GEOG 427

PRELIMINARY DRAFT INITIAL STUDY FOR THE BUTTE CREEK ECOLOGICAL PRESERVE MASTER PLAN - 2019 UPDATE

May 17, 2019

This Preliminary Draft Initial Study is a community-service project completed by students in the California State University-Chico, Geography and Planning Department's Environmental Impacts Analysis class (GEOG 427).

This Preliminary Draft Initial Study was completed by students at California State University, Chico for education and informational purposes only. It is not intended to be complete or legally adequate; nor is it intended for submission or use, in part or in whole, to or by any lead agency for the purposes of CEQA compliance.

Project Title:

BUTTE CREEK ECOLOGICAL PRESERVE (BCEP) - 2019 MASTER PLAN UPDATE

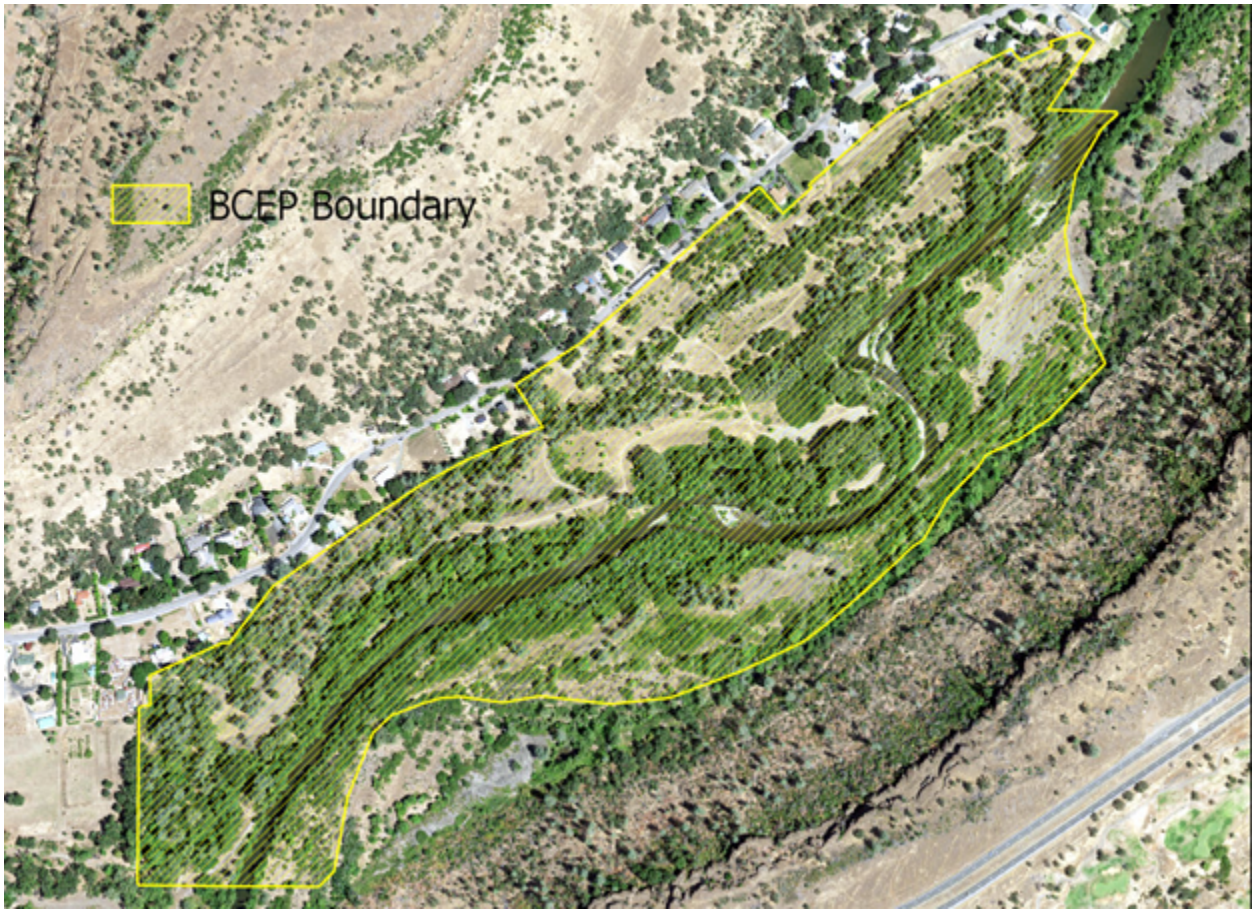


Figure 1. BCEP Boundary and Vicinity Before 2018 Camp Fire (source: _____)

Project Location, General Plan Designation and Zoning:

The project site is located in Butte Creek Canyon on the south side of Honey Run Road and north side of Butte Creek, approximately 2.5 miles east of the City of Chico (Assessor Parcel Numbers 017-230-076, 017-230-073, 017-230-072, and 017-230-071). Parcel sizes, general plan designations and zoning are as follows:

APN	**Acres**	**General Plan Designation**	**Zoning**	**Zoning Overlay**
017-230-071	21.07	Resource Conservation (RC)	RC (Resource Conservation)	Butte Creek Canyon Overlay
017-230-072	23.61	Resource Conservation (RC)	RC (Resource Conservation)	Butte Creek Canyon Overlay
017-230-073	24.85	Resource Conservation (RC)	RC (Resource Conservation)	Butte Creek Canyon Overlay
017-230-076	23.83	Resource Conservation (RC)	RC (Resource Conservation)	Butte Creek Canyon Overlay

Figure 2. BCEP Vicinity - Parcel Boundaries (source: _____)

Project Sponsor's Name and Address:

CSU Chico Research Foundation, Administration Office, 25 Main Street, Suite 203, Chico, CA 95928

Project Goals and Description of Project:

The project consists of an update to the *Butte Creek Ecological Preserve Master Plan*, which will guide management and activities on the Preserve for the next 5-20 years.

The mission of the CSU, Chico Ecological Preserve System is to contribute to the understanding and wise management of the Earth and its natural systems by

preserving critical habitat, and providing a natural area for environmental research and education.

The goals of the Butte Creek Ecological Preserve are to preserve critical habitat and to provide a natural area for environmental research and education.The Preserve works in conjunction with other programs toward achieving a reasonable balance among the diverse demands on the resource base of the Butte Creek watershed.

The Preserve has adopted an adaptive management approach to managing the property. Program areas at the Preserve include habitat management and conservation, outreach and education, and research. The Preserve is open to the public year-round. Hiking, flower and wildlife observing are compatible with the educational goal of the reserve.

Activities at the Preserve over the life of this Master Plan Update (5-20 years) may include any or all of the following activities. In order to comply with CEQA's requirement to address "the whole of an action", this analysis addresses all of these:

- Continuing use of the site for outdoor education for K-12 and university students as well as the general public
- Continuing use of the site for research activities which may include vegetation management, prescribed fire, species monitoring, and other research activities;
- Expansion and improvement of the parking lot, including reconstructed fencing, grading, gravel surfacing, and an improved connection to Honey Run Road;
- Installation of parking lot lighting and extended hours of use;
- Use of the site as a permanent facility of the Paradise Recreation District;
- Felling, piling, burning, and/or removal of burnt trees and vegetation;
- Replacement of burnt features including interpretive kiosks and storage shed;

- Construction of an education/research classroom and office;
- Construction of 1-3 small temporary quarters for visiting researchers;
- Construction of a permanent restroom;
- Placement of portable restrooms;
- Reconfiguration of the mine tailings on the site to restore salmon habitat by creating deep pools, side channels, and/or other habitat features;
- Removal of the old mining haul road from the westernmost portion of the site;
- Increased levels of public use, including dog walking, horseback riding, walking and swimming;
- Restoration of native plant species and communities;
- Removal of invasive plants by hand, mechanical means, pesticides, and/or goat grazing;
- Fuels management, including removal of trees, clearing brush, and mowing.

In addition, a 2001 report by the California Department of Fish and WIldlife identified the following goals, objectives, development and activities for the Preserve. All of these are considered to be within the potential scope of the project, and will be addressed by this Preliminary Draft Initial Study:

> *The Honey Run Unit management goal is three-fold:*
>
> - *Restore, protect, and enhance the habitat for spring-run chinook salmon and steelhead trout*
> - *Develop and demonstrate methods of channel and floodplain management resulting in improvements for riparian plant species that would help to cool the stream, filter urban runoff, capture large woody debris, and increase water storage and groundwater recharge capabilities of lower Butte Creek*
> - *Foster, through Preserve access and use, a living laboratory and field classroom for local students of all ages, and public appreciation of the Unit's resources*

7.1 Ecological Objectives

7.1.1 Ecosystem Objectives

1. Sustain and restore critical habitat for the endangered spring run chinook salmon. This objective can be measured by conducting annual monitoring of shaded riverine aquatic habitat, pebble counts, photo-monitoring, etc.

2. Determine the feasibility of native habitat restoration on highly disturbed portions of the property.

3. Determine whether additional rare elements occur at the Preserve that merit special management attention.

7.1.2 Biological Element Objectives

1. Protection of critical habitat for the endangered spring run chinook salmon and steelhead trout populations at this site is of the highest priority. This can be done most effectively through proper management of the ecosystem of which it is a part.

7.2 Programmatic Objectives

1. Increase awareness and build a supportive constituency for the Honey Run Unit within the community.

2. Develop a public access/educational program for the Honey Run Unit that will discourage vandalism, aid in ensuring that uses of the site are appropriate, and integrate Preserve management with the local community's needs.

3. Promote the use of the Honey Run Unit as a "laboratory" for testing and assessing management techniques and practices that will benefit anadromous fish habitat and help control invasive exotic species.

7.3 Facilities and Maintenance Objectives

1. Improve existing Preserve facilities. The fence regulating vehicular access to the site has been relocated to allow vehicles to queue off the road safely. The existing roadway to an internal parking lot will be improved.

2. Construct and maintain composting toilet. Purchase and maintain trash cans. 3. Construct and maintain an open-air classroom.

4. Construct and maintain shed for equipment and tools.

5. Construct and maintain regulatory and welcoming signs.

6. Construct and maintain proposed interpretive infrastructure and signs.

Management Strategies

8.1 Recommendations on Species Requirements and Management

1. Reintroduce disturbance processes to which the Honey Run Unit cottonwood riparian and upland communities are adapted. Due to changes in Central Valley fauna, as well as the small size and proximity of the Preserve to development, such processes will of necessity be controlled imitations of natural processes. They may consist of prescribed burns, overseeding, mowing, hand control, spot herbicides or a combination thereof.

2. Institute management actions to control invasive species, particularly star thistle, that are invading disturbed areas of the Preserve. Such measures could include the processes listed under Recommendation 1.

3. Monitoring the existing and restored vegetation complexes to determine success levels for restoration.

1. Implement buffer management that will closely coordinate county road maintenance and hydrological protection measures at neighboring homes and development sites.

2. Develop a limited public use program that will aid in achievement of Preserve management objectives by providing educational materials at a kiosk or directly distributed to groups explaining the values and stewardship of the Preserve.

3. Monitor the progress of developments bordering the Preserve as they are planned and implemented.

4. Update existing information immediately and periodically revise a biological inventory for the Preserve. This could be done relying primarily on volunteer aid, with staff time required for organization and volunteer activity supervision.

5. Encourage student and faculty research and K-12 education programs at the Preserve that will address ecological management issues.

Environmental Setting:

The Butte Creek Ecological Preserve (BCEP) is a 93-acre site along the middle section of Butte Creek. The site was formerly used for gold, sand and gravel mining, and is recovering from those activities. The property contains more than a mile of creek frontage, and has historically contained habitat for many species of special status, including the Western Pond Turtle and Yellow-legged Frog. Butte Creek is critical habitat for the remaining population of naturally-spawned Central Valley Spring Run Chinook, a state and federal threatened evolutionarily significant unit (ESU). Although runs vary, in a recent year [clarify which year], 5,300 salmon returned to the creek for spawning. Spring-run salmon move into Butte Creek Canyon in

mid-February, move upstream as the weather warms until they reach summer holding pools with an upper elevation limit of approx. 1,000 feet, and spawn in the fall. Juveniles are flushed downstream during high flows.

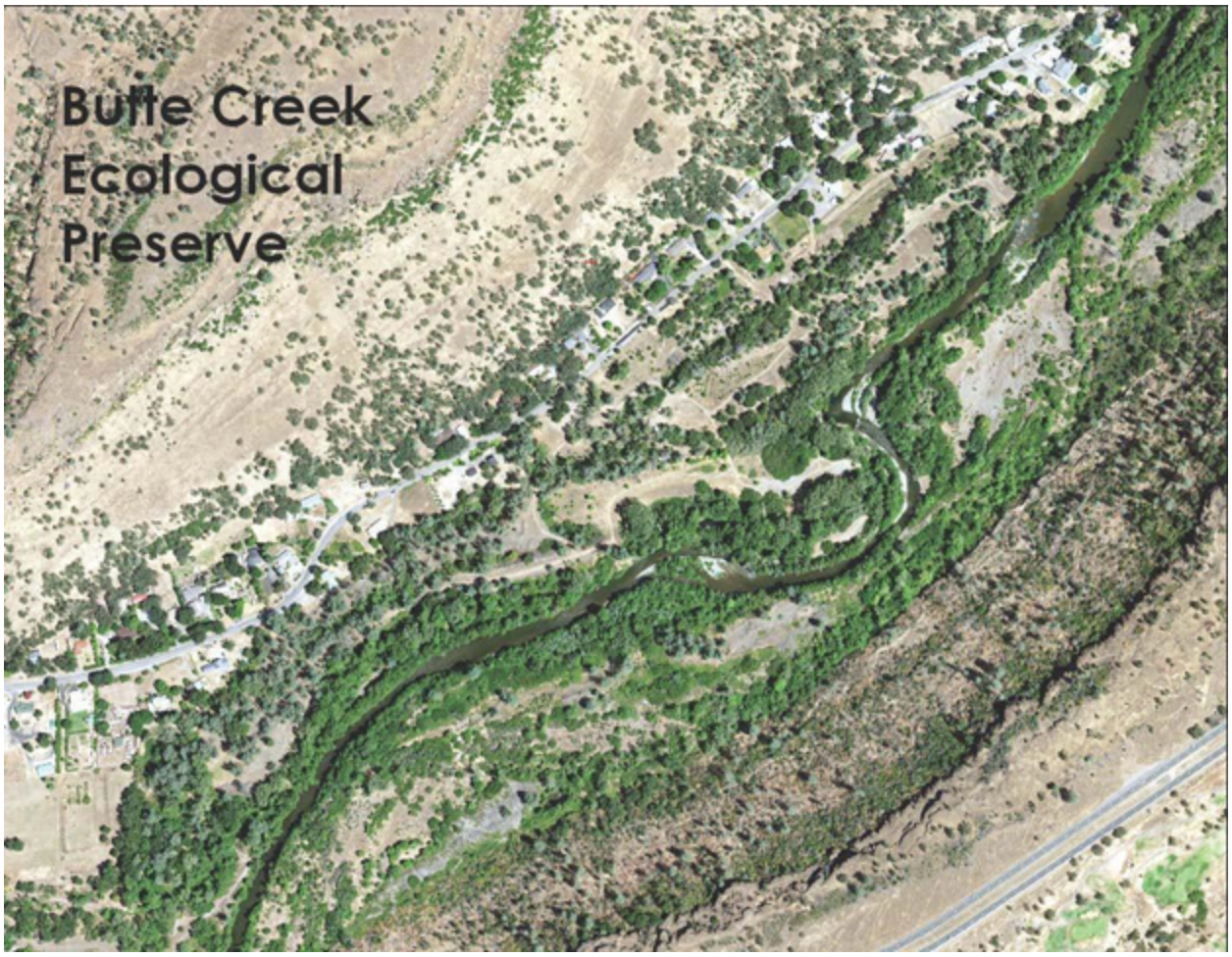


Figure 3. Project Vicinity - Aerial

The BCEP property includes 4000 feet of creek frontage, with critical riparian corridor adjacent to spawning and holding pools supporting several priority species and habitats, primarily the spring-run chinook salmon and steelhead trout. The salmon is currently listed as threatened under the California Endangered Species Act. Determination has yet to be made under the

Federal Endangered Species Acts. The Steelhead is proposed to be listed.
[NEED TO CONFIRM OR UPDATE STATUS INFORMATION]

The California Department of Fish and Game (CDFG) has determined that Butte Creek has "extreme value" in terms of providing wildlife habitat and the protection of shaded riverine aquatic habitat. Besides the creek frontage, there remain on this parcel many piles of tailings - evidence of the dredger mining conducted on the site in the mid- to late-1800's. Habitat historically contained within the parcel include spawning and holding grounds for the spring-run chinook salmon and steelhead trout, riparian woodland for the Swainson's Hawk and Burrowing Owls, wet meadow, and annual grasslands. Important geographic features included splendid habitat for the gray pine, an overabundance of star thistle, and seasonal dredger ponds, in addition to the shaded riverine and spawning and holding grounds for anadromous fish.

An old paved haul road once passed up the middle of the Preserve crossing Butte Creek on two bridges. Remnants of this roadway remain on the southern portion of the Preserve. The property had two large gravel ponds along Butte Creek toward the upstream end of the property. A high volume deep well was constructed in between these ponds. Access from Honey Run Road is found on the central northern side of the property.

Surrounding Land Uses:

North	• 15 approx. 1-acre parcels zoned FR-20 on south side of Honey Run Road; all but one developed with homes before the Camp Fire; • 29 approx. 1-acres parcels zoned FR-20 on north side of Honey Run Road; all but one developed with homes before the Camp Fire; • A 414-acre parcel zoned AG-160 and enrolled in the Williamson Act lies immediately north of the FR-20 parcels.
South	• 118-acre parcel zoned FR-20; undeveloped and largely forested
East	• Upstream 6.95-acre parcel zoned FR-20

West	• 11.16-acre parcel zoned FR-20; • 29.2-acre parcel zoned RC and lying along the creek, owned by State of California (Department of Fish and Wildlife) and managed as part of 2.5 miles of property along the lower creek owned by the State and managed by CDFW as ecological preserves.

