270 and 280 Casa Grande Road Creekwood Housing Development Project

SCH# 2022100452

Draft Environmental Impact Report

Prepared for

The City of Petaluma
Community Development Department

July 2024

Prepared by

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Lead Agency

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1. INTRODUCTION

1.1 TYPE AND PURPOSE OF THE EIR

The 270 and 280 Casa Grande Road Creekwood Housing Development Project Environmental Impact Report (EIR) has been prepared in accordance with the California Environmental Quality Act (CEQA) of 1970, Public Resources Code [PRC] Section 21000-21189, as amended, and the Guidelines for Implementation of the California Environmental Quality Act, California Code of Regulations [CCR] Title 14, Section 15000-15387 (CEQA Guidelines). The City of Petaluma is the lead agency for the environmental review of the 270 and 280 Casa Grande Road Creekwood Housing Development Project (proposed project) evaluated herein and has the principal responsibility for approving the project. As required by Section 15121 of the CEQA Guidelines, this EIR will (a) inform public agency decision-makers, and the public generally, of the significant environmental effects of the project, (b) identify possible ways to minimize the significant adverse environmental effects, and (c) describe reasonable and feasible project alternatives which reduce environmental effects. The public agency shall consider the information in the EIR along with other information that may be presented to the agency and must certify the EIR prior to taking action on the project entitlements.

As provided in the CEQA Guidelines Section 15021, public agencies are charged with the duty to avoid or minimize environmental damage where feasible. The public agency has an obligation to balance a variety of public objectives, including economic, environmental, and social issues. CEQA requires the preparation of an EIR prior to approving any project that may have a significant effect on the environment. For the purposes of CEQA, the term project refers to the whole of an action, which has the potential for resulting in a direct physical change or a reasonably foreseeable indirect physical change in the environment (CEQA Guidelines Section 15378[a]). With respect to the proposed project, the City has determined that the proposed development is a *project* within the definition of CEQA, which has the potential for resulting in significant environmental effects based on results of the Initial Study prepared for the proposed project. Accordingly, an EIR has been prepared.

The lead agency is required to consider the information in the EIR along with any other available information prior to deciding whether to approve the project. The basic requirements for an EIR include discussions of the environmental setting, environmental impacts, mitigation measures, alternatives, growth-inducing impacts, and cumulative impacts.

The CEQA Guidelines identify several types of EIRs, each applicable to different project circumstances. This EIR has been prepared as a *project-level EIR* pursuant to CEQA Guidelines Section 15161, which is an analysis that examines the environmental impacts of a specific development project. A *project-level EIR* focuses primarily on the changes in the environment that would result from the development of the project, and examines all phases of the project including planning, construction, and operation. The focus of the EIR, and the topics addressed herein, are described under Section 1.5, Scope of the EIR, of this chapter, below. As discussed in Section 1.5, an Initial Study was prepared by the City early in the CEQA process to focus the content of the EIR on those environmental topics concerning which the proposed project could have a significant impact.

1.2 KNOWN RESPONSIBLE AND TRUSTEE AGENCIES

"Responsible agency" means a public agency that proposes to carry out or approve a project for which a lead agency is preparing or has prepared an EIR or Negative Declaration. For the purpose of CEQA, the term responsible agency includes all California public agencies other than the lead agency that have discretionary approval power over the project or an aspect of the project. The San Francisco Bay Regional Water Quality Control Board (RWQCB) would be considered a responsible agency for the proposed project.

"Trustee agency" means a State agency having jurisdiction by law over natural resources affected by a project, which are held in trust for the people of the State of California. The only known trustee agency for the project is the California Department of Fish and Wildlife (CDFW).

Although not subject to California law and, thus, outside the definitions of responsible agency or trustee agency, the U.S. Army Corps of Engineers (USACE) and U.S. Fish and Wildlife Service (USFWS) may also be called upon to grant approvals — under federal law — necessary for the development of the project site. The above agencies do not have duties under CEQA, but, rather, are governed by a variety of federal statutes, such as the Clean Water Act, which governs the dredging and filling of waters of the U.S. (e.g., wetlands), and the Endangered Species Act, which requires USACE to consult with the USFWS as part of the review process for any wetland or fill permits that may be required.

