Federal Endangered Species Act (ESA) are encountered, crews will wait for the animal to leave the area on its own. If the animal is unable to leave the site on its own (without being handled), the person in charge will immediately contact CDFW or USFWS, as appropriate. **Applies to treatment types:** All. **Applies to vegetation communities:** All.

SPR BIO-13: Chipping. 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. 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 raked or scattered until they are not more than 4" deep. When possible, chip invasive species before seed set. If this is impossible, try to remove and bag for disposal as much invasive weed seed as feasible before chipping. If chips are suspected of having high quantities of weed seed, consider transporting them off-site to a processing destination (i.e., to green waste composting or biomass disposal) rather than leaving them in parklands.

Applies to treatment types: Machine Work. **Applies to vegetation communities:** Valley Oak, Blue Oak-Gray Pine, Riparian, Upland Mix.

SPR BIO-14: Snags for wildlife. A target of 2-4 snags/acre (on average) should be retained across City woodlands. Snags should be retained where they do not pose a hazard to infrastructure or the public. **Applies to treatment types:** All. **Applies to vegetation communities:** Valley Oak, Blue Oak-Gray Pine, Riparian, Upland Mix.

SPR BIO-15: Grazing Plans. A grazing plan shall be prepared for each grazing activity. A grazing plan shall specify, at a minimum:

- Stocking rates, e.g. in AUMs, with acceptable tolerances up or down depending on the year's weather/forage
- Species of grazing animal acceptable
- Dates (earliest in/latest out), with trigger points for moving animals (e.g. a certain % bare ground, a certain RDM)
- Monitoring responsibilities and timing (to monitor for trigger points)
- Desired post-grazing conditions (e.g., usually measured in RDM of between 300-800 lbs/ac for grasslands; measured in shrub story canopy closure or shrub height for upland mix)
- % permissible bare ground after grazing is concluded, and how excess bare ground would be remedied
- Whether mother-offspring groups are acceptable or only stockers (stockers are easier to sell so provide more flexibility if weather or forage conditions change suddenly)
- Acceptable means of disposing of dead animals
- List of invasive species whose spread must be limited and specific expectations for how spread will be limited (i.e., flush periods required after animals have been on a unit that contains invasive species, before moving them to a unit that does not)
- Whether there are areas from which animals must be excluded (e.g., areas of blue oak recruitment), means of exclusion, and remedies for failure of exclusion.
- Distance, in feet, to closest riparian corridor/stream (including ephemeral streams) and means of exclusion.

Applies to treatment types: Grazing. **Applies to vegetation communities:** All.

Cultural, Historical, and Archaeological Resources and Tribal Cultural Resources:

SPR CUL-1: Consultation with Mechoopda Indian Tribe of Chico Rancheria prior to implementation of the project or activity. In accordance with BPMMP Appendix D, Mechoopda Indian Tribe of Chico Rancheria will be consulted prior to activity implementation (not just in Bidwell Park, but anywhere on Chico parklands) so that they may inform project implementers of cultural resources to be protected during the project. **Applies to treatment types:** All. **Applies to vegetation communities:** All.

SPR CUL-2: Archaeological surveys where applicable prior to implementation of projects. Archaeological surveys will be conducted by a qualified archaeologist prior to the implementation of any activity that includes ground disturbance, *or* if requested by a Tribe or other government. Archaeological surveys, if performed, will include archaeological records pull from the California Historical Resource Information System.

For the purposes of this section, "ground disturbance" does not include:

- (a) activity that is part of routine trail, road or infrastructural maintenance.

(b) hand-dug fireline that removes only the duff layer down to bare mineral soil

(c) Planting plugs, cuttings and scratched-in seed of native plants

Applies to treatment types: All. **Applies to vegetation communities:** All.

SPR CUL-3: Avoidance of cultural/archaeological resources. Cultural resources present within the project area have not been formally evaluated to determine eligibility for listing on the CRHR. For the purposes of this project these cultural resources will be assumed potentially eligible for state and federal registers and will be avoided. Project proponents will ensure that cultural resources are not adversely affected by management activities. If cultural resources cannot be avoided and disturbance will occur within the recorded site limits then the site(s) will be formally evaluated to determine if they meet the regulatory criteria for eligibility to the CRHR. If a site meets the criteria for eligibility to the CRHR, then it is protected, and no disturbance to the site can take place. If a project would not clearly avoid adverse impacts to a resource eligible for CRHR, it is not within the scope of this PEIR. **Applies to treatment types:** All. **Applies to vegetation communities:** All.

SPR CUL-4: Protocol in case of unanticipated discovery of cultural resources. If a cultural resource is discovered within a project area after the project has been approved, the following procedures apply:

1. Project activities within 100 feet of the newly discovered cultural resource shall be immediately halted.
2. A qualified professional archaeologist shall be immediately notified.
3. The archaeologist shall evaluate the new discovery and develop appropriate protection measures.
4. The archaeologist shall investigate how the project was reviewed for cultural resources to determine if the cultural resource should have been identified earlier.
5. The archaeologist shall ensure that the newly discovered site is recorded and its discovery and protection measures are documented in the project files.
6. If the newly discovered site is a Native American Archaeological or Cultural Site, the Archaeologist shall notify the appropriate Native American tribal group and the NAHC, if appropriate.

Applies to treatment types: All. **Applies to vegetation communities:** All.

SPR CUL-5: Protocol in case of encountering human remains. If human remains are encountered, all work must stop in the immediate vicinity of the discovered remains and the County Coroner and a qualified archaeologist must be notified immediately so that an evaluation can be performed. If the remains are deemed to be Native American and prehistoric, the Native American Heritage Commission must be contacted by the Coroner so that a “Most Likely Descendant” can be designated and further recommendations regarding treatment of the remains can be provided. Mechoopda will also be contacted. **Applies to treatment types:** All. **Applies to vegetation communities:** All.

SPR CUL-6: Gathering of Cultural Materials During Consultation. During consultation with Mechoopda the project should be described in full so that materials from the project may be collected if desired. Most of the projects currently outlined have some element of vegetation management. Instead of chipping or throwing them away in green waste, they should be made available to the Mechoopda if they so choose. Parameters on how to do so should be established during consultation. Mechoopda may choose to make those resources available to other interested parties. **Applies to treatment types:** All. **Applies to vegetation communities:** All.

SPR CUL-7: Establishment of Ethnobotanical Sites and Gathering Rights. During consultation Mechoopda may be invited out with the archaeologist for surveys if they so choose. During this time ethnobotanical sites may be protected and conserved. If particular ethnobotanical sites are significant due to providing a resource to be gathered, then gathering rights will be established. If ethnobotanical sites are deemed valuable for ceremonial or religious purposes then protections may be made that allows for closures to the public for cultural events. **Applies to treatment types:** All. **Applies to vegetation communities:** All.

SPR CUL-8: Mechoopda may send a cultural monitor to be present during any portion of the implementation of any project. Project implementation may not be held up due to cultural monitor scheduling unless the project area has been deemed particularly significant. Where significance is defined by:

The formal criteria (36 CFR 60.4) for determining NRHP eligibility, as follows:

1. The property is at least 50 years old (however, properties under 50 years of age that are of exceptional importance or are contributors to a district can also be included in the NRHP);
2. It retains integrity of location, design, setting, materials, workmanship, feeling, and associations; and
3. It possesses at least one of the following characteristics:

Criterion A: Association with events that have made a significant contribution to the broad patterns of history (events).

Criterion B: Association with the lives of persons significant in the past (persons).

Criterion C: Distinctive characteristics of a type, period, or method of construction, or represents the work of a master, or possesses high artistic values, or represents a significant, distinguishable entity whose components may lack individual distinction (architecture).

Criterion D: Has yielded, or may be likely to yield, information important to prehistory or history (information potential).

Applies to treatment types: All. **Applies to vegetation communities:** All.

Energy: No SPRs applicable.

Geology and soils:

SPR SOIL-1: Slope restrictions for mechanical equipment. Ground-based equipment (e.g., masticators, feller-bunchers) will be restricted to slopes less than 30%. This mitigation measure automatically excludes heavy equipment from all project area soils with erodibility ratings of “severe” or “very severe”. Exceptions may be made for short pitches of 100 feet slope distance, up to 50 percent slope. Exposed soils resulting from ground based equipment on slopes over 30% slope shall be 90% covered with operational slash or hay/straw to a minimum 2” depth prior to the winter period (Nov. 15 – April 1). This will occur after the conclusion of each individual operation and prior to each winter period for the life of the Project. When areas over 30% slope occur in a project area, then the following methods shall be used to keep operators out of areas over 30% slope: flagging, mapping, and/or meeting with equipment operators. Hand work crews may work on slopes of any steepness, constrained only by crew supervisor judgement about personnel safety. **Applies to treatment types:** Machine work. **Applies to vegetation communities:** Blue Oak-Gray Pine, Upland Mix.

SPR SOIL-2: Remediate exposed soil. On moderately or severely erodible soils (see map 5), after concluding any activities that incidentally disturbed the ground, crews shall cover exposed soil by scattering native slash, lopped vegetation, wood chips, or (if no on-site material is available), a low-weed-seed straw such as rice straw. The final percentage of exposed soil after scattering is complete shall be no more than 10%. This only applies on slopes, not flat areas (to avoid inadvertently covering up sensitive plants such as *Polygonum bidwelliae* in the “basalt or mudflow vernal flat community” which looks “like bare dirt” for most of the year). This mitigation measure does not apply to naturally bare rocky areas. **Applies to treatment types:** Hand work, machine work. **Applies to vegetation communities:** Upland mix, Blue Oak-Gray Pine.

SPR SOIL-3: Minimize impacts from hand-cleared firelines. When identifying firelines, (1) existing trails and features shall be used as firelines whenever possible. (2) When construction of new fireline is necessary, firelines steeper than 30% slope shall be abated after the prescribed fire is finished. Firelines can be abated by scattering rice straw, chips, lop-and-scatter material, and/or leaves until exposed soil is no greater than 10%. (3) Firelines less steep than 30% slope, not abated, and not built as part of a trails project to Parks trail specifications, shall be obstructed using boulders or logs to discourage their use as unofficial trails until they naturally re-vegetate. **Applies to treatment types:** Prescribed fire. **Applies to vegetation communities:** All.

SPR SOIL-4: Blade work as incidental maintenance only. Bladed tractors shall not drop their blades off-road. Bladed tractors may only be present to perform maintenance repairs of incidental road damage caused by vegetation management equipment. **Applies to treatment types:** Machine Work. **Applies to vegetation communities:** All.

Greenhouse Gas Emissions: No SPRs applicable.

Hazards and hazardous materials:

HAZ-1: Buffers to Water Features for Fuel and Oil Handling. No accelerants will be used within 100' of a perennial stream (**HYDRO-8**). Furthermore, to reduce the potential impacts from any inadvertent spill of fuel or oil, no equipment shall refuel, be cleaned, or lubricated within the following buffers, unless on an established road:

	Slope = 0-30%	Slope = 30-50%	Slope > 50%
Big Chico Creek	150	150	150
Perennial streams that don't have fish but may have aquatic life like frogs; this includes all springs with surface water and all ponds/lakes	50	75	100
Intermittent streams	25	50	50

Applies to treatment types: Machine work, hand work (because hand work includes chainsaw, string trimmer, etc work), prescribed fire. **Applies to vegetation communities:** All.

SPR HAZ-2: Pre-Activity Hazard Tree Prevention. Before each prescribed fire project, unit prep crews will identify trees likely to be killed by the fire that are also likely to become hazard trees (e.g., trees whose distance to a road or trail is less than 150% of the tree's height). If keeping the tree alive is the desired condition based on fuel loading guidelines and burn planning review, then crews will take protective measures to help these trees survive the fire. These could include ringing (i.e., clearing a ring down to bare mineral soil around the base of the tree), removing ladder fuels, or other means. If keeping the trees alive is not the desired condition based on fuel loading guidelines and burn planning review, then crews will not take protective measures, but **SPR-HAZ-3** (below) will still apply. **Applies to treatment types:** Prescribed fire. **Applies to vegetation communities:** Valley Oak, Blue Oak-Gray Pine, Upland Mix, Riparian

SPR HAZ-3: Post-Activity Hazard Tree Mitigation. After each prescribed fire project, any hazard trees produced by the fire will be abated in accordance with the City of Chico's post-fire hazard tree marking and removal guidelines. See also **SPR BIO-7**. **Applies to treatment types:** Prescribed fire. **Applies to vegetation communities:** Valley Oak, Blue Oak-Gray Pine, Upland Mix, Riparian

SPR HAZ-4: Only 'Caution' Signal Word Herbicides. Only herbicides bearing the Caution signal word (i.e. not Warning or Danger labelled) are used by the City of Chico. Additionally, no products containing imidacloprid, regardless of signal word, shall be applied onto or into City of Chico public trees (BPPC action taken 10/29/18); and no products containing glyphosate shall be applied upon or within City Plaza and Caper Acres (City Council action taken 10/15/19). In Chico parklands, no 'Restricted' chemicals are used. Exception: Certain additive Crop Oils (adjuvants) may be used when they have a Warning label, if that label has been applied due to potential eye damage from spray, a concern to the Applicator which does not reflect a concern to public, pets, or the environment. **Applies to treatment types:** Chemical. **Applies to vegetation communities:** All.

SPR HAZ-5: Indicator Dye Needed for Herbicide Applications. An indicator dye shall always be added to the herbicide tank mix to help the applicator identify areas that have been treated and better monitor the overall application. **Applies to treatment types:** Chemical. **Applies to vegetation communities:** All.

SPR HAZ-6 Integrated Pest Management. The City utilizes the principles of integrated pest management (IPM), hires pest management contractors who are skilled in IPM, and is developing a citywide IPM policy. will seek to employ the safest effective method for controlling invasives with minimal environmental impact. 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. The lowest recommended rate to achieve vegetation management objectives of both herbicides and surfactants should be utilized to achieve desired control. **Applies to treatment types:** Chemical. **Applies to vegetation communities:** All.

SPR HAZ-7: Herbicide Use: Role of Pest Control Adviser. Herbicides will always be applied in accordance with their label. However, herbicides law allows for herbicides to be applied for off-label uses *if* under the prescription of a licensed Pest Control Advisor (PCA), whose recommendation itself includes a “certification that alternatives and mitigation measures that would substantially lessen any significant adverse impact on the environment have been considered and, if feasible, adopted” (CCR 6556). **Applies to treatment types:** Chemical. **Applies to vegetation communities:** All.

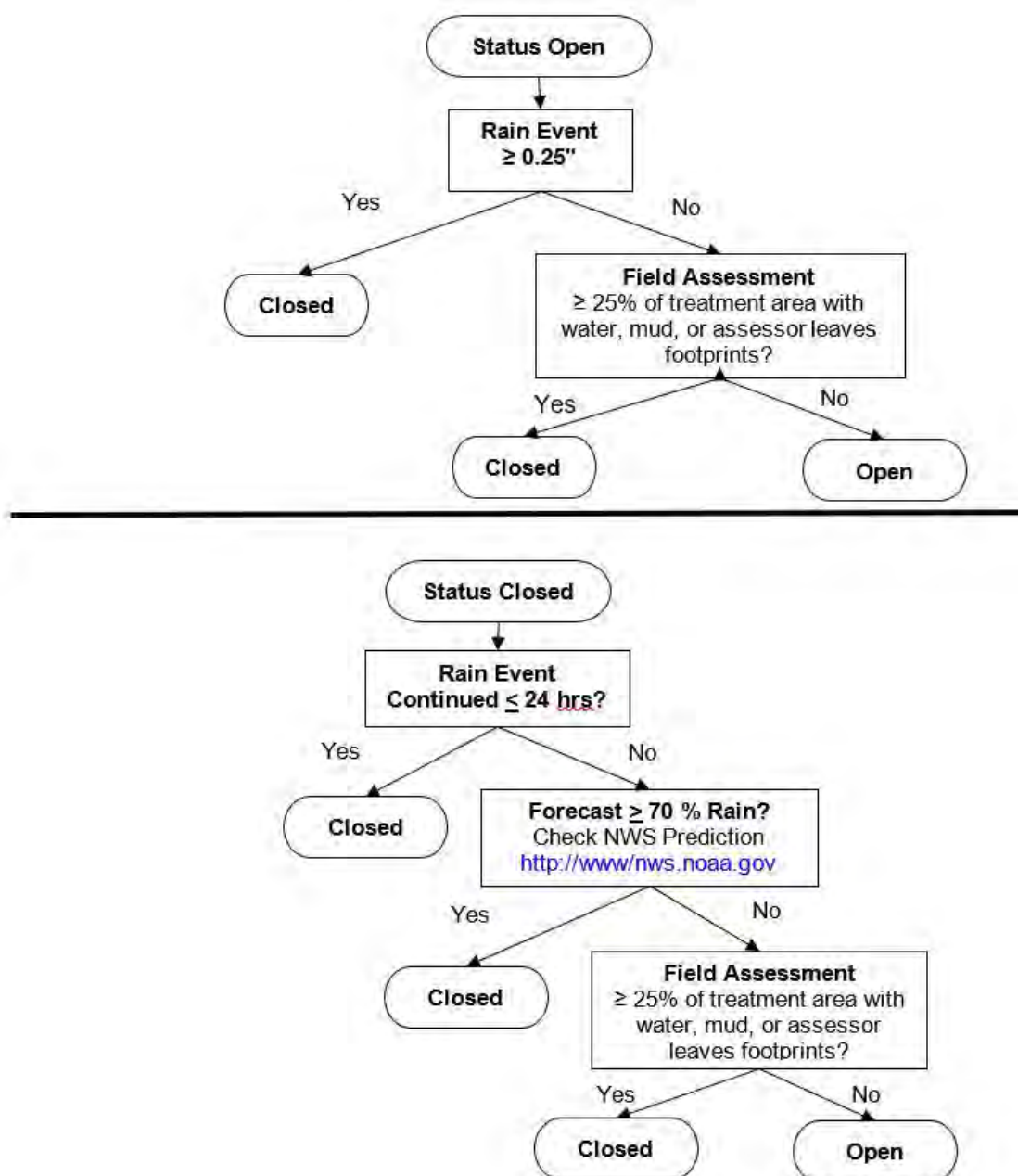
Hydrology:

SPR HYDRO-1: Wet Weather Suspensions of Mechanical Treatment: Mechanical work will be limited based on the Parks' existing Adaptive Wet Weather Protocol (City of Chico 2015), as follows: If at least 1/4 inch of rain falls in a 24 hour period, the project implementer will suspend mechanical treatments for at least one day. This suspension will continue for each subsequent day that there is rain or a 70% or more forecast of additional rain *or* conditions remain wet, as described in the . "Wet" means that more than 25% of the project area has puddles or mud, or a person walking on the project site leaves visible footprints 1/4" deep or deeper. Mechanical treatments may resume when less than 25% of the project area has puddles or mud, or a person walking on the project site no longer leaves visible footprints 1/4" deep. See following page for further explanation.

This SPR applies only to mechanical treatment methods. If a future 1600 maintenance agreement establishes more stringent wet weather limitations, then the more stringent limitations will take precedence.

Applies to treatment types: Machine work. **Applies to vegetation communities:** All.

Figure HYDRO- 1. Procedures for Closing and Reopening Areas to Mechanical Treatment.



SPR HYDRO-2: No grading or construction. With the exception of maintenance repairs to mitigate incidental road damage caused by vegetation management equipment, no machine ground disturbance, such as grading, reshaping of channels, extraction of stumps, emplacement or replacement of culverts, or construction of roads, is within the scope of this EIR. Bladed tractors may be present on roads only, when necessary to reverse incidental damage caused by other equipment. **Applies to treatment types:** Machine work; prescribed fire. **Applies to vegetation communities:** All.

SPR HYDRO-3: Erosion Monitoring. The project implementer will inspect treatment areas for the proper implementation of erosion control SPRs and mitigations before the rainy season. The implementer shall re-inspect the treatment area after the first large winter storm event of the season (i.e., ≥ 1.5 inches in 24 hours) and/or at least once annually, to evaluate the function of erosion control measures. Any area of erosion that will result in substantial sediment discharge will be remediated. This SPR applies to mechanical and understory burning treatment methods.

Applies to treatment types: Machine work; prescribed fire. **Applies to vegetation communities:** All.

SPR HYDRO-4: Minimize Burn Pile Size and Observe Setbacks from Trees. The project implementer will not create burn piles that exceed 4 feet in length, width, or diameter. In addition, burn piles will not occupy more than 15 percent of the total treatment area. Burn piles shall be at least 4' from any living tree, to avoid cooking the tree's tissues with the heat of the fire.

Applies to treatment types: Hand work, machine work (when piling); prescribed fire. **Applies to vegetation communities:** All.

SPR HYDRO-5: Observe Burn Pile Setbacks From Creeks. When building burn piles, the project implementer will observe the following setbacks from water features:

- (a) Ephemeral streams: 25'
- (b) Spring heads and pocket wetlands: 50'
- (c) Streams that support no fish (but may support amphibians): 50'
- (d) Streams that support fish: 75'

Applies to treatment types: Hand work, machine work (when piling); prescribed fire. **Applies to vegetation communities:** All.

SPR HYDRO-6: Guidelines for Water Drafting. From time to time, it may be necessary to draft water from on-site creeks or ponds to support vegetation management operations. Water drafting involves drawing water from sources such as a lake, pond, or stream into a pump and could serve to provide a supply of water for dust abatement or fire suppression in treatment areas that are inaccessible to water trucks or are not in close proximity to fire hydrants. The project proponent and project implementer, as applicable, will comply with the following requirements and best management practices:

- Water drafting operations shall follow CFPR requirements in 14 CCR Section 963.7(l), which are intended to apply to water drafting operations in watersheds with listed anadromous salmonids but for this PEIR are proposed to apply throughout the program area.

- Vehicles used for water drafting shall only access drafting sites through existing watercourse crossings.
- Water drafting shall be subject to all applicable requirements of Fish and Game Code Section 1600, as determined in consultation with CDFW.
- Water drafting will not impact beneficial uses listed in the Water Quality Control Plan for the Central Valley (Basin Plan) (CVRWQCB 2018).
- In addition to the above (if not required for Section 1600 compliance), the following requirements shall be met for all water drafting operations in the program area:
 - a. The project proponent shall consult with CDFW prior to any water drafting operation to convey and receive any information relevant to the drafting operation.
 - b. Water shall not be drafted by more than one truck simultaneously at the same site.
 - c. In Class I watercourses (i.e., Big Chico Creek and Little Chico Creek), streambed or bank material shall not be excavated for intakes or any other purposes related to drafting.
 - d. All water drafting vehicles shall be checked each day used, and shall be repaired as necessary to prevent leaks of deleterious materials from entering the watercourse.
 - e. Pumps used for drafting shall be capable of being adjusted to comply with specified withdrawal rates.
 - f. Operators shall follow all applicable requirements and guidelines to prevent the introduction and spread of aquatic invasive species (AIS). This shall include:
 - (i) inspecting truck tires, hoses, screens, and any equipment entering the water before and after each drafting operation and removing and properly disposing of any aquatic plants or other aquatic organisms;
 - (ii) applying water only within the same watershed in which it originated.
 - g. Intake screens shall be used wherever water is drafted, and shall be kept in good repair. Intakes shall be inspected periodically and kept clean and free of accumulated algae, leaves, or other debris that could block portions of the screen surface and increase approach velocities at any point on the screen.
 - h. Intakes shall be at least 6 inches above the bottom of the channel and away from submerged vegetation, where practicable. Where not practicable, intakes shall maximize these clearances.
 - i. At the end of drafting operations, intakes shall be completely removed from the watercourse and disturbed ground, including exposed soil, shall be treated according to Fish and Game Code Section 1600 requirements to minimize erosion.

Applies to treatment types: Prescribed fire, machine work. **Applies to vegetation communities:** All.

SPR HYDRO-7: Comply with Water Quality Regulations. The project implementer will comply with all applicable water quality requirements adopted by Central Valley Regional Water Quality Control Board (CVRWQCB) and approved by the SWRCB (i.e., Basin Plan). If applicable, this includes compliance with the conditions of general waste discharge requirements (GWDR) and waste discharge requirement waivers for timber or silviculture activities where these waivers are designed to apply to non-commercial fuel reduction and forest health projects. **Applies to treatment types:** All. **Applies to vegetation communities:** All.

SPR HYDRO-8: Stream Buffers for Prescribed Fire. Prescribed fire projects shall use no accelerants (e.g., drip torch fuel) within a 100' buffer to any perennial stream. Backing fire will be used into ephemeral drainages to reduce the intensity of fire, and thus of siltation, in drainages. No discernible direct or indirect effects to water quality would be expected as live vegetation

within the buffer would be left to function as a sediment filter strip. **Applies to treatment types:** Prescribed fire. **Applies to vegetation communities:** All.

Land Use and Planning: No SPRs applicable.

Mineral Resources: No SPRs applicable.

Noise:

SPR NOISE-1: Maintain noise-producing equipment properly. Research and label each piece of motorized equipment with its peak operational decibel level. Properly maintain equipment according to manufacturers' specifications and equip each piece of equipment with noise control, such as mufflers. **Applies to treatment types:** Hand work, machine work. **Applies to vegetation communities:** All.