[Discuss status after Camp Fire]

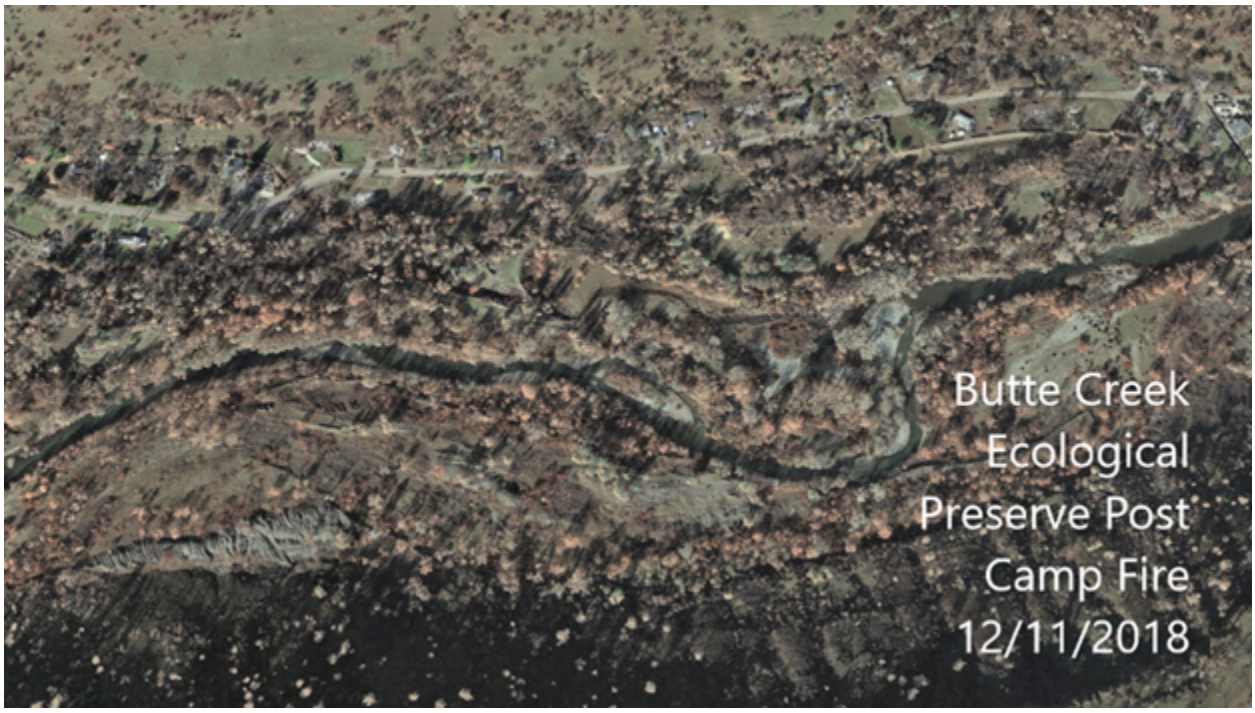


Figure 4. Project Area and Vicinity after 2018 Camp Fire (source: USGS via Earth Explorer)

Regulatory Framework:

[DISCUSS AND DESCRIBE:

- ESA
- CESA
- MIGRATORY BIRD TREATY ACT
- CLEAN WATER ACT AND VARIOUS PROVISIONS
- PORTER COLOGNE WATER QUALITY CONTROL ACT

- GENERAL PLAN, ZONING AND OVERLAY ZONING
- OTHER APPLICABLE ZONING STANDARDS (DEER HERD)
- SEPTIC PERMITS
- FLOODPLAIN REGULATIONS
- ENCROACHMENT REGULATIONS/PERMITTING
- PESTICIDES REGULATIONS
- TOXICS REGULATIONS (STORAGE)
- RX FIRE PERMITTING
- INVASIVES FRAMEWORK
- NOTES ON THE SUBDIVISION MAP
- BUILDING PERMITS
- OTHER REGULATORY FRAMEWORK?]

Permits Required for Full Scope of Project:

[Assemble from student sections]

ENVIRONMENTAL FACTORS POTENTIALLY AFFECTED:

The environmental factors checked below would be potentially affected by this project, involving at least one impact that is a "Potentially Significant Impact," as indicated by the checklist on the following pages.

ENVIRONMENTAL FACTORS POTENTIALLY AFFECTED:

The environmental factors checked below would be potentially affected by this project, involving at least one impact that is a "Potentially Significant Impact," as indicated by the checklist on the following pages.

☐ Aesthetics	☐ Agriculture / Forestry Resources	☐ Air Quality
☐ Biological Resources	☐ Cultural Resources	☐ Energy
☐ Geology/Soils	☐ Greenhouse Gas Emissions	☐ Hazards and Hazardous Materials
☐ Hydrology/Water Quality	☐ Land Use / Planning	☐ Mineral Resources
☐ Noise	☐ Population / Housing	☐ Public Services
☐ Recreation	☐ Transportation	☐ Tribal Cultural Resources
☐ Utilities / Service Systems	☐ Wildfire	☐ Mandatory Findings of Significance

DETERMINATION

On the basis of this initial evaluation:

- ❏ I find that the proposed project COULD NOT have a significant effect on the environment, and a NEGATIVE DECLARATION will be prepared.
- ❏ I find that although the proposed project could have a significant effect on the environment, there will not be a significant effect in this case because revisions in the project have been made by or agreed to by the project proponent. A MITIGATED NEGATIVE DECLARATION will be prepared.
- ❏ I find that the proposed project MAY have a significant effect on the environment, and an ENVIRONMENTAL IMPACT REPORT is required.

- ❏ I find that the proposed project MAY have a “potentially significant impact” or “potentially significant unless mitigated” impact on the environment, but at least one effect 1) has been adequately analyzed in an earlier document pursuant to applicable legal standards, and 2) has been addressed by mitigation measures based on the earlier analysis as described on attached sheets. An ENVIRONMENTAL IMPACT REPORT is required, but it must analyze only the effects that remain to be addressed.
- ❏ I find that although the proposed project could have a significant effect on the environment, because all potentially significant effects (a) have been analyzed adequately in an earlier EIR or NEGATIVE DECLARATION pursuant to applicable standards, and (b) have been avoided or mitigated pursuant to that earlier EIR or NEGATIVE DECLARATION, including revisions or mitigation measures that are imposed upon the proposed project, nothing further is required.

_____ _____

Signature *Date*

EVALUATION OF ENVIRONMENTAL IMPACTS

1. *A brief explanation is required for all answers except "No Impact" answers that are adequately supported by the information sources a lead agency cites in the parentheses following each question. A "No Impact" answer is adequately supported if the referenced information sources show that the impact simply does not apply to projects like the one involved (e.g., the project falls outside a fault rupture zone). A "No Impact" answer should be explained where it is based on project-specific factors, as well as general standards (e.g., the project would not expose sensitive receptors to pollutants, based on a project-specific screening analysis).*
2. *All answers must take account of the whole action involved, including off-site as well as on- site, cumulative as well as project-level, indirect as well as direct, and construction as well as operational impacts.*
3. *Once the lead agency has determined that a particular physical impact may occur, then the checklist answers must indicate whether the impact is potentially significant, less than significant with mitigation, or less than significant. "Potentially Significant Impact" is appropriate if there is substantial evidence that an effect may be significant. If there are one or more "Potentially Significant Impact" entries when the determination is made, an EIR is required.*
4. *"Negative Declaration: Less Than Significant With Mitigation Incorporated" applies where the incorporation of mitigation measures has reduced an effect from "Potentially Significant Impact" to a "Less Than Significant Impact." The lead agency must describe the mitigation measures, and briefly explain how they reduce the effect to a less than significant level.*
5. *Earlier analyses may be used where, pursuant to the tiering, program EIR, or other CEQA process, an effect has been adequately analyzed in an earlier EIR or negative declaration. Section 15063(c)(3)(D). In this case, a brief discussion should identify the following:*

a) Earlier Analyses Used. Identify and state where they are available for review.

b) Impacts Adequately Addressed. Identify which effects from the above checklist were within the scope of and adequately analyzed in an earlier document pursuant to applicable legal standards, and state whether such effects were addressed by mitigation measures based on the earlier analysis.

c) Mitigation Measures. For effects that are "Less than Significant with Mitigation Measures Incorporated," describe the mitigation measures which were incorporated or refined from the earlier document and the extent to which they address site-specific conditions for the project.

6. *Lead agencies are encouraged to incorporate into the checklist references to information sources for potential impacts (e.g., general plans, zoning ordinances). Reference to a previously prepared or outside document should, where appropriate, include a reference to the page or pages where the statement is substantiated.*
7. *Supporting Information Sources: A source list should be attached, and other sources used or individuals contacted should be cited in the discussion.*
8. *This is only a suggested form, and lead agencies are free to use different formats; however, lead agencies should normally address the questions from this checklist that are relevant to a project's environmental effects in whatever format is selected.*
9. *The explanation of each issue should identify:*

    a) the significance criteria or threshold, if any, used to evaluate each question; and

    b) the mitigation measure identified, if any, to reduce the impact to less than significance

[PLEASE INSERT YOUR FINAL APPENDIX G TOPIC SECTIONS HERE]

IX. LAND USE

Would the project…

a) Physically divide an established community?

Answer: No impact.

b) 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?

Answer: Less than significant with mitigation incorporated.

Environmental Setting

From the Butte Creek Ecological Preserve website: "The Butte Creek Ecological Preserve (BCEP) is a 93-acre site along the middle section of Butte Creek. The site was formerly used for gold, sand and gravel mining, and is recovering from those activities. The property contains more than a mile of creek frontage, as well as habitat for many species of special status, including the Western Pond Turtle and Yellow-legged Frog. Butte Creek is critical salmon habitat and spawning grounds for the largest population of Central Valley Spring Run Chinook, a state and federal threatened evolutionarily significant unit (ESU)." BCEP sits on the West Butte Sub-basin but the East Butte Sub-basin is across the creek. The land that BCEP is on is categorized as resource conservation land and is within the deer herd winter migration area.

Regulatory Framework

I found all of the regulatory framework in the Butte County General Plan and the Butte County Zoning Ordinance. Our local NCCP plan is not yet in effect.

Under section 24-34.1 C from Article 5 of the zoning ordinance, the use of pesticides are prohibited within 100 feet of riparian zones. Refer to this section for any change to the riparian zone vegetation.

Any fence within the Deer Herd Migration Zone that isn't for keeping wildlife out/away from personal property or for keeping livestock or personal animals in, must follow these standards according to section 24-38 F from article 5 of the zoning ordinance: 1. The distance between ground and bottom strand or board of the fence shall be no less than 16 inches. 2. The fence height shall be no more than 48 inches. 3. The fence shall be constructed from smooth wire, barbed wire, wood, or similar material that will not be harmful to deer.

Under section 24-34.1 4b from article 5 of the zoning ordinance, Structures must follow the alternative building design standards and any non-residential structures max height shall not exceed 50 feet.

Outdoor lighting must follow the standards laid out in section 24-34.1 number 7 from article 5 of the zoning ordinance.

If the client wishes to increase the size of the parking lot, section 24-34.1 number 8b from article 5 of the zoning ordinance states that impervious surface shall not exceed 15% of the total parcel size.

If the client wishes to install a septic system or portable toilet, they must be setback a minimum of 200 ft from the river according to section 24-34.1 d from article 5 of the zoning ordinance.

Analysis

Would the project...

a) Physically divide an established community?

Answer: No impact. The established community in Butte Creek Canyon is all along Honey Run Road which will not be affected by this project. Additionally, the established community

has been thinned since many people who lived along the road lost their houses in the Camp Fire.

b) 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?

Answer: Less than significant with mitigation incorporated. Some of the proposed development in this project would normally conflict with policies in the general plan, however, such development is allowed if the end goal is to provide better habitat for the species on the property which is the goal of this project. There are guidelines from Article 5 of the Butte County Zoning Ordinance that will need to be followed in regard to changes in the riparian zone vegetation, fencing within the Deer Herd Migration Zone, building of non-residential structures, outdoor lighting, maximum impervious surface limit for parcel size and minimum setback for septic systems/portable toilets if the client decides to move forward.

Mitigation measure b-1 Since pesticides cannot be used for removal of unwanted invasive plant species, grazing goats on the property a couple times a year will work in place.

Mitigation measure b-2 As far as the fence around the parking lot goes, and any other that may be proposed, they need to be built in accordance with the standards laid out in the Deer Herd Migration Zone.

Mitigation measure b-3 If an outdoor education facility is to be built, it must follow the non-residential structure max height, alternative building design, and outdoor lighting standards.

Mitigation measure b-4 If we wish to increase the size of the parking lot we must make sure that it, and any other impervious surface, doesn't cover more than a total of 15% of the BCEP parcel.

Mitigation measure b-5 If we wish to install a septic system or portable toilet, they must be setback a minimum of 200 ft from the river.

Information Sources

"Complete General Plan (31 MB PDF, with Amendments through April 24, 2018) ." Butte County. November 6, 2012. Accessed April 25, 2019. http://www.buttecounty.net/dds/Planning/General-Plan/Chapters.

"Zoning Ordinance." Butte County. April 24, 2018. Accessed April 25, 2019. http://www.buttecounty.net/dds/Planning/Zoning.

INFORMATION SOURCES

CSU Chico Ecological Reserves, Butte Creek Ecological Preserve website. [INSERT LINK]

2001. California Department of Fish and WIldlife.. Butte Creek Ecological Preserve Honey Run Unit Management Plan. [INSERT LINK]

2012. Butte County Department of Development Services. "Complete General Plan (31 MB PDF, with Amendments through April 24, 2018) ." November 6, 2012. Accessed April 25, 2019. http://www.buttecounty.net/dds/Planning/General-Plan/Chapters.

2012. Butte County Department of Development Services. "Zoning Ordinance." As amended April 24, 2018. Accessed April 25, 2019. http://www.buttecounty.net/dds/Planning/Zoning.

ENERGY

Environmental Setting -

Pacific Gas and Electric (PG&E) is the primary purveyor of gas and electrical service for the Butte County region and provides services to approximately 16 million people throughout 70,000 sq mi of service area [1]. In total, bundled residents and businesses within unincorporated Butte County, the cities of Chico, Oroville, and the town of Paradise purchased 1,240 GWh of electricity in 2016 from PG&E [2]. PG&E provides electricity in the unincorporated areas of Butte County, and approximately 11.7% of the utility's electricity came from qualified renewable sources in 2006. Captured methane from the Neal Road Recycling and Waste Facility is used to generate over 15,000,000 kWh per year [3]. Energy

[1] PG&E. 2019. Company Profile. https://www.pge.com/en_US/about-pge/company-information/profile/profile.page

[2] EES Consulting (EES). (2018). County of Butte, California. Findings of Technical Study Related to Feasibility of Community Choice Aggregation (CCA)# http://buttecounty.granicus.com/MetaViewer.php?view_id=2&clip_id=512&meta_id=87146

[3] Butte County Climate Action Plan. County of Butte, California. (2014). Retrieved From - http://www.buttecounty.net/Portals/10/Docs/CAP/ButteCountyCAPAdopted2014-02-25.pdf?ver=2014-04-25-152241-733

use patterns for Butte County are shown below (GP, 2018)[4].

TABLE COS-3 **NUMBER OF HOUSING UNITS AND TYPE OF ENERGY CONSUMED, BY ENERGY NEED – BUTTE COUNTY 1990-2000**

	1990		2000	
Fuel for Space Heating	**Housing Units**	**Percent of Total**	**Housing Units**	**Percent of Total**
Utility gas	39,474	55.08%	44,827	56.34%
Bottled, tank, or LP gas	4,601	6.42%	7,761	9.75%
Electricity	14,167	19.77%	17,020	21.39%
Fuel oil, kerosene, etc.	155	0.22%	263	0.33%
Wood	13,000	18.14%	9,137	11.48%
Solar energy	38	0.05%	26	0.03%
Other fuel	105	0.15%	395	0.50%
No fuel used	125	0.17%	137	0.17%
Total	**71,665**	**100%**	**79,566**	**100%**

Source: U.S. Census Bureau, 1990 and 2000, *Housing Characteristics, Butte County, California.*

Regulatory Framework -

- Assembly Bill 32 (2008) codified under the Global Warming Solutions Act requires California to cap GHG emissions at 1990 levels by 2020 as a result, Butte County General Plan Conservation Element, and Butte County Climate Action Plan (Goal COS-P1.2) states, new development projects shall mitigate greenhouse gas emissions on-site or as close to site as possible

- Butte County Climate Action Plan which provides a framework for the County to reduce overall GHG emissions consistent with CEQA guidelines in order to simplify the environmental review process.

[4] Butte County General Plan (GP). County of Butte, California. (2018). , Conservation and Open Space Element. Retrieved from - http://www.buttecounty.net/Portals/10/Planning/General%20Plan/2018%20Updated%20GP/10_#Conservation_OpenSpace_PRR.pdf

Table 5: Community Emissions Reduction Goals

	2020	2030
Reduction goals (percent below baseline)	**-15%**	-42%
Community emissions goals ($MTCO_2e$)	774,890	531,780
GHG forecasts ($MTCO_2e$)	1,015,260	1,111,120
Reductions needed ($MTCO_2e$)	**-240,370**	-579,340
Percent reduction needed to achieve goals	-24%	-52%

would the project -
a) result in potentially significant environmental impact due to wasteful, inefficient, or unnecessary consumption of energy resources during project construction or operation?
b) conflict with or obstruct a state or local plan for renewable energy or energy efficiency?

Less than significant impact. The proposed projects would consume energy during the construction of permanent bathroom, expansion of parking lot and improved connection to Honey Run Road, education/research classroom and office and removal of old mine hauling road. These activities would require a minimal amount of construction time therefore would not result in the wasteful and inefficient use of energy resources and impacts would be less than significant.

Projects requiring the extended use of electricity for lighting such as proposed construction of permanent restroom or the installation of permanent lighting are not expected to require excessive energy consumption therefore projects would be less than significant

Environmental Setting -

Public Services-

The BCEP area is serviced by Butte County where a majority of County offices are located in Oroville [5]. The Butte County Fire Department (BCFD) California Department of Forestry and Fire Protection (CAL FIRE) provide emergency services, fire control for structural, vegetation, vehicular and other unwanted fires.Fire and emergency services span over 1600 sq mi and include -

- Emergency medical service and technical rescue response.
- Hazardous materials response.
- Flood control assistance.
- Fire prevention and public safety education.
- Fire law enforcement/arson investigation.
- Vegetation management.

CAL FIRE and Butte County Fire Department serve under an annual cooperative fire protection agreement beginning in 1931 [6]. Additionally, the County funds CAL FIRE professional command, fire-fighting and administrative staff to operate Butte County Fire Department while upholding automatic aid agreements and mutual aid agreements with every fire-fighting agency in the county, US Forest Service, Lassen and Plumas National Forests, Hamilton City Glen County, Sutter County, Tehama County, and Yuba County [7].

The average response time for residents in the City of Chico is 4.4 minutes [8]

Table 10: Average Turnout and Travel Time by Category (time in minutes)

Program	Dispatch Time	Turnout Time	Travel Time	Turnout and Travel	Response Time	Sample Size
EMS	0.7	1.0	3.3	4.3	5.0	6,592
Fire	0.9	1.2	3.7	5.0	5.8	1,171
Rescue	1.0	0.9	4.2	5.1	6.1	5
Hazmat	1.1	1.2	3.7	4.8	5.9	74
Total	**0.7**	**1.1**	**3.4**	**4.4**	**5.2**	**7,842**

Law enforcement -

[5] Butte County General Plan (GP). County of Butte, California. (2018). , Conservation and Open Space Element. Retrieved from - http://www.buttecounty.net/Portals/10/Planning/General%20Plan/2018%20Updated%20GP/10_#Conservation_OpenSpace_PRR.pdf

[6] CAL FIRE Butte Unit (CFBU). "Butte County Cooperative Fire Protection 2016 Response Report." 2016. https://www.buttecounty.net/Portals/14/BTU EmergencyResponseReport 2016.pdf.