1.3 PROJECT SUMMARY

This section provides an overview of the project location and components. For additional project description details, please refer to Chapter 3, Project Description, of this EIR.

Project Location and Setting

The project site consists of two parcels totaling approximately 5.2 acres that abut the eastern boundary of Casa Grande Road in the City of Petaluma. The parcels are identified by the following addresses and Assessor's Parcel Numbers (APNs): 270 Casa Grande Road (APN 017-040-051) and 280 Casa Grande Road (APN 017-040-016). In addition, a City-owned parcel identified by APN 017-410-042 is immediately adjacent to the project site's eastern boundary. The 280 Casa Grande Road parcel contains an existing residence and undeveloped land covered in grasses. The 270 Casa Grande Road parcel contains an existing residence, several associated outbuildings, a landscaped backyard, and a small orchard in the northeast corner of the project site, within a depressed area, near Adobe Creek (Creek). The Creek and its associated vegetation forms the eastern boundary of the project site. The remaining portions of the 270 Casa Grande Road parcel are generally characterized by grasses that are routinely mowed or grazed to reduce fire hazards. According to the City's General Plan, the project site is designated Medium Density Residential. The project site is zoned Residential (R4).

The project site is bound to the west by Casa Grande Road and to the east by the Creek and its associated riparian corridor. The project site's northern boundary abuts the Casa Grande Senior Apartments. A single-family residence is located further to the north. A single-family residential neighborhood is located to the east, across the Creek, with access from Spyglass Road. Further east from the single-family residences is a multifamily neighborhood, to which Lakeville Circle provides access. The project site's southern boundary abuts the recently completed Casa Grande Subdivision. An existing single-family residential neighborhood is located further to the south and abuts the southern property line of the Casa Grande Subdivision site (now referred to as Makenna). Casa Grande High School and Crinella Park are located to the west, across Casa

Grande Road, from the project site. It should be noted that Sonoma Mountain High School, an alternative high school in the City, is also located on the Casa Grande High School campus.

Project Components

The proposed project would include demolition of the on-site residence at 280 Casa Grande Road, retention of the existing residence at 270 Casa Grande Road, and development of 59 dwelling units. The proposed dwelling units would be constructed across three blocks. Block 1 units would be arranged in tri-plex configurations. Units within Blocks 2 and 3 would primarily be arranged in duet unit configurations. Each dwelling unit would include Usable Open Space (UOS) in the form of semi-private or private yard areas. In addition, the project would include construction of various on-site road and utility improvements, landscaping, and a new off-site public multi-use pathway, with a bridge connection over the Creek.

The project would require City approval of a Vesting Tentative Parcel Map, Site Plan and Architectural Review, and a Tree Removal Permit. In addition, the project would require other approvals from responsible and trustee agencies, including, but not necessarily limited to, CDFW approval of a 1600 Lake and Streambed Alteration Agreement and RWQCB approval of a NPDES Construction General Permit.

A fully detailed project description is provided in Chapter 3, Project Description, of this EIR.

1.4 EIR PROCESS

The EIR process begins with the decision by the lead agency to prepare an EIR, either during a preliminary review of a project or at the conclusion of an Initial Study. Once the decision is made to prepare an EIR, the lead agency sends a Notice of Preparation (NOP) to appropriate government agencies and, when required, to the State Clearinghouse (SCH) in the Office of Planning and Research (OPR), which will ensure that responsible and trustee State agencies reply within the required time. The SCH assigns an identification number to the project, which then becomes the identification number for all subsequent environmental documents on the project. Commenting agencies have 30 days to respond to the NOP and provide information regarding alternatives and mitigation measures they wish to have explored in the Draft EIR and to provide notification regarding whether the agency will be a responsible agency or a trustee agency for the project.