SPR-NOISE-2: Ensure equipment noise is below allowable construction noise limits. Ensure that equipment to be used does not emit a noise level of greater than 83 decibels at a distance of 25 feet. Only operate machines that make loud noise (e.g., chainsaws, chippers) between the hours of 10 am -6 pm on Sundays and holidays, and 7 am -9 pm M-Sa excluding holidays. **Applies to treatment types:** Hand work, machine work. **Applies to vegetation communities:** All.

SPR NOISE-3: Personal Protective Equipment. Ensure all crew members who operate chainsaws, chippers, etc. have adequate ear protection rated for the decibel level of the equipment they are using. **Applies to treatment types:** Hand work, machine work. **Applies to vegetation communities:** All.

Population and Housing: No SPRs applicable.

Public Services: No SPRs applicable.

Recreation:

SPR REC-1: Notice of Closures of Roads, Trails, or Other Recreational Areas. The week before closures due to prescribed fire activities are expected, the City will give notice of expected trail or area closures. Upcoming closures will be announced via press release, Parks social media accounts, and the City's website. Due to the weather-dependent nature of prescribed fire, it is usually not possible to specify closure dates accurately in advance. The closed area will be posted in the field on the day of operations. This SPR also applies to non-fire vegetation management activities that could pose a danger to recreational users accessing the unit, such as hazard tree felling and mastication activities. **Applies to treatment types:** Any treatment type that necessitates a temporary safety closure to keep the public out of the area. **Applies to vegetation communities:** All.

Transportation:

SPR TRANS-1: Notice of Closures of Transportation Routes The week before closures due to vegetation management activities are expected, the City will give notice of expected road, lane, bike lane, trail or area closures. Upcoming closures will be announced via press release, Parks social media accounts, and the City's website. Due to the weather-dependent nature of some vegetation management activities, it is usually not possible to specify closure dates accurately in advance.

Applies to treatment types: Any that occurs close enough to a transportation route to require temporary closure for worker or traveler safety. **Applies to vegetation communities:** All.

SPR-TRANS-2: Flag or Sign Road/Lane/Route Closures Per Public Works Protocol The closed area will be posted in the field on the day of operations in accordance with City of Chico Public Works policies already used for hazard tree removal or any other roadside maintenance that incidentally closes roads or lanes, including through use of signage, cones, a flagger, or additional traffic control personnel as appropriate for the site. **Applies to treatment types:** Any treatment that occurs close enough to a transportation route to require temporary closure for worker or traveler safety. **Applies to vegetation communities:** All.

Tribal Cultural Resources: See “Cultural, Historical, and Archaeological Resources and Tribal Cultural Resources”, above

Utilities and Service Systems: No SPRs applicable

Wildfire:

SPR FIRE-1: Burn plan required for each prescribed fire. A prescribed burn plan will be developed for each proposed prescribed fire prior to implementation. **Applies to treatment types:** Prescribed fire. **Applies to vegetation communities:** All.

SPR FIRE-2: Protocol in case of any accidental ignition during program work. If crews accidentally ignite a fire while conducting vegetation management work, they are to call 911 for response from the Fire Department. If the fire's spread is slow and crews can safely extinguish the fire with the tools, water, and fire extinguishers they have on hand, they should attempt to do so. If the fire becomes well-established and the forward spread is clearly beyond control, crews should not engage in firefighting at the head of the fire. If crews are in an area where the location of the fire makes egress impossible, they should move into an area already burned by the fire and wait for conditions to change before attempting to leave the area. **Applies to treatment types:** All. **Applies to vegetation communities:** All.

SPR FIRE-3: Work adaptations during “red flag” or high fire danger events.

- During periods of high fire hazard project supervisor shall check the National Fire Danger Rating System (NFDRS) maps at <https://www.wfas.net> daily. If the NFDRS rating for the project area is above ‘High’, all implementation personnel and contractors shall provide the following equipment:
 - 4BC fire extinguisher or larger on each vehicle, and a complement of fire tools to equip every worker on the project site with at least one tool. Every chainsaw operator will carry a fire extinguisher of at least 8oz. Each chipper, mower, or masticator should be equipped with a 4BC fire extinguisher and at least 1 fire tool per operator.

- During NFDERS ratings of 'High' or above, vegetation management crews using chainsaws, masticators, or mowers, should consider working a schedule which starts early in the morning and halts work by 2pm (aka ['hoot-owl'](#)).
- During times of high fire hazard, vegetation management crews should not use metal-bladed weed-eater heads or mowers in dry grass or weeds after 10am.

Applies to treatment types: Hand and machine work. **Applies to vegetation communities:** All.

Appendix D

Maps and Tables pertaining to Biological Resources and Soils

Scientific Name	Common Name	Fed status, CA status, CDFW status*	Range and Habitat requirements	If habitat present, where found/ expected?	Program activities that could impact species	Avoidance Measures
<i>Agelaius tricolor</i>	tricolored blackbird	None, Threatened, SSC	Forages around ponds, wetlands and in grassland habitat in the Sacramento valley. Nests in dense colonies in native emergent marshes, silage and other grain fields, Himalayan blackberry thickets, and other flooded and upland habitats.	Teichert Ponds, Bidwell Park	Burning grasslands, removing Himalayan blackberry, clearing or burning vegetation around ponds or wetlands	A qualified biologist will survey for breeding colonies in nesting habitat during the breeding season (Feb 1 to August 31). If breeding colonies are found, 500' no disturbance buffer shall be established around the nesting colony unless otherwise approved by CDFW. The buffer will be maintained until a qualified biologist has determined that the young have fledged and are no longer reliant upon the nest or parental care for survival. Breeding colonies return to the same site year after year, so do not remove vegetation at any time of year if a breeding colony is located. Vegetation management may proceed outside of the breeding season away from known breeding sites. Fully protected species may not be taken or possessed at any time and no licenses or permits may be issued for their take. Consult with local Audubon Society for known breeding locations.
<i>Anodonta californiensis</i>	California floater	None, None, -	lakes, reservoirs, and slow- moving perennial streams with mud or sand substrates, and rivers and creeks with gravel substrates	Teichert Ponds, Bidwell Park	Grazing, vegetation removal in streams, rivers and creeks	Conduct all work in creeks under a 1600 permit. Avoid vegetation removal in perennial streams, rivers and creeks. Provide alternative water sources for livestock when grazing near streams, rivers and creeks. Do not overgraze in riparian zones where soil erosion may contaminate water.

Scientific Name	Common Name	Fed status, CA status, CDFW status*	Range and Habitat requirements	If habitat present, where found/ expected?	Program activities that could impact species	Avoidance Measures
<i>Antrozous pallidus</i>	pallid bat	None, None, SSC	Throughout CA, usually found in arid habitats below 6,000' elev. Use a variety of habitats incl. grasslands, shrublands, woodlands. Most common in open, dry habitats w/ rocky areas for roosting. Day roosts may vary but are commonly found in rock crevices, tree hollows, mines, caves and a variety of human-made structures. Night roosts are usually more open sites and may include open buildings, porches, mines, caves, and under bridges. Tree roosting has been documented in large snags & oak cavities.	Potential for occurrence in program area. Rocky areas, caves and tree hollows in Bidwell Park may provide roosting habitat.	Burning or mechanical vegetation removal near roost sites	Pallid bats are year long residents in most of their range and hibernate in winter near their summer roost. They are very sensitive to disturbance of roosting sites. Before vegetation disturbance, surveys will be conducted by a qualified biologist to determine if suitable habitat (that would be removed during the project) are occupied by bats. These areas shall be surveyed within 14 days before start of construction. Surveys may consist of daytime pedestrian surveys looking for evidence of bat use (e.g., guano) and/or an evening emergence survey to note the presence or absence of bats. Due to the number of protected bat species potentially using the project areas bat detectors should be used to supplement survey efforts. If no evidence of bat roosts are found, then no further study is required. If evidence of bat use is observed, the number and species of bats using the roost will be determined. If a winter roost or a maternity roost is found, a 100 foot buffer will be created around a roost and no project related activities will occur within the buffer until a biologist has determined that the roost is no longer in use.

Scientific Name	Common Name	Fed status, CA status, CDFW status*	Range and Habitat requirements	If habitat present, where found/ expected?	Program activities that could impact species	Avoidance Measures
<i>Aquila chrysaetos</i>	golden eagle	None, None, FP ; WL	Found throughout North America and common in the Western States. They hunt rabbits and rodents in open grasslands and oak savanna. Nesting sites are found on rocky cliffs and in the tops of large trees.	Upper Bidwell Park, Airport Green Space, Foothill Park Preserve and Bidwell Ranch Preserve	Mechanical or manual removal of vegetation around known nest sites	Determine if any tree removal or vegetation management in wooded habitat or near cliff sites is proposed during Golden Eagle nesting season (February 1 to August 31). If no vegetation management or tree removal in Golden Eagle nesting habitat will occur during nesting season, no further mitigation is necessary. If tree removal or vegetation management in wooded habitat or near cliffs is proposed during the nesting season, a focused survey for Golden Eagle and common raptor nests shall be conducted by a qualified biologist during the nesting season to identify active nests within 500 feet of the project area. The survey shall be conducted no less than 14 days and no more than 30 days before the beginning of the project (EDAW 2008b). If Golden Eagle or other nesting raptors are found during the focused survey, impacts shall be avoided by establishing buffers. No project activity shall commence within the buffer area until a qualified biologist confirms that the nest is no longer active. The CDFW guideline for a 500 foot buffer will be implemented, but the size of the buffer may be adjusted if a qualified biologist determines a greater or lesser buffer would be appropriate and CDFW concurs with any determination for a lesser buffer. The City shall coordinate with CDFW on the appropriate buffer width for each species documented. Monitoring of the nest by a qualified biologist may be required if the activity has potential to adversely affect the nest or disturb the birds using the nest to the point of causing nest failure. (EDAW 2008b).

Scientific Name	Common Name	Fed status, CA status, CDFW status*	Range and Habitat requirements	If habitat present, where found/ expected?	Program activities that could impact species	Avoidance Measures
<i>Ardea alba</i>	great egret	None, None, -	Common in Central Vly in and around ponds, marshes. Nests in mixed-species rookeries in lg riparian trees. Rookery sites are important to protect, and avoid during breeding season (Apr 1 to Aug 15)	Bidwell park, South Dead Horse Slough, Teichert Ponds, Lindo Channel, LCC Greenway, CCG	Removing trees that include or disturb rookery sites	Before any disturbance in suitable habitat, have a qualified biologist locate and identify rookery sites during the breeding season. Proceed with project if no rookery sites are located. If rookery sites are located within 500 feet of the edge of the project area, mark and avoid during the breeding season (April 1 to August 15). Never cut rookery trees or remove nests as the birds return to sites year after year.
<i>Ardea herodias</i>	great blue heron	None, None, -	Common in Central Vly in and around ponds, marshes. Nests in mixed-species rookeries in lg riparian trees. Rookery sites are important to protect, and avoid during breeding season (Apr 1 to Aug 15)	Bidwell park, South Dead Horse Slough, Teichert Ponds, Lindo Channel, LCC Greenway, CCG	Removing trees that include or disturb rookery sites	Before any disturbance in suitable habitat have a qualified biologist locate and identify rookery sites during the breeding season. Proceed with project if no rookery sites are located. If rookery sites are located within 500 feet of the edge of the project area, mark and avoid during the breeding season (April 1 to August 15). Never cut rookery trees or remove nests as the birds return to sites year after year.

Scientific Name	Common Name	Fed status, CA status, CDFW status*	Range and Habitat requirements	If habitat present, where found/ expected?	Program activities that could impact species	Avoidance Measures
<i>Athene cunicularia</i>	burrowing owl	None, None, SSC	Open, dry annual or perennial grasslands, deserts & scrublands characterized by low-growing vegetation. Subterranean nester, dependent upon burrowing mammals, most notably, the California ground squirrel.	Potential year-round breeding resident in grasslands in program area-Bidwell park, Airport Green Space, Foothill Park Preserve, Bidwell Ranch Preserve	Burning grasslands where birds may be nesting	Before any disturbance within or adjacent to grassland habitat, a qualified biologist shall survey & assess habitat suitability for burrowing owl (e.g., based on grassland structure & presence of burrows). In areas determined to be suitable, evaluate use by burrowing owls per current CDFW survey guidelines (CDFW 2012). Surveys shall be conducted within 30 days prior to disturbance activities and shall cover disturbance footprint plus a 500'-radius buffer. For disturbances occurring during burrowing owl breeding season (Feb 1–Aug 31), surveys shall document whether owls are nesting on or directly adjacent to disturbance areas. Survey results shall be valid only for 1 season. If no burrowing owls are documented during the surveys, no further mitigation shall be required (EDAW 2008b). If owls are found: Project activities shall avoid all burrowing owl nest sites that could otherwise be disturbed by project activities during the breeding season (Feb 1–Aug 31) or while nest is occupied by adults or young. Avoidance shall include creation of a nondisturbance buffer zone of at least 250' around each nest site. Buffer zone shall be delineated by highly visible temporary construction fencing. Disturbance may occur during the breeding season if a qualified biologist monitors the nest and determines that the nest site is no longer used by burrowing owls. If burrowing owls are found during the nonbreeding season (September 1– January 31), project shall avoid the owls and the burrows they are using, using same fencing and at least a 160' nondisturbance buffer zone around each burrow being used.

Scientific Name	Common Name	Fed status, CA status, CDFW status*	Range and Habitat requirements	If habitat present, where found/ expected?	Program activities that could impact species	Avoidance Measures
<i>Bombus crotchii</i>	Crotch bumble bee	None, Candidate Endangered, -	Occurs primarily in CA, Great Valley & adjacent foothills. Inhabits open grassland and scrub habitats. Overwinters in underground nests. Food plants include <i>Asclepias</i> , <i>Chaenactis</i> , <i>Lupinus</i> , <i>Medicago</i> , <i>Phacelia</i> , and <i>Salvia</i> . Queens emerge from hibernation in early spring, immediately start foraging for pollen and nest sites. Nests are often underground in abandoned rodent nests, or above ground in tufts of grass, old bird nests, rock piles, or dead tree cavities.	Bidwell Park, Foothill Park Preserve, Bidwell Ranch Preserve, Verbena Fields, Airport Green Space	Burning, grazing, removing forage plants by hand or mechanical methods	Although Crotch Bumble Bee has not been found in the proposed program area, surveys for the species have not been widespread (USFWS pers. comm) and there is suitable habitat and forage plants in the program area. Hire a qualified biologist to survey for species presence/absence in the spring, when forage plants are blooming, before starting vegetation management activities that would disturb the bees' life cycle. Avoid removing forage species. If species is found within 500 feet of the project area buffer the area or conduct vegetation management activities during fall or winter when bees are hibernating. Consult with USFWS for further avoidance or mitigation proceedings.

Scientific Name	Common Name	Fed status, CA status, CDFW status*	Range and Habitat requirements	If habitat present, where found/ expected?	Program activities that could impact species	Avoidance Measures
<i>Branchinecta conservatio</i>	Conservancy fairy shrimp	Endangered, None, -	Only found in vernal pools	Bidwell Ranch, Foothill Park Preserve, Wildwood Vernal Pool Preserve, Doe Mill Preserve, Airport Green Space	Burning vernal pools before they completely dry out	Before Rx fire in vernal pools, a qualified biologist will map potential habitat in all burn areas, staging areas, and access routes. The City shall coordinate with the biologist to ensure the footprint of the project, staging areas, and access routes are designed to avoid direct or indirect effects on suitable habitat for vernal pool invertebrates (EDAW 2008b). In vernal pools where vegetative material is relatively sparse, Tadpole shrimp cysts do not appear to be negatively affected by fire (once pools are dry), but where thatch has built up or vegetative material is dense, fire may have deleterious effects on cyst viability (Wells et al. 1997). However, without treatment, the density of nonnative herbaceous vegetation surrounding pools is expected to increase degradation of vernal pool habitat. If vernal pool invertebrate habitat cannot be avoided, measures shall be implemented to minimize and mitigate unavoidable effects. Before beginning any ground-disturbing project activities in such habitat, USFWS shall be consulted to identify appropriate measures to minimize and compensate for adverse effects on special-status vernal pool invertebrates. Avoidance and minimization measures shall include those described in USFWS's vernal pool crustacean Programmatic Consultation (USFWS 1996). Minimization measures for vernal pool invertebrates shall include, but not be limited to, fencing of habitat to be avoided, timing of disturbance to correspond with the dry season, conducting worker awareness training, and periodic biological monitoring.

Scientific Name	Common Name	Fed status, CA status, CDFW status*	Range and Habitat requirements	If habitat present, where found/ expected?	Program activities that could impact species	Avoidance Measures
<i>Branchinecta lynchi</i>	vernal pool fairy shrimp	Threatened, None, -	Only found in vernal pools	Bidwell Ranch, Foothill Park Preserve, and Wildwood Vernal Pool Preserve, Airport Green Space	Burning vernal pools before they completely dry out	Before Rx fire in vernal pools, a qualified biologist will map potential habitat in all burn areas, staging areas, and access routes. The City shall coordinate with the biologist to ensure the footprint of the project, staging areas, and access routes are designed to avoid direct or indirect effects on suitable habitat for vernal pool invertebrates (EDAW 2008b). In vernal pools where vegetative material is relatively sparse, Tadpole shrimp cysts do not appear to be negatively affected by fire (once pools are dry), but where thatch has built up or vegetative material is dense, fire may have deleterious effects on cyst viability (Wells et al. 1997). However, without treatment, the density of nonnative herbaceous vegetation surrounding pools is expected to increase degradation of vernal pool habitat. If vernal pool invertebrate habitat cannot be avoided, measures shall be implemented to minimize and mitigate unavoidable effects. Before beginning any ground-disturbing project activities in such habitat, USFWS shall be consulted to identify appropriate measures to minimize and compensate for adverse effects on special-status vernal pool invertebrates. Avoidance and minimization measures shall include those described in USFWS's vernal pool crustacean Programmatic Consultation (USFWS 1996). Minimization measures for vernal pool invertebrates shall include, but not be limited to, fencing of habitat to be avoided, timing of disturbance to correspond with the dry season, conducting worker awareness training, and periodic biological monitoring.

Scientific Name	Common Name	Fed status, CA status, CDFW status*	Range and Habitat requirements	If habitat present, where found/ expected?	Program activities that could impact species	Avoidance Measures
<i>Buteo swainsoni</i>	Swainson's hawk	None, Threatened, -	Common in Sacramento Valley during the spring and summer months. Winters outside of California. Breeds in grasslands with scattered trees, juniper sage flats, riparian areas, savannahs, & agricultural or ranch lands with groves or lines of trees. Requires adjacent suitable foraging areas such as grasslands, or alfalfa or grain fields supporting rodent populations.	Bidwell Park, Airport Green Space, Little Creek Greenway, Preserved and Conserved Parcels	Spring burning may improve habitat. Removing nest trees may impact nesting birds	Before project commencement, it shall be determined whether any vegetation disturbance or tree removal is proposed during the raptor nesting season (February 1 to August 31). If no project activities occur during the raptor nesting season, no further mitigation shall be necessary. If vegetation management or tree removal is proposed during the raptor nesting season, a focused survey for raptor nests shall be conducted by a qualified biologist during the nesting season to identify active nests within 500 feet of the project area. The survey shall be conducted no less than 14 days and no more than 30 days before the beginning of construction or tree removal. If nesting raptors are found during the focused survey, impacts shall be avoided by establishment of appropriate buffers. No project activity shall commence within the buffer area until a qualified biologist confirms that the nest is no longer active. The CDFW guideline for a 500 foot buffer will be implemented, but the size of the buffer may be adjusted if a qualified biologist determines a greater or lesser buffer would be appropriate and CDFW concurs with any determination for a lesser buffer. The City shall coordinate with CDFW on the appropriate buffer width for each species documented. Monitoring of the nest by a qualified biologist may be required if the activity has potential to adversely affect the nest or disturb the birds using the nest to the point of causing nest failure (EDAW 2008b).

Scientific Name	Common Name	Fed status, CA status, CDFW status*	Range and Habitat requirements	If habitat present, where found/ expected?	Program activities that could impact species	Avoidance Measures
<i>Circus hudsonius</i>	northern harrier	None, None, SSC	Common in grasslands, seasonal wetlands, and agricultural habitats in the Sacramento Valley and foothills. Nests on the ground	Bidwell Park, Airport Green Space, Little Creek Greenway, Preserved and Conserved Parcels	Spring burning and grazing where nests are present	For vegetation management activities occurring in suitable nesting habitat between February 1 and August 31, a qualified biologist will conduct surveys for special status raptors no less than 14 days before the start of vegetation disturbing activities. These surveys can be conducted concurrently with all other raptor surveys in the management area. If no nesting birds are found, no further study is required. If nests are detected, the project biologist shall establish a minimum 500-foot no-disturbance buffer for raptors until the nest is no longer active or the young have fledged. The size of the buffer may be adjusted by the project biologist if, in consultation with CDFW, it is determined that such as adjustment would not be likely to adversely affect the nest.
<i>Coccyzus americanus occidentalis</i>	western yellow-billed cuckoo	Threatened, Endangered, -	Breeds and forages in riparian areas with low woody vegetation in lowland California, especially willow-cottonwood habitat.	Potential summer breeding resident in densely vegetated riparian areas: Lindo Channel, LCC Greenway, CCG, Bidwell Park	Burning, Grazing, and hand and mechanical vegetation removal in riparian areas	Conduct pre-project nest searches within 500 feet of the project area if working in suitable habitat during the nesting season (Feb 1 - Aug 31). The survey shall be conducted no more than 10 days before project activities begin. If an active nest is found, an appropriate buffer to minimize impacts shall be determined by a qualified biologist in coordination with CDFW. No project activities shall commence within the buffer area until a qualified biologist confirms that the nest is no longer active or the birds are not dependent upon it. The size of the buffer may vary, depending on the nest location, nest stage, and construction activity. Nesting habitat that cannot be avoided shall be removed during the non-nesting season.

Scientific Name	Common Name	Fed status, CA status, CDFW status*	Range and Habitat requirements	If habitat present, where found/ expected?	Program activities that could impact species	Avoidance Measures
<i>Corynorhinus townsendii</i>	Townsend's big-eared bat	None, None, SSC	Found in all but alpine and subalpine habitats in California; most abundant in mesic habitats up to 6,000' elev. Requires caves, mines, tunnels, buildings, or other man-made structures for roosting. Extremely sensitive to disturbance and may abandon a roost if disturbed.	All project sites. Potential for occurrence in program area. Rocky areas and structures in the program area may provide roosting habitat for this species.	Any activity near roost sites	Before vegetation disturbance, surveys will be conducted by a qualified biologist to determine if suitable habitat (that would be removed during the project) are occupied by bats. These areas shall be surveyed within 14 days before start of construction. Surveys may consist of daytime pedestrian surveys looking for evidence of bat use (e.g., guano) and/or an evening emergence survey to note the presence or absence of bats. Due to the number of protected bat species potentially using the project areas, bat detectors should be used to supplement survey efforts. If no evidence of bat roosts are found, then no further study is required. If evidence of bat use is observed, the number and species of bats using the roost will be determined. If a winter roost or a maternity roost is found, a 100' buffer will be created around a roost and no project related activities will occur within the buffer until a biologist has determined that the roost is no longer in use.
<i>Cottus gulosus</i>	riffle sculpin	None, None, SSC	Found in headwater streams w/ cold water and rocky or gravelly substrate. Prefer permanent streams where water does not exceed 25-26°C & ample flow keeps dissolved oxygen level near saturation. May occupy riffles or pools, but favor areas w/ adequate cover (rocks, logs, or overhanging banks).	Bidwell Park	Removing vegetation overhanging Big Chico Creek. Any work in the creek.	Conduct all work in creeks under a 1600 permit. Avoid vegetation removal in perennial streams, rivers and creeks. Provide alternative water sources for livestock when grazing near streams, rivers and creeks. Do not overgraze in riparian zones where soil erosion may contaminate water.

Scientific Name	Common Name	Fed status, CA status, CDFW status*	Range and Habitat requirements	If habitat present, where found/ expected?	Program activities that could impact species	Avoidance Measures
<i>Desmocerus californicus dimorphus</i>	valley elderberry longhorn beetle	Threatened, None, -	Occurs only in the Central Valley of California, in association with blue elderberry (<i>Sambucus nigra ssp. caerulea</i>). Prefers to lay eggs in elderberries 2-8 inches in diameter; some preference shown for "stressed" elderberries. USFWS defines habitat as elderberry shrubs located below 3,000 feet in elevation.	Anywhere blue elderberry is found	Removing or disturbing blue elderberry- Grazing, burning, hand or mechanical removal of blue elderberry	USFWS has issued recent guidance(USFWS 2017) so this replaces the BPMMP (EDAW 2008b) guidelines. If no elderberry shrubs occur in or within 165' of a project area, no further action shall be required. If elderberry shrubs are present: Avoid underburns during the period when VELB adults would be outside the plant (usually corresponds to bush flowering, so Apr 1-May 30), to protect adults from smoke impacts. Do not use herbicides within drip line of elderberry shrub. Trim elderberry shrubs only from November through February and remove only stems less than or equal to 1" in diameter. If stems greater than 1" diameter need to be removed or destroyed, consult USFWS to develop appropriate measures. Such measures shall include those described in Framework for Assessing Impacts to the Valley Elderberry Longhorn Beetle (USFWS 2017). Minimization measures shall include implementation of buffers around shrubs that would not be removed, transplanting shrubs to a conservation area, conducting worker awareness training, and periodic biological monitoring. Compensation shall include planting of elderberry seedling or cuttings and associate native species. Elderberry generally responds vigorously to fire by germination and sprouting. SPRs have been incorporated to protect Elderberry bushes during mechanical, hand treatments, and herbicide applications. Future activities: If it is determined that a future activity will have impacts to VELB greater than defined in the scope of the PEIR, develop additional mitigation measures.