[7] Community Risk Assessment and Standards of Response Coverage Study. 2017. Platte City, Missouri. Prepared for Chico Fire Department Chico, CA.

[8] Community Risk Assessment and Standards of Response Coverage Study. 2017. Platte City, Missouri. Prepared for Chico Fire Department Chico, CA.

Law enforcement is provide by Butte County Sheriff's Office (BCSO), the California Highway Patrol (CHP), and the Cities of Chico, Oroville, Gridley and Biggs, and Paradise [9]. BCSO maintains criminal investigation and crime prevention through mutual aid agreements with CHP and the surrounding municipal police departments Oroville, Chico, Gridley, Biggs, and Paradise. Citizens and their property are protected by their respective municipal departments [10].

Parks Districts -

The surrounding five municipalities maintain parks and recreational facilities throughout Butte County namely -

- Chico Area Recreation and Park District (CARD)
- Durham Recreation and Park District (DRPD)
- Feather River Recreation and Park District (FRRPD)
- Paradise Recreation and Park District (PRPD)
- Richvale Recreation and Park District (RRPD)

Each Parks and Recreation district primarily funds itself through property taxes. The recreation and park districts also maintain parks unincorporated to Butte County totaling 618 acres serving 83,900 people and maintains a service ratio of over 7 acres of parkland for every 1,000 residents [11].

The Butte Creek Canyon, which includes the BCEP, is within the boundaries of the Paradise Park Recreation District, however may be underserved due to limited road access making facilities inconvenient as Canyon residents have to drive to Chico and then backtrack along Skyway [12]. The Preserve lies on the westernmost boundary of the district.

Public Schools -

The Butte County Office of Education (BCOE), Butte Community College, California State University, Chico, and local school districts provide public education in the county. BCOE provides local and regional educational programs, services, and support to the individual school districts within the county and outside the county. Three areas of service are

[9] Butte Regional Conservation Plan Public Draft Environmental Impact Statement/Environmental Impact Report.2015. (ICF 00736.10.) Sacramento, CA. Prepared for Butte County Association of Governments, Chico, CA.
[10] Butte Regional Conservation Plan Public Draft Environmental Impact Statement/Environmental Impact Report.2015. (ICF 00736.10.) Sacramento, CA. Prepared for Butte County Association of Governments, Chico, CA.
[11] Butte County General Plan (GP). County of Butte, California. (2018). , Conservation and Open Space Element. Retrieved from - http://www.buttecounty.net/Portals/10/Planning/General%20Plan/2018%20Updated%20GP/10_#Conservation_OpenSpace_PRR.pdf
[12] Butte Local Agency Formation Commission. "Municipal Service Review Update and Sphere of Influence Plan for the Paradise Area Recreation and Park District." May 2009.

provided by the BCOE: administrative and organizational support, curriculum and staff support, and student services [13]. The BCEP area lies within the Chico Unified School District.

Regulatory Framework -

CAL FIRE, BCFD, and Butte COunty Fire Safe Council have addressed wildland fire hazards outlined in the Butte Unit Community Wildfire Protection Plan. This plans assesses fire protection services, identifies high-risk and high-value areas and ranks them based on priority needs.

Chapter 7A of the California Building Code require buildings in a fire hazard severity zone to be compliant

Chapter 47 of the California Fire Code. SRAs are also regulated by Public Resources Code 4290 and 4291, which establish requirements for maintenance of defensible space and vegetation management.

Analysis -

4.14(a) Would the project result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, 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 public services

Fire Protection -

Less than significant impact - BCEP Fire protection services are provided by CAL FIRE/Butte County Fire Department. Proposed projects such as prescribed burns and fuels management may result in increased potential for fire risk. However, no increase in population or service requirements are expected from proposed projects therefore projects maintain less than significant impacts.

Parks and Recreation -

[13] Butte County General Plan (GP). County of Butte, California. (2018). , Conservation and Open Space Element. Retrieved from - http://www.buttecounty.net/Portals/10/Planning/General%20Plan/2018%20Updated%20GP/10_#Conservation_OpenSpace_PRR.pdf

Less than significant impact - The proposed incorporation of BCEP within Paradise Recreation and Parks Departments will increase service are of PRPD. PRPD established as its goal a standard of 5 acres of developed parkland of every 1,000 people by 2030 [14]. Proposed projects may increase public use of the BCEP area but are within the growth estimates and districts parkland standards outlined in the Municipal Service Review for Paradise Recreation and Parks District 2009. Any change in Parks jurisdiction will require application to LAFCO.

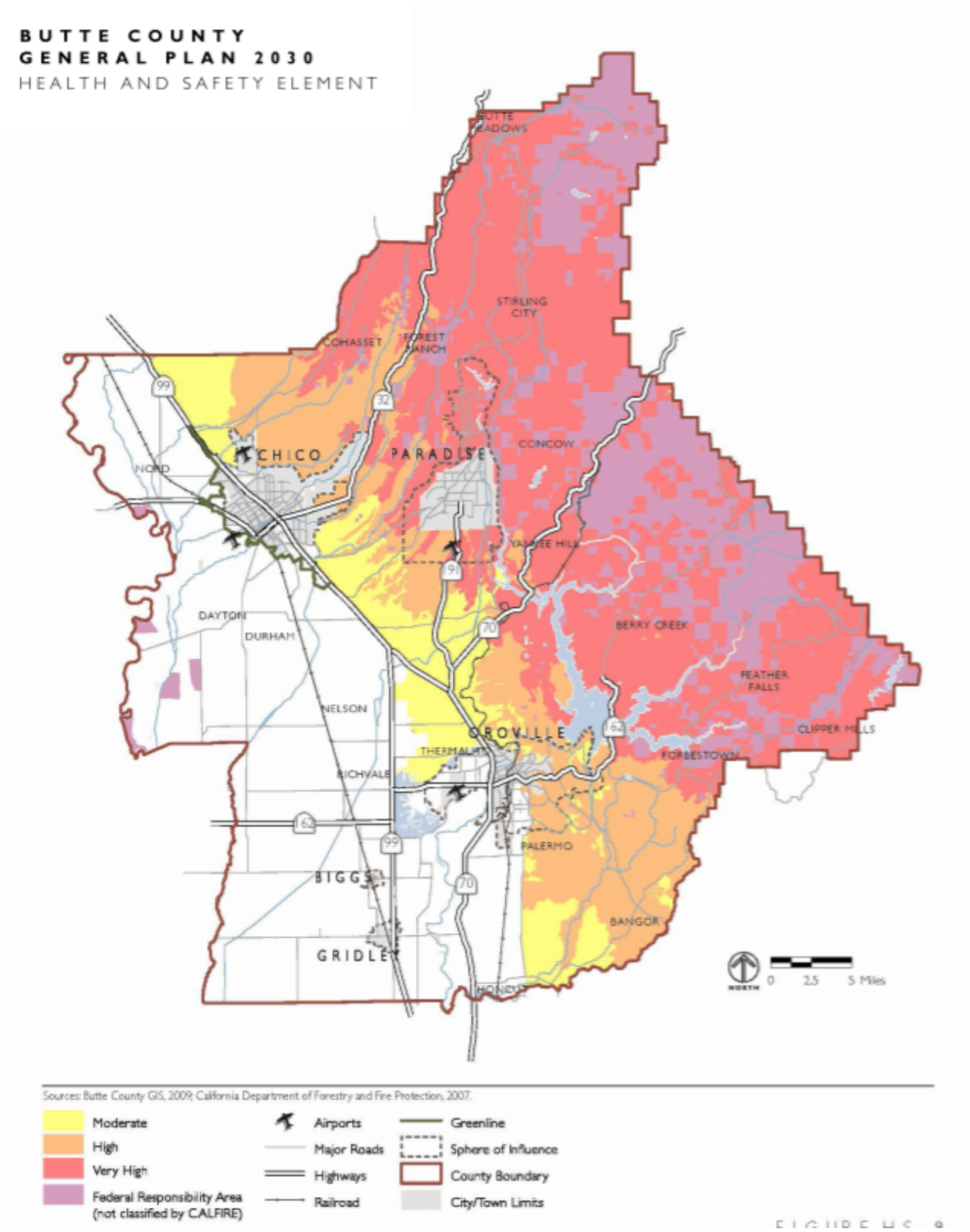
Police protection -

No significant impact - Butte County Sheriff's Office provides law enforcement services for the BCEP area. Proposed projects would not create significant demand for increased policing therefore no significant impact is foreseen from project implementation.

Schools -

No significant impact - The project site is located within the Chico Unified School District while serving under the general guidance of Butte County Office of Education. Continued use of the BCEP area as an education platform will not impact surrounding school districts as projects are not foreseen as growth inducing therefore proposed projects maintain less than significant impacts.

[14] Butte Local Agency Formation Commission. "Municipal Service Review Update and Sphere of Influence Plan for the Paradise Area Recreation and Park District." May 2009.


BUTTE COUNTY
GENERAL PLAN 2030
HEALTH AND SAFETY ELEMENT
BUTTE MEADOWS
STIRLING CITY
COHASSET
FOREST RANCH
CHICO
PARADISE
CONCOW
NORD
YANKEE HILL
DAYTON
DURHAM
BERRY CREEK
FEATHER FALLS
NELSON
OROVILLE
CLIPPER MILLS
THERMALITO
FORBESTOWN
RICHVALE
PALERMO
BIGGS
BANGOR
GRIDLEY
HONCUT
NORTH
0 2.5 5 Miles
Sources: Butte County GIS, 2009; California Department of Forestry and Fire Protection, 2007.
Moderate
High
Very High
Federal Responsibility Area (not classified by CALFIRE)
Airports
Major Roads
Highways
Railroad
Greenline
Sphere of Influence
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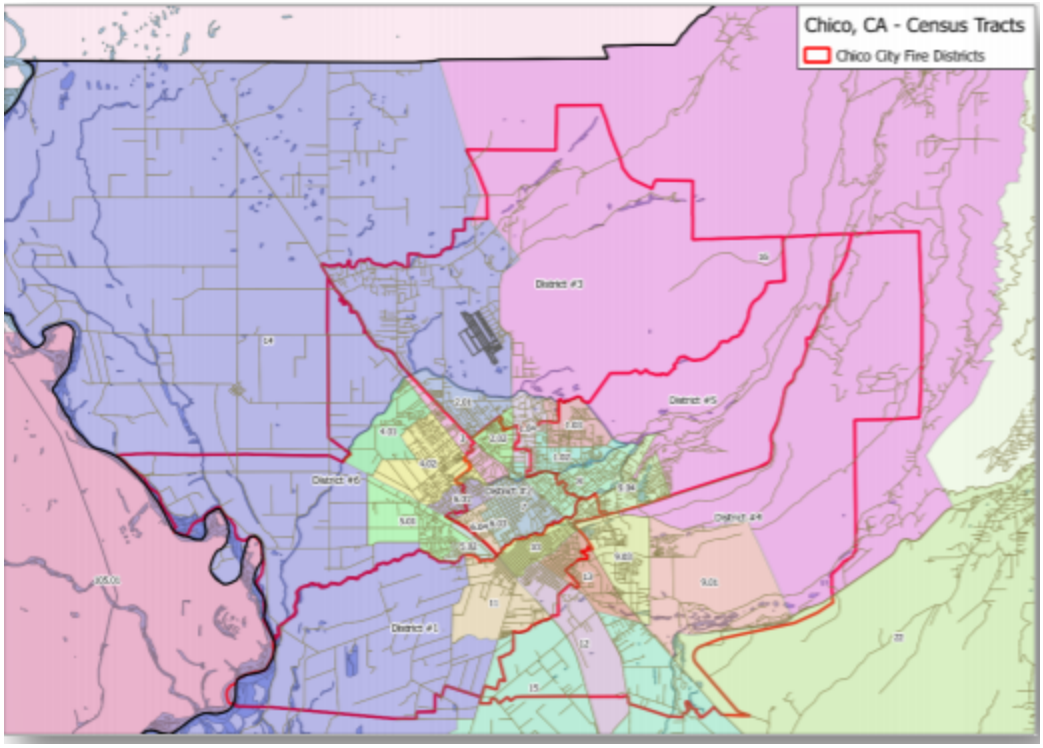
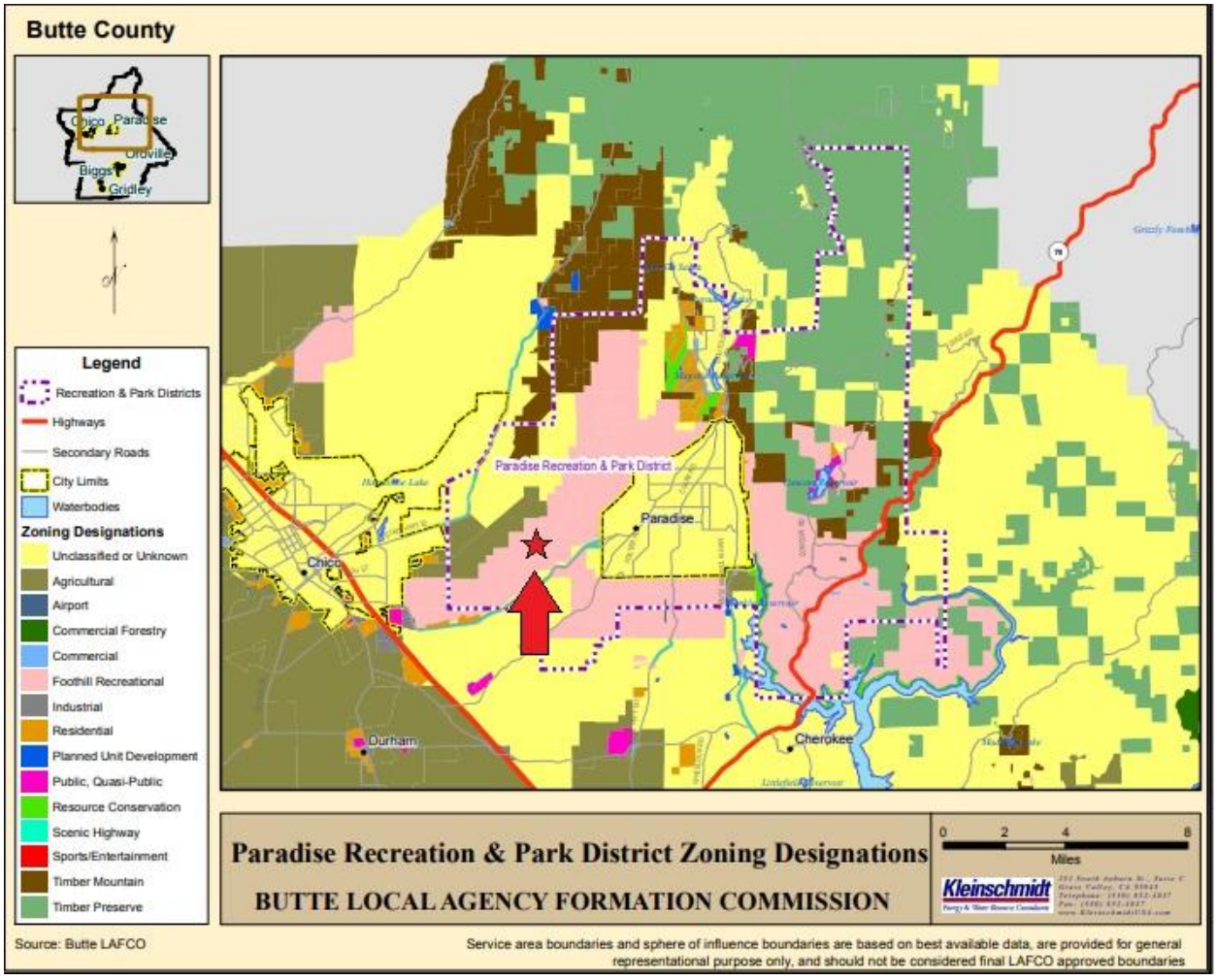
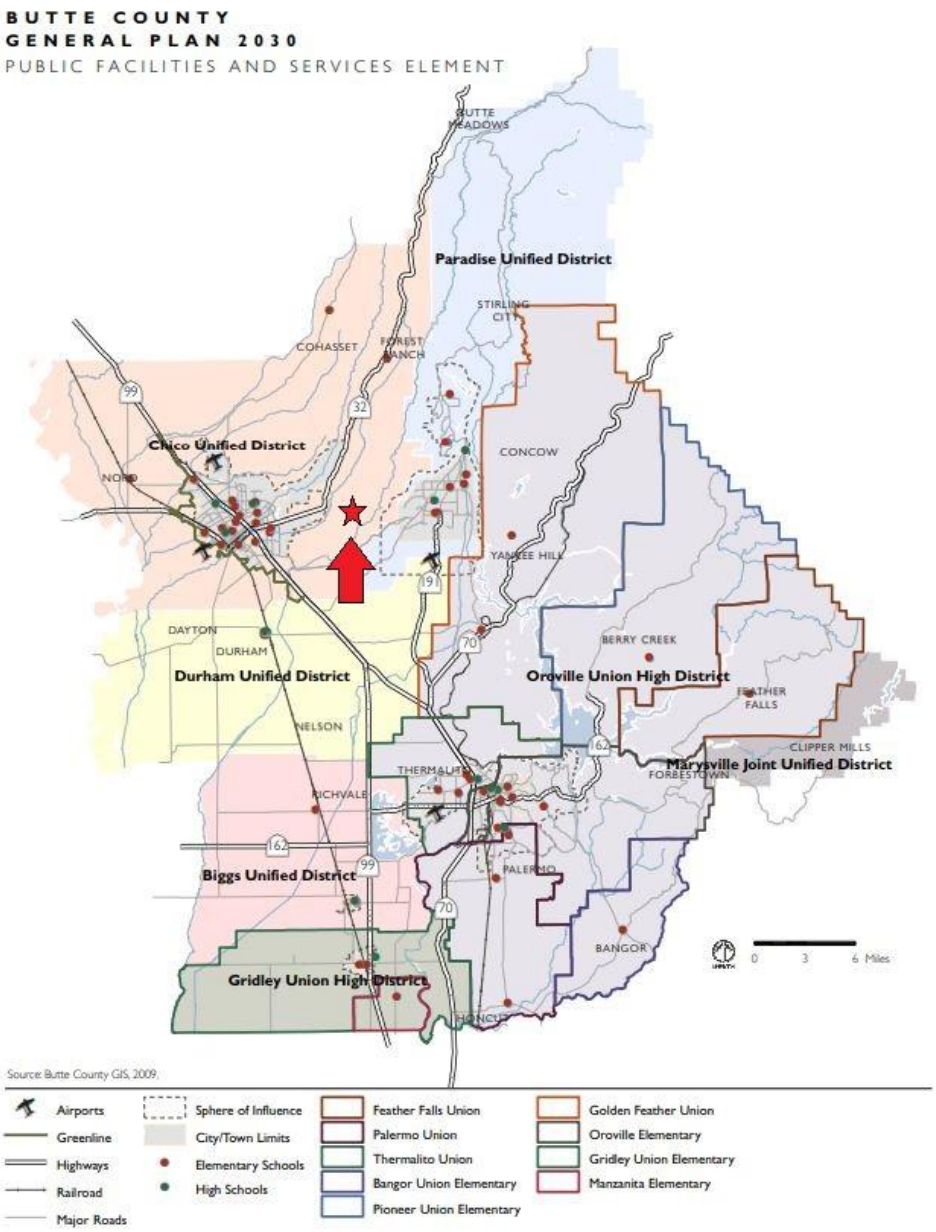