An NOP, as well as a detailed Initial Study (see Appendix A), was prepared for the proposed project and circulated from October 21, 2022 to November 21, 2022. A public scoping meeting was held on November 14, 2022 for the purpose of informing the public and receiving comments on the scope of the environmental analysis to be prepared for the proposed project. See Section 1.6 below for a summary of comments received on the NOP.

As soon as the Draft EIR is completed, a Notice of Completion will be filed with the SCH and a public notice of availability will be published to inform interested parties that a Draft EIR is available for agency and public review. In addition, the notice provides information regarding the location of copies of the Draft EIR available for public review and any public meetings or hearings that are scheduled. The Draft EIR will be circulated for a period of 45 days, during which time reviewers may provide comments. The lead agency must respond to comments in writing, describing the disposition of any significant environmental issues raised and explaining in detail the reasons for not accepting any specific comments concerning major environmental issues. If significant new information, as defined in CEQA Guidelines section 15088.5, is added to an EIR

after public notice of availability is given but before certification of the EIR, the revised EIR or affected chapters must be recirculated for an additional public review period with related comments and responses.

A Final EIR will be prepared, containing comments and responses to comments on the Draft EIR. The Final EIR will also include any changes to the Draft EIR text made as a result of public comment, as warranted. The Final EIR will also include the Mitigation Monitoring and Reporting Program (MMRP) prepared in accordance with PRC Section 21081.6. Before approving a project, the lead agency shall certify that the Final EIR has been completed in compliance with CEQA, and that the Final EIR has been presented to the decision-making body of the lead agency, which has reviewed and considered the EIR. The lead agency shall also certify that the Final EIR reflects the lead agency's independent judgment and analysis.

Pursuant to CCR Title 14, Section 15091, a public agency shall not approve or carry out a project for which an EIR has been certified which identifies one or more significant environmental effects of the project unless the public agency makes one or more written findings for each of those significant effects, accompanied by a brief explanation of the rationale for each finding. The findings prepared by the lead agency must be based on substantial evidence in the administrative record and must include an explanation that bridges the gap between evidence in the record and the conclusions required by CEQA. If the decision-making body elects to proceed with a project that would have unavoidable significant impacts, then a Statement of Overriding Considerations explaining the decision to balance the benefits of the project against unavoidable environmental impacts must be prepared.

1.5 SCOPE OF THE EIR

This EIR constitutes a project-level analysis for the proposed project and, pursuant to CEQA Guidelines Section 15161, covers "all phases of the project including planning, construction, and operation." State CEQA Guidelines § 15126.2(a) states, in pertinent part:

> An EIR shall identify and focus on the significant environmental effects of the proposed project. In assessing the impact of a proposed project on the environment, the lead agency should normally limit its examination to changes in the existing physical conditions in the affected area as they exist at the time the notice of preparation is published, or where no notice of preparation is published, at the time environmental analysis is commenced.

Pursuant to the CEQA Guidelines, the scope of this EIR addresses specific issues and concerns identified as potentially significant in the Initial Study prepared for the proposed project. Environmental issues dismissed in the Initial Study are discussed in Chapter 4, Introduction to the Analysis, of this EIR.

Environmental Issues Addressed in this EIR

The sections of the CEQA Guidelines Appendix G Checklist identified for study in this EIR include the following:

- Biological Resources;
- Greenhouse Gas Emissions;
- Hydrology and Water Quality; and
- Transportation.

The evaluation of effects is presented on a resource-by-resource basis in Chapters 4.1 through 4.4 of the EIR. Each chapter is divided into the following four sections: Introduction, Existing Environmental Setting, Regulatory Context, and Impacts and Mitigation Measures. Impacts that are determined to be significant in Chapters 4.1 through 4.4, and for which feasible mitigation measures are not available to reduce those impacts to a less-than-significant level, are identified as *significant and unavoidable*. Chapter 5 presents a discussion of growth-inducing impacts, a summary of cumulative impacts, and significant irreversible as well as significant unavoidable environmental changes associated with the project. Alternatives to the proposed project are discussed in Chapter 6 of this EIR.