Scientific Name	Common Name	Fed status, CA status, CDFW status*	Range and Habitat requirements	If habitat present, where found/ expected?	Program activities that could impact species	Avoidance Measures
<i>Egretta thula</i>	snowy egret	None, None, -	Widespread in aquatic habitats. Favors extensive marshes and other large wetlands. Sometimes forages in dry fields. Nests in colonies in trees and shrubs, sometimes nests on or near the ground in marshes.	Bidwell park, South Dead Horse Slough, Teichert Ponds, Lindo Channel, LCC Greenway, CCG	Removing trees that include rookery sites	Before any disturbance in suitable habitat have a qualified biologist locate and identify rookery sites during the breeding season. Proceed with project if no rookery sites are located. If rookery sites are located within 500 feet of the edge of the project area, mark and avoid during the breeding season (April 1 to August 15). Never cut rookery trees or remove nests as the birds return to sites year after year.
<i>Elanus leucurus</i>	white-tailed kite	None, None, FP	Rolling foothills and valley margins with scattered oaks & river bottomlands or marshes next to deciduous woodland in California. Open grasslands, meadows, or marshes for foraging close to isolated, dense topped trees for nesting and perching.	All project sites. Potential year-round breeding resident in grassland and riparian habitats in the program area.	Burning, and hand or mechanical removal of nest trees	For vegetation management activities occurring between February 1 and August 31, a qualified biologist will conduct surveys for special status raptors no less than 14 days before the start of vegetation disturbing activities. These surveys can be conducted concurrently with all other raptor surveys in the management area. If no nesting birds are found, no further study is required. If nests are detected, the project biologist shall establish a minimum 500-foot no-disturbance buffer for raptors until the nest is no longer active or the young have fledged. The size of the buffer may be adjusted by the project biologist if, in consultation with CDFW, it is determined that such as adjustment would not be likely to adversely affect the nest. Fully protected species may not be taken or possessed at any time and no licenses or permits may be issued for their take.

Scientific Name	Common Name	Fed status, CA status, CDFW status*	Range and Habitat requirements	If habitat present, where found/ expected?	Program activities that could impact species	Avoidance Measures
<i>Emys marmorata</i>	western pond turtle	None, None, SSC	Perennial wetlands and slow moving creeks and ponds, from sea level to 6,000 feet in elevation, with overhanging vegetation and suitable basking sites such as logs and rocks above the waterline.	Potential for occurrence along Big Chico Creek. Bidwell Park, CCG, LCC Greenway, South Dead Horse Slough, Teichert Ponds	Removing vegetation or basking sites in creeks	Conduct all work in creeks under a 1600 permit. Within 14 days prior to the onset of project activities, a qualified biologist shall conduct pre-activity surveys for Western pond turtle within all areas that fall within 100 feet of any suitable aquatic and upland nesting habitat for this species. If Western pond turtles are observed during the pre-activity survey, the California Department of Fish and Wildlife shall be contacted; any and all project activities will be delayed until an appropriate course of action is established and approved by the California Department of Fish and Wildlife. If no Western pond turtles are observed during the pre activity survey, then vegetation management activities may begin.
<i>Eumops perotis californicus</i>	western mastiff bat	None, None, SSC	Occurs in many open, semi-arid to arid habitats, including conifer and deciduous woodlands, coastal scrub, annual and perennial grasslands, chaparral, desert scrub, and urban area. Typically roosts in caves, crevices, or other rock formations. Found mostly below 4,000 feet in elevation.	All program areas	Any activity near roost sites	Before vegetation disturbance, surveys will be conducted by a qualified biologist to determine if suitable habitat (that would be removed during the project) are occupied by bats. These areas shall be surveyed within 14 days before start of construction. Surveys may consist of daytime pedestrian surveys looking for evidence of bat use (e.g., guano) and/or an evening emergence survey to note the presence or absence of bats. Due to the number of protected bat species potentially using the project areas bat detectors should be used to supplement survey efforts. If no evidence of bat roosts are found, then no further study is required. If evidence of bat use is observed, the number and species of bats using the roost will be determined. If a winter roost or a maternity roost is found, a 100 foot buffer will be created around a roost and no project related activities will occur within the buffer until a biologist has determined that the roost is no longer in use.

Scientific Name	Common Name	Fed status, CA status, CDFW status*	Range and Habitat requirements	If habitat present, where found/ expected?	Program activities that could impact species	Avoidance Measures
<i>Falco columbarius</i>	merlin	None, None, WL	Breeds in forested openings, edges, and along rivers across northern North America. During migration and winter, found in open forests, grasslands, and especially coastal areas with flocks of small songbirds or shorebirds	All program areas	Removing trees with nest sites	For vegetation management activities occurring between February 1 and August 31, a qualified biologist will conduct surveys for special status raptors no less than 14 days before the start of vegetation disturbing activities. These surveys can be conducted concurrently with all other raptor surveys in the management area. If no nesting birds are found, no further study is required. If nests are detected, the project biologist shall establish a minimum 500-foot no-disturbance buffer for raptors until the nest is no longer active or the young have fledged. The size of the buffer may be adjusted by the project biologist if, in consultation with CDFW, it is determined that such as adjustment would not be likely to adversely affect the nest.

Scientific Name	Common Name	Fed status, CA status, CDFW status*	Range and Habitat requirements	If habitat present, where found/ expected?	Program activities that could impact species	Avoidance Measures
<i>Falco peregrinus anatum</i>	American peregrine falcon	Delisted, Delisted, FP	Range extends from the tundra to the tropics and contains a wide range of habitats; wetlands, deserts, forests and islands. In California, breeding habitats include a variety of locations from cliffs in uninhabited areas to tall buildings or bridges within the urban landscape.	All project areas	Mechanical or manual removal of vegetation within 500 feet of cliff sites during the breeding season	Determine if any vegetation management within 500 feet of cliff faces is proposed during Peregrine Falcon nesting season (February 1 to August 31). If the project is planned outside of the nesting season or more than 500 feet away from a cliff, no further mitigation is necessary. If the project is during the nesting season and within 500 feet of a cliff, a focused survey for Peregrine Falcons shall be conducted by a qualified biologist during the nesting season to identify active nests within 500 feet of the project area. The survey shall be conducted no less than 14 days and no more than 30 days before the beginning of the project (EDAW 2008b). If Peregrine Falcons are found during the focused survey, impacts shall be avoided by establishing buffers. No project activity shall commence within the buffer area until a qualified biologist confirms that the nest is no longer active. The CDFW guideline for a 500 foot buffer will be implemented, but the size of the buffer may be adjusted if a qualified biologist determines a greater or lesser buffer would be appropriate and CDFW concurs with any determination for a lesser buffer. The City shall coordinate with CDFW on the appropriate buffer width. Monitoring of the nest by a qualified biologist may be required if the activity has potential to adversely affect the nest or disturb the birds using the nest to the point of causing nest failure. (EDAW 2008b).

Scientific Name	Common Name	Fed status, CA status, CDFW status*	Range and Habitat requirements	If habitat present, where found/ expected?	Program activities that could impact species	Avoidance Measures
<i>Gonidea angulata</i>	western ridged mussel	None, None, -	Widely distributed from southern BC to SoCal. Inhabits benthic zone of cold creeks and lakes, low to mid-elev. Uses substrates that vary from gravel to firm mud & incl at least some sand, silt or clay.	Bidwell Park- Big Chico Creek	Any activity in the creek channel	Conduct all work in creeks under a 1600 permit. Avoid vegetation removal in perennial streams, rivers and creeks. Provide alternative water sources for livestock when grazing near streams, rivers and creeks. Do not overgraze in riparian zones where soil erosion may contaminate water.

Scientific Name	Common Name	Fed status, CA status, CDFW status*	Range and Habitat requirements	If habitat present, where found/ expected?	Program activities that could impact species	Avoidance Measures
<i>Haliaeetus leucocephalus</i>	bald eagle	Delisted, Endangered, FP	Ocean shore, lake margins, & rivers for both nesting & wintering. Most nests within 1 mile of water. Nests in large, old-growth, or dominant live tree w/open branches, especially ponderosa pine. Roosts communally in winter. Potential year-round breeding and/or wintering resident in the program area.	Bidwell Park, Teichert Ponds	Any activity within 500 feet of an active nest	Determine if any tree removal or vegetation management in wooded habitat is proposed during Bald Eagle nesting season (February 1 to August 31). If no vegetation management or tree removal in wooded habitat will occur during nesting season, no further mitigation is necessary. If tree removal/vegetation management in wooded habitat is proposed during the nesting season, a focused survey for Bald Eagle & common raptor nests shall be conducted by a qualified biologist during the nesting season to identify active nests within 500 feet of the project area. The survey shall be conducted no less than 14 days and no more than 30 days before the beginning of the project (EDAW 2008b). If Bald Eagle or other nesting raptors are found during the focused survey, impacts shall be avoided by establishing buffers. No project activity shall commence within the buffer area until a qualified biologist confirms that the nest is no longer active. The CDFW guideline for a 500 foot buffer will be implemented, but the size of the buffer may be adjusted if a qualified biologist determines a greater or lesser buffer would be appropriate and CDFW concurs with any determination for a lesser buffer. Monitoring of the nest by a qualified biologist may be required if the activity has potential to adversely affect the nest or disturb the birds using the nest to the point of causing nest failure. (EDAW 2008b).

Scientific Name	Common Name	Fed status, CA status, CDFW status*	Range and Habitat requirements	If habitat present, where found/ expected?	Program activities that could impact species	Avoidance Measures
<i>Hystero- carpus traskii traskii</i>	Sacrament o-San Joaquin tule perch	None, None, -	Found primarily in Sac River watershed. Tule perch have been found in Big Chico Creek and its tributaries and in the Feather River, including in the high flow channel. They likely exist in other creeks w/ similar physical characteristics, although not documented.	Bidwell Park- Big Chico Creek	Any activities in Big Chico Creek	Conduct all work in creeks under a 1600 permit. Avoid vegetation removal in Big Chico Creek. Provide alternative water sources for livestock when grazing near Big Chico Creek. Do not overgraze in riparian zones where soil erosion may contaminate water.
<i>Icteria virens</i>	yellow- breasted chat	None, None, SSC	Breeds and forages in dense, shrubby riparian habitats. Potential summer breeding resident in densely vegetated riparian areas in the program area. Winters in Mexico, Guatemala.	Bidwell Park, Teichert Ponds, South Dead Horse Slough, Lindo Channel, LCC Greenway, CCG	Any vegetation disturbance in riparian areas	Conduct pre project nest searches within 500 feet of the project area if working in suitable habitat during the nesting season (Feb 1 - Aug 31). The survey shall be conducted no more than 10 days before project activities begin. If an active nest is found, an appropriate buffer to minimize impacts shall be determined by a qualified biologist in coordination w/ CDFW. No project activities shall commence within the buffer area until a qualified biologist confirms that the nest is no longer active or the birds are not dependent upon it. The size of the buffer may vary, depending on the nest location, nest stage, and construction activity. Nesting habitat that cannot be avoided shall be removed during the non-nesting season.

Scientific Name	Common Name	Fed status, CA status, CDFW status*	Range and Habitat requirements	If habitat present, where found/ expected?	Program activities that could impact species	Avoidance Measures
<i>Lanius ludovicianus</i>	loggerhead shrike	None, None, SSC	Breeds and forages in open grasslands, riparian, and agricultural habitats in the Sacramento Valley and foothills	Preserved/ Conserved Parcels, Lindo Channel, LCC Greenway, CCG, Bidwell Park, Airport Green Space	Any vegetation disturbance in riparian areas and grasslands	Conduct pre project nest searches within 500 feet of the project area if working in suitable habitat during the nesting season (Feb 1 - Aug 31). The survey shall be conducted no more than 10 days before project activities begin. If an active nest is found, an appropriate buffer to minimize impacts shall be determined by a qualified biologist in coordination w/ CDFW. No project activities shall commence within the buffer area until a qualified biologist confirms that the nest is no longer active or the birds are not dependent upon it. The size of the buffer may vary, depending on the nest location, nest stage, and construction activity. Nesting habitat that cannot be avoided shall be removed during the non-nesting season.
<i>Lasiorycteris noctivagans</i>	silver-haired bat	None, None, -	Range is from Alaska to Mexico and throughout most of the US. Roosts under bark, in open soft-walled caves or mines, and open buildings. Found in coniferous and mixed deciduous forest as well as riparian areas.	Lindo Channel, Little Chico Creek Greenway, Comanche Creek Greenway, Bidwell park	Removing roosting snags	Before vegetation disturbance, surveys will be conducted by a qualified biologist to determine if suitable habitat (that would be removed during the project) are occupied by bats. These areas shall be surveyed within 14 days before start of construction. Surveys may consist of daytime pedestrian surveys looking for evidence of bat use (e.g., guano) and/or an evening emergence survey to note the presence or absence of bats. Due to the number of protected bat species potentially using the project areas, bat detectors should be used to supplement survey efforts. If no evidence of bat roosts are found, then no further study is required. If evidence of bat use is observed, the number and species of bats using the roost will be determined. If a winter roost or a maternity roost is found, a 100 foot buffer will be created around a roost and no project related activities will occur within the buffer until a biologist has determined that the roost is no longer in use.

Scientific Name	Common Name	Fed status, CA status, CDFW status*	Range and Habitat requirements	If habitat present, where found/ expected?	Program activities that could impact species	Avoidance Measures
<i>Lasiurus blossevillii</i>	western red bat	None, None, SSC	Occurs from BC to South America. In CA, occurs west of the Sierra crest from Shasta County to Mexico. Roosts solitary in foliage in forests and woodlands from sea level through mixed coniferous forest, incl in cottonwood and willow in CA. May roost in trees or shrubs in riparian areas in program area.	Lindo Channel, Little Chico Creek Greenway, Comanche Creek Greenway, Bidwell park	Removing vegetation in riparian areas especially cottonwood and willow	Before vegetation disturbance, surveys will be conducted by a qualified biologist to determine if suitable habitat (that would be removed during the project) are occupied by bats. These areas shall be surveyed within 14 days before start of construction. Surveys may consist of daytime pedestrian surveys looking for evidence of bat use (e.g., guano) and/or an evening emergence survey to note the presence or absence of bats. Due to the number of protected bat species potentially using the project areas, bat detectors should be used to supplement survey efforts. If no evidence of bat roosts are found, then no further study is required. If evidence of bat use is observed, the number and species of bats using the roost will be determined. If a winter roost or a maternity roost is found, a 100 foot buffer will be created around a roost and no project related activities will occur within the buffer until a biologist has determined that the roost is no longer in use.

Scientific Name	Common Name	Fed status, CA status, CDFW status*	Range and Habitat requirements	If habitat present, where found/ expected?	Program activities that could impact species	Avoidance Measures
<i>Lasiurus cinereus</i>	hoary bat	None, None, -	The most widespread bat species in the Americas. Roosts in foliage of trees near ends of branches. Highly associated with forested habitats but can be found in suburbs with old, large trees.	All project sites	Any removal of trees or shrubs	Before vegetation disturbance, surveys will be conducted by a qualified biologist to determine if suitable habitat (that would be removed during the project) is occupied by bats. These areas shall be surveyed within 14 days before start of construction. Surveys may consist of daytime pedestrian surveys looking for evidence of bat use (e.g., guano) and/or an evening emergence survey to note the presence or absence of bats. Due to the number of protected bat species potentially using the project areas, bat detectors should be used to supplement survey efforts. If no evidence of bat roosts are found, then no further study is required. If evidence of bat use is observed, the number and species of bats using the roost will be determined. If a winter roost or a maternity roost is found, a 100 foot buffer will be created around a roost and no project related activities will occur within the buffer until a biologist has determined that the roost is no longer in use.
<i>Laterallus jamaicensis coturniculus</i>	California black rail	None, Threatened, FP	Primary habitat =salt marsh, but recently found at ~ 100 freshwater sites in Sierra foothills (Butte, Yuba, Nevada counties). Recently (2019) detected in Bidwell Park. Needs water ~ 1 inch deep that does not fluctuate during the year & dense vegetation for nesting.	Bidwell Park, Teichert Ponds	Any vegetation disturbance in wet meadows or marshes	Conduct pre project nest searches within 500 feet of the project area if working in suitable habitat during the nesting season (Feb 1 - Aug 31). The survey shall be conducted no more than 10 days before project activities begin. If an active nest is found, an appropriate buffer to minimize impacts shall be determined by a qualified biologist in coordination with CDFW. No project activities shall commence within the buffer area until a qualified biologist confirms that the nest is no longer active or the birds are not dependent upon it. The size of the buffer may vary, depending on the nest location, nest stage, and construction activity. Nesting habitat that cannot be avoided shall be removed during the non-nesting season.

Scientific Name	Common Name	Fed status, CA status, CDFW status*	Range and Habitat requirements	If habitat present, where found/ expected?	Program activities that could impact species	Avoidance Measures
<i>Lepidurus packardi</i>	vernal pool tadpole shrimp	Endangered, None, -	Vernal pools in the Sacramento Valley	Bidwell Ranch, Foothill Park Preserve, and Wildwood Vernal Pool Preserve, Bidwell Park	Burning vernal pools before they completely dry out	Before Rx fire in vernal pools, a qualified biologist will map potential habitat in all burn areas, staging areas, and access routes. The City shall coordinate with the biologist to ensure the footprint of the project, staging areas, and access routes are designed to avoid direct or indirect effects on suitable habitat for vernal pool invertebrates (EDAW 2008b). In vernal pools where vegetative material is relatively sparse, Tadpole shrimp cysts do not appear to be negatively affected by fire (once pools are dry), but where thatch has built up or vegetative material is dense, fire may have deleterious effects on cyst viability (Wells et al. 1997). However, without treatment, the density of nonnative herbaceous vegetation surrounding pools is expected to increase degradation of vernal pool habitat. If vernal pool invertebrate habitat cannot be avoided, measures shall be implemented to minimize and mitigate unavoidable effects. Before beginning any ground-disturbing project activities in such habitat, USFWS shall be consulted to identify appropriate measures to minimize and compensate for adverse effects on special-status vernal pool invertebrates. Avoidance and minimization measures shall include those described in USFWS's vernal pool crustacean Programmatic Consultation (USFWS 1996). Minimization measures for vernal pool invertebrates shall include, but not be limited to, fencing of habitat to be avoided, timing of disturbance to correspond with the dry season, conducting worker awareness training, and periodic biological monitoring.

Scientific Name	Common Name	Fed status, CA status, CDFW status*	Range and Habitat requirements	If habitat present, where found/ expected?	Program activities that could impact species	Avoidance Measures
<i>Linderiella occi-dentalis</i>	California linderiella	None, None, -	Vernal pools in the Sacramento Valley and foothills	Bidwell Ranch, Foothill Park Preserve, and Wildwood Vernal Pool Preserve, Bidwell Park	Burning vernal pools before they completely dry out	Hire a qualified biologist to conduct presence absence surveys in suitable habitat before burning. Consult with USFWS for survey methods and further action if individuals are found.
<i>Margari-tifera falcata</i>	western pearlshell	None, None, -	From AK and BC south to CA and east to NV, WY, UT, MT. Inhabits cold creeks and rivers with clean water and sea-run salmon or native trout.	Bidwell Park- Big Chico Creek	Any activity in the creek channel	Conduct all work in creeks under a 1600 permit. Avoid vegetation removal in perennial streams, rivers and creeks. Provide alternative water sources for livestock when grazing near streams, rivers and creeks. Do not overgraze in riparian zones where soil erosion may contaminate water.
<i>Mylo-pharodon cono-cephalus</i>	hardhead	None, None, SSC	Distributed throughout the Sac-San Joaquin & Russian River drainages in California. Uses deep, rock- and sand-bottomed pools. Known from Big Chico Creek.	Bidwell Park- Big Chico Creek	Any activity in the creek channel	Conduct all work in creeks under a 1600 permit. Avoid vegetation removal in perennial streams, rivers and creeks. Provide alternative water sources for livestock when grazing near streams, rivers and creeks. Do not overgraze in riparian zones where soil erosion may contaminate water.

Scientific Name	Common Name	Fed status, CA status, CDFW status*	Range and Habitat requirements	If habitat present, where found/ expected?	Program activities that could impact species	Avoidance Measures
<i>Myotis yumanensis</i>	Yuma myotis	None, None, -	Found throughout western North America. Primarily in forests, riparian zones, grasslands, shrub-steppe, and deserts; closely associated with streams, ponds, and lakes. Roosts in buildings, mines, caves, or crevices. Will roost in abandoned swallow nests and under bridges.	Bidwell Park, Teichert Ponds, South Dead Horse Slough, Lindo Channel, LCC Greenway, Comanche Creek Greenway	Disturbing vegetation around roosting sites	Before vegetation disturbance, surveys will be conducted by a qualified biologist to determine if suitable habitat (that would be removed during the project) are occupied by bats. These areas shall be surveyed within 14 days before start of construction. Surveys may consist of daytime pedestrian surveys looking for evidence of bat use (e.g., guano) and/or an evening emergence survey to note the presence or absence of bats. Due to the number of protected bat species potentially using the project areas bat detectors should be used to supplement survey efforts. If no evidence of bat roosts are found, then no further study is required. If evidence of bat use is observed, the number and species of bats using the roost will be determined. If a winter roost or a maternity roost is found, a 100 foot buffer will be created around a roost and no project related activities will occur within the buffer until a biologist has determined that the roost is no longer in use.
<i>Nycticorax nycticorax</i>	black-crowned night heron	None, None, -	Found in a wide variety of aquatic habitats, both fresh and saltwater, incl marshes, rivers, ponds, canals, ricefields. Nests in groves of trees, in thickets, or on ground, usually on islands or directly above water.	Bidwell Park, Teichert Ponds, Dead Horse Slough, Lindo Channel, LCC Greenway, CCG	Disturbing vegetation around nesting sites	Before any disturbance in suitable habitat, have a qualified biologist locate and identify rookery sites during the breeding season. Proceed with project if no rookery sites are located. If rookery sites are located within 500 feet of the edge of the project area, mark and avoid during the breeding season (April 1 to August 15). Never cut rookery trees or remove nests as the birds return to sites year after year.

Scientific Name	Common Name	Fed status, CA status, CDFW status*	Range and Habitat requirements	If habitat present, where found/ expected?	Program activities that could impact species	Avoidance Measures
<i>Onco-rhynchus mykiss irideus</i> pop. 11	steelhead - Central Valley DPS	Threatened, None, -	Naturally spawning steelhead originating below natural and manmade impassable barriers from Sac and San Joaquin Rivers and their tributaries. Known to occur in Big Chico Creek	Bidwell Park- Big Chico Creek	Any activity in the creek channel	Conduct all work in creeks under a 1600 permit. Avoid vegetation removal in perennial streams, rivers and creeks. Provide alternative water sources for livestock when grazing near streams, rivers and creeks. Do not overgraze in riparian zones where soil erosion may contaminate water.
<i>Onco-rhynchus tshawy-tscha</i> pop. 13	chinook salmon - Central Valley fall / late fall-run ESU	None, None, SSC	Sacramento River Watershed- Known to occur in Big Chico Creek	Bidwell Park- Big Chico Creek	Any activity in the creek channel	Conduct all work in creeks under a 1600 permit. Avoid vegetation removal in perennial streams, rivers and creeks. Provide alternative water sources for livestock when grazing near streams, rivers and creeks. Do not overgraze in riparian zones where soil erosion may contaminate water.
<i>Onco-rhynchus tshawy-tscha</i> pop. 6	chinook salmon - Central Valley spring-run ESU	Threatened, Threatened, -	Sacramento River Watershed- Known to occur in Big Chico Creek	Bidwell Park- Big Chico Creek	Any activity in the creek channel	Conduct all work in creeks under a 1600 permit. Avoid vegetation removal in perennial streams, rivers and creeks. Provide alternative water sources for livestock when grazing near streams, rivers and creeks. Do not overgraze in riparian zones where soil erosion may contaminate water.