Chico, CA - Census Tracts
Chico City Fire Districts
District #3
District #5
District #6
District #4
District #1


Butte County
Chico
Paradise
Oroville
Biggs
Gridley
Legend
Recreation & Park Districts
Highways
Secondary Roads
City Limits
Waterbodies
Zoning Designations
Unclassified or Unknown
Agricultural
Airport
Commercial Forestry
Commercial
Foothill Recreational
Industrial
Residential
Planned Unit Development
Public, Quasi-Public
Resource Conservation
Scenic Highway
Sports/Entertainment
Timber Mountain
Timber Preserve
Paradise Recreation & Park District
Paradise
Chico
Durham
Cherokee
Paradise Recreation & Park District Zoning Designations
BUTTE LOCAL AGENCY FORMATION COMMISSION
0 2 4 8
Miles
Kleinschmidt
Source: Butte LAFCO
Service area boundaries and sphere of influence boundaries are based on best available data, are provided for general representational purpose only, and should not be considered final LAFCO approved boundaries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PUBLIC FACILITIES AND SERVICES ELEMENT
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HONCUT
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Source: Butte County GIS, 2009.
Airports
Greenline
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City/Town Limits
Elementary Schools
High Schools
Feather Falls Union
Palermo Union
Thermalito Union
Bangor Union Elementary
Pioneer Union Elementary
Golden Feather Union
Oroville Elementary
Gridley Union Elementary
Manzanita Elementary

BUTTE COUNTY
GENERAL PLAN 2030
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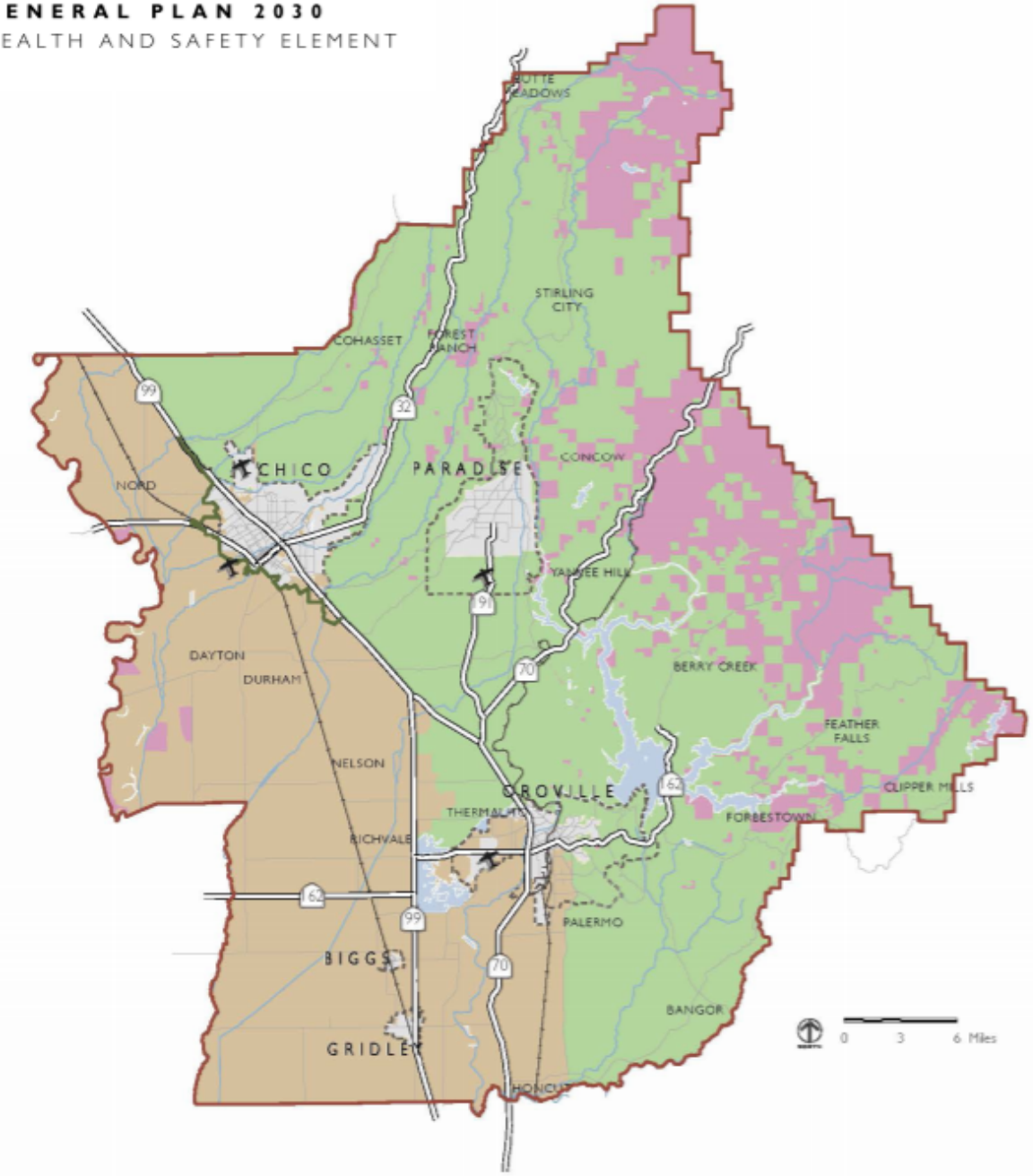

Sources: Butte County GIS, 2009; California Department of Forestry and Fire Protection, 2007.

Responsibility Area
- Federal Responsibility Area
- State Responsibility Area
- Local Responsibility Area

- Airports
- Greenline
- Highways
- Railroad
- Major Roads
- Sphere of Influence
- City/Town Limits
- County Boundary

Housing and Population

Environmental Setting-
Butte Creek Ecological Preserve is located at Honey Run Road in Chico. After the Camp Fire incident, Butte County's population decreased from 227,896 people (in 1/1/2018) to 226,466 (in 1/1/2019). Chico saw an increase to its population from 92,861 (1/1/2018) to 112,111 (1/1/2019). The average home price in Butte County is 310,300$.

Regulatory Framework-
Butte County General Plan: Housing Element – Policy H-P2.5 states that the county must "Work with employers and housing partners to encourage the production of housing units on either employer-owned sites or other areas adjacent to their job sites."

Butte County Noise Ordinance: This talks about noise regulations. 41A-5 lists factors that can lead to violation. The list is below.

(a) The sound level of the objectionable noise;

(b) The proximity of the noise to residential uses;

(c) The time of day or night the noise occurs;

(d) The duration of the noise and its tonal informational or musical content; and

(e) Whether the noise is continuous, recurrent or intermittent.

Furthermore in 41A-7, there is a table below that shows the exterior noise standards, and what the maximum noise level can be during certain times of the day.

41A-7 - Exterior noise standards.

(a) The following noise standards, unless otherwise specifically indicated in this chapter, shall apply to all noise sensitive exterior areas within Butte County.

	Daytime (7 a.m. to 7 p.m.)		Evening (7 p.m. to 10 p.m.)		Nighttime (10 p.m. to 7 a.m.)	
	Designation					
Noise Level Descriptor	Urban	Non-Urban	Urban	Non-Urban	Urban	Non-Urban
Hourly Average (L_{eq})	55	50	50	45	45	40
Maximum (L_{max})	70	60	60	55	55	50

Since this project will be non-urban, it will have to follow the noise standards for non-urban areas.

Analysis-

4.13(a) Would the project induce substantial 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)?

Potential Significant Impact There are homes that are being proposed to house researchers for the site. This will induce population growth in the area to accommodate for the new residents.

4.13(b) Would the project displace substantial numbers of people or existing housing, necessitating the construction of replacement housing elsewhere?

Less than significant impact with mitigation incorporated. The project will be constructing new housing, so no one will be displaced. However, some people will find the project too noisy for them to handle, since there will be 100s to 1000s of trucks or other vehicles taking out or carrying waste and resources needed for the project until the project is done. Therefore, some people will want to consider moving out from the area to avoid the noise.

Mitigation Measure 4.13(b)-1 The Butte Creek Ecological Preserve's management must follow the noise standards as laid out by the Butte County Noise Ordinance provision 41A-7.

15

[15] "Butte County General Plan: Housing Element (2014)." Butte County. https://www.buttecounty.net/Portals/10/Planning/General%20Plan/5_Housing_2014.pdf
"Butte County Noise Ordinance (2019)." Municode. https://library.municode.com/ca/butte_county/codes/code_of_ordinances?nodeId=CH41ANOCO#TOPTITLE
Department of Finance (2019). "CALIFORNIA TOPS 39.9 MILLION RESIDENTS AT NEW YEAR PER NEW STATE DEMOGRAPHIC REPORT." https://mail-attachment.googleusercontent.com/attachment/u/0/?ui=2&ik=d623802c4a&attid=0.1&permmsgid=msg-f:1633289958667411148&th=16aa9c9059955ecc&view=att&disp=inline&saddbat=ANGjdJ--FYx05arqA32MVg-D6N14BgtX6EM6f-6xSC2j1z5cBrtP8CRTluEV6bdw-0LSMJ75xSoI5YM3xlxpZwpr-C-UzCQVk6v9Nvfr5sTegfAPORHAzmCWqiV_ABwC2qZA3BRWC5jQmNiiqV5m0W2Cv18XA8LEFWVlvnyIkT-3Lt_xDd3zqKtIBW0t374XFoKr_9Bgx8TgKUmL8uFIBgfehZ2Tc28ypUmOH-JfZbQ8LfEu9-dOrbXQ-KLAAv9VPq9R6sXAaZWBt-UBbXfgnTMan1HLDEyegwoAEMnH1tIX545XxSSeG_BeCFzIsREsZLImXI-43kjLF-oZf8YKjs5tNUvWZdAGPLUwEGxfIoIGDBs7Gx-y661xaNAP_qe5_ONZXd38uNvxAzwN4UPby36CMwYa_-yiwAwatLmTW8-5r6VhZfPowgb8sIPUfePvRshwxd4Ru8H5w2PLN_YEWDf5ZUv7655ByexU_NUEHT-32bWPTSG5oqBxNqQpwOO7v23Fk3NgJM5T4lk0zpbOxr0BBb9Jfdmmt4ee4CV-z6vF8Ri4ZribOi4RuhzJtTj-PI8Vr1eTKt7QIjRDMJVCphat4DYrvLOd6kmXCS32ErUAhOWZM--KZAMtYbQ7ouFPKlUSEgDdZCLpIV9PNcCUJLnUiwXahAA9u_CAVjecBw.

Environmental Setting -

Fire and Emergency Response Services-

The BCEP area is serviced by Butte County where a majority of County offices are located in Oroville [16]. The Butte County Fire Department (BCFD) California Department of Forestry and Fire Protection (CAL FIRE) provide emergency services, fire control for structural, vegetation, vehicular and other unwanted fires.Fire and emergency services span over 1600 sq mi and include -

- Emergency medical service and technical rescue response.
- Hazardous materials response.
- Flood control assistance.
- Fire prevention and public safety education.
- Fire law enforcement/arson investigation.
- Vegetation management.

CAL FIRE and Butte County Fire Department serve under an annual cooperative fire protection agreement beginning in 1931 [17]. Additionally, the County funds CAL FIRE professional command, fire-fighting and administrative staff to operate Butte County Fire Department while upholding automatic aid agreements and mutual aid agreements with every fire-fighting agency in the county, US Forest Service, Lassen and Plumas National Forests, Hamilton City Glen County, Sutter County, Tehama County, and Yuba County [18].

The average response time for residents in the City of Chico is 4.4 minutes [19]

[16] Butte County General Plan (GP). County of Butte, California. (2018). , Conservation and Open Space Element. Retrieved from - http://www.buttecounty.net/Portals/10/Planning/General%20Plan/2018%20Updated%20GP/10_#Conservation_OpenSpace_PRR.pdf

[17] CAL FIRE Butte Unit (CFBU). "Butte County Cooperative Fire Protection 2016 Response Report." 2016. https://www.buttecounty.net/Portals/14/BTU EmergencyResponseReport 2016.pdf.

[18] Community Risk Assessment and Standards of Response Coverage Study. 2017. Platte City, Missouri. Prepared for Chico Fire Department Chico, CA.

[19] Community Risk Assessment and Standards of Response Coverage Study. 2017. Platte City, Missouri. Prepared for Chico Fire Department Chico, CA.

Table 10: Average Turnout and Travel Time by Category (time in minutes)

Program	Dispatch Time	Turnout Time	Travel Time	Turnout and Travel	Response Time	Sample Size
EMS	0.7	1.0	3.3	4.3	5.0	6,592
Fire	0.9	1.2	3.7	5.0	5.8	1,171
Rescue	1.0	0.9	4.2	5.1	6.1	5
Hazmat	1.1	1.2	3.7	4.8	5.9	74
Total	**0.7**	**1.1**	**3.4**	**4.4**	**5.2**	**7,842**

Law enforcement -

Law enforcement is provided by Butte County Sheriff's Office (BCSO), the California Highway Patrol (CHP), and the Cities of Chico, Oroville, Gridley and Biggs, and Paradise [20]. BCSO maintains criminal investigation and crime prevention through mutual aid agreements with CHP and the surrounding municipal police departments Oroville, Chico, Gridley, Biggs, and Paradise. Citizens and their property are protected by their respective municipal departments [21].

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Regulatory Framework -

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Fire Protection -

[23] Butte Local Agency Formation Commission. "Municipal Service Review Update and Sphere of Influence Plan for the Paradise Area Recreation and Park District." May 2009.

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Police protection -

No significant impact - Butte County Sheriff's Office provides law enforcement services for the BCEP area. Proposed projects would not create significant demand for increased policing therefore no significant impact is foreseen from project implementation.

Schools -

No significant impact - The project site is located within the Chico Unified School District while serving under the general guidance of Butte County Office of Education. Continued use of the BCEP area as an education platform will not impact surrounding school districts as projects are not foreseen as growth inducing therefore proposed projects maintain less than significant impacts.

[25] Butte Local Agency Formation Commission. "Municipal Service Review Update and Sphere of Influence Plan for the Paradise Area Recreation and Park District." May 2009.

Transportation

Environmental Setting-
Butte Creek Ecological Preserve is in Honey Run Road which is a two-way street for people to drive in. From the west, Chico's Skyway Road leads to Honey Run Road. When someone drives east, Honey Run Road splits into Centerville Road or another path that is still Honey Run Road until it leads to Skyway Road in Paradise. The section of Honey Run Road, that is opened to the public, is about 4.34 miles long. The Honey Run Road, that leads to Skyway Road in Paradise, has been closed since December 3 2018 following the Camp Fire incident.
The parking lot to the Butte Creek Ecological Preserve is paved with gravel, and no concrete is on it. This means that vehicles, going to the Butte Creek Ecological Preserve, will be entering the parking lot in a rough manner.

Regulatory Setting-
Butte County General Plan: Circulation Element- Policy CIR- P7.1 states that "Rights-of-way needed for planned roads or expansion of existing roads, including facilities in the State highway system, shall be reserved, and land uses that would preclude development of such rights-of-way shall be prohibited."
Encroachment Permits with Butte County- Those working on the project, must get an encroachment permit to work on the project if it will impact the circulation of the traffic. Encroachment is defined as "any sign, billboard, pole, pole line, pipe, pipeline, fence, stand, driveway, roadway, culvert, building excavation or ally structure or object of any kind or character not particularly mentioned herein which is placed in under or over any portion of the entire County right-of-way." It takes 5 days minimum to process. The application must also be singed by a property owner or a licensed contractor. The location of the project must be describe in detail; the address must also be included. Alongside the application, the applicant must submit a plot map that shows the site location of the driveway approach. The applicant must place a flag or another object that will signal to help the inspector locate the site for pre-inspection. These steps must be completed by the time of pre-inspection, otherwise the application will be denied or delayed. Another requirement was "All applicants/contractors who perform the actual work must have certificate of general liability insurance on file with Public Works with at least $1,000,000 general liability coverage with Butte County Public Works listed as additional insured and Butte County listed as a certificate holder." The permit fee is 296$,

and the applicant has up to one year to complete the requirements to obtain the encroachment permit.

CEQA: Section 15064.3, subdivision (b) states that for land use projects “Vehicle miles traveled exceeding an applicable threshold of significance may indicate a significant impact. Generally, projects within one-half mile of either an existing major transit stop or a stop along an existing high quality transit corridor should be presumed to cause a less than significant transportation impact. Projects that decrease vehicle miles traveled in the project area compared to existing conditions should be considered to have a less than significant transportation impact.”

As for Qualitative Analysis of VMT

“If existing models or methods are not available to estimate the vehicle miles traveled for the particular project being considered, a lead agency may analyze the project’s vehicle miles traveled qualitatively. Such a qualitative analysis would evaluate factors such as the availability of transit, proximity to other destinations, etc. For many projects, a qualitative analysis of construction traffic may be appropriate.”

Analysis

A) Would the project conflict with a plan, ordinance or policy addressing the safety or performance of the circulation system, including transit, roadways, bicycle and pedestrian facilities?

Less than significant impact with mitigation incorporated. The project is happening in the right of way, so the management of the Butte Creek Ecological Preserve needs to have traffic guards to give the right of way to people driving.

Mitigation Measure A-1 The creek’s management shall hire traffic guards to provide the right of way to drivers passing by the project site.

B) Conflict or be inconsistent with CEQA Guidelines section 15064.3, subdivision (b)?

Potentially Significant Impact. This project proposes to build new homes and increase the amount of people going to the Preserve as a trip such as school trips. This will increase the vehicle miles traveled.

Mitigation Measure B-1 A new speed, 5 miles per hour less, shall be installed to promote safety of the increased vehicle miles traveled.

D) Result in inadequate emergency access?