1.6 COMMENTS RECEIVED ON THE NOTICE OF PREPARATION

During the NOP public review period from October 21, 2022 to November 21, 2022, the City of Petaluma received 11 comment letters (including two comment letters from Rick Parker). Four verbal comments were received at the public scoping meeting held on November 14, 2022. A copy of each letter submitted is provided in Appendix B to this EIR. The letters regarding the NOP were received from the following public agencies and individuals:

Public Agencies

- Department of Fish and Wildlife – Erin Chappell;
- Native American Heritage Commission —Cameron Vela; and
- National Oceanic and Atmospheric Administration – Jodi Charrier.

Individuals

- Carol Crabill;
- Steven J. Lafranchi;
- Joe Lampe;
- Caroline McFarland;
- Rick Parker;
- Jason and Teresa Shern; and
- Gordon Wong.

The following list, categorized by issue, summarizes the concerns brought forth in the comment letters and verbal comments received on the scope of the EIR:

Biological Resources (Chapter 4.1)	Concerns related to: • Adverse impact to California Coast Steelhead and designated critical habitat. • Impacts upon Adobe Creek and associated riparian habitat. • Adverse impact to Pacific Salmon and designated critical habitat. • Impacts upon migratory birds protected under the federal Migratory Bird Treaty Act. • Impacts upon protected habitats as well as special-status plant and wildlife species.
Hydrology and Water Quality (Chapter 4.3)	Concerns related to: • Increased potential for flooding. • Inaccurate description of the proposed CLOMR boundaries.
Transportation (Chapter 4.4)	Concerns related to: • Increase in traffic volume. • Insufficient quality of Ely Boulevard in the project vicinity.

	• Adverse impacts upon emergency evacuation. • Increase in Vehicle Miles Traveled (VMT). • Lack of sidewalks in the vicinity of the proposed project can lead to safety concerns. • Access to transit connections, types of transit connections, and connection between project site and nearby activity centers.
Initial Study (Appendix A)	Concerns related to: • Aesthetic impacts of building the proposed bridge across Adobe Creek. • Increased traffic noise. • Increased pedestrian noise along the proposed bridge across Adobe Creek. • Inadvertently discovered Native American cultural items and/or human remains. • Inconsistency with City goals to develop housing in central Petaluma.

Concerns related to biological resources, greenhouse gas emissions, hydrology and water quality, and transportation are addressed in this EIR. All other issues are discussed in the Initial Study (see Appendix A) prepared for the proposed project.

1.7 DRAFT EIR AND PUBLIC REVIEW

This Draft EIR is being circulated for public review and comment for a period of 45 days. During this period, the general public, organizations, and agencies can submit comments to the Lead Agency on the Draft EIR's accuracy and completeness. Release of the Draft EIR marks the beginning of a 45-day public review period pursuant to CEQA Guidelines Section 15105. The public can review the Draft EIR at the City's website at:

https://cityofpetaluma.org/planning-major-developments/

All comments or questions regarding the Draft EIR should be addressed to:

Greg Powell, Principal Planner
City of Petaluma Community Development Department, Planning Division
11 English Street
Petaluma, CA 94952
(707) 778-4470
gpowell@cityofpetaluma.org

1.8 ORGANIZATION OF THE DRAFT EIR

The EIR is organized into the following sections:

Chapter 1 – Introduction

Provides an introduction and overview describing the intended use of the Draft EIR and the review and certification process, as well as summaries of the chapters included in the Draft EIR and summaries of the issues and concerns received from the public and public agencies during the NOP review period.

Chapter 2 – Executive Summary
Summarizes the elements of the project, project alternatives, and the environmental impacts that would result from implementation of the proposed project, describes proposed mitigation measures, and indicates the level of significance of impacts after mitigation.

Chapter 3 – Project Description
Provides a detailed description of the proposed project, including the project's location, background information, objectives, and technical characteristics.

Chapter 4.0 – Environmental Setting, Impacts, and Mitigation
Contains a project-level and cumulative analysis of environmental issue areas associated with the proposed project. The section for each environmental issue contains an introduction and description of the setting of the project site as well as an overview of regulatory context, identifies impacts, and recommends appropriate mitigation measures.