Scientific Name	Common Name	Fed status, CA status, CDFW status*	Range and Habitat requirements	If habitat present, where found/ expected?	Program activities that could impact species	Avoidance Measures
<i>Pandion haliaetus</i>	osprey	None, None, WL	Found near water, either fresh or salt, where large numbers of fish are present. May be most common around major coastal estuaries and salt marshes, but also regular around large lakes, reservoirs, rivers.	Bidwell Park, Teichert Ponds	Removing trees with known nests	For vegetation management activities occurring between February 1 and August 31, a qualified biologist will conduct surveys for special status raptors no less than 14 days before the start of vegetation disturbing activities. These surveys can be conducted concurrently with all other raptor surveys in the management area. If no nesting birds are found, no further study is required. If nests are detected, the project biologist shall establish a minimum 500-foot no-disturbance buffer for raptors until the nest is no longer active or the young have fledged. The size of the buffer may be adjusted by the project biologist if, in consultation with CDFW, it is determined that such as adjustment would not be likely to adversely affect the nest.
<i>Phalacrocorax auritus</i>	double-crested cormorant	None, None, WL	Very adaptable, may be found in almost any aquatic habitat, incl small inland ponds. Nests in trees near or over water, or on ground or rocks. Widely distributed across North America	Teichert Ponds, Bidwell Park	Disturbing nest sites	Conduct pre project nest searches within 500 feet of the project area if working in suitable habitat during the nesting season (Feb 1 - Aug 31). The survey shall be conducted no more than 10 days before project activities begin. If an active nest is found, an appropriate buffer to minimize impacts shall be determined by a qualified biologist in coordination with CDFW. No project activities shall commence within the buffer area until a qualified biologist confirms that the nest is no longer active or the birds are not dependent upon it. The size of the buffer may vary, depending on the nest location, nest stage, and construction activity. Nesting habitat that cannot be avoided shall be removed during the non-nesting season.

Scientific Name	Common Name	Fed status, CA status, CDFW status*	Range and Habitat requirements	If habitat present, where found/ expected?	Program activities that could impact species	Avoidance Measures
<i>Phrynosoma blainvillii</i>	coast horned lizard	None, None, SSC	Sierra foothills (up to 4000' elev) from Butte Co. to Kern Co. and throughout central and so. California coast. Occurs in valley foothill hardwood, riparian, and annual grassland habitats.	All sites	Burning	Hire a qualified biologist to conduct presence/absence surveys in suitable habitat before burning. Consult CDFW for survey methods and further action if individuals are found
<i>Pica nuttalli</i>	yellow-billed magpie	None, None, -	Endemic to open oak woodlands of the Central Valley, the Coast Ranges, and the Sierra Nevada foothills.	Preserved and Conserved Parcels, Bidwell Park	Removing or disturbing nesting trees	Conduct pre project nest searches within 500' of project area if working in suitable habitat during nesting season (Feb 1-Aug 31). The survey shall be conducted no more than 10 days before project activities begin. If an active nest is found, an appropriate buffer to minimize impacts shall be determined by a qualified biologist in coordination with CDFW. No project activities shall commence within the buffer area until a qualified biologist confirms that the nest is no longer active or the birds are not dependent upon it. The size of the buffer may vary, depending on the nest location, nest stage, and construction activity. Nesting habitat that cannot be avoided shall be removed during the non-nesting season.

Scientific Name	Common Name	Fed status, CA status, CDFW status*	Range and Habitat requirements	If habitat present, where found/ expected?	Program activities that could impact species	Avoidance Measures
<i>Progne subis</i>	purple martin	None, None, SSC	Found throughout the Eastern United States and West Coast. Primarily coastal in California. Used to be common in the Sacramento Valley but now only breeds in isolated areas. There are breeding accounts near the Sacramento River and Chico. Nests in cavities or artificial nesting structures.	Possibly present at any site with abundant cavities	Removing nesting sites	Conduct pre project nest searches within 500 feet of the project area if working in suitable habitat during the nesting season (Feb 1 - Aug 31). The survey shall be conducted no more than 10 days before project activities begin. If an active nest is found, an appropriate buffer to minimize impacts shall be determined by a qualified biologist in coordination w/ CDFW. No project activities shall commence within the buffer area until a qualified biologist confirms that the nest is no longer active or the birds are not dependent upon it. The size of the buffer may vary, depending on the nest location, nest stage, and construction activity. Nesting habitat that cannot be avoided shall be removed during the non-nesting season. Consult with local Audubon for known nest sites.
<i>Rana boylei</i>	foothill yellow-legged frog	None, Endangered (although local clade merely "Threatened"), SSC	Favor shallow, flowing water in small to moderate-sized streams with at least some cobble-sized substrate. Breeding is timed to streamflow. In CA, in foothill and mountain streams in Klamath, Cascade, Sutter Buttes, Coast, Sierra Nevada, and Transverse ranges from sea level-6,000'. Documented in Big Chico Creek in Bidwell Park.	Bidwell Park- Big Chico Creek	Any activity in the creek channel or within 100 feet of a perennial creek	Conduct all work in creeks under a 1600 permit. Avoid vegetation removal in perennial streams, rivers and creeks. Provide alternative water sources for livestock when grazing near streams, rivers and creeks. Do not overgraze in riparian zones where soil erosion may contaminate water. Within 14 days prior to the onset of vegetation management activities, a qualified biologist shall conduct pre-activity surveys for foothill yellow-legged frog within all areas that fall within 100 feet of suitable habitat. If individuals are observed within the project site during the pre-project survey, USFWS and/or CDFW shall be contacted and any and all activities must be delayed until an appropriate course of action can be established and approved by USFWS and/or CDFW.

Scientific Name	Common Name	Fed status, CA status, CDFW status*	Range and Habitat requirements	If habitat present, where found/ expected?	Program activities that could impact species	Avoidance Measures
<i>Rana draytonii</i>	California red-legged frog	Threatened, None, SSC	Breeds in aquatic areas with dense, shrubby, or emergent riparian vegetation & permanent source of deep (greater than 2.33' deep) still or slow-moving water below 4,000' elevation. Upland dispersal within 1 mile of aquatic breeding habitat if no impassable dispersal barriers (e.g. suburban areas, suburban developments, wide/ fast-flowing rivers or streams, lakes >50 ac, or heavily traveled roads w/o underpasses or culverts).	Bidwell Park- Big Chico Creek	Any activity in the creek channel	Conduct all work in creeks under a 1600 permit. Avoid vegetation removal in perennial streams, rivers and creeks. Provide alternative water sources for livestock when grazing near streams, rivers and creeks. Do not overgraze in riparian zones where soil erosion may contaminate water. Within 14 days prior to the onset of vegetation management activities, a qualified biologist shall conduct pre-activity surveys for foothill red-legged frog within all areas that fall within 100 feet of suitable habitat. If individuals are observed within the project site during the pre-project survey, United States Fish and Wildlife Service and/or the California Department of Fish and Wildlife shall be contacted and any and all activities must be delayed until an appropriate course of action can be established and approved by United States Fish and Wildlife Service and/or the California Department of Fish and Wildlife.

Scientific Name	Common Name	Fed status, CA status, CDFW status*	Range and Habitat requirements	If habitat present, where found/ expected?	Program activities that could impact species	Avoidance Measures
<i>Riparia riparia</i>	bank swallow	None, Threatened, -	Colonial nester; nests primarily in riparian and other lowland habitats west of the desert. Requires vertical banks/cliffs with fine-textured/sandy soils near streams, rivers, lakes, or the ocean to dig nesting hole.	Bidwell Park	Burning or vegetation management near nesting colonies	Conduct pre project nest searches within 500 feet of the project area if working in suitable habitat during the nesting season (Feb 1 - Aug 31). The survey shall be conducted no more than 10 days before project activities begin. If an active nest is found, an appropriate buffer to minimize impacts shall be determined by a qualified biologist in coordination with CDFW. No project activities shall commence within the buffer area until a qualified biologist confirms that the nest is no longer active or the birds are not dependent upon it. The size of the buffer may vary, depending on the nest location, nest stage, and construction activity. Nesting habitat that cannot be avoided shall be removed during the non-nesting season.
<i>Selasphorus rufus</i>	rufous hummingbird	None, None, -	Found in a wide variety of habitats that provide nectar-producing flowers; uses valley foothill hardwood, valley foothill hardwood-conifer, riparian, and various chaparral habitats in both northward and southward migration. Breeds in Oregon, Washington and the North coast of California.	All sites	None- winter resident. No breeding habitat in program area	NA

Scientific Name	Common Name	Fed status, CA status, CDFW status*	Range and Habitat requirements	If habitat present, where found/ expected?	Program activities that could impact species	Avoidance Measures
<i>Setophaga petechia</i>	yellow warbler	None, None, SSC	Breeds and forages in riparian areas with low woody vegetation in lowland California, especially willow-cottonwood habitat. Potential summer breeding resident in densely vegetated riparian areas in the program area.	Bidwell Park, Teichert Ponds, South Dead Horse Slough, Lindo Channel, Little Chico Creek Greenway, Comanche Creek Greenway	Vegetation management in riparian habitat during the breeding season (Feb 15-Aug 1)	Conduct pre project nest searches within 500 feet of the project area if working in suitable habitat during the nesting season (Feb 15- Aug 1). The survey shall be conducted no more than 10 days before project activities begin. If an active nest is found, an appropriate buffer to minimize impacts shall be determined by a qualified biologist in coord w/ CDFW. No project activities shall commence within the buffer area until a qualified biologist confirms that the nest is no longer active or the birds are not dependent upon it. The size of the buffer may vary, depending on the nest location, nest stage, and construction activity. Nesting habitat that cannot be avoided shall be removed during the non-nesting season.
<i>Spea hammondi</i>	western spadefoot	None, None, SSC	Occurs primarily in grassland habitats, but can be found in valley-foothill hardwood woodlands. Vernal pools are essential for breeding and egg laying.	Bidwell Park, Bidwell Ranch, Foothill Park Preserve, and Wildwood Vernal Pool Preserve	Burning vernal pools before they completely dry out	Before any prescribed fire in vernal pools and surrounding upland habitats, a qualified biologist will identify and map potential habitat in areas that could be affected by the project including all burn areas, staging areas, and access routes. The City shall ensure, through coordination with the biologist, that the footprint of the project, staging areas, and access routes are designed to avoid direct or indirect effects on suitable habitat for vernal pool species (EDAW 2008b). Before beginning any ground-disturbing project activities in such habitat, USFWS shall be consulted to identify appropriate measures to minimize and compensate for adverse effects on special-status vernal pool species. Minimization measures for vernal pool species shall include, but would not be limited to, fencing of habitat to be avoided, timing of ground disturbance to correspond with the dry season, conducting worker awareness training, and periodic biological monitoring.

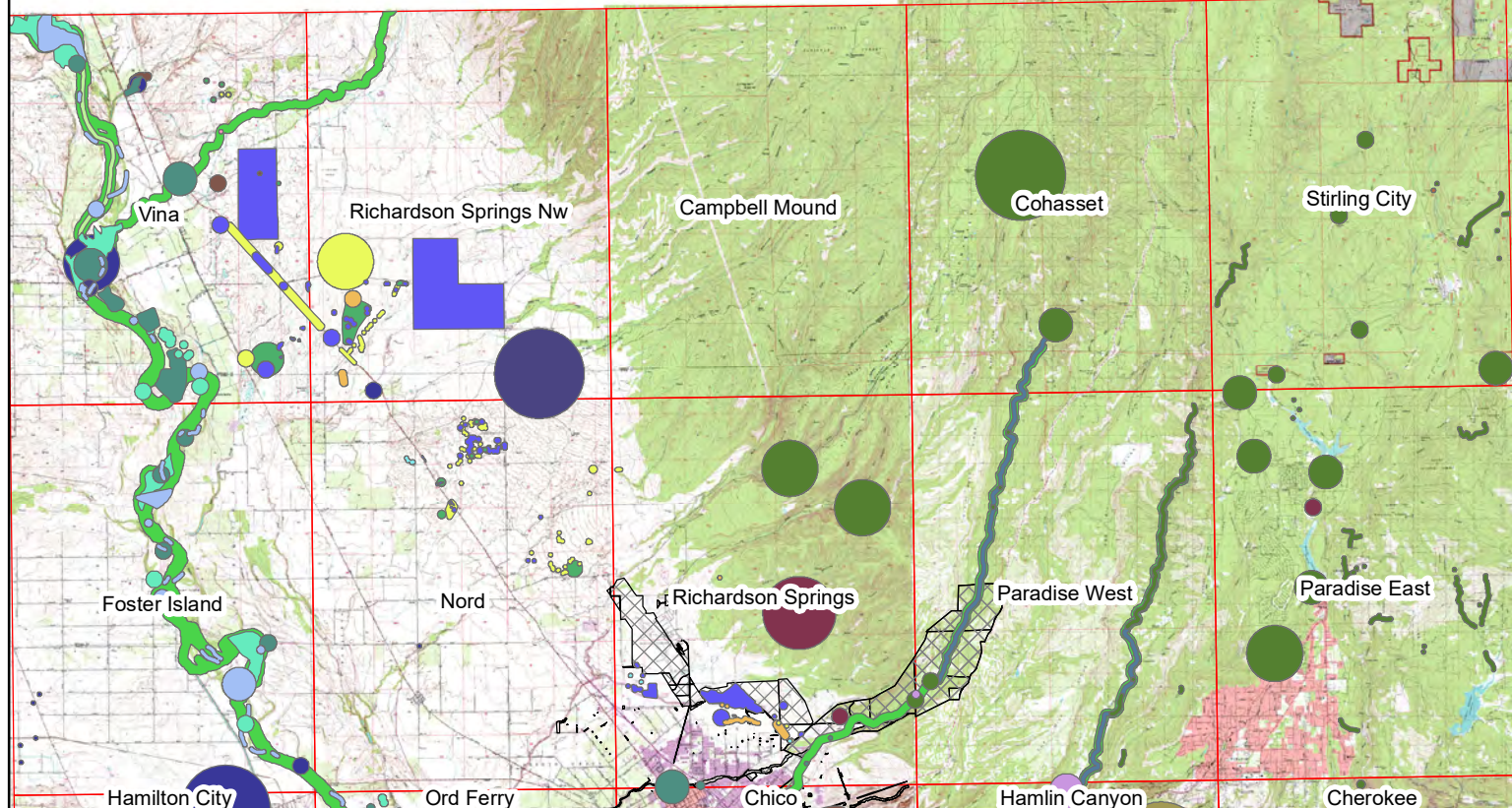
Scientific Name	Common Name	Fed status, CA status, CDFW status*	Range and Habitat requirements	If habitat present, where found/ expected?	Program activities that could impact species	Avoidance Measures
<i>Taxidea taxus</i>	American badger	None, None, SSC	Most abundant in drier open stages of most shrub, forest, and herbaceous habitats, with friable soils. Needs sufficient food, friable soils & open, uncultivated ground. Preys on burrowing rodents. Digs burrows.	Bidwell Park, Bidwell Ranch, FPP, Wildwood Vernal Pool Preserve, and Airport Green Space	Burning grasslands during denning season if animals are present	If project is in suitable badger habitat, have a qualified biologist conduct den surveys within 500 feet of the project perimeter prior to burning between March 1 and August 15. Clearly mark a 500 foot buffer if dens are found.
<i>Vulpes vulpes patwin</i>	Sacramento Valley red fox	None, None, -	Current range spans the Valley from Cottonwood to the Delta, west of Sac River, and Chico to Sacramento, east of Sac River. Den sites are associated with grasslands; foxes avoid flooded ag & wetlands and heavily urbanized areas.	Bidwell Park, Bidwell Ranch, FPP, Wildwood Vernal Pool Preserve, and Airport Green Space	Burning during denning and pup rearing season (Jan 15- Aug 1)	If project is in suitable red fox habitat, have a qualified biologist conduct den surveys within 500 feet of the project perimeter prior to burning between March 1 and August 15. Clearly mark a 500 foot buffer if dens are found. Consult with USFWS/CDFW if dens are found.
*CDFW abbreviations: FP = Fully Protected (this was CA's precursor to listing as State Endangered/State Threatened); SSC = Species of Special Concern; WL = Watch List. Also, FPP = Foothill Park Preserve; LCC = Little Chico Creek; CCG= Comanche Creek Greenway.						

MAP BIO-1.

CNDDDB_animals

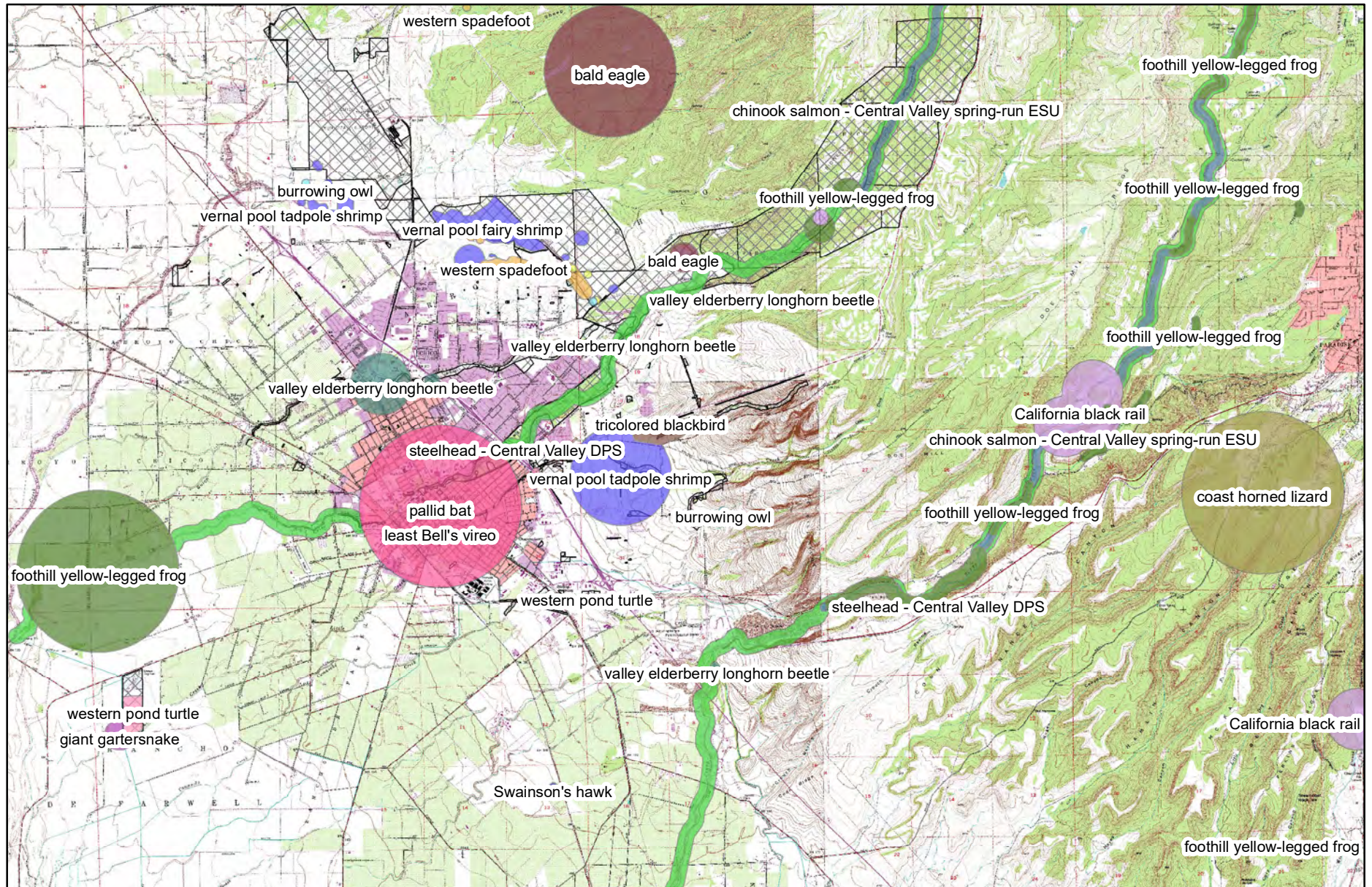
CNAME, FEDLIST, CALLIST

- California black rail, None, Threatened
- Conservancy fairy shrimp, Endangered, None
- Swainson's hawk, None, Threatened
- bald eagle, Delisted, Endangered
- bank swallow, None, Threatened
- burrowing owl, None, None
- chinook salmon - Central Valley spring-run ESU, Threatened, Threatened
- chinook salmon - Sacramento River winter-run ESU, Endangered, Endangered
- coast horned lizard, None, None
- foothill yellow-legged frog, None, Candidate Threatened
- least Bell's vireo, Endangered, Endangered
- pallid bat, None, None
- steelhead - Central Valley DPS, Threatened, None
- tricolored blackbird, None, Threatened
- valley elderberry longhorn beetle, Threatened, None
- vernal pool fairy shrimp, Threatened, None
- vernal pool tadpole shrimp, Endangered, None
- western mastiff bat, None, None
- western pond turtle, None, None
- western red bat, None, None
- western spadefoot, None, None
- western yellow-billed cuckoo, Threatened, Endangered



CNDDDB Map - Animals (Chico)

MAP BIO-2



CNDDDB_animals

CNAME, FEDLIST, CALLIST

- California black rail, None, Threatened
- Conservancy fairy shrimp, Endangered, None
- Swainson's hawk, None, Threatened
- bald eagle, Delisted, Endangered
- burrowing owl, None, None

- chinook salmon - Central Valley spring-run ESU, Threatened, Threatened
- coast horned lizard, None, None
- foothill yellow-legged frog, None, Candidate Threatened
- giant gartersnake, Threatened, Threatened
- least Bell's vireo, Endangered, Endangered
- pallid bat, None, None
- steelhead - Central Valley DPS, Threatened, None
- tricolored blackbird, None, Threatened

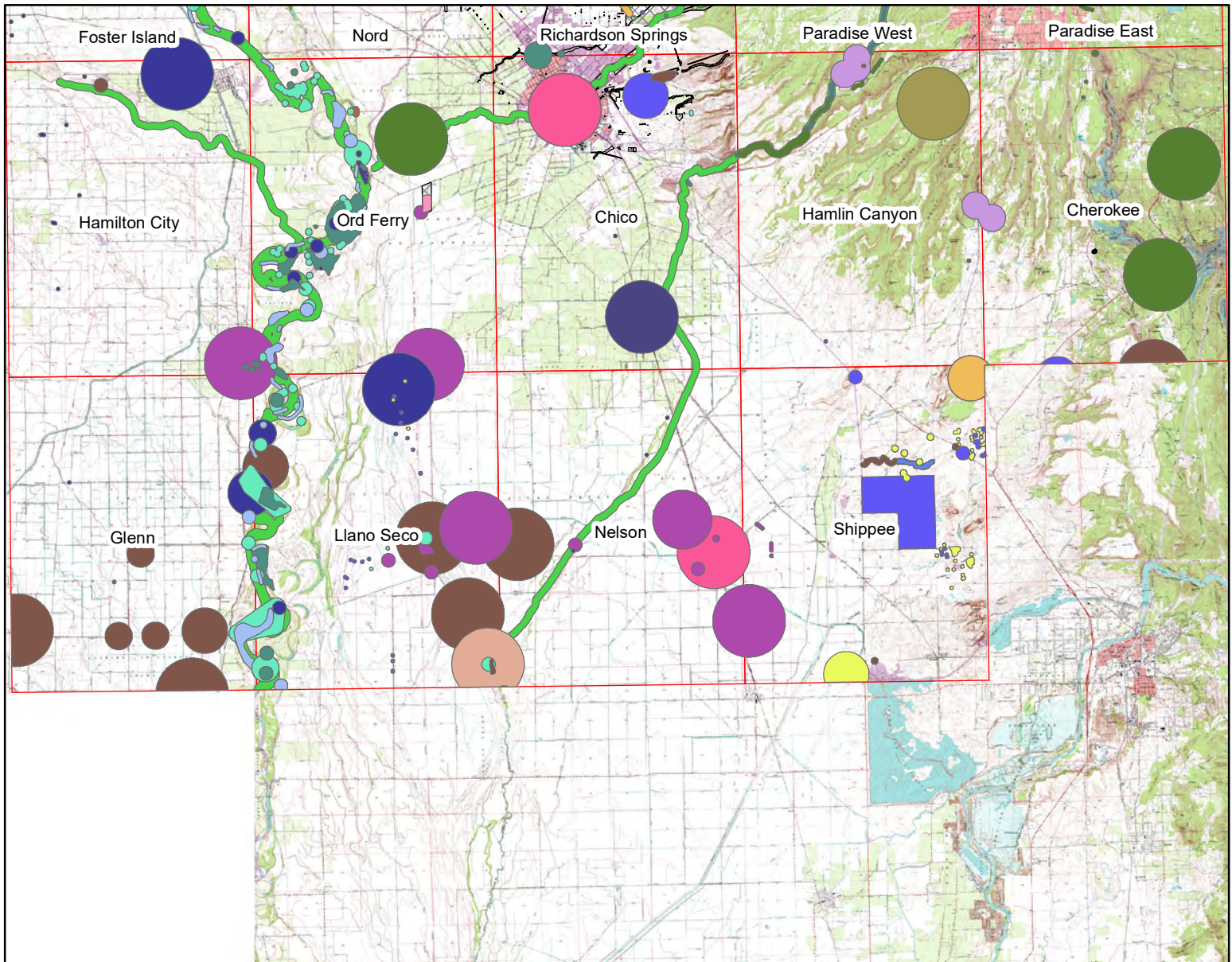
- valley elderberry longhorn beetle, Threatened, None
- vernal pool fairy shrimp, Threatened, None
- vernal pool tadpole shrimp, Endangered, None
- western mastiff bat, None, None
- western pond turtle, None, None
- western spadefoot, None, None
- western yellow-billed cuckoo, Threatened, Endangered



CNDDDB Map - Animals (South)

Date: 9/18/2020

MAP BIO-3

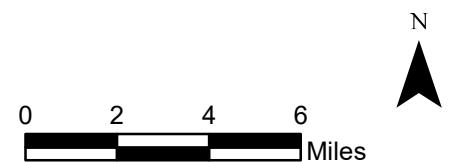


CNDDDB_animals

CNAME, FEDLIST, CALLIST

- American badger, None, None
- California black rail, None, Threatened
- Swainson's hawk, None, Threatened
- bald eagle, Delisted, Endangered
- bank swallow, None, Threatened
- burrowing owl, None, None
- chinook salmon - Central Valley spring-run ESU, Threatened, Threatened
- coast horned lizard, None, None
- foothill yellow-legged frog, None, Candidate Threatened
- giant gartersnake, Threatened, Threatened
- least Bell's vireo, Endangered, Endangered

- loggerhead shrike, None, None
- pallid bat, None, None
- steelhead - Central Valley DPS, Threatened, None
- tricolored blackbird, None, Threatened
- valley elderberry longhorn beetle, Threatened, None
- vernal pool fairy shrimp, Threatened, None
- vernal pool tadpole shrimp, Endangered, None
- western mastiff bat, None, None
- western pond turtle, None, None
- western red bat, None, None
- western spadefoot, None, None
- western yellow-billed cuckoo, Threatened, Endangered
- yellow warbler, None, None



Special-Status Wildlife Present in the Region, but Presumed Absent From Program Area.