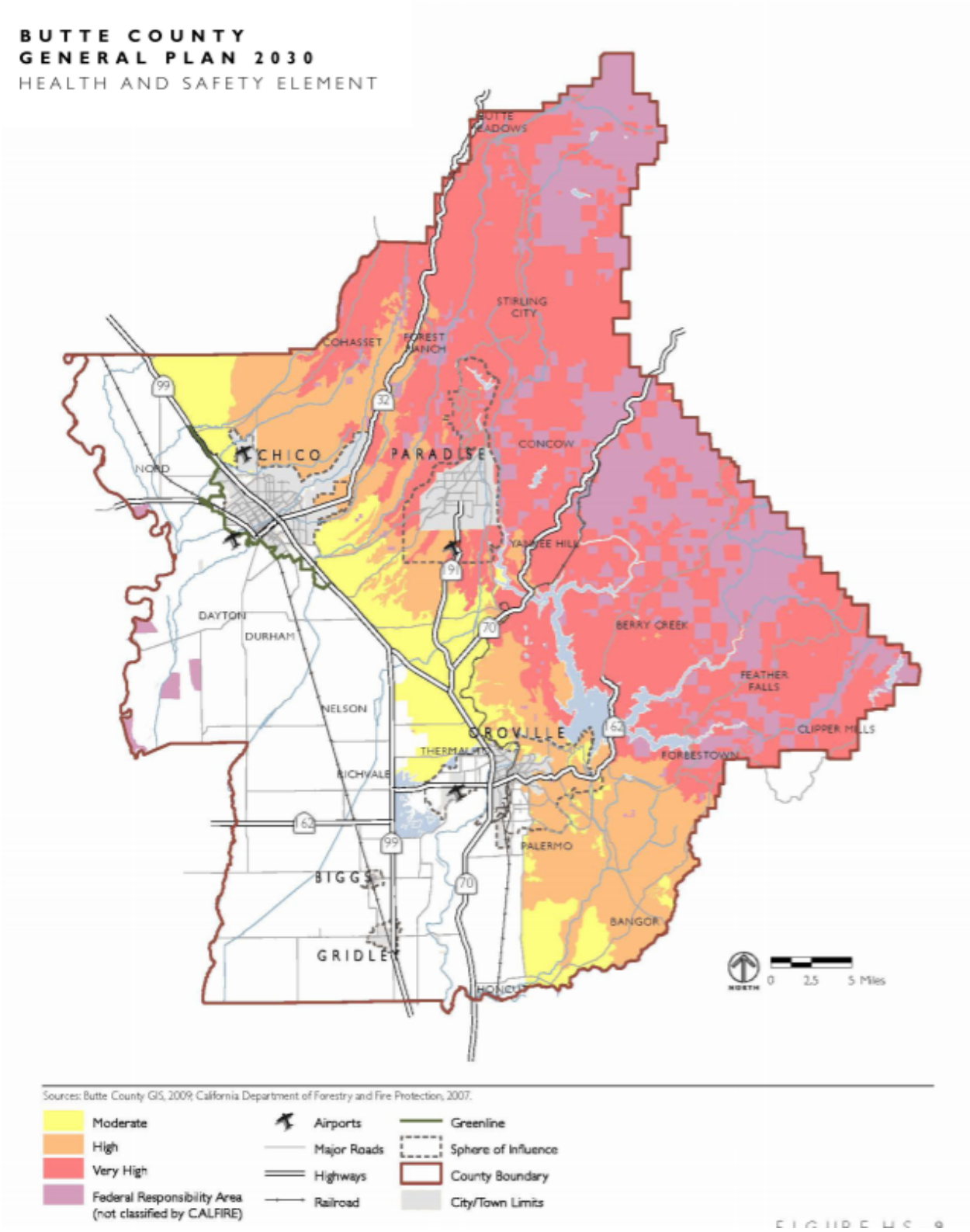
Less than significant impact with mitigation incorporated. There will be access as long as there are traffic guards on duty to guide the drivers where to go therefore providing adequate access.

Mitigation Measure D-1 The preserve's management shall hire traffic guards to safely guide drivers passing by the project.

Mitigation Measure D-2 To promote safety, new road signs shall be installed to signal to drivers about the upcoming project site.

[26]

[26] "Butte County General Plan: Circulation Element (2014)." Butte County. http://www.buttecounty.net/Portals/10/Planning/General Plan/2018 Updated GP/9_Circulation_PRR.pdf. "Encroachment Permit." Butte County. https://www.buttecounty.net/publicworks/Encroachment-Permits. "CEQA Document (2018). " http://resources.ca.gov/ceqa/docs/update2018/proposed-regulatory-text.pdf.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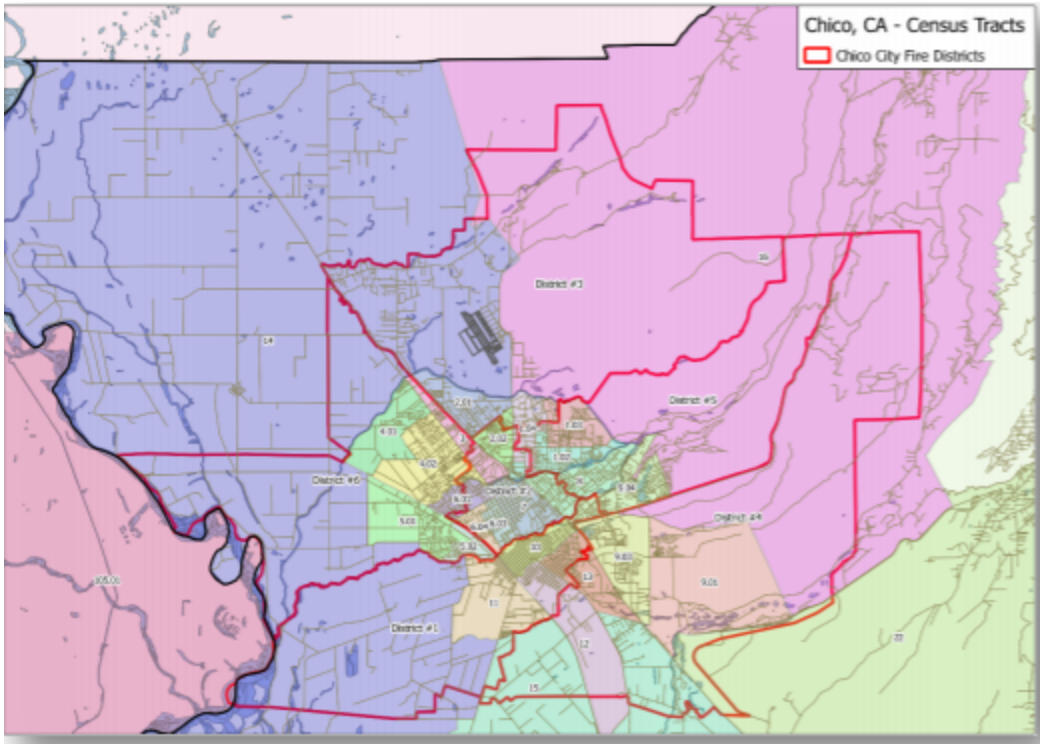
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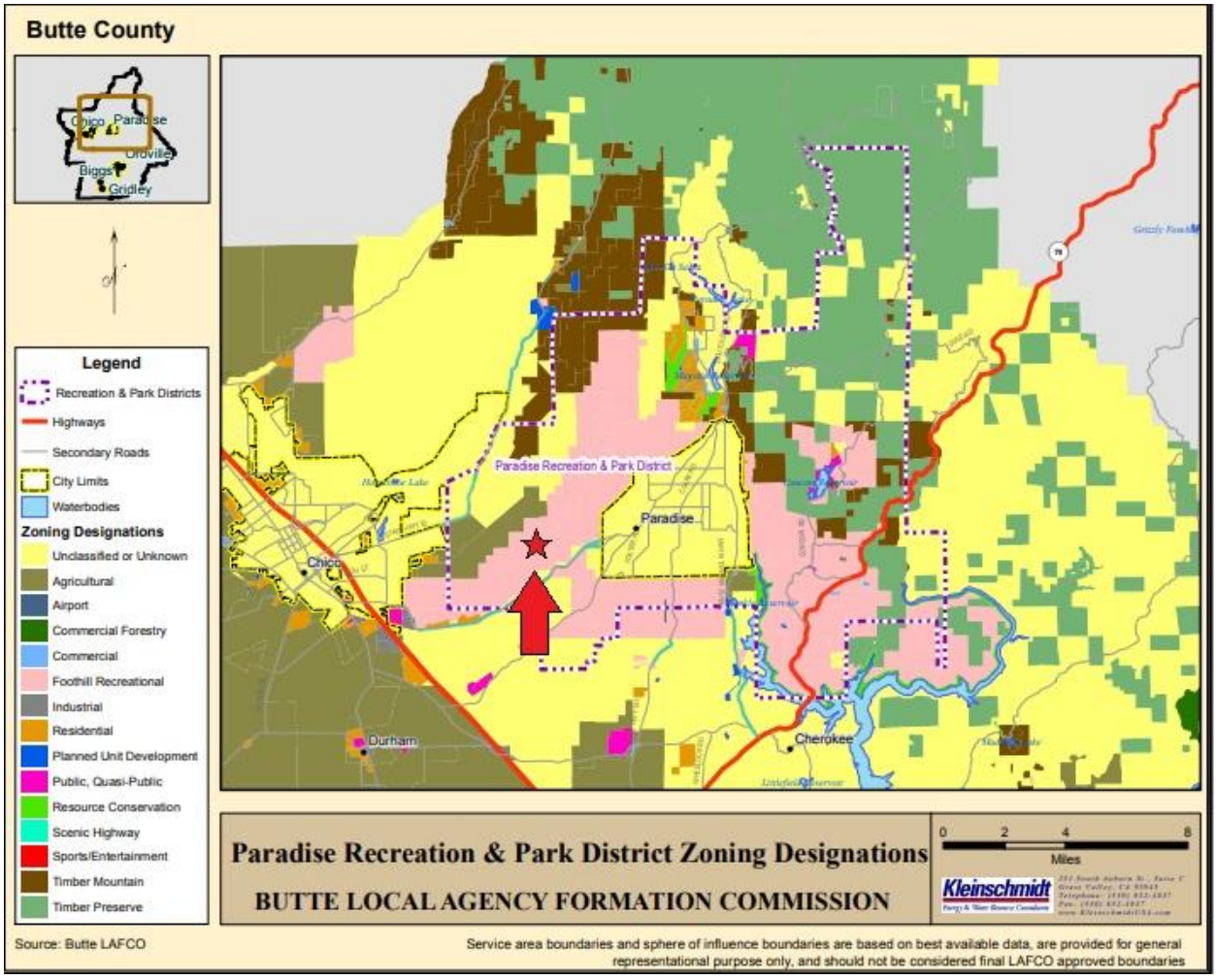
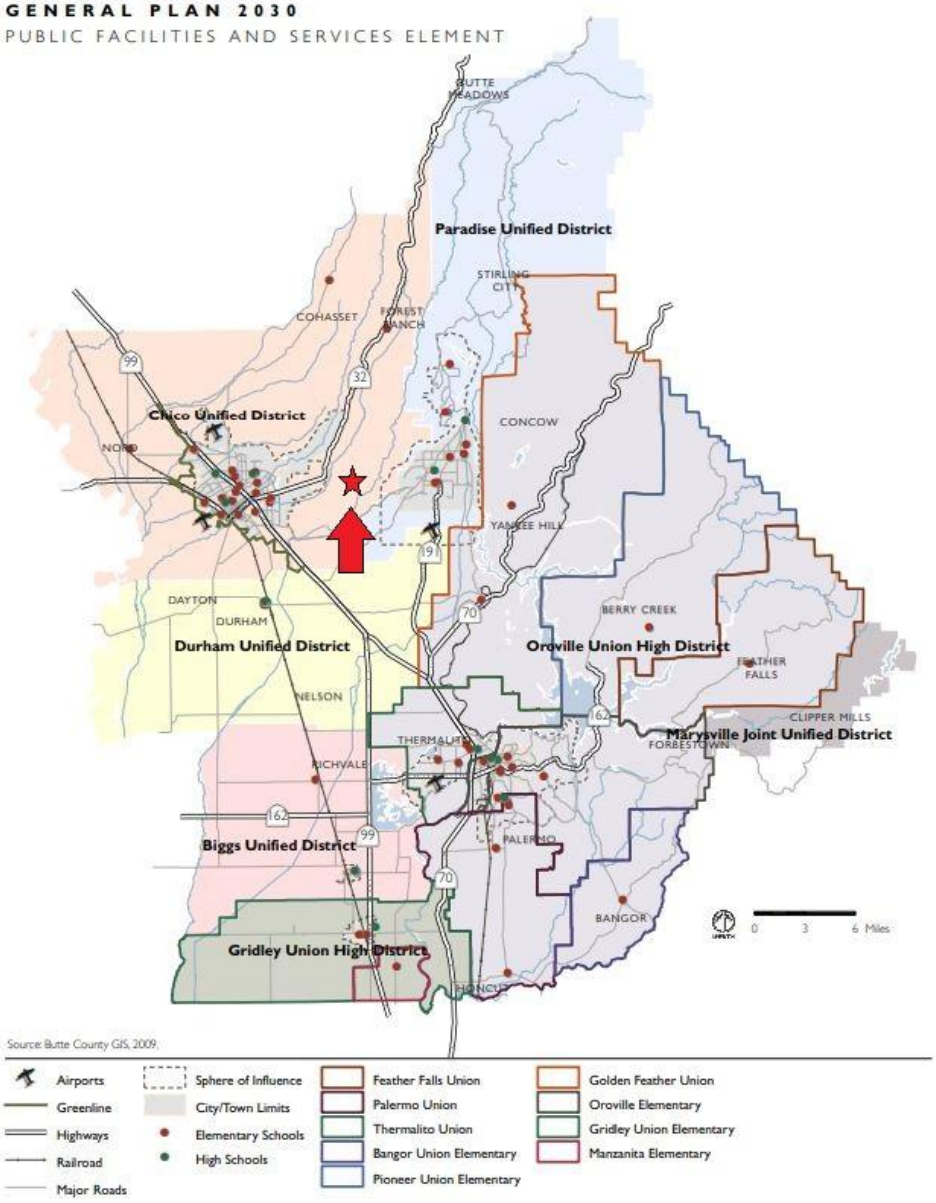
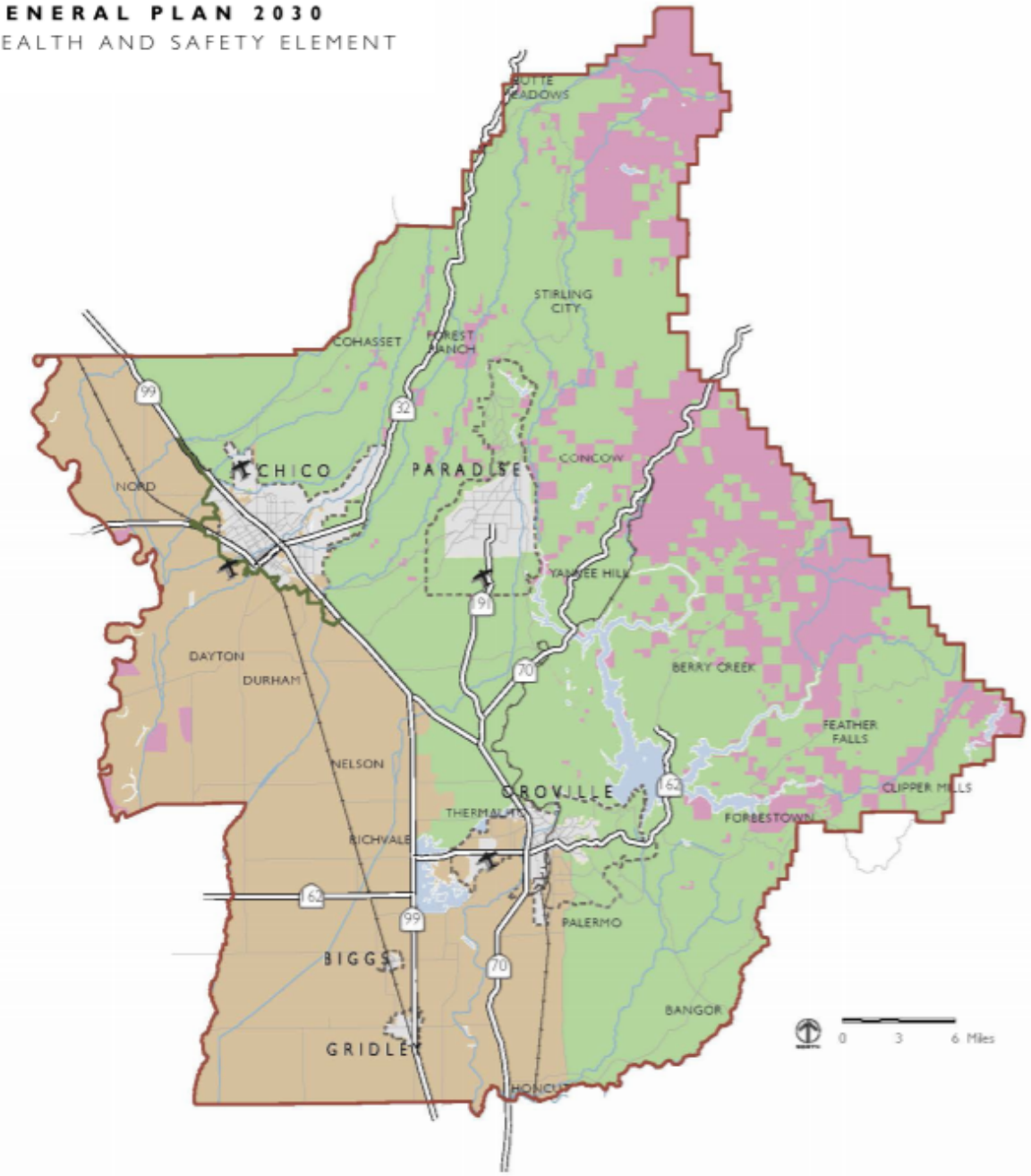
District #3
District #5
District #6
District #4
District #1


Butte County
Chico
Paradise
Oroville
Biggs
Gridley
Legend
Recreation & Park Districts
Highways
Secondary Roads
City Limits
Waterbodies
Zoning Designations
Unclassified or Unknown
Agricultural
Airport
Commercial Forestry
Commercial
Foothill Recreational
Industrial
Residential
Planned Unit Development
Public, Quasi-Public
Resource Conservation
Scenic Highway
Sports/Entertainment
Timber Mountain
Timber Preserve
Paradise Recreation & Park District
Paradise
Chico
Durham
Cherokee
Paradise Recreation & Park District Zoning Designations
BUTTE LOCAL AGENCY FORMATION COMMISSION
0 2 4 8
Miles
Kleinschmidt
Source: Butte LAFCO
Service area boundaries and sphere of influence boundaries are based on best available data, are provided for general representational purpose only, and should not be considered final LAFCO approved boundaries

BUTTE COUNTY
GENERAL PLAN 2030
PUBLIC FACILITIES AND SERVICES ELEMENT



BUTTE COUNTY
GENERAL PLAN 2030
HEALTH AND SAFETY ELEMENT



Sources: Butte County GIS, 2009; California Department of Forestry and Fire Protection, 2007.