Chapter 4.1 – Biological Resources
The Biological Resources chapter of the EIR will summarize the setting and describe the potential project effects on rare, endangered, candidate, sensitive, and other special-status species that may inhabit the project site. This chapter of the EIR will also evaluate the project's potential effects on sensitive habitats, including but not necessarily limited to riparian habitat and State or federally protected wetlands. Effects associated with all on-site and off-site improvements will be included in the analysis. Analysis in the chapter will be based on a Biological Resources Assessment prepared specifically for the project. Mitigation measures for all identified impacts will be developed consistent with applicable laws and regulations.

Chapter 4.2 – Greenhouse Gas Emissions
The Greenhouse Gas (GHG) Emissions chapter of the EIR will include a discussion of the existing regulatory setting and context related to GHG Emissions, including Assembly Bill (AB) 32 and Senate Bill (SB) 32, and an impacts and mitigation section with quantitative data showing the project's contribution to the generation of GHG emissions during the construction and operational phases of the project, as well as a qualitative discussion of project consistency with the design features required by BAAQMD. Feasible and appropriate mitigation measures to avoid or reduce adverse impacts will be identified, as needed.

Chapter 4.3 – Hydrology and Water Quality
The Hydrology and Water Quality chapter of the EIR will summarize setting information and identify potential impacts on stormwater drainage, flooding, and water quality, including stormwater runoff water quality. The Hydrology and Water Quality chapter will evaluate project-related increases in impervious surfaces and stormwater flows, increases in downstream flooding, and on-site facilities necessary to treat and detain on-site runoff. In addition, the chapter will evaluate impacts associated with alteration of the existing drainage patterns. The chapter will primarily be based on a project-specific Hydrology Analysis, Preliminary Drainage Report, and Storm Water Quality Report.

Chapter 4.4 – Transportation
The Transportation chapter of the EIR will be based on a Transportation Impact Study prepared specifically for the project. Impact determination for CEQA purposes will be based on VMT, consistent with CEQA Guidelines Section 15064.3, which became effective statewide on July 1, 2020. The EIR chapter will also include an analysis of the project's potential to conflict with

applicable programs, policies, and ordinances addressing the circulation system, vehicle safety hazards, and emergency access. Feasible and appropriate mitigation measures to avoid or reduce adverse impacts will be identified, as needed.

Chapter 5 – Statutorily Required Sections

The Statutorily Required Sections chapter of the EIR provides discussions required by CEQA regarding impacts that would result from the proposed project, including a summary of cumulative impacts, potential growth-inducing impacts, significant and unavoidable impacts, and significant irreversible changes to the environment.

Chapter 6 – Alternatives Analysis

The Alternatives Analysis chapter of the EIR describes and evaluates the alternatives to the proposed project. It should be noted that the alternatives will be analyzed at a level of detail less than that of the proposed project; however, the analyses will include sufficient detail to allow for a meaningful comparison of impacts.

Chapter 7 – EIR Authors and Persons Consulted

The EIR Authors and Persons Consulted chapter of the EIR lists EIR and technical report authors who provided technical assistance in the preparation and review of the EIR.

Chapter 8 – References

The References chapter of the EIR provides bibliographic information for all references and resources cited.

Appendices

The Appendices include the NOP and Initial Study, comments received during the NOP comment period, and all technical reports prepared for the proposed project.

2. Executive Summary

2. EXECUTIVE SUMMARY

2.1 INTRODUCTION

The Executive Summary chapter of the EIR provides an overview of the proposed project (see Chapter 3, Project Description, for further details) and provides a table summary of the conclusions of the environmental analysis provided in Chapters 4.1 through 4.4. This chapter also summarizes the alternatives to the proposed project that are described in Chapter 6, Alternatives Analysis, and identifies the Environmentally Superior Alternative. Table 2-1 contains the environmental impacts associated with the proposed project, the significance of the impacts, the proposed mitigation measures for the impacts, and the significance of the impacts after implementation of the mitigation measures. Environmental issues dismissed in the Initial Study are discussed in Chapter 4.0, Introduction to the Analysis, of this EIR.