A CNDDDB search necessarily casts a wide net, in order to identify species that may not yet have been noticed in a project area but are known from the general region. This tactic contributes to the protection of biological resources by keeping managers' and surveyors' senses alert to the constant possibility of finding "new" species in need of conservation. Customary practice is to search all the records for each USGS 7.5 x 7.5 minute quad that is touched by a potential project boundary, plus each quad adjacent to a potential project quad. (As an example, a project boundary that is entirely within one quad would necessitate searching a nine-quad bloc). For the parklands of Chico, this strategy results in searching an area about 33 miles wide by 34 miles tall. In a region as topographically and climatically diverse as Butte County, searching such a large area inevitably results in identifying some species that simply have no plausible habitat inside the program area (i.e., Chico parklands). For transparency, the wildlife species that showed up on a CNDDDB search but were eliminated from consideration based on their researched habitat needs are shown below.

Sci name	Common name	Fed status, CA status, CDFW status*	Range/habitat reqmts
<i>Acipenser medirostris</i>	green sturgeon	Threatened, None, SSC	Marine waters, Sacramento River, lower Feather River, and lower Yuba River in California
<i>Gymnogyps californianus</i>	California condor	Endangered, Endangered, FP	Lives in rocky shrubland, coniferous forest, and oak savanna. They are often found near cliffs or large trees, which they use as nesting sites. Currently all California condors that have been reintroduced into the wild from the captive breeding program are located in Santa Barbara County on the Los Padres National Forest , Pinnacles National Park, and in and around Grand Canyon National Park, Arizona and Zion National Park UT.
<i>Pekania pennanti pop. 1</i>	fisher - West Coast DPS	Endangered, Threatened, SSC	Use forest habitats with dense canopy closure, large diameter live trees (conifers and hardwoods). Mature and Late-successional coniferous or mixed forests that contain key habitat and structural components. currently inhabits forested areas from sea level along the California/Oregon Coast to approximately 1,970 to 8,530 ft in the Trinity and Klamath/Siskiyou Mountains in northern California and southern Oregon, and Sierra Nevada in California
<i>Rana muscosa</i>	southern mountain yellow-legged frog	Endangered, Endangered, WL	Found in the southern Sierra Nevada and southern California.
<i>Vireo bellii pusillus</i>	least Bell's vireo	Endangered, Endangered, -	Once widespread in Central Valley and Southern California riparian areas. Current range is expanding, but still restricted. Most northern breeding location is just west of Sacramento .

Sci name	Common name	Fed status, CA status, CDFW status*	Range/habitat reqmts
<i>Anthicus antiochensis</i>	Antioch Dunes anthicid beetle	None, None, -	sand dunes and sand bars- unvegetated sand. Sacramento River in Glenn, Tehama, Shasta, and Solano Counties, and from one site at Nicolas on the Feather River in Sutter County
<i>Anthicus sacramento</i>	Sacramento anthicid beetle	None, None, -	Sacramento and San Joaquin rivers, from Shasta to San Joaquin counties, and at one site along the Feather River at Nicolaus in Sutter County. Interior sand dunes and sand bars; has also been found in dredge spoil heaps.
<i>Antigone canadensis tabida</i>	greater sandhill crane	None, Threatened, FP	Winters in the Central Valley on flooded rice and grain fields. Summer breeding range from the Modoc Plateau to Alaska
<i>Atractelmis wawona</i>	Wawona riffle beetle	None, None, -	Occurs in riffles of rapid clear mountain streams at moderate elevations (2,000 to 5,000 ft.)
<i>Aythya americana</i>	redhead	None, None, SSC	Occurs year round in on isolated wetland habitats and ponds in the Sacramento Valley. Small numbers of Redheads nest in the Central Valley, especially on public refuges and private duck clubs that maintain summer water >1 m deep.
<i>Bombus occidentalis</i>	western bumble bee	None, Candidate Endangered, -	They use a wide variety of natural, agricultural, urban, and rural habitat types. They are now largely confined to high-elevation sites and areas east of the Cascade Crest.
<i>Branchinecta meso Vallensis</i>	Mid Valley Fairy shrimp	None, None, -	Endemic to shallow ephemeral pools near the middle of California's Central Valley. It has been found in the Sacramento Valley from Glenn County to Santa Clara County along the Coast Range, the San Joaquin Valley, and the Sierra foothills from Yuba County to Kern County.
<i>Erethizon dorsatum</i>	North American porcupine	None, None, -	In California, porcupines are most common in montane conifer and wet meadow habitats, and can be found in the Coast Ranges, Klamath Mountains, southern Cascades, Modoc Plateau, Sierra Nevada, and Transverse Ranges.
<i>Strix nebulosa</i>	great gray owl	None, Endangered, -	A rarely seen resident at 1400 to 2300 m (4500-7500 ft) in the Sierra Nevada from the vicinity of Quincy, Plumas Co. south to the Yosemite region
<i>Strix occidentalis occidentalis</i>	California Spotted Owl	None, None, SSC	Distributed throughout the forests of the western Sierra Nevada mountains, from Shasta County south to the Tehachapi Pass. Older forests with a higher degree of complexity and a high canopy closure are preferred for nesting and roosting activities

Sci name	Common name	Fed status, CA status, CDFW status*	Range/habitat reqmts
<i>Stygobromus gallawayae</i>	Gallaway's amphipod	None, None, -	In Butte County, only found in one spring next to Rock Creek
<i>Xanthocephalus xanthocephalus</i>	yellow-headed blackbird	None, None, SSC	Breed and roost in freshwater wetlands with dense, emergent vegetation such as cattails. They often forage in fields, typically wintering in large, open agricultural areas.
<i>Thamnophis gigas</i>	giant gartersnake	Threatened, Threatened, -	Inhabits agricultural wetlands and other waterways such as irrigation and drainage canals, sloughs, ponds, small lakes, low gradient streams, and adjacent uplands in the Central Valley
*CDFW abbreviations: FP = Fully Protected (CA's precursor to listing as State Endangered/State Threatened); SSC = Species of Special Concern; WL = Watch List			

Special-Status Plants Present in City of Chico VFMP Program Area						
Scientific Name	Common Name	Fed Status, CA Status, CDFW Status, CNPR	Habitat requirements	If present, where*? (*Not an exhaustive listing of possible locations)	Program activities that could impact species	Avoidance Measures
<i>Arctostaphylos mewukka</i> ssp. <i>truei</i>	True's manzanita	--, --, -, 4.2	Chaparral, forest openings; one 1940 record from Upper Park	Upland Mix	Species requires fire or scarification to reproduce, so relatively resilient to fire or even mastication/chipping, if done when fruit is ripe	Avoid during thinning; if avoidance impossible, arrange to chip thinned brush at peak fruit ripeness. No fire mitigations needed.
<i>Astragalus pauperculus</i>	de-pauperate milk-vetch	--, --, -, 4.3	Open, vernal moist, volcanic clay below 3800'; known from Upper Park	Upper Park	During bloom or early seed set: mowing, discing, prescribed fire, fireline construction. Anytime: having burn piles placed on occurrences.	If found, flag for avoidance from burn piles. Protect from burning*/mowing from Jan 1-Jun 15.
<i>Astragalus tener</i> var. <i>ferrisiae</i>	Ferris' milk-vetch	--, --, -, 1B.1	Alkaline marshy flats, vernal moist meadows, rice field borders, below 180'.	Remotely possible, if level moist alkaline clay areas (not vernal pools per se) exist at airport and/or Foothill Park and/or scattered western City parcels. Often, but not always (?) w/ tules or Eleocharis (USFWS 2005)	During bloom or early seed set: mowing, discing, prescribed fire, fireline construction.	If found, flag for avoidance; protect from burning* or mowing from green-up through June 15 or until seed has set.
<i>Azolla microphylla</i>	Mexican mosquito fern	--, --, -, 4.2	Freshwater marsh, wetlands; aquatic plant unlikely to be disturbed by vegetation management activities	Teichert Ponds?	None	Do not work directly in standing water.

Scientific Name	Common Name	Fed Status, CA Status, CDFW Status, CNPR	Habitat requirements	If present, where*? (*Not an exhaustive listing of possible locations)	Program activities that could impact species	Avoidance Measures
<i>Balsamorhiza macrolepis</i>	big-scale balsam-root	--, --, -, 1B.2	Open grassy or rocky slopes, valleys, shaparral. Strong serpentine indicator but also found elsewhere.	Possible in Middle or Upper Park	Grows in hilly areas unlikely to be mowed, disced or intensively grazed. Composite, so susceptible to the same herbicides as star thistle. Prescribed fire during bloom or early seed set will stress the population but probably not kill plants older than 1 year. Placing a burn pile on plant could kill it.	If found, flag for avoidance by burn piles; consider protecting from burning* from Feb. 1-June 30 or until seed has set
<i>Brasenia schreberi</i>	water-shield	--, --, -, 2B.3	Aquatic; ponds and slow streams e.g. Sac River	Possible in Teichert Ponds	None, because no program work takes place in standing water	None needed
<i>Brodiaea rosea ssp. vallicola</i>	valley brodiaea	--, --, -, 4.2	Grassland below 1000'	Possible throughout grassland or blue oak-gray pine zones	Burning or grazing (trampling?) during flower and early seed-set; placing burn piles on top of occurrences	Protect from burning* between Feb 1 and July 15 or whenever seed has set; do not locate burn piles directly over occurrence

Scientific Name	Common Name	Fed Status, CA Status, CDFW Status, CNPR	Habitat requirements	If present, where*? (*Not an exhaustive listing of possible locations)	Program activities that could impact species	Avoidance Measures
<i>Brodiaea sierrae</i>	Sierra foothills brodiaea	--, --, -, 4.3	Open areas in chaparral, foothill woodland (dry meadows), generally on soils derived from basic and ultramafic intrusive rocks although only a weak serpentine indicator; 540-3000'	Potentially present across upland parts of upper/middle Bidwell Park	Moderate impacts possible from prescribed fire if burned March 1- July 15; more significant impacts from burn piles placed directly over occurrence	Protect from burning* between Feb 1 and July 15 or whenever seed has set; do not locate burn piles directly over occurrence
<i>Bryum chryseum</i>	brassy bryum	--, --, -, 4.3	This is a golden-ish moss that grows on soil in scattered locations in the Central Valley, including Shippee, but can also be found in cismontane woodland and chaparral openings (CNPS 2020).	Unknown	Probably almost anything, but species is not very endangered, considering populations inside and outside California (CNPS 2020)	If found, flag for avoidance and consult CNPS or a local bryologist for advice
<i>Bulbostylis capillaris</i>	thread-leaved beakseed	--, --, -, 4.2	Open damp/dry sandy-gravelly soil; 900--7000'	Potentially present across parts of upper Bidwell Park	Placing burn pile on top of occurrence; spring burns near wetlands.	Establish burn pile and Rx fire setbacks from ephemeral creeks and other water features. SPRs HYDRO-5 and -8 satisfy these avoidance measures.

Scientific Name	Common Name	Fed Status, CA Status, CDFW Status, CNPR	Habitat requirements	If present, where*? (*Not an exhaustive listing of possible locations)	Program activities that could impact species	Avoidance Measures
<i>Calycadenia oppositifolia</i>	Butte County calycadenia	--, --, -, 4.2	Openings in oak woodland; well known from Bidwell park	Middle and Upper Park	During bloom or early seed set: mowing, discing, prescribed fire, fireline construction. Anytime: burn piles on top of more than 40% of an occurrence.	Do not place burn piles on known occurrences; protect occurrences from burning* between April 1-July 30 or whenever seed has set
<i>Campylo-podiella stenocarpa</i>	flagella-like atractylo-carpus	--, --, -, 2B.2	"Cismontane woodland" (CNPS 2020); record from Richardson Springs quad.	Unknown but possible in Upper and Middle Park; Bidwell Ranch, airport, etc	Unknown, presumably anything	If found, flag for avoidance and consult CNPS or a local bryologist for advice
<i>Centromadia</i> (= <i>Hemizonia</i>) <i>parryi</i> ssp. <i>rudis</i>	Parry's rough tarplant	--, --, -, 4.2	Grassland, edges of marshes and vernal pools, disturbed sites; < 1500'	In Butte County, known only from Valley floor; possible across Airport and surrounding lands, or South Chico conserved parcels, etc	Probably unpalatable to livestock. During bloom or early seed set, vulnerable to mowing, discing, prescribed fire. Due to grassland habitat, unlikely to end up under burn piles.	Late bloomer. If found, protect from burning*/mowing/discing from April 15-Sept 30 or whenever seed has set
<i>Clarkia gracilis</i> ssp. <i>albicaulis</i>	white-stemmed clarkia	--, --, -, 1B.2	Weak serpentine indicator but can also occur off-serpentine; foothill grassland around 1500' in elevation	Far upper end of Upper Bidwell Park. Known occurrences at bottom of 10 Mile House Rd where it joins the creek route.	During bloom or early seed set: mowing, discing, prescribed fire. Anytime: fireline construction, placing burn piles on top of occurrences	If found, flag for avoidance by burn piles and any other disturbance; protect from burning* from Jan 1-July 30 or whenever seed has set
<i>Claytonia parviflora</i> ssp. <i>grandiflora</i>	stream-bank spring beauty	--, --, -, 4.2	Vernally moist, often disturbed sites; 500-4000'	Potentially present across parts of Middle/Upper Bidwell Park	Placing burn pile on top of occurrence; spring burns near creeks.	Establish burn pile and Rx fire setbacks from ephemeral creeks and other water features. SPRs HYDRO-5 and -8 satisfy these avoidance measures.

Scientific Name	Common Name	Fed Status, CA Status, CDFW Status, CNPR	Habitat requirements	If present, where*? (*Not an exhaustive listing of possible locations)	Program activities that could impact species	Avoidance Measures
<i>Cryptantha crinita</i>	silky cryptantha	--, --, -, 1B.2	Rocky volcanic soils, gravelly streambanks, gravel bars, generally foothill woodland; also riparian; 250-3500'	Possible across upland parts of Bidwell Park, Bidwell Ranch,, etc	During bloom or early seed set: mowing, discing, prescribed fire. Due to grassland habitat, unlikely to end up under burn piles.	Protect occurrences from burning* or other disturbance from Jan 1-June 15 or whenever seed has set
<i>Cryptantha rostellata</i> var. <i>rostellata</i>	red-stemmed cryptantha	--, --, -, 4.2	Open, rocky, dry sites, sparse grassland, chaparral, foothill woodland; 120-2400'.	Potentially present across all grassland units and Middle-Upper Park.	During bloom or early seed set: mowing, discing, prescribed fire. Due to grassland habitat, unlikely to end up under burn piles.	Protect occurrences from burning* or other disturbance from Jan 1-July 15 or whenever seed has set
<i>Delphinium recurvatum</i>	recurved larkspur	--, --, -, 1B.2	open valley/foothill woodland	Potentially present across all grassland units and Middle-Upper Park.	Placing burn pile on top of occurrence; burning occurrence during flowering year after year (sp is perennial)	If found, flag for avoidance; protect occurrences from burning* or other disturbance from Feb 1-June 30 or whenever seed has set
<i>Downingia pusilla</i>	Dwarf downingia	--, --, --, 2B.2	Vernal pool bottoms, known from Vina	Remotely possible in vernal pools of Middle Park, Bidwell Ranch, Airport, Wildwood, Foothill Ranch, South Chico conserved parcels, etc	Unclear what effect grazing has on the species; moderate grazing is probably beneficial if it removes thatch, but intensive grazing could trample habitat	If found, monitor grazing carefully to make sure occurrences are not trampled; protect occurrences from burning* from pool dry-down through June 30 or whenever seed has set.
<i>Erythranthe glaucescens</i>	shield-bracted monkey-flower	--, --, -, 4.3	Seasonal and perennial streams in foothill woodland; known from Upper Park	Upper Park (streams, ephemeral drainages, and pocket wetlands); possibly Middle Park too	Placing burn pile on top of occurrence; burning occurrence during flowering year after year (sp is annual, readily self-seeding but usu not far from parent pop)	Establish burn pile and Rx fire setbacks from ephemeral creeks and other water features. SPRs HYDRO-5 and -8 satisfy this avoidance measure.

Scientific Name	Common Name	Fed Status, CA Status, CDFW Status, CNPR	Habitat requirements	If present, where*? (*Not an exhaustive listing of possible locations)	Program activities that could impact species	Avoidance Measures
<i>Erythranthe inconspicua</i>	small-flowered monkey-flower	--, --, -, 4.3	Near hillside streams or seeps, in partial shade, 600-6500'; Jepson states records north of El Dorado County are mistakes	Presence in CNDDDB may be an error, but possibility of presence in Middle or Upper Bidwell Park cannot be ruled out	Placing burn pile on top of occurrence; burning occurrence during flowering year after year (sp is annual, readily self-seeding but usu not far from parent pop)	Establish burn pile and Rx fire setbacks from ephemeral creeks and other water features. SPRs HYDRO-5 and -8 satisfy this avoidance measure.
<i>Euphorbia hooveri</i> (=Chamaesyce hooveri)	Hoover's spurge	Threatened, -, -, 1B.2	Vernal pools	Possible in vernal pools of middle Bidwell Park and/or Bidwell Ranch and/or airport and/or Foothill Park and/or Wildwood Preserve and/or South Chico conserved parcels	Grazers don't eat it (USFWS 2005) but may destroy occurrences by trampling. Vulnerable to disturbance (fire, mowing, or discing) during flowering and seed-set.	If found, flag and fence area from grazers. Protect from burning* or disturbance from pool dry-down thru Sept 30th or whenever seed has set.
<i>Fritillaria eastwoodiae</i>	Butte County fritillary	--, --, -, 3.2	Weak serpentine indicator but can also occur off-serpentine; dry benches and slopes	Upper Park	During bloom or seed set: mowing, discing, prescribed fire. Anytime: burn piles on top of occurrences, fireline construction through occurrence	If found, flag occurrences to prevent trampling or incidental disturbance during implementation. Do not place burn piles on known occurrences. Protect occurrences from burning* between Feb 1 and June 1 or whenever seed has set.
<i>Fritillaria pluriflora</i>	Adobe-lily	--, --, -, 1B.2	Very heavy adobe soils; known from east of Chico Municipal Airport	Possible on very heavy clay soils around Airport, Foothill Park Preserve, associated parts of program area.	During bloom or early seed set: mowing, discing, prescribed fire. Due to grassland habitat, unlikely to end up under burn piles.	If found, flag occurrences to prevent trampling or incidental disturbance during implementation. Protect occurrences from burning* between Dec 1 and May 1 or whenever seed has set.

Scientific Name	Common Name	Fed Status, CA Status, CDFW Status, CNPR	Habitat requirements	If present, where*? (*Not an exhaustive listing of possible locations)	Program activities that could impact species	Avoidance Measures
<i>Gratiola heterosepala</i>	Boggs Lake hedge-hyssop	--, Endangered, --, 1B.2	Large, lake- like vernal pools (depending on year?)	Remotely possible in vernally lakelike areas of Foothill Preserve or other vernal pool sites	Unclear; moderate grazing is acceptable (USFWS 2005). Unlikely to conflict with burning because it sets seed almost before waters have receded.	If found, monitor grazing carefully to make sure occurrences are not trampled; consider fencing livestock out of occurrences
<i>Hesperevax caulescens</i>	hogwallow starfish	--, --, -, 4.2	Vernally wet poorly drained soils	Possible in vernal pools of middle Bidwell Park and/or Bidwell Ranch and/or airport and/or Foothill Park and/or Wildwood Preserve and/or South Chico	During bloom or early seed set: mowing, discing, prescribed fire. Due to grassland habitat, unlikely to end up under burn piles.	If found, flag occurrences to prevent trampling or incidental disturbance during implementation. Protect occurrences from burning*/disturbance between early pool dry-down and June 30 or whenever seed has set.
<i>Hibiscus lasiocarpus var. occidentalis</i>	woolly rose-mallow	--, --, -, 1B.2	Freshwater wetlands, wet banks, marshes, below 350'.	Upper Bidwell Park; known from near Parking Lot L	Streamside vegetation-cutting, goats; high-intensity fire during flower and early seed-set	If found, flag occurrences for avoidance during implementation. Do not cut herbaceous riparian vegetation; do not allow goats direct access to Big Chico Creek in Upper Park; keep ignitions at least 100' from stream bank and allow fire to back into drainages only (SPR HYDRO-8)

Scientific Name	Common Name	Fed Status, CA Status, CDFW Status, CNPR	Habitat requirements	If present, where*? (*Not an exhaustive listing of possible locations)	Program activities that could impact species	Avoidance Measures
<i>Imperata brevifolia</i>	California satintail	--, --, -, 2B.1	Wet springs, meadows, streambanks, floodplains; in foothills, but below 1500'	Upper Park	Streamside vegetation-cutting; high-intensity fire during flower and early seed-set year after year (perennial grass). Grazing should not damage healthy colonies.	If found, flag occurrences for avoidance during implementation. Do not cut herbaceous riparian vegetation; keep ignitions at least 100' from stream bank and allow fire to back into drainages only (SPR HYDRO-8 satisfies this)
<i>Juncus leiospermus</i> var. <i>ahartii</i>	Ahart's dwarf rush	--, --, -, 1B.2	Vernal pools/edges, swales, gopher mounds, 90-300'.	Possible in vernal pools of Middle Bidwell Park and/or Bidwell Ranch, airport, Foothill Park, Wildwood Preserve, and/or South Chico conserved parcels	Burning or trampling during flower and early seed-set; moderate grazing may be helpful at reducing competition	If found, flag occurrences for avoidance; protect from burning* from Feb 1-June 30 or whenever seed has set
<i>Juncus leiospermus</i> var. <i>leiospermus</i>	Red Bluff dwarf rush	--, --, -, 1B.1	Vernal pool margins; wet places in chaparral & forest openings; one 1940 record from Upper Park	Possible in vernal pools of Middle Bidwell Park and/or Bidwell Ranch, airport, Foothill Park, Wildwood Preserve, and/or South Chico conserved parcels	Burning or trampling during flower and early seed-set; moderate grazing may be helpful at reducing competition	If found, flag occurrences for avoidance; protect from burning* from Feb 1-June 30 or whenever seed has set

Scientific Name	Common Name	Fed Status, CA Status, CDFW Status, CNPR	Habitat requirements	If present, where*? (*Not an exhaustive listing of possible locations)	Program activities that could impact species	Avoidance Measures
<i>Lasthenia glabrata</i> ssp. <i>coulteri</i>	Coulter's goldfields	--, --, -, 1B.1	Vernal pools below 3000'; saline places	Possible in vernal pools of Middle Bidwell Park and/or Bidwell Ranch, airport, Foothill Park, Wildwood Preserve, and/or South Chico conserved parcels	Burning or trampling during flower and early seed-set; moderate grazing may be helpful at reducing competition	If found, flag occurrences for avoidance; protect from burning* from Jan 1-June 30 or whenever seed has set
<i>Lasthenia ferrisiae</i>	Ferris' goldfields or alkali goldfields	--, --, -, 4.2	Valley grassland and wetlands	Possible in vernal pools of Middle Bidwell Park and/or Bidwell Ranch, airport, Foothill Park, Wildwood Preserve, and/or South Chico conserved parcels	Burning or trampling during flower and early seed-set; moderate grazing may be helpful at reducing competition	If found, protect from burning* from pool dry-down through June 30 or whenever seed has set
<i>Layia septentrionalis</i>	Colusa layia	--, --, -, 1B.2	Strong serpentine indicator that also chooses sandy soils; mostly inner Coast Ranges and Sutter Buttes but 2 or 3 Butte Co	Unlikely to be found in Chico, but remotely possible on grassland units in Middle Park and below	Burning or trampling during flower and early seed-set; moderate grazing may be helpful at reducing competition	If found, protect from burning* from Jan 1 through June 30 or whenever seed has set
<i>Lilium humboldtii</i> ssp. <i>humboldtii</i>	Humboldt lily	--, --, -, 4.2	Mesic conifer woodlands or mixed woodlands, known from Upper Park	Far Upper Park	Burn piles placed directly on occurrences. This is a large perennial lily that would likely recover from unlikely event of being burned in Rx fire during its bloom period (late April-early June).	If found, flag so crews do not place burn piles on occurrences.