Responsibility Area
- Federal Responsibility Area
- State Responsibility Area
- Local Responsibility Area

- Airports
- Greenline
- Highways
- Railroad
- Major Roads
- Sphere of Influence
- City/Town Limits
- County Boundary

8.1 Greenhouse Gas Emissions Appendix G Framework

Would the project:

A) Generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment?

Answer: Less than Significant

B) Conflict with an applicable plan, policy or regulation adopted for the purpose of reducing the emissions of greenhouse gases?

Answer: Less than Significant

8.2 Environmental Setting

The Butte Creek Ecological Preserve (BCEP) is not a significant emitter of greenhouse gases. As an ecological preserve, there is an abundance of trees and shrubs, as well as a creek. Overall the site sequesters carbon due to its natural state as a preserve. However, because of the recent impacts of the Camp Fire, the site is at a baseline state of a resurging forest. This yields opportunities for the preserve to store a net increase of carbon relative to the baseline. Newly emerging plants and recovering trees will act as carbon sponges to catch more carbon.

The impact of the Camp Fire has drastically increased the population in the surrounding areas of Paradise. The area of Chico has seen an increase of over 19,000 persons or an increase of 20% to their population. The increase in the area comes with an overall increase in Vehicle Miles Traveled (VMT). Although this may have a significant impact on the environment, the project site will not be impacted by the overall increase of VMT due to the Camp Fire.

Conversely, use of the reserve has an impact on the environment due to the transportation used to get to and from the preserve. Transportation is the only potentially significant greenhouse gas emitter found in relation to the preserve. Currently, the preserve is used by researchers, professors, and preserve staff, so the impact on the environment is minimal. However, an increase in transportation might pose a larger impact on the environment.

The proposed use of Biochar will be used as an offset strategy. There is a lot of dead biomass on the site and that can easily be used to make biochar. As previous research suggests, the use of biochar is an effective strategy to sequester carbon as well as other GHG’s like nitrous oxide. The use of it on site would work well in budgeting the universities’ carbon footprint.

8.3 Regulatory Framework

This section will cover the regulatory framework by the state and local governments in relation to Greenhouse Gas Emissions.

8.3.1 Federal Regulatory Framework
Clean Air Act
The Clean Air Act gives permission to the United State Environmental Protection Agency (USEPA) to perform emission performance standards on vehicles. This action is carried out by state organizations.
8.3.2 State Regulatory Framework
AB 32 (2006)
According to the ARB Scoping Plan page, the AB 32 2008 goal was to return to 1990 levels by 2020. In 2016, the Legislature passed SB 32, which codifies a 2030 GHG emissions reduction target of 40% below 1990 levels by 2030.
SB 375
SB 375 is a reinforcement to AB 32 that requires regional planning to reduce the GHG emissions by the transportation sector. This is characterized by Vehicle Miles Traveled (VMT).
8.3.3 Regional Regulatory Framework
Under the Conservation and Open Space element of the Butte County General Plan, it states that:
COS-P1.1 Greenhouse gas emission impacts from proposed development projects shall be evaluated as required by the California Environmental Quality Act.
COS-P1.2 New development projects shall mitigate greenhouse gas emissions on-site or as close to the site as possible.
COS-P1.3 New development should use recycled-content construction materials.
COS-A1.4 Coordinate with the Butte County Air Quality Management District on anti-idling programs that will reduce idling by heavy-duty vehicles.
COS-A1.5 Cooperate with the school districts to develop school access plans that substantially reduce automobile trips to, and congestion surrounding, schools.
These policies are to be followed and implemented on the site during any form of the project. The Butte County Climate Action Plan creates and establishes policies to follow federal and state framework as well as creates greenhouse gas reduction targets. The overall goal of the Butte County Climate Action Plan is to reduce 2020 GHG emissions to 15% below baseline 2006 levels. This will be achieved through the continuation of the State Regulatory Framework previously mentioned and the adherence to the Pavley Vehicle Standards and Low Carbon Fuel Standard that implemented regulations to reduce tailpipe GHG emissions by 2020.

The majority of the projects potential impacts come from that of the transportation sector. With the implementation of many regulations for the transportation sector like SB 375 and the Pavley Vehicle Standards and Low Carbon Fuel Standard, the reduction goals of the Butte County Climate Action Plan will likely be met. Therefore the emissions due to this project will likely cause no significant impact to the environment.

8.4 Analysis

8.4 a) Generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment? **Less than significant impact.**

The site is about 8 miles from Downtown Chico and will increase the overall Vehicle Miles Traveled. However, according to the 2016 Regional Transportation Plan and Sustainable Communities Strategy for Butte County, the regulations set on the transportation sector will reduce the effect of emissions. This will eliminate any significance to the emissions due to this project because they are already accounted for in the previously mentioned regulatory framework.

The use of prescribed burning will cause some greenhouse gas emissions. But, according to the National Science Foundation. The use of prescribed fires emits significantly less carbon dioxide than a wildfire of the same size. This is because a wildfire will burn an entire tree that has a reserve of sequestered carbon, but burning the underbrush and fallen branches do not have stored carbon reserves so it will emit less carbon.

The use of biochar on site will have a net positive effect. It will act as a powerful sequestering tool that will enrich the soils and water. The use application of biochar on site will also aid in the retention of soil. There was no evidence of a negative impact on the environment if the biochar were to flow off-site. However, the site is located in a flood plane. The client should seek special consulting about the loss of biochar from the site.

8.4 b) Conflict with an applicable plan, policy or regulation adopted for the purpose of reducing the emissions of greenhouse gases? **Less than significant impact.**

The potential emissions in this project are primarily from the increase in Vehicle Miles Traveled to this site. However, because of SB 375 and 2016 Regional Transportation Plan, the increase of Vehicle Miles Traveled will not be significant. Increases in fuel efficiency from the Pavley Vehicle Standards and Low Carbon Fuel Standard will also decrease the significance of emissions from the project.

Work cited

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Butte County (Calif.). Butte County General Plan. Butte, CA: County of Butte, 2010. 10-4-0-9.

California Air Resources Board. "AB 32 Scoping Plan." California Environmental Protection Agency Air Resources Board. January 8, 2018. Accessed May 08, 2019. https://www.arb.ca.gov/cc/scopingplan/sc

Department of Finance. CALIFORNIA TOPS 39.9 MILLION RESIDENTS AT NEW YEAR PER NEW STATE DEMOGRAPHIC REPORT. 1-12. Data Reflect Fire-Driven Changes to Local Populations, Housing

K.A. Spokas, W.C. Koskinen, J.M. Baker, D.C. Reicosky, Impacts of woodchip biochar additions on greenhouse gas production and sorption/degradation of two herbicides in a Minnesota soil, Chemosphere, Volume 77, Issue 4, 2009, P ages 574-581

Lau, Chris. "Bottom Line on Regulating Greenhouse Gases Under The Clean Air Act." Bottom Line on Regulating Greenhouse Gases Under The Clean Air Act | World Resources Institute. May 2009. Accessed May 08, 2019. https://www.wri.org/publication/bottom-line-regulating-greenhouse-gases-under-clean-air-act.

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"Prescribed Burns May Help Reduce U.S. Carbon Footprint." NSF. March 17, 2010. Accessed May 10, 2019. https://www.nsf.gov/news/news_summ.jsp?cntn_id=116626.

"Soil & Water Benefits of Biochar." Soil & Water Benefits of Biochar | US Biochar Initiative. Accessed May 17, 2019. http://biochar-us.org/soil-water-benefits-biochar.

Stefan Abel, Andre Peters, Steffen Trinks, Horst Schonsky, Michael Facklam, Gerd Wessolek, Impact of biochar and hydrochar addition on water retention and water repellency of sandy soil, Geoderma, Volumes 202–203, 2013, Pages 183-191

Maggie Scarpa
XX Wildfires

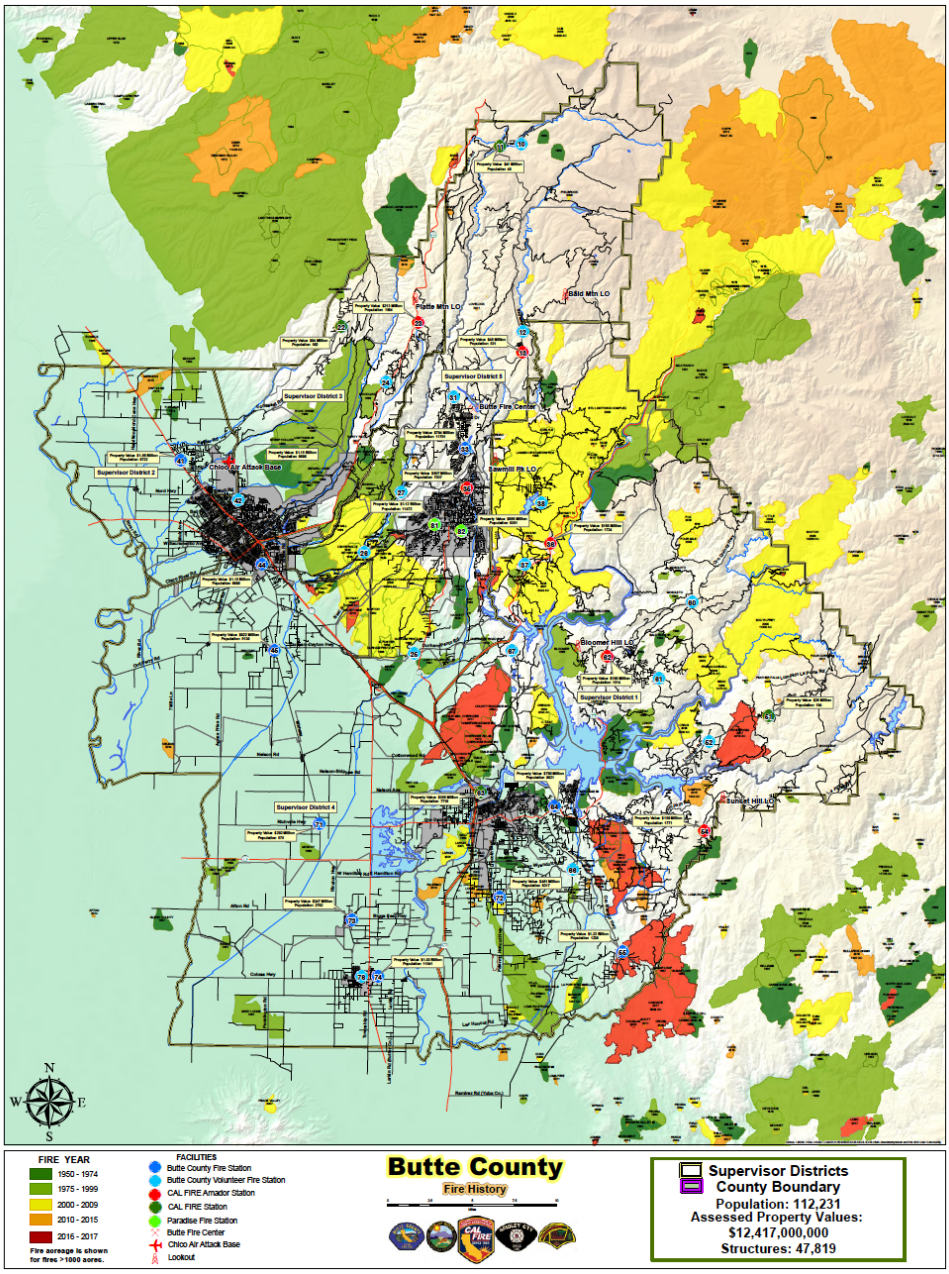
1. CEQA Appendix G Questions

XX. WILDFIRE. If located in or near state responsibility areas or lands classified as very high fire hazard severity zones, would the project:					
a)	Substantially impair an adopted emergency response plan or emergency evacuation plan?	☐	☐	☐	☐
b)	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?	☐	☐	☐	☐
c)	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?	☐	☐	☐	☐
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?	☐	☐	☐	☐

2. Environmental Setting
   The site that the project is located at has a moderate to high severity for fires. 90-95% of the site burned in the 2018 Camp Fire. The Camp Fire started near Pulga road near Jarbo Gap[27]. It burned 153,336 acres (including the project site)[28]. There were 85 fatalities[29]. The map below is the fire history of Butte County from 1950 to 2017. This image

[27] http://cdfdata.fire.ca.gov/incidents/incidents_details_info?incident_id=2277
[28] The Camp Fire started near Pulga road near Jarbo Gap#. It burned 153,336 acres (including the project site). There were 85 fatalities#.
[29] http://cdfdata.fire.ca.gov/incidents/incidents_details_info?incident_id=2277

conveys the fire risk in Butte County in the Eastern portion, which is where the site is located. In addition, Butte Creek is listed as a community at risk within the wildland-urban interface[30].



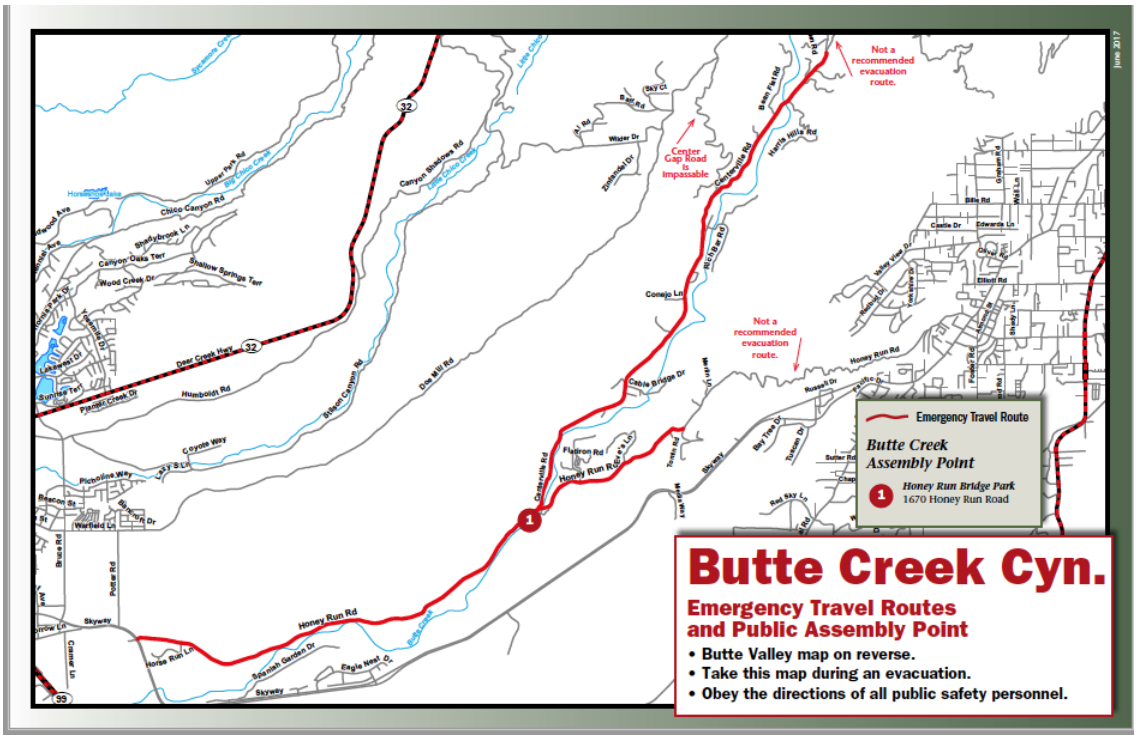
[31]

Figure 1. Butte County Fire History (Source: CAL FIRE)

[30] California, State Of. "Communities at Risk List." OSFM. Accessed May 05, 2019. http://osfm.fire.ca.gov/fireplan/fireplanning_communities_at_risk?filter_field=place_name&filter_text=butte creek.

[31] "Butte County Fire History." 2017. https://www.buttecounty.net/Portals/14/2018 updates/Maps/Butte County Community Demographics and Fire History map.pdf.

As is conveyed above, larger fires happen at least every 10 years in Butte County. Over 500,000 acres have been burned in the last 50 years[32]. The most deadliest fire in California history was the Camp Fire, which burned around 90% of the site (observed).



[33]

Figure 2. Butte Creek Canyon Emergency Travel Routes (Source: Butte County Office of Emergency Management)

Butte Creek Canyon and Butte Valley "Wildfire 'Ready, Set, Go' Evacuation Plan" that includes the above areas. It discusses that citizens should create their own emergency plan that includes a meeting location, escape routes, include animals, and communication with someone not on the site[34]. It also includes preparation of materials, how to prepare the inside and outside of the house, and what to do when a fire is happening. Lastly, it discusses one-way evacuations and to be prepared for traffic closures, warnings, shelter in place and rescue[35].

[32] "Butte County Community Wildfire Protection Plan." November 3, 2015. https://www.buttecounty.net/Portals/14/Evac Maps/2015_Countywide_CWPP_FINAL.pdf.
[33]"Butte Creek Canyon and Butte Valley Emergency Plan Map." Butte County Disaster Preparedness. June 2017. https://www.buttecounty.net/Portals/19/EvacuationMaps/ButteCreek-Valley_map.pdf.
[34]"Butte Creek Canyon and Butte Valley "Ready, Set, Go" Evacuation Plan." June 2017. https://www.buttecounty.net/Portals/19/EvacuationPlans/ButteCreek-Valley_plan.pdf.
[35] "Butte Creek Canyon and Butte Valley "Ready, Set, Go" Evacuation Plan." June 2017. https://www.buttecounty.net/Portals/19/EvacuationPlans/ButteCreek-Valley_plan.pdf.

In the 2018 Camp Fire, many nearby structures to the site were burned. Figure 3 conveys the structures that were burned, and from observation the majority of the structures were destroyed nearby the site.