2.2 SUMMARY DESCRIPTION OF THE PROPOSED PROJECT

The project site consists of two parcels totaling approximately 5.2 acres that abut the eastern boundary of Casa Grande Road in the City of Petaluma. The 280 Casa Grande Road parcel contains an existing residence and undeveloped land covered in non-native grasses. The 270 Casa Grande Road parcel contains an existing residence, several associated outbuildings, a landscaped backyard, and a small orchard in the northeast corner of the project site, within a depressed area, near Adobe Creek (Creek). The Creek and its associated riparian corridor forms the eastern boundary of the project site (Assessor's Parcel Number [APN] 017-410-042). The remaining portions of the 270 Casa Grande Road parcel are generally characterized by grasses that are routinely mowed or grazed to reduce fire hazards. According to the City's General Plan, the project site is designated Medium Density Residential. The project site is zoned Residential (R4).

The project site is bound to the west by Casa Grande Road and to the east by the Creek and its associated riparian corridor. The project site's northern boundary abuts the Casa Grande Senior Apartments. A single-family residence is located further to the north. A single-family residential neighborhood is located to the east, across the Creek, with access from Spyglass Road. Further east from the single-family residences is a multifamily neighborhood, to which Lakeville Circle provides access. The project site's southern boundary abuts the recently completed Casa Grande Subdivision. An existing single-family residential neighborhood is located further to the south and abuts the southern property line of the Casa Grande Subdivision site. Casa Grande High School and Crinella Park are located to the west, across Casa Grande Road, from the project site. It should be noted that Sonoma Mountain High School, an alternative high school in the City, is also located on the Casa Grande High School campus.

Project Description

The proposed project would include demolition of the on-site residence at 280 Casa Grande Road, retention of the existing residence at 270 Casa Grande Road, and development of 59 dwelling units. The proposed dwelling units would be constructed across three blocks. Block 1 units would be arranged in tri-plex configurations. Units within Blocks 2 and 3 would primarily be arranged in duet unit configurations. Each dwelling unit would include Usable Open Space (UOS) in the form of semi-private or private yard areas. In addition, the project would include construction

of various on-site road and utility improvements, landscaping, and a new off-site public multi-use pathway, with a pedestrian bridge connection over the Creek.

The project would require City approval of a Vesting Tentative Parcel Map, Site Plan and Architectural Review, and a Tree Removal Permit. In addition, the project would require other approvals from responsible and trustee agencies, including, but not necessarily limited to, CDFW approval of a 1600 Lake and Streambed Alteration Agreement and Regional Water Quality Control Board (RWQCB) approval of a Section 401 Water Quality Certification, a National Pollutant Discharge Elimination System (NPDES) Construction and MS4 General Permit.

Project Approvals

The proposed project would require City of Petaluma approval of the following entitlements:

- Vesting Tentative Parcel Map;
- Site Plan and Architectural Review; and
- Tree Removal Permit.

In addition to the above City approvals, the proposed project could require the following approvals/permits from other responsible and trustee agencies:

- Section 401 Water Quality Certification (RWQCB – San Francisco Bay Region);
- Section 1600 Lake and Streambed Alteration Agreement (CDFW-Region 3);
- NPDES Construction General Permit (RWQCB – San Francisco Bay Region); and
- NPDES Phase II MS4 General Permit (RWQCB – San Francisco Bay Region).

While not a State Responsible Agency, the proposed project could require issuance of a Clean Water Act Section 404 permit by the U.S. Army Corps of Engineers, if the project would result in discharges of fill below the Ordinary High-Water Mark of the Creek.

Please refer to Chapter 3, Project Description, of this EIR for a detailed description of the proposed project and entitlements, as well as a full list of the project objectives.