Scientific Name	Common Name	Fed Status, CA Status, CDFW Status, CNPR	Habitat requirements	If present, where*? (*Not an exhaustive listing of possible locations)	Program activities that could impact species	Avoidance Measures
<i>Limnanthes floccosa</i> ssp. <i>californica</i>	Butte County meadowfoam	Endangered, Endangered, -, 1B.1	Known from Bidwell Park and Airport; vernal swales <10 cm deep and to a lesser extent vernal pool edges (USFWS 2005); below about 330'.	Conservation within city limits of Chico is critical to this endemic species. Possible in any vernal pools of middle Bidwell Park and/or Foothill Park and/or Wildwood Preserve; well known from Bidwell Ranch, airport and South Chico Conserved parcels (Doe Mill preserve)	Burning during flower and early seed-set. If dormancy is not broken, seed remains viable for at least 3 years (USFWS 2005). Surprisingly, sometimes found in disturbed (graded, disced) areas. Other than urbanization, the biggest threat is medusahead competition; to reverse this, increase grazing or fire (at appropriate times of year).	Burning in late spring may be among the best ways to protect and promote the species (CNLM 1996) as long as actual plants will not burn when they are vulnerable (approx between Jan 1 and May 1 or whenever seed has set). This timeframe assumes significant rain before November; consider shifting timeframe later into the year if rains did not come before December.
<i>Limnanthes floccosa</i> ssp. <i>floccosa</i>	woolly meadowfoam	--, --, -, 4.2	Vernal pool edges below 350'	Possible in vernal pools of Middle Bidwell Park and/or Bidwell Ranch, airport, Foothill Park, Wildwood Preserve, and/or South Chico conserved parcels	Similar to Butte County meadowfoam but more widespread (into OR). Threats: Burning during flower and early seed-set, medusahead competition; to reduce medusahead, increase grazing or fire (at appropriate times of year).	Protect occurrences from burning*, Jan 1-May 30 or whenever seed has set
<i>Mielichhoferia elongata</i>	elongate copper moss	--, --, -, 4.3	Petricolous, preferring rocks w/ some copper content; not known from Butte Co but presumed extant	Unknown	Probably none since significant disturbance to rocks is unlikely	If found, flag for avoidance and do not put burn piles directly on top of the rocks that have moss on them; consult CNPS or a local bryologist for advice

Scientific Name	Common Name	Fed Status, CA Status, CDFW Status, CNPR	Habitat requirements	If present, where*? (*Not an exhaustive listing of possible locations)	Program activities that could impact species	Avoidance Measures
<i>Monardella venosa</i>	veiny monardella	--, --, -, 1B.1	Valley grassland, 150-1300'	Unlikely but possible in grassland to blue oak parts of Middle to Upper Bidwell Park, Bidwell Ranch, etc. Usually found on deeply cracking clay.	A woody, creeping perennial; can probably tolerate a fire even during flowering (although not year after year). Goats will probably eat it.	If found, flag for avoidance, and avoid grazing occurrences with goats. Protect from burning* from April 15-June 30 or whenever seed has set
<i>Navarretia heterandra</i>	Tehama navarretia	--, --, -, 4.3	Heavy soil in vernal pools; wet or drying flats	Possible in vernal pools of Middle Bidwell Park and/or Bidwell Ranch, airport, Foothill Park, Wildwood Preserve, and/or South Chico conserved parcels	Burning or trampling during flower and early seed-set; moderate grazing may be helpful at reducing competition	If found, protect occurrences from burning*, from mid pool dry-down until July 15 or whenever seed has set
<i>Orcuttia tenuis</i>	Slender Orcutt Grass	Threatened, Endangered, -, 1B.1	Vernal pools, 600-3300'; known from Palermo and Vina; can thrive in pools on a wide variety of substrates/soils, even in borrow pits	Unlikely, but possible, in vernal pools of Middle Bidwell Park and/or Bidwell Ranch, airport, Foothill Park, Wildwood Preserve, and/or South Chico conserved parcels	Presumably, burning during flower and early seed-set. Grazing is not listed as a concern by USFWS (2005). Due to grassland habitat, unlikely to end up under burn piles.	If found, protect occurrences from burning*, from mid pool dry-down until Aug 20 or whenever seed has set
<i>Paronychia ahartii</i>	Ahart's paronychia	--, --, -, 1B.1	Well-drained, rocky outcrops, often vernal pool edges, volcanic upland; Elevation: < 1500'	Possible in vernal pools of Middle Bidwell Park and/or Bidwell Ranch, airport, Foothill Park, Wildwood Preserve, and/or South Chico conserved parcels	During bloom or early seed set: mowing, discing, prescribed fire. Due to open habitat, unlikely to end up under burn piles. Moderate grazing and fire at right time of year likely to improve habitat.	If found, protect occurrences from burning*, from Jan 1- July 30 or whenever seed has set

Scientific Name	Common Name	Fed Status, CA Status, CDFW Status, CNPR	Habitat requirements	If present, where*? (*Not an exhaustive listing of possible locations)	Program activities that could impact species	Avoidance Measures
<i>Polygonum bidwelliae</i>	Bidwell's knotweed	--, --, -, 4.3	Locally common on vernal wet basalt areas and gravelly flats, including roads/paths	Middle and Upper Park	Grows in rocky areas that do not burn easily and are unlikely to be mowed, but vulnerable to burial beneath chips or piles; often grows along roads/trails, but biggest risk is from destruction/alteration of its microhabitat, not trampling.	Do not pile chips or brush on this species' habitat (basalt gravel vernal pool areas). SPR BIO-10 meets this avoidance measure.
<i>Rhynchospora californica</i>	California beaked-rush	--, --, -, 1B.1	Marshes and seeps below 600'.	Upper and Middle Park	Habitat trampling by confined livestock; fire during flowering or early seed-set; burn piles on top of occurrences	Establish burn pile and Rx fire setbacks from ephemeral creeks and other water features. SPRs HYDRO-5 and -8 satisfy these avoidance measures. Also, observe grazing setbacks from wetlands/creeks
<i>Rhynchospora capitellata</i>	brownish beaked-rush	--, --, -, 2B.2	Wet meadows, fens, seeps, marshes	Middle and Upper Park	Habitat trampling by confined livestock; fire during flowering or early seed-set; burn piles on top of occurrences	Establish burn pile and Rx fire setbacks from ephemeral creeks and other water features. SPRs HYDRO-5 and -8 satisfy these avoidance measures. Also, observe grazing setbacks from wetlands/creeks
<i>Sagittaria sanfordii</i>	Sanford's arrowhead	--, --, -, 1B.2	Ponds, ditches; below 900'.	Unlikely but possible at Teichert Ponds	None, because no program work takes place in standing water	None needed

Scientific Name	Common Name	Fed Status, CA Status, CDFW Status, CNPR	Habitat requirements	If present, where*? (*Not an exhaustive listing of possible locations)	Program activities that could impact species	Avoidance Measures
<i>Sambucus</i> sp.	Elderberry	Elderberry itself is not rare, but is habitat for a Federally endangered beetle	Riparian areas, seasonal creeks and channels, draws, seepy areas and pocket wetlands	Elderberry will grow throughout the program area wherever there is water, and is abundant throughout Bidwell Park, Lindo Channel, and elsewhere	Hand or mechanical thinning can harm the rare beetle if present (Valley Elderberry Longhorn Beetle or VELB, = <i>Desmocerus californicus dimor-phus</i>), as can high-intensity fire (but low intensity underburns are not harmful)	USFWS issued recent guidance(USFWS 2017) which replaces the BPMMP (EDAW 2008b) guidelines. If no <i>Sambucus</i> occur in or within 165' of a project area, no further action shall be required. If <i>Sambucus</i> are present: Avoid underburns during time when VELB adults would be outside the plant (usually corresponds to bush flowering, so Apr 1-May 30), to protect adults from smoke impacts. Do not use herbicides within drip line of elderberry shrub. Trim elderberry shrubs only from November through February and remove only stems less than or equal to 1" in diameter. If stems > 1" diam must be removed or destroyed, consult USFWS to develop appropriate measures. Such measures shall include those described in Framework for Assessing Impacts to VELB (USFWS 2017). Minimization measures shall include implementation of buffers around shrubs that would not be removed, transplanting shrubs to a conservation area, conducting worker awareness training, and periodic biological monitoring. Compensation shall include planting of elderberry seedling or cuttings and associate native species. Elderberry generally responds vigorously to fire by germination and sprouting. Future activities: If it is determined that a future activity will have impacts to VELB greater than defined in the scope of the PEIR, develop additional mitigation measures.

Scientific Name	Common Name	Fed Status, CA Status, CDFW Status, CNPR	Habitat requirements	If present, where*? (*Not an exhaustive listing of possible locations)	Program activities that could impact species	Avoidance Measures
<i>Sidalcea robusta</i>	Butte County checker-bloom	--, --, -, 1B.2	Openings in oak woodland; well known from Bidwell park	Middle and Upper Park	During bloom or early seed set: mowing, discing, prescribed fire. Anytime: burn piles on top of occurrences, fireline construction through occurrence. Often found beside trails or roads	Flag occurrences to prevent trampling or incidental disturbance during implementation. Do not place burn piles on known occurrences. Protect from burning* between March 1 and July 15 or whenever seed has set.
<i>Stuckenia filiformis</i> ssp. <i>alpina</i>	slender-leaved pond-weed	--, --, -, 2B.2	Fully aquatic; freshwater wetland	Teichert Ponds?	None, because no program work takes place in standing water	None needed
<i>Trifolium jokerstii</i>	Butte County golden clover	--, --, -, 1B.2	Known only from area south of Butte Valley; vernal pool obligate	Extremely unlikely in vernal pools of upper Bidwell Park and/or Bidwell Ranch and/or airport and/or Foothill Park and/or Wildwood Preserve and/or South Chico Conserved parcels	During bloom or early seed set: mowing, discing, prescribed fire. Grassland habitat makes it unlikely they would end up beneath burn piles. Legume; vulnerable to some herbicides that also target star thistle.	If found, protect occurrence from burning* Dec 1 through June 15 or whenever seed has set.
<i>Tuctoria greenei</i> (= <i>Orcuttia greenei</i>)	Greene's tuctoria	Endangered, Rare, -, 1B.1	Vernal pool bottoms	Possible in vernal pools of Middle Bidwell Park and/or Bidwell Ranch, airport, Foothill Park, Wildwood Preserve, and/or South Chico conserved parcels	Presumably, burning during flower and early seed-set. Inappropriate grazing is also a concern (USFWS 2005)	If found, protect occurrences from burning* from March 1-Aug 30 or whenever seed has set. If pools experience a late spring re-inundation after dry-down is well along, <i>Tuctoria</i> is likely killed for that year (USFS 2005)
<i>Wolffia brasiliensis</i>	Brazilian watermeal	--, --, -, 2B.3	Aquatic; ponds below 300'.	Teichert Ponds?	None, because no program work takes place in standing water	None needed

Special-Status Plants Present in City of Chico VFMP Program Area

NOTE:

* **"Protect from burning"** does not mean "do not burn the plant's habitat". It means "if you burn the plant's habitat, burn it in such a way that the plant itself is not burned or heat-killed during its listed seasonal period of vulnerability." There are several ways to protect plants during burning. Sometimes, hand-dug fireline, or string trimmer-mowed firebreak, can be built around the plant occurrences. Sometimes, the plant occurrences can be wetlined (doused or surrounded with water). Crews can then blackline off the rare plant occurrence (i.e., start a backburn that creates a black firebreak between the wet plant area and the rest of the unit to be burned). Vernal pool areas can sometimes be burned in late spring with virtually no mitigations, even though they may contain vulnerable rare plants, because the moisture in the pools keeps the rare plants safe while the surrounding uplands burn. Assuming the uplands contain no vulnerable rare plants, burning them in spring can be a very effective means of reducing medusahead thatch and improving the health of the rare plant communities (CNLM 1996). Annual plants and many perennial plants can be safely burned after seed set and before growth resumes with rains. "Seed set" means the point in time when dry, mature seed or mature fruit readily detaches or shatters from the plant.

Special-Status Plants Present in the Region, but Presumed Absent From Program Area.

A CNDDDB search necessarily casts a wide net, in order to identify species that may not yet have been noticed in a project area but are known from the general region. This tactic contributes to the protection of biological resources by keeping managers' and surveyors' senses alert to the constant possibility of finding "new" species in need of conservation. Customary practice is to search all the records for each USGS 7.5 x 7.5 minute quad that is touched by a potential project boundary, plus each quad adjacent to a potential project quad. (As an example, a project boundary that is entirely within one quad would necessitate searching a nine-quad bloc). For the parklands of Chico, this strategy results in searching an area about 33 miles wide by 34 miles tall. In a region as topographically and climatically diverse as Butte County, searching such a large area inevitably results in identifying some species that simply have no plausible habitat inside the program area (i.e., Chico parklands). For transparency, the plant species that showed up on a CNDDDB search but were eliminated from consideration based on their researched habitat needs are shown below.

Scientific Name	Common Name	Fed status, State status, CDFW status, CNPR*	Habitat details (Note: There is no serpentine nor mesic conifer forest in the Chico VFMP program area. The highest point in the program area is about 1650'.)
<i>Allium jepsonii</i>	Jepson's onion	--, --, -, 1B.2	Broad serpentine endemic known only from Feather River drainage.
<i>Botrychium minganense</i>	Mingan moonwort	--, --, -, 2B.2	Mesic to moist mixed conifer forest, usually above 4500'
<i>Calochortus syntrophus</i>	Callahan's mariposa-lily	--, --, -, 1B.1	Abundant where found in north CaR, on stony sandstone (Kilarc series) in blue oak woodland above 1500' (Jepson eFlora). Occurrence in CNDDDB on Cohasset quad is unprocessed (not peer-reviewed); all known occurrences are from higher elevation than program area; habitat not present in program area
<i>Calystegia atriplicifolia</i> <i>ssp. buttensis</i>	Butte County morning-glory	--, --, -, 4.2	Yellow pine forest/ dry, rocky places in open forest, chaparral; generally above 1950'
<i>Cardamine pachystigma</i> <i>var. dissectifolia</i>	dissected-leaved toothwort	--, --, -, 1B.2	Strict serpentine endemic in generally shaded sites, canyons, woodland
<i>Carex xerophila</i>	chaparral sedge	--, --, -, 1B.2	Dry gabbro or serpentine soils in open forest, scrub, thicket edges, chaparral, often with <i>Hesperocyparis macnabiana</i>
<i>Castilleja rubicundula</i> <i>var. rubicundula</i>	pink creamsacs	--, --, -, 1B.2	Strict serpentine endemic; grassy foothill woodlands
<i>Clarkia mildrediae</i> <i>ssp. lutescens</i>	golden-anthered clarkia	--, --, -, 4.2	Feather River drainage only, often in roadcuts
<i>Clarkia mildrediae</i> <i>ssp. mildrediae</i>	Mildred's clarkia	--, --, -, 1B.3	Feather River drainage only, often in roadcuts
<i>Clarkia mosquinii</i>	Mosquin's clarkia	--, --, -, 1B.1	Feather River drainage only, often in roadcuts

Scientific Name	Common Name	Fed status, State status, CDFW status, CNPR*	Habitat details (Note: There is no serpentine nor mesic conifer forest in the Chico VFMP program area. The highest point in the program area is about 1650'.)
<i>Claytonia palustris</i>	marsh claytonia	--, --, -, 4.3	Freshwater wetlands or riparian areas, generally above 3000'
<i>Cypripedium fasciculatum</i>	clustered lady's-slipper	--, --, -, 4.2	Mesic to moist, shady conifer woodland; in Butte County not found below 2000'
<i>Erigeron petrophilus</i> var. <i>sierrensis</i>	northern Sierra daisy	--, --, -, 4.3	Broad serpentine endemic generally above 2500'
<i>Eriogonum umbellatum</i> var. <i>ahartii</i>	Ahart's buckwheat	--, --, -, 1B.2	Requires serpentine-derived soils at elevations between about 1275 and 3280 feet
<i>Frangula purshiana</i> ssp. <i>ultramafica</i>	Caribou coffee-berry	--, --, -, 1B.2	On serpentine above 2400'
<i>Githopsis pulchella</i> ssp. <i>serpentinicola</i>	serpentine bluecup	--, --, -, 4.3	Serpentine and similar outcrops, above 900'
<i>Hesperocyparis bakeri</i>	Baker cypress	--, --, -, 4.2	Mixed evergreen forest, often on serpentine, usually above 3600'. Known in Butte County from one 1928 record near Magalia
<i>Leptosiphon ambiguus</i>	serpentine leptosiphon	--, --, -, 4.2	Strict serpentine endemic
<i>Packera eurycephala</i> var. <i>lewisrosei</i>	Lewis Rose's ragwort	--, --, -, 1B.2	Strict serpentine endemic known only from Feather River drainage and parts of Magalia
<i>Penstemon personatus</i>	closed-throated beard-tongue	--, --, -, 1B.2	Dappled sun where yellow pine forest grades into white fir forest
<i>Rupertia halli</i>	Hall's rupertia	--, --, -, 1B.2	Cismontane woodland and lower montane coniferous forest, above 1780'; known from Cohasset and Stirling City quads
<i>Sanborn's onion</i>	None	--, --, -, 4.2	Serpentine, above 900'
<i>Streptanthus drepanoides</i>	sickle-fruit jewelflower	--, --, -, 4.3	Strict serpentine endemic in chaparral, yellow pine forest

*CNPR rankings: 1A = presumed extirpated in CA and rare/endangered elsewhere. 1B = rare/endangered in CA and elsewhere. 2A = presumed extirpated in CA but common elsewhere 2B = rare/endangered in CA but more common elsewhere.

3 = plants about which more information is needed; could turn out to be more or less rare than currently thought.

4 = Limited range (often CA endemics) though may be locally common. For each rank, the numbers after the decimal point mean:

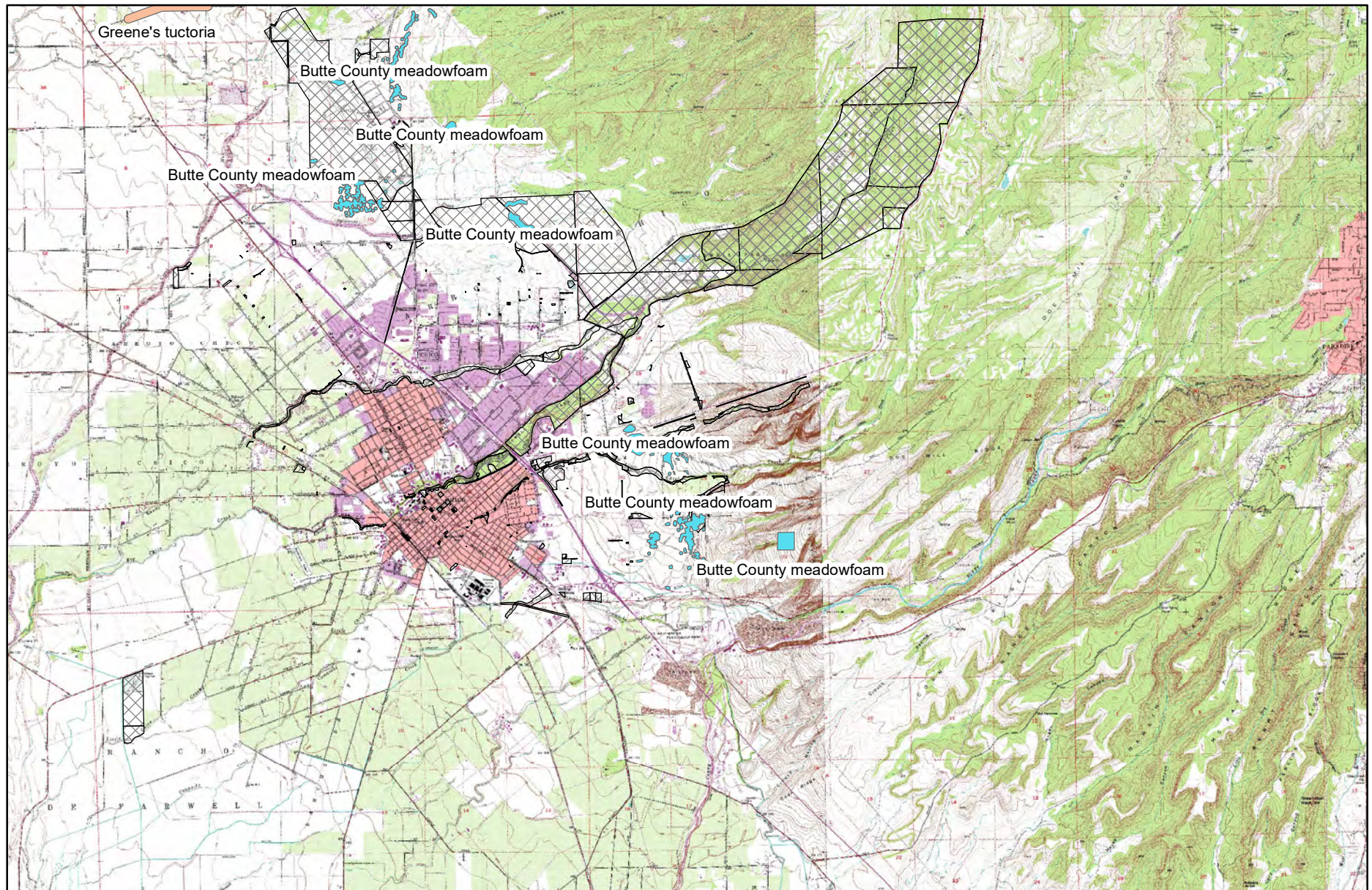
0.1-Seriously threatened in California (over 80% of occurrences threatened / high degree and immediacy of threat)

0.2-Moderately threatened in California (20-80% occurrences threatened / moderate degree and immediacy of threat)

0.3-Not very threatened in California (less than 20% of occurrences threatened / low immediacy of threat or no current threats known)

CNDDDB Map - Plants (Chico)