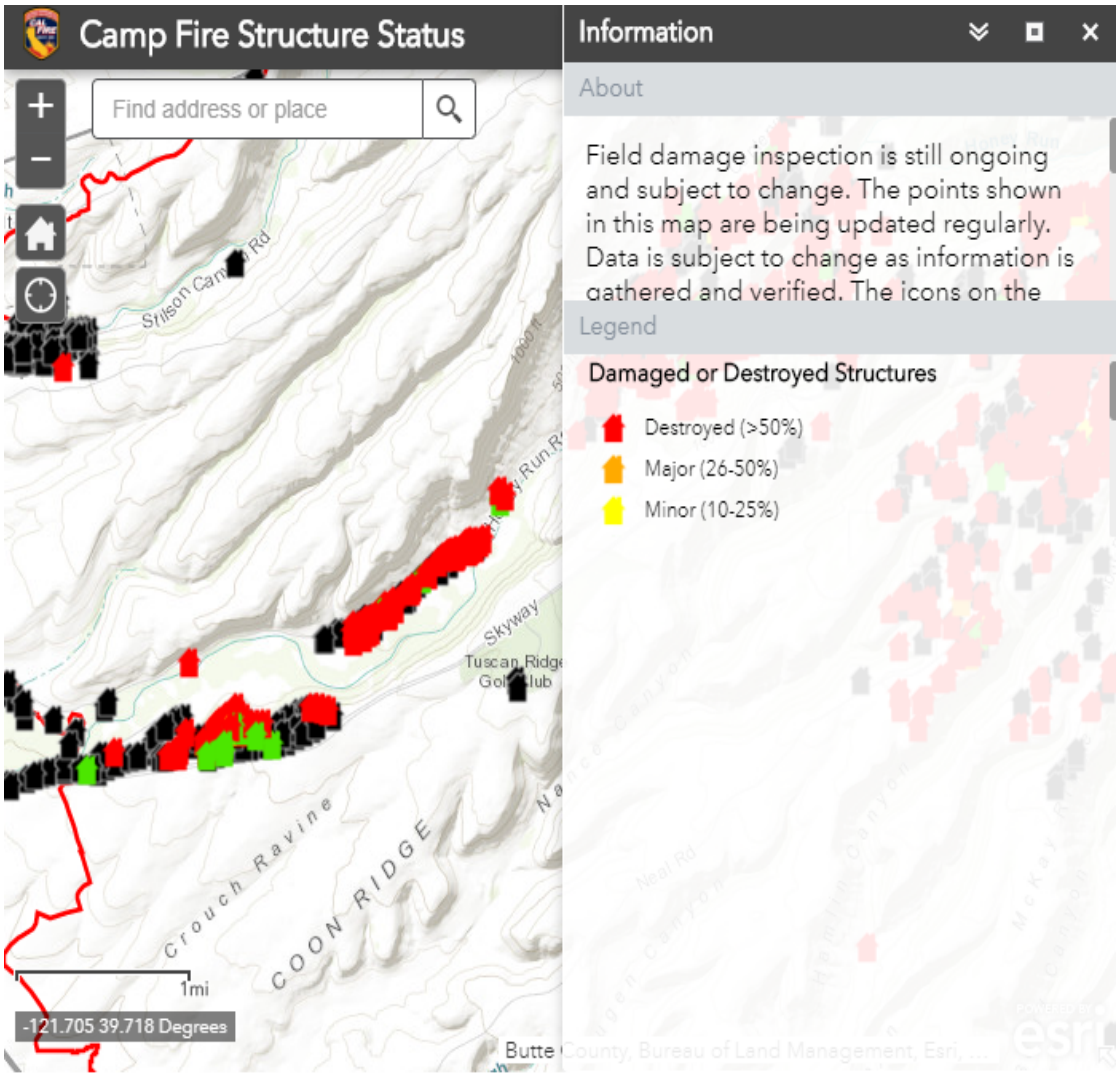


Figure 3. Camp Fire Structure Map (Source CAL FIRE)

In Butte County's Local Hazard Mitigation Plan, wildfires are among the hazards that can have a significant impact in Butte County[37]. Wind is a primary factor that influences fire behavior, as wind velocity increases, the rate of fire spread, intensity and spotty potential increase. In the fall, "north wind events" (in Butte County) bring high temperatures, low humidity and strong winds, and can increase risk for extreme fire behavior. With fuels

[36] "CAL FIRE Structure Status." Butte County Recovers. Accessed May 18, 2019. https://buttecountyrecovers.org/cal-fire-structure-status-2/.

[37] http://www.buttecounty.net/Portals/19/LHMP/Butte_County_LHMP_Update_Executive_Summary.pdf

extremely dry, north winds can create a severe fire weather situation[38]. Figure 6 conveys the gusty wind statistics from 2007 to 2019 at the Jarbo Gap Station, and shows the direction of the wind, which is North East.

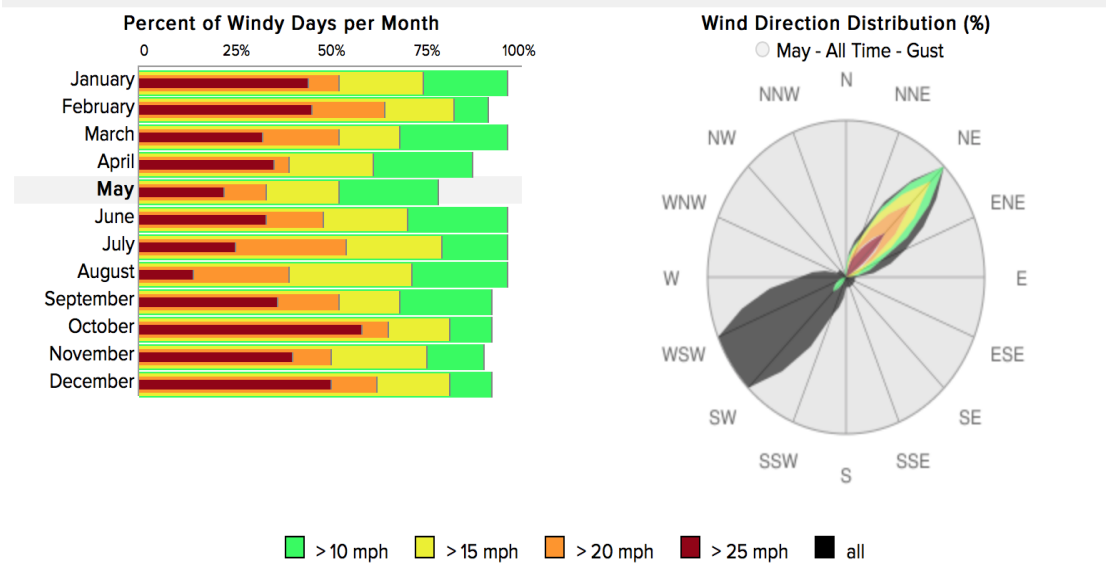


Figure 4. Percent of Gust Windy Days per Month (Source: WindAlert)

3. Regulatory Framework

The responsibility for the fighting fires in Butte County is the Butte County Fire Department and the California Department of Forestry and Fire Protection (CAL FIRE) and municipalities and a fire protection district[39]. Together they form the Butte County Cooperative Fire Agencies[40].

Community Wildfire Protection Planning is done by local partnerships with the state and federal agencies under the Healthy Forests Restoration Act of 2003. It establishes a framework for reducing risks associated by wildfire[41]. The Butte County Community Wildfire Protection Plan enacts a variety of "pre-fire treatments", such as fuels reduction, prescribed burning, defensible space, fire resistant building construction, land use planning, and fire safety education. So this group is responsible for preventing wildfires.

[38] "Butte County Community Wildfire Protection Plan." November 3, 2015. https://www.buttecounty.net/Portals/14/Evac Maps/2015_Countywide_CWPP_FINAL.pdf.
"Butte County Community Wildfire Protection Plan." November 3, 2015. https://www.buttecounty.net/Portals/14/Evac Maps/2015_Countywide_CWPP_FINAL.pdf.

[39] "Health and Safety Element." Butte County General Plan. October 26, 2010. https://www.buttecounty.net/Portals/10/Planning/General Plan/2018 Updated GP/11_Health_Safety_PRR.pdf.

[40] Butte Unit Fire Stations. Accessed May 20, 2019. https://www.buttecounty.net/fire/FireFacilities/FireStations.

[41] "Butte County Community Wildfire Protection Plan." November 3, 2015. https://www.buttecounty.net/Portals/14/Evac Maps/2015_Countywide_CWPP_FINAL.pdf.

Per the Butte County Community Wildfire Protection Plan, we are on the cusp of "Battalion 4" and "Battalion 1".

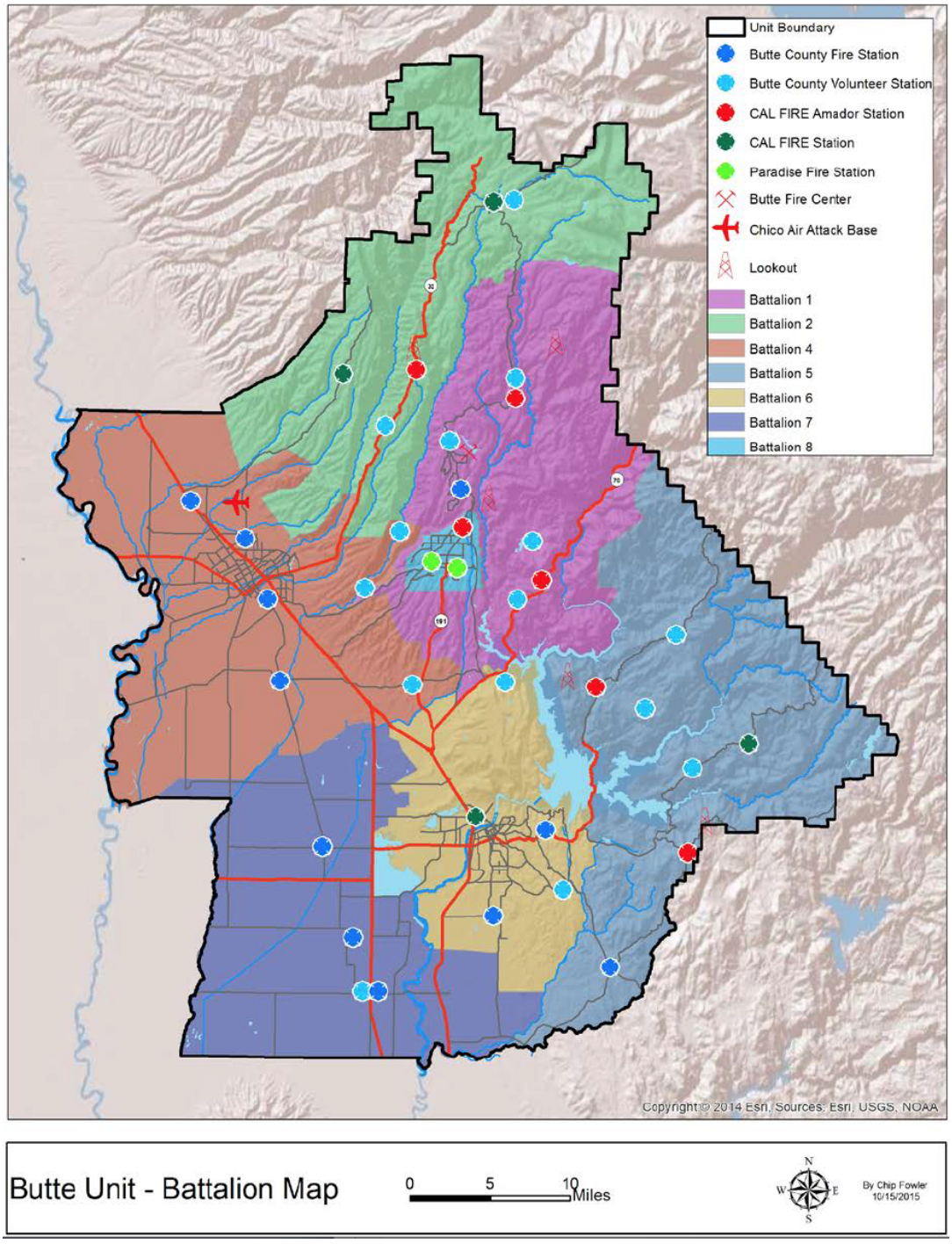


Figure 5. Butte Unit Battalion Map (Source: Butte County Community Wildfire Protection Plan)

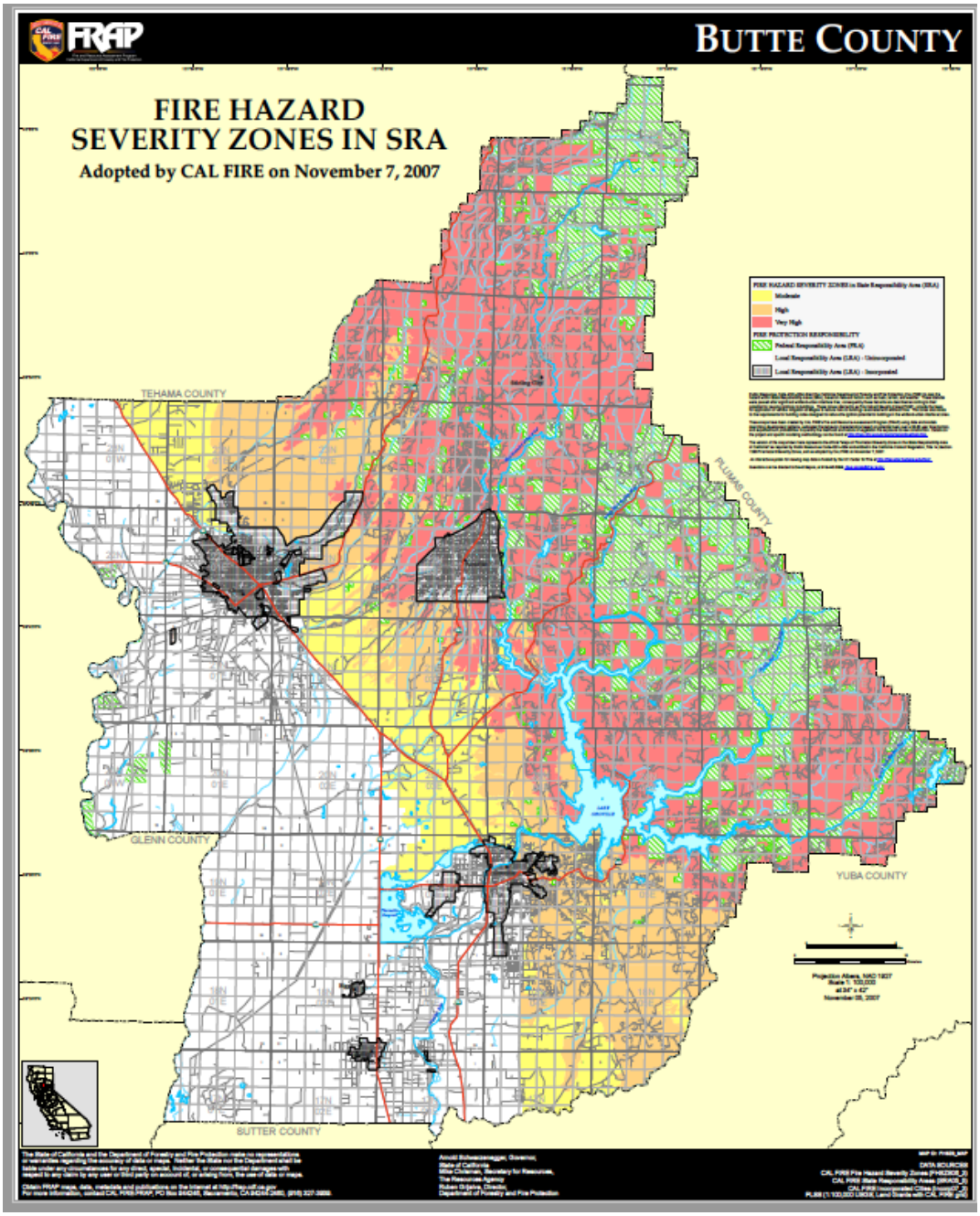
California Public Resources Code 4291 relates to this setting as it regulates buildings and structures in or around a mountainous area that is covered in flammable material, and the defensible space that is needed around. The legislation mandates that there must be 100 feet of defensible space from each side. Fuel breaks shall be maintained[42].
Another regulator is CAL FIRE. CAL FIRE is the California Department of Forestry and Fire Protection, and the responsibility of this agency is to prevent large, damaging fires, as well as wildland firefighting[43]. CAL FIRE has a legal responsibility to provide fire protection on all State Responsibility Area lands. CAL FIRE also does the Fire Hazard mapping. CAL Fire mapped out areas where certain zones based on fuels, slope and fire weather in combination with fire hazards and risks. The zones then show where wildfire hazards could be more severe and are of greater concern.

State and Local Responsibility Areas is mapped by CAL FIRE. A State Responsibility Area is an area that has financial responsibility for wildland fire protection[44]. A local responsibility area includes incorporated cities, cultivated agriculture lands and portions of the desert, where the local city fire departments, fire protection districts, volunteer fire departments and counties are responsible for the fire protection[45].

This section (CEQA Wildfires) only applies to areas in or near a State Responsibility Area, **OR** in a Very High Fire Hazard Severity Zones in State Responsibility Areas or Local Responsibility Areas. Figure 4 below is the full State Responsibility Area Map for Butte County, which the site is located in, and Figure 5 is a zoomed in cropping of the site location, and a black oval around the site. This means the state has financial responsibility for wildland fire protection on the site. CAL FIRE maps it out, and the zones are designated based on factors such as fuel, slope, and fire weather. The zone we are in is the moderate and high severity zone for the State Responsibility Area. Since the site is in the State Responsibility Area, the project does apply for the Wildfires section in

[42] "Public Resources Code 4291." Login to Resources from Off Campus -- Meriam Library. Accessed May 20, 2019. https://1-next-westlaw-com.mantis.csuchico.edu/Link/Document/FullText?findType=L&pubNum=1000220&cite=CAPHS4291&originatingDoc=NA931E4608E4011D8A8ACD145B11214D7&refType=LQ&originationContext=document&transitionType=DocumentItem&contextData=(sc.Search).
[43]California, State Of. "About CAL FIRE." CAL FIRE - About Us. Accessed May 20, 2019. http://calfire.ca.gov/about/about.
[44]California, State Of. "State Responsibility Areas (SRA)." FRAP. Accessed May 20, 2019. https://frap.fire.ca.gov/projects/sra_mapping/index.
[45]California, State Of. "Frequently Asked Questions." CAL FIRE - Frequently Asked Questions. Accessed May 20, 2019. http://www.fire.ca.gov/fire_prevention/fire_prevention_wildland_faqs#desig01.

CEQA, as well as CAL FIRE has the legal responsibility to provide fire protection on the site[46].