2.3 ENVIRONMENTAL IMPACTS AND PROPOSED AND RECOMMENDED MITIGATION

Under CEQA, a significant effect on the environment is defined as a substantial, or potentially substantial, adverse change in any of the physical conditions within the area affected by the project, including land, air, water, mineral, flora, fauna, ambient noise, and objects of historic or aesthetic significance. Mitigation measures must be implemented as part of the proposed project to reduce potential adverse impacts to a less-than-significant level. Such mitigation measures are noted in this EIR and are found in the following technical chapters: Biological Resources; Greenhouse Gas (GHG) Emissions; Hydrology and Water Quality; and Transportation. Additionally, the Initial Study prepared for the proposed project (see Appendix A) includes mitigation measures that must be implemented as part of the proposed project associated with the following resource areas: Cultural Resources; Geology and Soils; Hazards and Hazardous Materials; Noise; and Tribal Cultural Resources. The mitigation measures required for the proposed project, as presented in this EIR and the Initial Study, will form the basis of the Mitigation Monitoring and Reporting Program. Any impact that remains significant after implementation of mitigation measures is considered a significant and unavoidable impact. Environmental issues

dismissed in the Initial Study are further discussed in Chapter 4.0, Introduction to the Analysis, of this EIR.

A summary of the impacts identified in each technical chapter (Chapters 4.1 through 4.4) of the EIR, as well as the Initial Study (see Appendix A) is presented in Table 2-1 included at the end of this chapter. In addition, Table 2-1 includes the level of significance of each impact, any mitigation measures required for each impact, and the resulting level of significance after implementation of mitigation measures for each impact.

2.4 SUMMARY OF PROJECT ALTERNATIVES

The following section presents a summary of the alternatives evaluated in this EIR for the proposed project, which include the following:

- No Project (No Build) Alternative;
- No Bridge Alternative; and
- Affordable Housing Alternative.

For a more thorough discussion of project alternatives that were evaluated in this EIR, including alternatives considered but dismissed, please refer to Chapter 6, Alternatives Analysis.

No Project (No Build) Alternative

The No Project (No Build) Alternative assumes that the project site would remain in its current condition and would not be developed. As described in this EIR, the 280 Casa Grande Road (Assessor's Parcel Number [APN] 017-040-016) parcel contains an existing residence and undeveloped land covered in grasses. The 270 Casa Grande Road (APN 017-040-051) parcel contains an existing residence, several associated outbuildings, a landscaped backyard, and a small orchard in the northeast corner of the project site, within a depressed area, near the Creek, which forms the eastern boundary of the project site. The remaining portions of the 270 Casa Grande Road parcel are generally characterized by grasses that are routinely mowed or grazed to reduce fire hazards. Grazing of both parcels is conducted by several sheep owned and cared for by the current 270 Casa Grande Road property owner.

Although none of the impacts identified for the proposed project would occur under the No Project (No Build) Alternative, the No Project (No Build) Alternative would not meet any of the project objectives.

No Bridge Alternative

The No Bridge Alternative would include demolition of the on-site residence at 280 Casa Grande Road, retention of the existing residence at 270 Casa Grande Road, development of 59 dwelling units, construction of various on-site road and utility improvements, landscaping, and a new off-site public multi-use pathway. However, the bridge connection over the Creek for the public multi-use pathway would not be developed under the No Bridge Alternative. Given that the majority of on- and off-site improvements required under the No Bridge Alternative would still be developed, the Alternative would still require a Vesting Tentative Parcel Map, Site Plan and Architectural Review, and a Tree Removal Permit. In addition, because the No Bridge Alternative would generally result in similar development of the proposed project, Objectives #1 through #3, #6, and #7 would be fully met. However, because the bridge connection would not be developed Objective #4 would only be partially met, and Objective #5 would not be met.

Relative to the proposed project, the No Bridge Alternative would result in fewer impacts related to biological resources and hydrology and water quality and greater impacts related to GHG emissions and transportation. The significant and unavoidable impacts to GHG emissions and transportation that were identified for the proposed project would remain under the No Bridge Alternative. Given that development of the No Bridge Alternative would involve a similar disturbance footprint and development of the same land uses as compared to the proposed project, impacts associated with the other CEQA topics in which the proposed project could have significant impacts, as identified in the Initial Study (cultural resources, geology, hazards, noise, and tribal cultural resources), would be anticipated to be similar in scale under the No Bridge Alternative.