MAP BIO-4



VFMPv2_program area

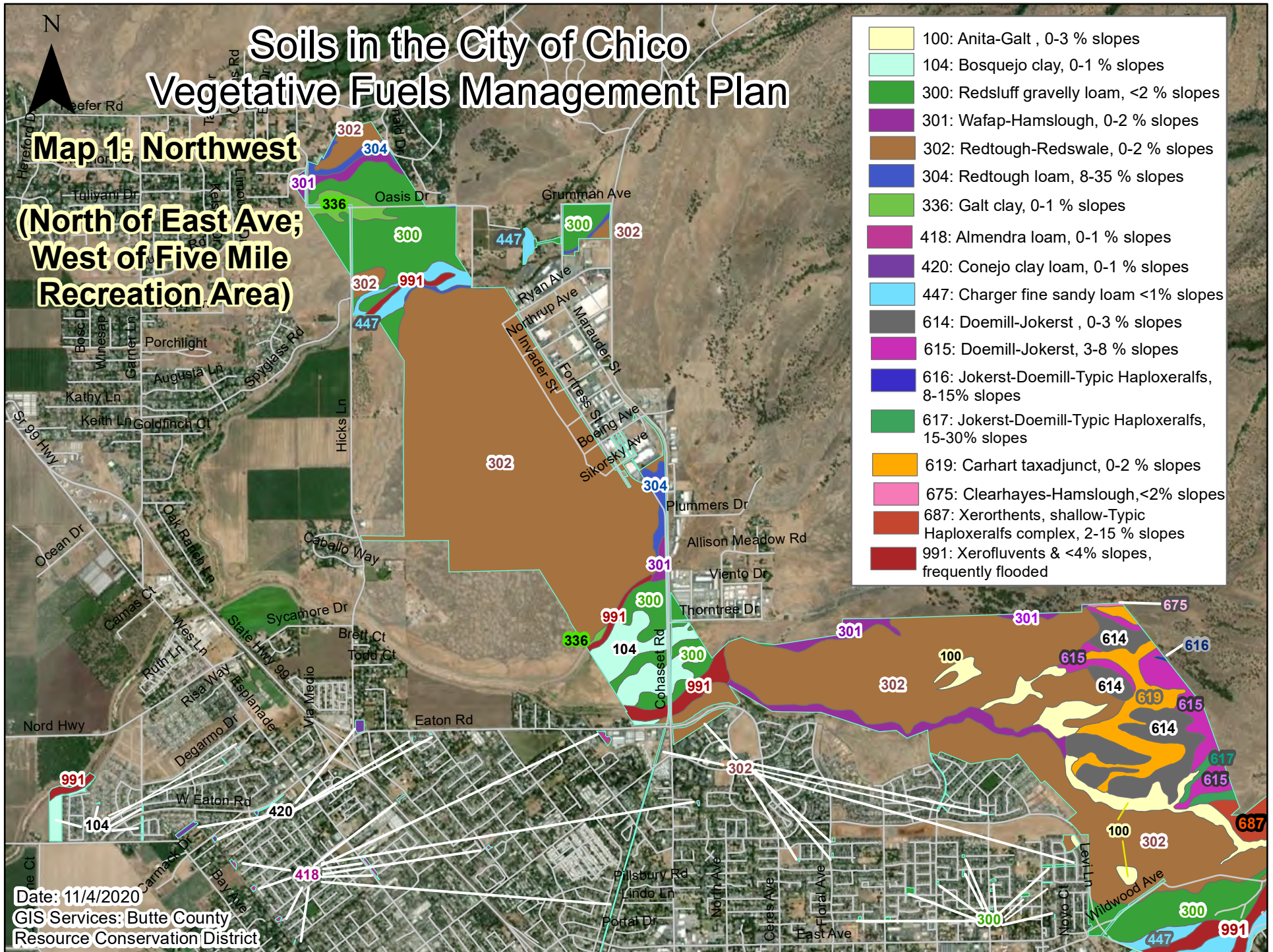
CNDDDB_plants

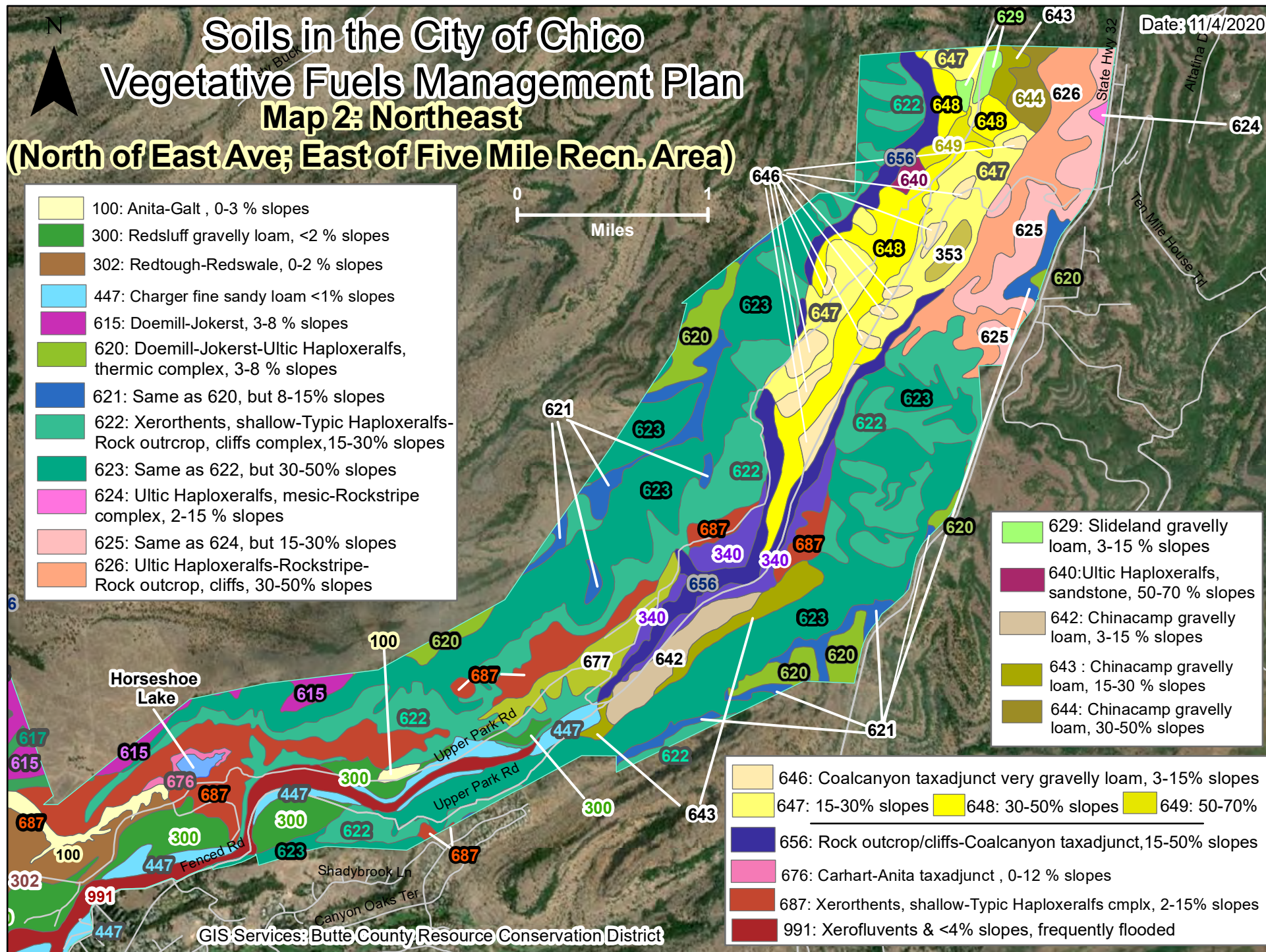
CNAME, FEDLIST, CALLIST

Butte County meadowfoam, Endangered, Endangered

Greene's tuctoria, Endangered, Rare

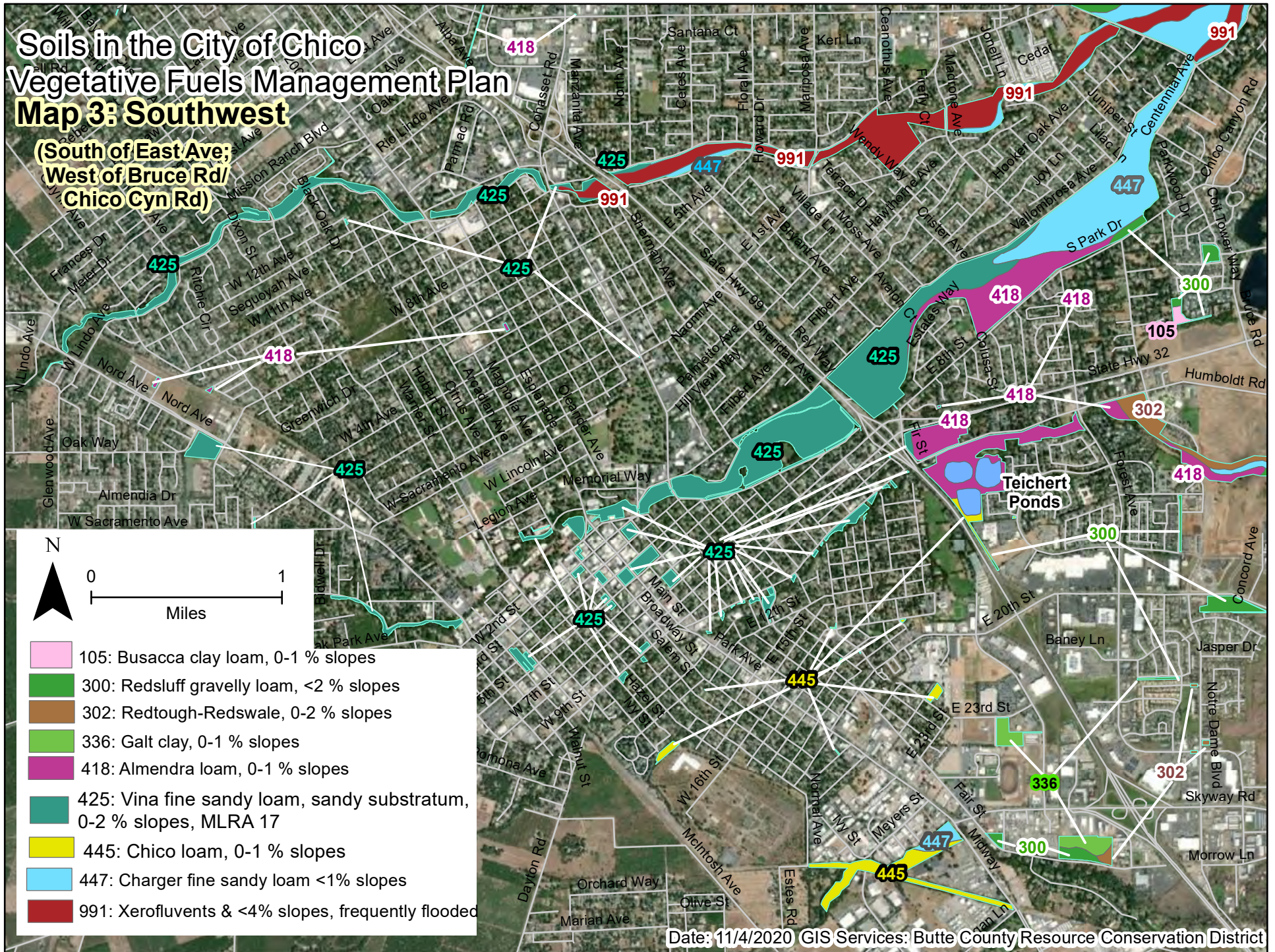


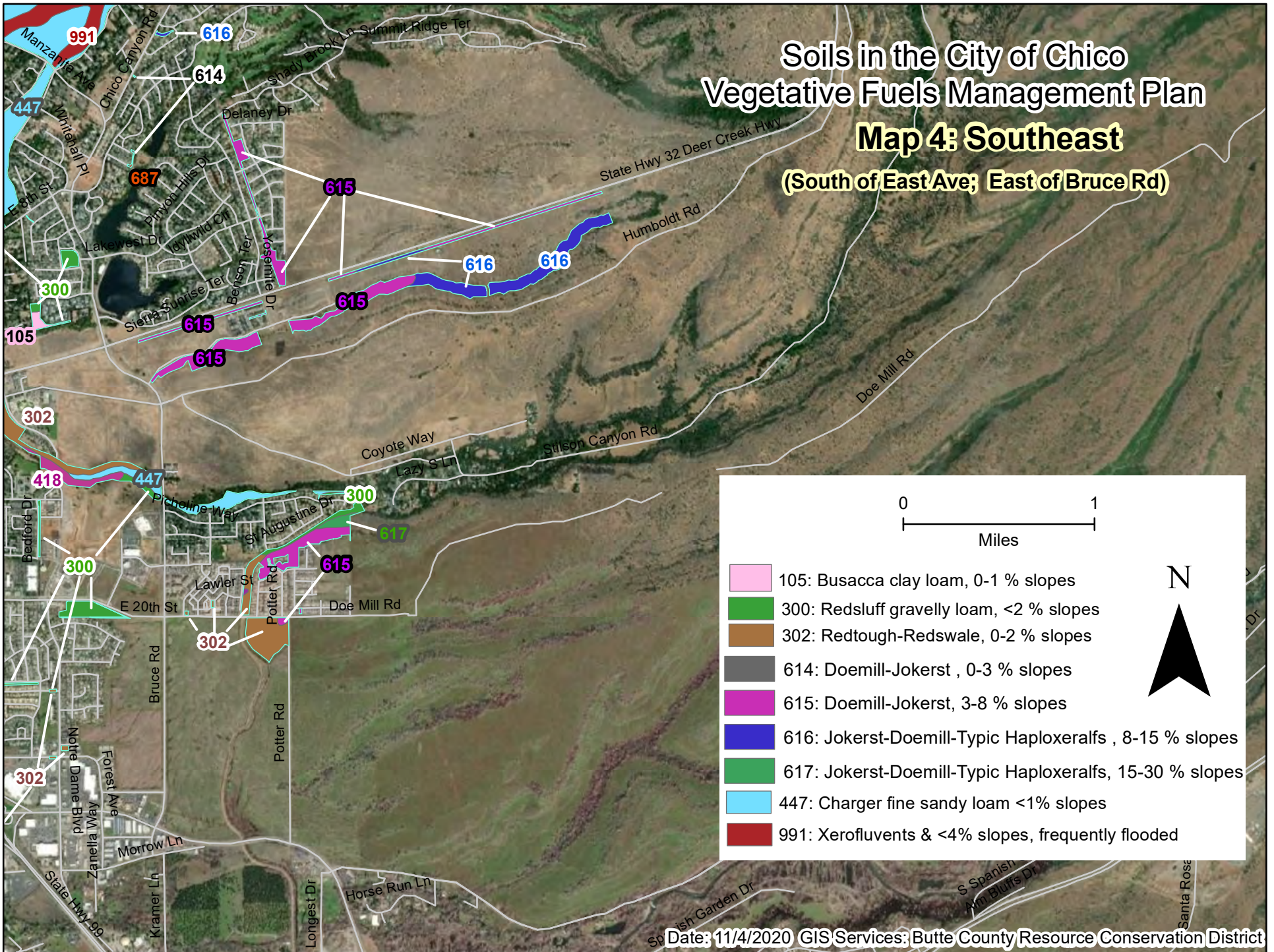




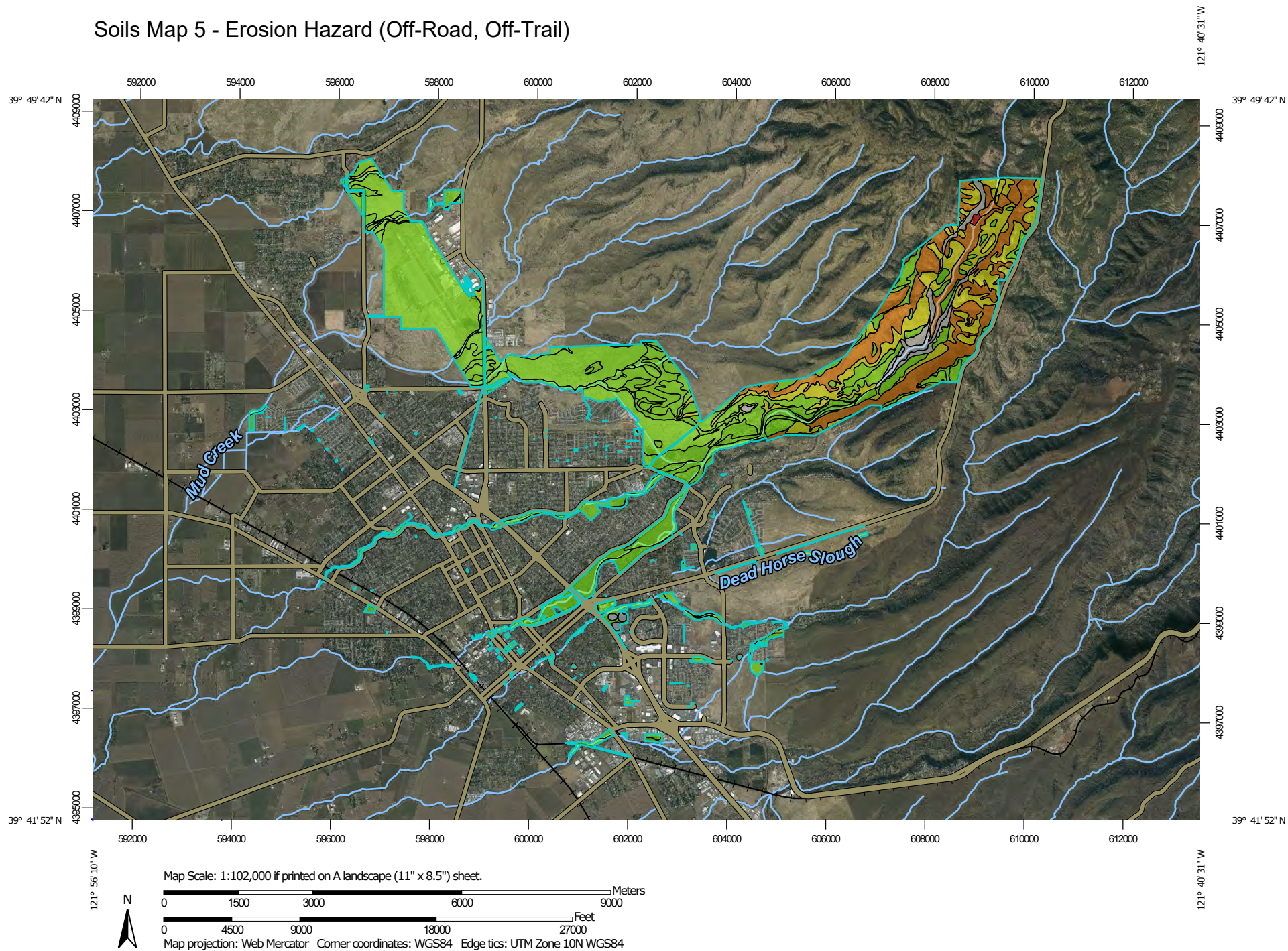
Soils in the City of Chico Vegetative Fuels Management Plan Map 3: Southwest

**(South of East Ave;
West of Bruce Rd/
Chico Cyn Rd)**





Soils Map 5 - Erosion Hazard (Off-Road, Off-Trail)








MAP LEGEND

Area of Interest (AOI)






 Area of Interest (AOI)

Soils






Soil Rating Polygons

 Very severe
 Severe
 Moderate
 Slight
 Not rated or not available


Soil Rating Lines

 Very severe
 Severe
 Moderate
 Slight
 Not rated or not available

Soil Rating Points




 Very severe
 Severe
 Moderate
 Slight
 Not rated or not available

Water Features


 Streams and Canals

Transportation

 Rails
 Interstate Highways

 US Routes
 Major Roads
 Local Roads

Background

 Aerial Photography

MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:24,000.

Please rely on the bar scale on each map sheet for map measurements.

Source of Map: Natural Resources Conservation Service
 Web Soil Survey URL:
 Coordinate System: Web Mercator (EPSG:3857)

Maps from the Web Soil Survey are based on the Web Mercator projection, which preserves direction and shape but distorts distance and area. A projection that preserves area, such as the Albers equal-area conic projection, should be used if more accurate calculations of distance or area are required.

This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

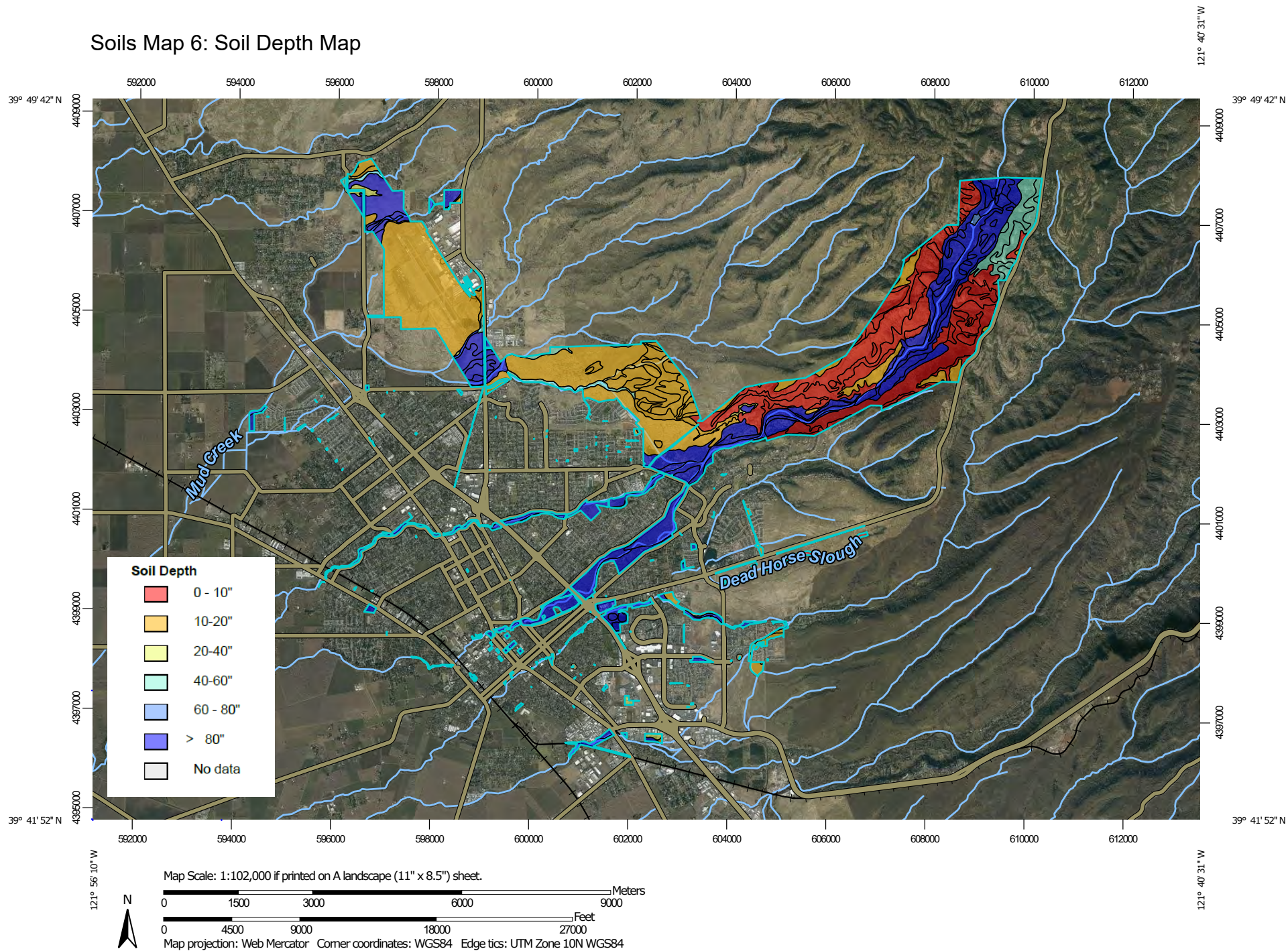
Soil Survey Area: Butte Area, California, Parts of Butte and Plumas Counties
 Survey Area Data: Version 17, Jun 1, 2020

Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.

Date(s) aerial images were photographed: Dec 6, 2018—Dec 12, 2018

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

Soils Map 6: Soil Depth Map



Appendix E

Some High Priority Invasive Species in Chico Parklands, With Best Practices for their Removal

HIGH-PRIORITY INVASIVE EXOTIC PLANTS TO BE REMOVED UNDER THE PROPOSED PLAN

It is not practical to remove every exotic plant from Chico parklands. Some plants are so naturalized that the costs of removing them do not justify the benefits. Invasive removal priorities change over time with changing ecosystems, land management objectives, and cultural values. The plants in the table below are not the only plants that could be removed under the program, but they are high priorities because of their impacts on native biodiversity, fire ecologies, and/or recreation.

Priority	Scientific Name	Common Name	where
High	In addition to those listed below, any current Butte County priority and CDFA 'A' rated weeds www.buttecounty.net/agriculturalcommissioner/Pest-Weed-Management www.cdfa.ca.gov/plant/ipc/encycloweedia/wininfo_weedratings.html		
	<i>Aegilops triuncialis</i>	barbed goatgrass	grassland MiddleBP
	<i>Ailanthus altissima</i>	tree of heaven	all
	<i>Albizia julibrissin</i>	silk tree a.k.a. mimosa	all
	<i>Arundo donax</i>	giant reed	waterways
	<i>Carya illinoensis</i>	pecan	all
	<i>Catalpa</i> spp.	Catalpa	suburban distributary waterways & adjacent spread
	<i>Celtis sinensis, australis, occid.</i>	hackberry	waterways, riparian, and adjacent to suburbs
	<i>Colutea arborescens</i>	bladder senna	World of Trees vicinity, lower Bidwell Park
	<i>Crataegus laevigata</i>	hawthorn	riparian and adjacent to suburbs
	<i>Ficus carica</i>	edible fig	waterways, riparian
	<i>Hedera helix, canariensis</i>	ivy, English and Algerian	riparian
	<i>Juglans</i> spp.	walnut	riparian and adjacent
	<i>Ligustrum</i> spp.	privet	riparian and adjacent to suburbs
	<i>Morus alba</i>	white mulberry	waterways and riparian
	<i>Pistacia chinensis</i>	Chinese pistache	all
	<i>Prunus</i> spp.	plum, prune, almond	riparian and adjacent to suburbs
	<i>Pyracantha</i> spp.	firethorn	all
	<i>Robinia pseudoacacia</i>	black locust	riparian and adjacent
	<i>Rubus armeniacus, laciniatus</i>	blackberry, Armenian and cutlea	riparian and adjacent
	<i>Spartium junceum</i>	Spanish broom	Big Chico Creek distributary waterways and adjacent spread
	<i>Triadica sebifera</i>	Chinese tallow tree	waterways and adjacent spread
	<i>Tribulus terrestris</i>	puncturevine	paths, parking lots, and recreation grounds
Medium	<i>Carduus</i> spp.	Italian thistle, musk thistle, ..	grassland, woodland esp. after disturbance
	<i>Centaurea stoltitialis, melitensis</i>	yellow starthistle, tocalote	grasslands of high value (wildflowers/native grass habitat, recreation)
	<i>Eucalyptus</i> spp.	gum tree	all
	<i>Fraxinus americana</i>	white ash	riparian
	<i>Lonicera japonica</i>	Japanese honeysuckle	riparian
	<i>Olea europea</i>	olive	all
	<i>Parthenocissus quinquefolia</i>	Virginia creeper	riparian adjacent to suburbs
	<i>Photinia fraser</i>	photinia red tip	adjacent to suburbs
Low	<i>Phytolacca americana</i>	pokeweed	riparian esp. after disturbance (removal of blackberry thicket)
	<i>Silybum marianum</i>	milk thistle	all esp. after disturbance

Methods of Invasive Plant Removal

In addressing invasive plants and other fuels issues, the City will follow principles of Integrated Pest Management (IPM). An early step in IPM is to determine if there are feasible and effective methods to remove the unwanted plants without the use of herbicides. For example, manual weed removal is often very effective when the weed infestation is light, or when annual plants can be removed prior to seed maturation. In contrast, herbicide treatment is most effective when there are widespread infestations with a high density of plants, or when it is not feasible to remove roots of resprouting woody plants.