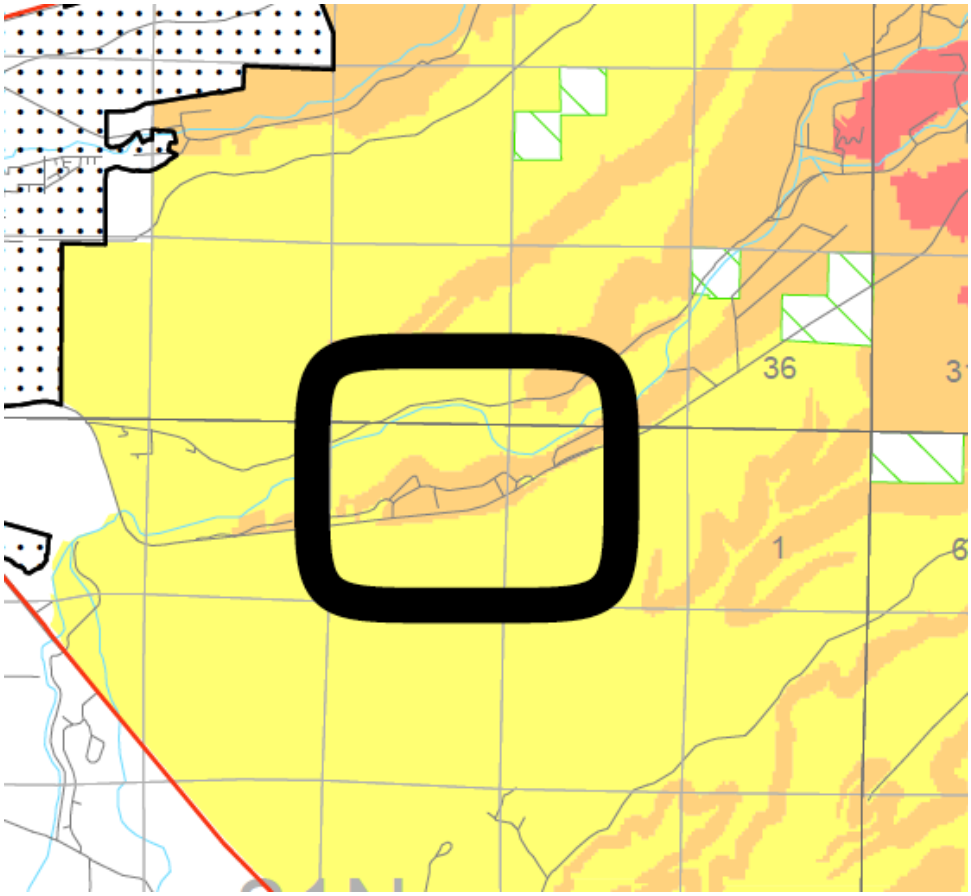


[47]

Figure 6. Butte County Fire Hazard Severity Zones in SRA (Source: CAL FIRE)

[46]California, State Of. "State Responsibility Areas (SRA)." FRAP. Accessed May 20, 2019. https://frap.fire.ca.gov/projects/sra_mapping/index.

[47]"Butte County Fire Hazard Severity Zones in SRA." November 7, 2007. http://frap.fire.ca.gov/webdata/maps/butte/fhszs_map.4.pdf.



[48]

Figure 7. Zoned In Butte County Fire Hazard Severity Zones in SRA (Source: CAL FIRE)

Local Hazard Mitigation Plans under the Disaster Mitigation Act of 2000 is another regulation. Butte County has their Butte County Hazard Mitigation Plan and it identifies and profiles hazards that pose a risk to the area, assess the community's vulnerability to those hazards, and examines existing capacity to mitigate shortcomings. Goal 1 of the Butte County Hazard Mitigation Plan is to minimize risk and vulnerability of the community to hazards, and prevent and reduce wildfire-related losses[49].

Butte County Fire Safe Council is a nonprofit whose mission is to provide safety in Butte County through wildfire hazard education, mitigation, and wildfire recovery[50]. They provide information around evacuation, fuel reduction, and manage a resident assistance program and residential chipping program. They also contributed to the Butte County

[48]"Butte County Fire Hazard Severity Zones in SRA." November 7, 2007. http://frap.fire.ca.gov/webdata/maps/butte/fhszs_map.4.pdf.
[49] http://www.buttecounty.net/Portals/19/LHMP/Butte_County_LHMP_Update_Executive_Summary.pdf
[50] http://buttefiresafe.net/how-do-i

Community Wildfire Protection Plan[51]. They also overesee many fuel breaks in the county. One of the actions in the plan is to remove invasive species for fire break maintenance[52], and another is fuels reduction for wildfire mitigation. While they are not a governmental agency, they are a stakeholder in fire prevention, safety and education[53].

During disasters Butte County Offices of Emergency Management Evacuation Planning coordinated the overall response through the Emergency Operations Center (EOC).

4. Analysis
    a. Would the project substantially impair an adopted response plan or emergency evacuation plan?
    The project would not significantly impact the emergency evacuation or adopted response plan.
    Discussed in the Environmental Setting, the "Wildfire 'Ready, Set, Go' Evacuation Plan" for Butte Creek Canyon discusses citizens should create their own emergency plan, preparation of materials, and one-way evacuations. The project does not impede on any of this emergency evacuation plan. The project does not impede on any emergency plans, as the project discusses adding some structures to the site, increased parking with a gate, channel reconfiguration, and abandoned road removal and reduction of invasive species. None of the activities discussed for the project would impede on citizen emergency plans, preparation of materials of neighbors, one-way evacuation plans.

    The project would not impact the plan in any way, as it does not discuss what if structures are added to a property in Butte Creek, implementation of additional uses (goats) on the property, tree planting, increased visitors, or research.

    In Butte County Community Wildfire Protection Plan, they specified that compliance with Public Resources Code 4291(detailed in the Regulatory Framework) can give the best opportunity for structural survivability during a wildfire. However other steps are to remove fuels like needles and leaves,

[51] "Butte County Community Wildfire Protection Plan." November 3, 2015. https://www.buttecounty.net/Portals/14/Evac Maps/2015_Countywide_CWPP_FINAL.pdf.

[52]"Executive Summary - Butte County Hazard Mitigation Plan." Butte County. June 2014. http://www.buttecounty.net/Portals/19/LHMP/Butte_County_LHMP_Update_Executive_Summary.pdf.

[53] "Butte County Community Wildfire Protection Plan." November 3, 2015. https://www.buttecounty.net/Portals/14/Evac Maps/2015_Countywide_CWPP_FINAL.pdf.

materials like outdoor furniture or woodpiles, and some building materials[54]. Building materials like a no shake roof and screens on vents and opening reduces the ignitability of a building, and defensible space[55]. Public Resources Code 4290 establishes minimum wildfire protection standards in conjunction with building, construction and development in State Responsibility Area for emergency access, signage and building numbers and vegetation modification[56]. The Butte County Wildfire Protection Plan also outlines the Vegetation Management Program, which utilizes prescribed fire, and mechanical means, for addressing wildland fire fuel hazards on State Responsibility lands, which provides significant fire hazard reduction benefits that enhance public safety[57]. The plan also detailed the 2013 accomplishment of 2 prescribed fires totalling 61 acres[58]. For the BCCWPP, it details the site in "Batallion 4" as well as "Battalion 1", and one of this battalion's priorities is to have prc 4291 compliance inspections, school fire prevention education, and expand Vegetation Management Projects and program opportunities.

The site should be compliant with PRC 4290 to ensure that the project does not contradict with the plans, and the project and plan both want to increase vegetation management around fuel reduction, so that aspect is most definitely not a contradiction.

None of the plans found had any reason to contradict the project's objectives, and vice versa.

b. Due to slope, prevailing winds, and other factors, exacerbate wildfire risks, and thereby expose project occupants to pollutant concentrations from a wildfire or the controlled spread of a wildfire?

This is a potentially significant impact.

In the fall, the north wind events bring high temperatures, low humidity and strong winds. This provides the highest potential for extreme fire behavior[59]. The

[54]"Butte County Community Wildfire Protection Plan." November 3, 2015. https://www.buttecounty.net/Portals/14/Evac Maps/2015_Countywide_CWPP_FINAL.pdf.

[55] "Butte County Community Wildfire Protection Plan." November 3, 2015. https://www.buttecounty.net/Portals/14/Evac Maps/2015_Countywide_CWPP_FINAL.pdf

[56]"Butte Creek Canyon and Butte Valley "Ready, Set, Go" Evacuation Plan." June 2017. https://www.buttecounty.net/Portals/19/EvacuationPlans/ButteCreek-Valley_plan.pdf.

[57] "Butte County Community Wildfire Protection Plan." November 3, 2015. https://www.buttecounty.net/Portals/14/Evac Maps/2015_Countywide_CWPP_FINAL.pdf.

[58] "Butte County Community Wildfire Protection Plan." November 3, 2015. https://www.buttecounty.net/Portals/14/Evac Maps/2015_Countywide_CWPP_FINAL.pdf

[59]"Butte County Community Wildfire Protection Plan." November 3, 2015. https://www.buttecounty.net/Portals/14/Evac Maps/2015_Countywide_CWPP_FINAL.pdf.

seasonal prevailing winds exacerbate wildfire risk, and can expose project occupants to pollutant concentrations from a wildfire. As Figure 4 shows, the Jarbo Gap wind history has between 50-25% gusty winds per month, and it comes from the North East[60].

Two of the largest fires in the area, the 2008 Humboldt Fire[61] and the 2018 Camp Fire were driven by strong winds[62].

The site is located on Butte Creek Canyon, which is most influential on fire behavior, besides the West Branch Feather River Canyon, and very steep.

Fuels is another fire risk. The BCCWPP details that from 2005 to 2014, 21% of fires were caused by debris. We have observed that the himalayan blackberry bushes and other vegetation are coming back. This will exacerbate wildfire risk as the fire embers can spread quickly and land on any vegetation or other fuels on the site. To mitigate other factors associated with building and construction, ensure compliance with PRC 4291, with defensible space of 100 feet around structures, and adopting a prescribed burning practice will also reduce debris and vegetation on site.

Another mitigation to be considered are planting trees for “windbreaks”. A windbreak is a planting of trees designed to reduce strong winds[63]. While windbreaks would reduce wind, there is not enough information to say that it would help in the instance of wildfires, as it seems counterintuitive. Could not find information on the correlation of windbreaks and fire.

Two mitigations could be a firebreak and shaded fuel break. A fire break is an area where all vegetation is removed down to sil, removing a fire of any combustible material[64]. They require annual maintenance, and there is a high probability of creating conditions for invasive weeds[65]. With a shaded fuel break, it is a strip of land where fuel has been reduced to limit the fire’s ability to spread rapidly. Trees are thinned to reduce “crown to crown” overlapping[66]. With the fire

[60]"JARBO GAP | Complete Wind Report & Forecast." WindAlert. Accessed May 20, 2019. https://windalert.com/spot/9396.

[61] "Butte County Community Wildfire Protection Plan." November 3, 2015. https://www.buttecounty.net/Portals/14/Evac Maps/2015_Countywide_CWPP_FINAL.pdf.

[62] "Information Summary of CAL Fire Injuries Camp Incident." Accessed May 19, 2019. https://www.wildfirelessons.net/HigherLogic/System/DownloadDocumentFile.ashx?DocumentFileKey=fe4e1afb-183c-ae2b-4443-b9665d68128f&forceDialog=0.

[63]"Trees Against the Wind." 2003. http://cru.cahe.wsu.edu/CEPublications/pnw0005/pnw0005.pdf.

[64]"Reducing Fire Risk on Your Forest Property." October 2010. https://knowyourforest.org/sites/default/files/documents/Reducing_Fire_Risk_full.pdf.

[65]"Reducing Fire Risk on Your Forest Property." October 2010. https://knowyourforest.org/sites/default/files/documents/Reducing_Fire_Risk_full.pdf.

[66] "Reducing Fire Risk on Your Forest Property." October 2010. https://knowyourforest.org/sites/default/files/documents/Reducing_Fire_Risk_full.pdf.

break increasing the chance of invasive species which would increase vegetation, fuel breaks are more optimal for the project and site.

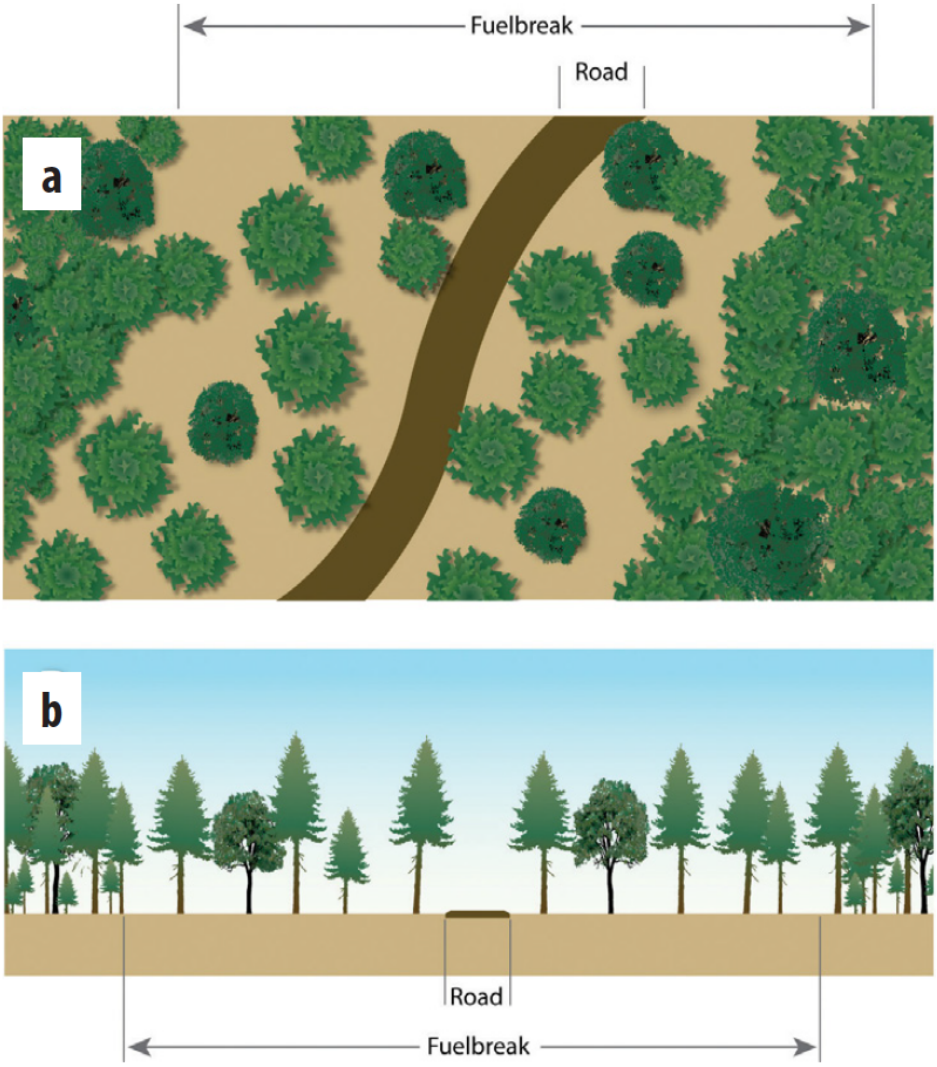


Figure 8. Fuelbreak example (Source: Pacific Northwest Extension Publication)

c. 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 a temporary or ongoing impacts to the environment?

This project may will have a less than significant impact.

In the Butte County General Plan, the Goal HS-12 is to protect people and property from wildland or urban fires, and one of the policies, HS-P12.2 is that fuel breaks shall be required along the edge of developing areas in High and Very Fire Hazard Severity Zone, which Butte Creek Canyon is in the High Severity

zone partially[67]. The HS-P12.4 details that all development projects in wildland urban interface areas in High or Very High Hazard Severity Zones shall provide a small-scale water systems for fire protection[68]. HS-P13.1 details that new development in High or Very High Fire Hazard Severity Zones shall identify access and egress routes and make improvements or contribute to a fund to develop, upgrade and maintain these routes[69]. With the project looking to increase structures by possibly 4 (headquarters, bathroom, possibly 2 temporary quarters for visiting researchers), that does not seem consistent with development at the level that Butte County is regulating for, so I believe that Butte County is exempt from these policies. This site does not allow for much development due to the base zoning of Resource Conservation allowing for residential uses in the Resource Conservation are limited to one single-family dwelling per legal parcel[70] and the minimum parcel size is 40 acres[71].

The Pacific Gas & Electric Company's Wildfire Mitigation plan does not detail any specific installation of fire-related infrastructure[72].

Given no specific installation of certain infrastructure, it will not exacerbate fire risk or that may result in a temporary or ongoing impacts to the environment.

d. Expose people or structure to significant risks, including downslope or downstream flooding or landslides, as a result of runoff, post-fire slope instability or drainage changes?

   This impact is a potentially significant impact. As the Watershed Emergency Response Team Report for the Camp Fire detailed, "Wildfire-induced loss of surface cover and enhancement of soil water repellency from wildfire can increase runoff generation and erosive power of overland flow, resulting in

[67] "Health and Safety Element." Butte County General Plan. October 26, 2010. https://www.buttecounty.net/Portals/10/Planning/General Plan/2018 Updated GP/11_Health_Safety_PRR.pdf.

[68] "Health and Safety Element." Butte County General Plan. October 26, 2010. https://www.buttecounty.net/Portals/10/Planning/General Plan/2018 Updated GP/11_Health_Safety_PRR.pdf.

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[70] "Land Use Element." Butte County General Plan. November 6, 2012. http://www.buttecounty.net/Portals/10/Planning/General Plan/2018 Updated

[71] "Land Use Element." Butte County General Plan. November 6, 2012. http://www.buttecounty.net/Portals/10/Planning/General Plan/2018 Updated GP/ButteCountyGeneralPlan2030_May2018-Red.pdf.

[72] "Pacific Gas and Electric Company's Wildfire Mitigation Plan." California Public Utilities Commission. February 6, 2009. http://docs.cpuc.ca.gov/PublishedDocs/Efile/G000/M263/K673/263673423.PDF.

accelerated erosion of material from hillslopes[73]". In addition, a burned watershed has the increased potential for damaging flood flows and increasing probability for debris flow, and rockfall from steep slope can happen and hillslope erosion that can impact roadways, drainage features, and water supplies. Lastly, since this is a historic mine site, there could be higher erosion and sedimentation rates, as well as increased runoff. Somon some actions to take are inspecting drainage culverts at road crossing for debris blockage, and maintaining channels free of debris upstream of structures[74].

The project can look at Erosion Risk Management Tool[75], to predict surface erosion from pre- and post-fire hillslopes, and evaluate the effectiveness of erosion mitigation practices[76] to see where, when, and how to apply the most effective post-fire erosion mitigation treatments requires land managers to assess the risk of damaging runoff and erosion events occurring after a fire[77].

Some mitigation practices that can be implemented are using barriers like straw wattles, sandbags, silt fences, straw bale check dams and log barriers to control erosion[78], and hydromulching, spraying a mixture of water, fiber mulch, and tackifier on burned sloped to control soil erosion and foster revegetation[79] .

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[74] "Watershed Emergency Response Team Report - Camp Fire 2018." State of California. November 29, 2018. http://cdfdata.fire.ca.gov/pub/cdf/images/incidentfile2277_4330.pdf.
[75] https://forest.moscowfsl.wsu.edu/cgi-bin/fswepp/ermit/ermit.pl
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