The proposed project includes the use of herbicides to control invasive weeds. The vegetation management issues in Chico's natural parks have been subject to fuels reduction efforts by many organizations over decades with respect to evaluating the tradeoffs (safety, environmental impacts, effectiveness, unintended consequences, cost, etc) between different tools including herbicide. Herbicide is used when the results of this experience and available science indicate it is the most effective tool available given the site constraints. For example: herbicide is the best tool for eliminating tree of heaven because mechanical means are either ineffective (cutting stems results in root sprouts) and/or cause greater impact (stump removal disturbs soil with consequent weed invasion) and/or are much more costly (stump grinding, repeated sprout removal).

The State of California has the most thorough and restrictive program of pesticide registration and labelling in the nation. Herbicide labels are State law. They stipulate conditions such as spraying near water, required PPE, required safety precautions when mixing or refilling tanks, what can be treated, when, where, how, how much to use and mixing procedures, storage and disposal, and other use constraints.

The herbicide labelling program operated by the State of California's Department of Pesticide Regulation (DPR) is certified as having functional equivalency to an EIR, pursuant to CEQA statute §21080.5 (DPR 2015). Thus, the use of an herbicide in accordance with a label issued by DPR ensures no significant impact will occur under CEQA. The City adds additional SPRs concerning herbicide use to its vegetation management program (see **SPRs HAZ-3** and **-4**, i.e., using an indicator dye and using only "Caution" labeled herbicides).

Specific weed removal methods for individual weed species are listed below. While these are not the only methods of removing these weeds, nor would these particular methods always be applied every time the listed weed is encountered, these are methods which have been used by the Parks Division and other local experts on prior weed removal efforts. They are compiled here to provide a basis for future successful vegetation management by knowledgeable City employees, decisionmakers, and contractors. They should not be construed as "one size fits all" recommendations for dealing with the listed weeds regardless of surrounding circumstances. All herbicide applications in the City of Chico have been and will be performed by a Qualified Applicator who is trained to read and understand labels and understand safe herbicide use in situational context.

Invasive species profiles arranged by scientific name from the table above:

Barbed goatgrass (*Aegilops triuncialis*)

Species Characteristics: Fast growing, rapidly spreading annual grass that creates exclusive monoculture stands. Matures later in the season than most annual grasses – and may be identified in early summer standing out green. Grazing animals avoid the taste, selecting for its survival over other grass. Long awns with barbs easily attach to fur or clothing for dispersal.

Eradication Methods and Schedule: This currently occurs extensively in Middle Bidwell Park, and an evaluation should be made whether it has already spread beyond, and if not whether containment and control measures are practical. Early detection of small isolated patches can be controlled with intensive repeat burns followed up with herbicide.

Tree of heaven (*Ailanthus altissima*)

Species Characteristics: Fast growing deciduous tree with large compound leaves and creeping roots that sucker freely. Trees are either male or female, with mature females producing abundant viable winged fruit dispersing in fall.

Eradication Methods and Schedule: Mechanical injury stimulates root sprouting, and removal of the entire root may be accomplished with the use of a weed wrench for small saplings in friable soils only, where those are not identifiable as root sprouts from a nearby mature tree. Foliar herbicide treatment on saplings under shoulder height may be done during active spring growth (~April-June) with 2-4 lb ae/acre triclopyr ester + surfactant, or in fall (August-November) as long as leaves are green with 1-2 lb ae/acre glyphosate. Larger stems are effectively killed with fall (August-January) basal bark treatment using 25% triclopyr ester product in oil carrier. The very largest stems (>16" diameter) with thick bark may require removal of the outer dead bark for the herbicide to penetrate to the phloem. Followup treatments should be expected on root sprouts the following spring and fall per the above methods for several years for the largest trees. Seeds may be viable for seven years. Therefore, for extensive infestations female trees are treated first and followup includes monitoring for seedlings for seven seasons after mature female trees are killed.

Silk tree a.k.a. mimosa (*Albizia* spp.)

Species Characteristics: Fast-growing small broadleaf deciduous tree with feathery leaves, pink puffy flowers, and large hanging long flat seed pods, sometimes with multiple trunks. Riparian areas.

Eradication Methods and Schedule: Seedlings and saplings may be removed with a weed wrench in soft substrates. Otherwise basal bark, cut-stump, or injection treatments with herbicide are effective: basal stems applied in fall (August-December) with 25% triclopyr ester product in oil carrier; cut-stumps' cambium ring applied at the time of cutting during full leaf expansion (~April-November) with undiluted aminopyralid (0.1#/gal) + triclopyr (1#/gal) product, or glyphosate (4#/gal). Injection treatments are made using the same herbicide and timing as for cut-stump. Resprouts may be foliar treated during spring with the aminopyralid + triclopyr product equivalent at 2% + surfactant, or in fall with 1-2 lb ae/acre glyphosate.

Giant reed (*Arundo donax*)

Species Characteristics: Perennial clumping giant grass with stems to 20 feet. Primary means of spread is by nodes of broken stem fragments taking root in downstream depositional substrates.

Eradication Methods and Schedule:

- (a) If short notice removal of biomass is desired (sometimes driven by labor availability), then if possible arrange herbicide treatment on green leaves/stems no less than 1 day prior to removal using the methods described as follows in (b).
- (b) Initial treatment best during August - November (until frost) foliar spray with 0.25 lb ae/acre (typically 0.25% of product) imazapyr + 1 lb ae/acre (typically 0.5% of product) glyphosate + 0.5-1% extra oil surfactant. Where foliar spray presents a problem with collateral damage (leaves overlap non-target desirable plants) a green stem application away from water may be made using 10% imazapyr product in oil with emulsifier. Follow-up treatments should be expected in spring (as long as growth is active ~April-June), preferably when resprouts reach just below shoulder height, and again in Aug-Nov as needed. Follow-up treatments may be needed in some stands for several years. 'Dead' stands have been known to re-sprout up to 7 years later.

Pecan (*Carya illinoensis*)

Species Characteristics: Large deciduous tree with compound leaves, edible nut, and strong taproot in riparian areas.

Eradication Methods and Schedule: Saplings with smooth bark can be killed with basal stem application in fall using 25% triclopyr ester product in oil carrier. Cut-stump or injection methods with 50-100% glyphosate product otherwise during full leaf expansion (~April-November).

Catalpa (*Catalpa* spp.)

Species Characteristics: Medium sized deciduous tree with large heart-shaped leaves, long hanging seed pods, spreading initially down waterways from suburban storm drains, then into riparian zones.

Eradication Methods and Schedule: Weed wrench seedlings and saplings. For stems over or adjacent to water, drill-injection with 50% emergent-aquatic labeled glyphosate product during full leaf expansion (~April-November). For upland stems basal bark treatment of smooth barked young stems (or remove dead outer bark first) with 25% triclopyr ester product in basal oil in fall (August-November), or cut-stump/injection with 100% glyphosate or imazapyr product during full leaf expansion (~April-November). Follow-up on stump resprouts on upland sites with foliar application of 2-4 lb ae/acre triclopyr ester + surfactant during active spring growth (~April-June) or 2-4 lb ae/acre glyphosate during fall (~August- November) on green leaves. Near water, use emergent aquatic formulation of glyphosate in fall.

Hackberry (*Celtis sinensis, australis, occidentalis*)

Species Characteristics: Medium to large tree with simple leaf with serrated edge, bark usually smooth gray, fruit a small dark hanging drupe eaten by birds – hence the spread into parkways.

Eradication Methods and Schedule: Pull seedlings and saplings with a weed wrench. Basal bark, cut-stump and injection treatments as described for Catalpa.

Bladder senna (*Colutea arborescens*)

Species Characteristics: This shrubby legume up to 12' tall, with compound light green leaves and yellow pea-shaped summer flowers, has bloated seed pods that make a **pop** sound if squeezed, much like bubblewrap – making them attractive for children to collect and disperse. They develop into dense stands; seed is viable for many years. Historically introduced near World of Trees in lower Bidwell Park.

Eradication Methods and Schedule: Weed wrench. Dense seedling germination may be treated on appropriate sites with 0.11 lb ae/acre aminopyralid + surfactant, or 1 lb ae/acre triclopyr ester + surfactant, or combine the two each at half those rates.

Hawthorn (*Crataegus laevigata*)

Species Characteristics: Tends to occur and spread as dense stands

Eradication Methods and Schedule: Weed wrench only useful on smallest stems: well rooted. Cut-stump treatment only as described for Catalpa -- plan for followup treatments on resprouts.

Edible fig (*Ficus carica*)

Species Characteristics: Spreading small tree with dense low canopy that eventually can smother other vegetation in riparian areas. Large palmate leaves, smooth thin gray bark, edible fruit favored by birds – hence seed dispersal.

Eradication Methods and Schedule: For stems too large to hand-pull the roots out, weed wrenching will tend to break off the stem from the roots. Basal bark treatment with half the standard label concentration rate described for woody species: 15% triclopyr ester product in oil carrier, effective all year. Near water, inject or cut-stump treatment with 50% emergent-aquatic label glyphosate or imazapyr product in late summer/fall.

Ivy, English and Algerian (*Hedera helix* and *canariensis*)

Species Characteristics: This is the familiar evergreen woody perennial shade-tolerant vine that can spread and climb on virtually anything, eventually smothering tree canopies and riparian forest understory. Leaves are dull green lobed with distinct light veins; stem easily forms roots at nodes, seeds in berries are distributed by birds. Shallow rooted (so not good for slope stability).

Eradication Methods and Schedule: Physical removal. Extensive practical methods have been developed by the No Ivy League (the Ivy Files) of Portland, Oregon, including the Girdle, Full Lifesaver, Log Roll, and Tonchi's Mulching Method. Ivy growing up tree trunks can be cut off; next, pry all stems off reachable bark with a large screw driver or forked garden tool to cut them all, and clear ivy from around the base of the tree or it will quickly grow back up the trunk.

Walnut -- including black walnut (*Juglans* spp.)

Species Characteristics: Large deciduous tree with compound leaves, dark furrowed (black walnuts) to smooth light (Persian a.k.a. English walnut) bark, 1-2" edible nut. Contrary to conventional wisdom, the northern California black walnut *Juglans hindsii* is not native to this area, only known in original extent as far north as the American River. Walnut is shade-tolerant and invasive in riparian areas, where it is also allelopathic – producing chemicals that suppress other plants. Removal of uncultivated walnut trees is desirable to avoid hosting agricultural pests.

Eradication Methods and Schedule: Weed wrenches are not useful, due to the tree's strong taproot. Basal bark, cut-stump and injection treatments same as for Catalpa.

Privet (*Ligustrum* spp.)

Species Characteristics: Evergreen, shade-tolerant, medium-sized tree in riparian areas with glossy simple leaves and prolific dark blue berries. Commonly planted as a hedge, if left untrimmed will grow into a tree and fruit prolifically, attracting birds, by which means it continually disperses into parkways and neighbor yards.

Eradication Methods and Schedule: Weed wrench saplings. Basal bark, cut-stump and injection treatments same as for Catalpa.

Mulberry (*Morus* spp.)

Species Characteristics: A medium sized spreading deciduous tree, with large oval sometimes lobed leaves. Trees are either male (pollen catkins) or female (summer fruit resembling blackberries – hence bird dispersal of seed into riparian areas). Gray bark is fissured orange-tan.

Eradication Methods and Schedule: Weed wrench saplings. Basal bark, cut-stump and injection treatments same as for Catalpa.

Chinese pistache (*Pistacia chinensis*)

Species Characteristics: A small- to medium-sized deciduous shade-tolerant tree, producing compound leaves with fall color. An individual is either male or female, with only the females bearing fruit (prolific clusters of small red to blue drupes – attracting birds, who spread the seed). The gray bark is fissured to scaly.

Eradication Methods and Schedule: Weed wrench saplings. Basal bark, cut-stump and injection treatments same as for Catalpa.

Prune, plum, almond (non-native *Prunus* spp.)

Species Characteristics: Small dense deciduous trees. Oval simple leaves may be green or purple; fruits are edible fleshy drupes that may attract birds, who disperse the seed into riparian areas.

Eradication Methods and Schedule: Tough taproot, not to be pulled. Cut-stump treatment with followup on resprouts, as described for Catalpa.

Firethorn (*Pyracantha* spp.)

Species Characteristics: Evergreen shrub with abundant fall bright red or orange berries attracting birds, who disperse the seed into riparian and adjacent upland areas.

Eradication Methods and Schedule: Weed wrench young plants. Cut-stump or injection treatment in summer to fall (~July-November) with full strength glyphosate or imazapyr product. Tends to resprout, so follow up with spring foliar treatment with 2-4 lb ae/acre triclopyr ester + surfactant, and/or fall foliar treatment of 2-4 lb ae/acre glyphosate.

Black locust (*Robinia pseudoacacia*)

Species Characteristics: Medium to large erect deciduous tree with fast growth, spiny stems, gray bark diagonally furrowed and ridged, leaves compound with rounded leaflets, late spring clusters of white flowers, fruit a long flat reddish brown pod. Leguminous tree native to northeastern North America and often planted marking old homesteads or stage stops.

Eradication Methods and Schedule: Same as silk tree (*Albizia j.*), although for basal bark treatment, if the bark is not smooth (i.e. the tree is no longer a sapling), then the outer dead bark should be

removed first.

Blackberry, Armenian (a.k.a. Himalayan) and cutleaf (*Rubus armeniacus* and *laciniatus*)

Species Characteristics: Not to be confused with the 3-leaflet native species, *Rubus discolor*, which has a subdued cane habit of growth rather than forming a dense thicket. Native species also have soft spines, not thorns. The vigorous Armenian sp. has 5 leaflets contrasting dark green on top vs. white beneath, and woody stem thorns like a cultivated garden rosebush has. It forms smothering thickets. The less common (but also invasive) cut-leafed *R. laciniatus* has distinctive large lacy cut 5-leaflets per leaf.

Eradication Methods and Schedule:

- (a) If using goats, fire, or mechanical removal of thicket biomass, expect resprouts. This vine is best treated with herbicide to kill its roots. If the next significant resprouts occur in spring, then spot-treat away from water during active growth (~April-June when temperature <80degF) with 1-2 lb ae/acre triclopyr ester (typically 0.5-1% product) + surfactant. If the next resprouts occur later, then spot-treat after fruiting, late September until frost, using 3 lb ae/acre glyphosate.
- (b) If treating thickets, best control is after fall fruiting (late September until frost) with 3 lb ae/acre glyphosate. Followup treatments the next season should be expected and planned. Treatment of large thickets constitute an ecological disturbance - so natives should be planted and established to prevent the area reverting to invasive weeds. An alternative approach is to follow up with spot weed control if sufficient natives volunteer on the site. Pokeweed is a common weed after blackberry thicket removal, as berries of each ripen simultaneously for bird dispersal.

Spanish broom (*Spartium junceum*)

Species Characteristics: This is an upright deciduous shrub forming dense stands. It can grow to 12' tall and has finely ribbed, nearly round stems; its simple leaves are dropped in summer leaving the green stems and creating a 'whisk'-like appearance. Bright yellow pea-shaped flowers at branch tips in April-June are followed by dark "bean" pods starting late May.

Eradication Methods and Schedule: Seeds are viable for years, making it important to persistently remove plants before they can renew the seed bank. Target flowering plants prior to June seed development first, then return to remove the rest. Weed wrench mature plants prior to late May fruit development, or else cut them to a stump (if seeds are present, then sanitary disposal is required), and/or 'contain' distribution by working first from the invasion frontier inwards within that timeframe.

Dense seedling germination areas may be treated on appropriate sites with propane torch during wet conditions in February, or with herbicide February-May with 0.11 lb ae/acre aminopyralid + surfactant, or 1 lb ae/acre triclopyr ester + surfactant, or combine the two each at half those rates. Care should be taken using foliar treatments on mature plants due to the open architecture of the shrub allowing herbicide spray to pass through to vulnerable non-target plants, and for this reason a low volume 'drizzle' treatment is preferred: manually gather together a bunch of green stems and directly drizzle onto the bunched stems for total of 20% coverage of the green canopy using 0.22 lb ae/acre aminopyralid + 10 lb ae/acre triclopyr ester in oil emulsion. Basal stem, cut-stump and injection methods are also valid, following methods described for Catalpa.

Chinese tallow tree (*Triadica sebifera*)

Species Characteristics: A small deciduous shade-tolerant fast growing tree with reddish-brown

fissured bark and smooth simple leaves shaped like a cottonwood's. Fruit is a three-lobed capsule that falls away to expose 3 round waxy seeds attractive to birds, who spread the seed into riparian areas.

Eradication Methods and Schedule: Weed wrench saplings. Basal bark, cut-stump and injection treatments same as for Catalpa.

Puncturevine a.k.a. goathead (*Tribulus terrestris*)

Species Characteristics: Summer annual that thrives in hot dry exposed places where other plants cannot, such as dirt pathways and parking lots. Its spiky 'caltrop' shaped seed bur catches on passing traffic to disperse to other sites, puncturing tires and injuring pet paws in the process. It forms a spreading dense mat that radiates out from the taproot. Its hairy leaves are compound and opposite each other on the stems; yellow five-petaled flowers up to 0.5 inch across grow from leaf axils.

Eradication Methods and Schedule: Germination occurs not in one cohort (all at once) but spread over months May-July, so repeat treatments are required to prevent seed development. Foliar spot spray every 3 weeks May-July with 0.11 lb ae/acre aminopyralid, or 2 lb ae/acre triclopyr ester, or a combination of the two at half those rates; or 1 lb ae/acre glufosinate; or 1-2 lb ae/acre glyphosate.

Italian thistle, musk thistle, .. (*Carduus* spp.)

Species Characteristics: These are annuals to biennials with spiny, winged stems, green lobed leaves with cobwebby hairs underneath, and narrow purple flowerheads in clusters up to five. They establish on bare soil disturbances in dry open rangelands. Efforts to eradicate this species are currently futile, so the benefits of control efforts must be specifically defined – such as preventing infestations where activity disturbs soil, or where thistles impede recreation such as along trails.

Control Methods and Schedule: Any project that disturbs or leaves bare soil in dry open habitats should follow up with weed control. Manual hoeing that cuts under the root collar prior to flower bud opening (<~mid-May) can be effective. Broadcast spray of selective 0.11 lb ae/acre aminopyralid prior to bolting (January-April) is very quick and effective over large areas where collateral damage species are not present (uncommon asters or legumes). Spot-spraying on rosette to flower bud with 1-2 lb ae/acre triclopyr ester or glyphosate is also effective.

Yellow star thistle and tocalote (*Centaurea solstitialis* and *melitensis*)

Species Characteristics: The well-known gray-green annual to biennial, growing up to 3' tall and producing bright thistly yellow flowers with sharp spines around the base. Winged stems and leaves covered with loose cottony wool giving them a whitish appearance. Basal leaves are 2-3" long and deeply lobed. Deep taproot.

Control Methods and Schedule: This is now widespread around Chico, so the purpose and benefits of control should be clearly defined – in areas that will be re-disturbed, control is unlikely to last more than a few years before reinfestation, at best. Isolated infestations and those with a follow-up program of restoration may benefit more. Control in grassland setting is typically a three year process starting with a late spring prescribed burn which may be followed by another burn or use of highly selective herbicide clopyralid or aminopyralid, and finished with hand-pulling or spot spraying.

Gum tree (*Eucalyptus globulus, camaldulensis*)

Species characteristics: Large erect fast-growing trees with fragrant evergreen simple leaves, exfoliating mottled smooth green to white bark. Explosively flammable.

Eradication Methods and Schedule: Weed wrench saplings. Basal bark, cut-stump and injection treatments same as for Catalpa.

Ash tree (*Fraxinus americana* and others probably hybridized)

Species Characteristics: Not to be confused with the native Oregon ash *Fraxinus latifolia*. Medium to large deciduous erect trees, compound leaves, fruits in clusters of winged seeds or fruitless, gray bark furrowed.

Eradication Methods and Schedule: Weed wrench saplings. Basal bark, cut-stump and injection treatments same as for Catalpa.

Japanese honeysuckle (*Lonicera japonica*)

Species Characteristics: An aggressive twining vine with opposite simple oval leaves and hollow woody stems. Flowers are double-tongued tubes opening white and fading to yellow, with sweet vanilla scent. The fruit is a black round berry favored by birds, who spread them into riparian areas.

Eradication Methods and Schedule: Physical removal of biomass, followed by cut stem treatment with 50% glyphosate or triclopyr ester product. Re-sprouts are foliar treated with 2-4 lb ae/acre glyphosate in fall or 2-4 lb ae/acre triclopyr ester in spring.

Olive (*Olea europaea*)

Species Characteristics: Small evergreen tree with deeply furrowed multiple trunks, simple leathery oblong dark green leaves with silver underside, and black fruit. Removal of uncultivated olive trees is desirable to eliminate hosting agricultural pests such as olive fruit fly.

Eradication Methods and Schedule: Pull seedlings. Basal bark stem treatment on younger trees using the method described for Catalpa. Old, thick-barked trees may require removal of dead outer bark prior to basal bark treatment, or cut-stump or injection methods described for Catalpa.

Virginia creeper (*Parthenocissus quinquefolia*)

Species Characteristics: A vigorously aggressive climbing and spreading woody shade-tolerant vine related to grape. Has large five-leaflet palmately compound leaves with toothed margins; leaves turn bright red in fall.

Eradication Methods and Schedule:

- (a) Physical removal – see methods for ivy (*Hedera*), followed as needed by
- (b) herbicide where the source root is found, applying foliar spray 2-4 lb ae/acre glyphosate to re-sprouts after the bulk has been removed.

Photinia, red-tipped (*Photinia fraser*)

Species Characteristics: Very similar to the related native toyon *Heteromeles arbutifolia* which occurs at higher-elevation, more open chaparral or oak woodlands in Upper Bidwell Park. However, *Photinia* grows in low elevation shady riparian areas, grows over 15' tall, has glossy smooth stiff leaves compared to toyon's duller leathery leaves, and has a more open loose growth habit.

Eradication Methods and Schedule: Weed wrench saplings. Basal bark, cut-stump and injection

treatments same as for Catalpa.

Pokeweed (*Phytolacca americana*)

Species Characteristics: Herbaceous perennial in riparian areas that develops a large storage Taproot. Fleshy red hollow stems die back every winter. Clusters of dark inky berries are favored by birds and mature at the same time as blackberry - so removal of blackberry thickets may release a flush of pokeweed.

Control Methods and Schedule: Efforts to eradicate pokeweed are not feasible, so benefits of control efforts must be specifically defined - such as preventing infestation that may impede reestablishment of natives where some activity leaves bare soil. Removal of blackberry Thickets is a good example of this.

Milk thistle a.k.a. blessed thistle (*Silybum marianum*)

Species Characteristics: Annual or biennial large thistle with shiny dark green fleshy leaves spotted with white “drops of milk”, and purple flowers. Occurs in riparian or seasonally moist areas and disturbed areas of bare fertile soil. Efforts to eradicate this species are currently futile, so the benefits of control efforts must be specifically defined – such as preventing infestations where activity disturbs soil, or where thistles impede recreation such as along trails.

Eradication Methods and Schedule: same as for Italian thistle (*Carduus*).

Methods mentioned:

- ‘Weed wrench’ is a mechanical leveraging device for pulling woody plants up to 2-3” stem diameter out of the ground.
- ‘Basal bark’ or stem treatment uses an oil carrier to penetrate the bark, carrying the herbicide into the phloem tissue (the part of the inner bark cambium cell tissue that carries sugar from photosynthesis in the leaf canopy down the stem to the roots). Herbicide is applied to the circumference of the stem in a band the height of 1.5 times the stem diameter, a few inches above ground level.
- ‘Cut-stump’ treatment involves applying herbicide directly to the cambium ring (ring of live tissue just inside of the bark, outside of wood) at the time of the fresh cut. Herbicide is full strength or diluted in water base without surfactants.
- ‘Injection’ treatments such as ‘hack-and-squirt’ (using a narrow bladed hatchet with longer handle such as a shingle hatchet or the sharpened blade end of a drywall hammer to make downward angled cuts through bark to wood, every 2-3 inches around the stem circumference) or ‘drill-inject’ (using a cordless drill with a 3/8” brad point bit, with an injection tool such as a livestock drench gun *-properly labeled as not for veterinary use* drawing from a backpack reservoir), to apply 1-3ml of same herbicides/timing as for cut-stump method above.
- ‘Foliar’ spray is most typically a spot or directed treatment (as distinguished from broadcast) targeting the leaf canopy where there are no overlapping leaves of a vulnerable desired native plant. In limited situations where the invasive species has smothered large areas as a monoculture stand (no vulnerable native species exposed), then a broadcast foliar spray treatment may be used, for example treating thickets of Armenian (a.k.a. Himalayan) blackberry.