Affordable Housing Alternative

Under the Affordable Housing Alternative, the 59 residential units proposed to be developed on-site would be offered as affordable housing. All other on- and off-site improvements proposed as part of the project, including demolition of the on-site residence at 280 Casa Grande Road, retention of the existing residence at 270 Casa Grande Road, construction of various on-site road and utility improvements, landscaping, and a new off-site public multi-use pathway, with a bridge connection over the Creek, would remain the same. Given that all on- and off-site improvements required under the Affordable Housing Alternative would be the same as the proposed project, the Alternative would still require a Vesting Tentative Parcel Map, Site Plan and Architectural Review, and a Tree Removal Permit. In addition, because the Affordable Housing Alternative would generally result in similar development of the proposed project, all project objectives would be met.

The Affordable Housing Alternative would result in fewer impacts related to GHG emissions and transportation, and similar impacts related to biological resources and hydrology and water quality. Given that development of the Affordable Housing Alternative would involve the same disturbance footprint and development of the similar land uses as compared to the proposed project, impacts associated with the other CEQA topics in which the proposed project could have significant impacts, as identified in the Initial Study (cultural resources, geology, hazards, noise, and tribal cultural resources), are anticipated to be similar in scale under the Affordable Housing Alternative.

Environmentally Superior Alternative

An EIR is required to identify the environmentally superior alternative from among the range of reasonable alternatives that are evaluated. Section 15126(e)(2) of the CEQA Guidelines requires that an environmentally superior alternative be designated and states, “If the environmentally superior alternative is the ‘no project’ alternative, the EIR shall also identify an environmentally superior alternative among the other alternatives.” In this case, the No Project (No Build) Alternative would be considered the environmentally superior alternative, because the project site is assumed to remain in its current condition under the alternative. Consequently, impacts resulting from the proposed project would not occur under the Alternative.

The No Project (No Build) Alternative would not meet any of the project objectives. Both the No Bridge Alternative and the Affordable Housing Alternative would meet most project objectives. As previously noted, the No Bridge Alternative would fully meet Objectives #1 through #3, #6, and #7. However, because the bridge connection would not be developed, Objective #4 would only be partially met, and Objective #5 would not be met. The Affordable Housing Alternative would meet all objectives.

The No Bridge Alternative could result in greater impacts than the proposed project related to GHG emissions and transportation; fewer impacts related to biological resources and hydrology and water quality, and similar impacts to the proposed project for cultural resources, geology and soil, hazards and hazardous materials, noise, and tribal cultural resources. The Affordable Housing Alternative would result in fewer impacts related to GHG emissions and transportation, and similar impacts to the proposed project for biological resources, cultural resources, geology and soil, hazards and hazardous material, hydrology and water quality, noise, and tribal cultural resources.

Based on the above, the Affordable Housing Alternative would be considered the environmentally superior alternative to the proposed project.

2.5 AREAS OF KNOWN CONTROVERSY

Areas of controversy that were identified in NOP comment letters, and are otherwise known for the project area, include the following:

- Concerns related to special-status wildlife species, such as California coast steelhead, Pacific salmon, and migratory birds protected under the federal Migratory Bird Treaty Act; special-status plant species; and designated critical habitat;
- Potential impacts to Adobe Creek and associated riparian habitat;
- Increased potential for flooding due to increases in impervious surface area;
- Concerns related to increases in traffic and vehicle miles traveled;
- Insufficient quality of Ely Boulevard in the project vicinity;
- Potential impacts to emergency evacuation routes;
- Safety concerns related to the lack of sidewalks in the vicinity of the proposed project;
- Concerns related to access to transit connections, types of transit connections, and the connection between the project site and nearby activity centers;
- Aesthetic impacts of building the proposed bridge across the Creek;
- Increased traffic noise, as well as increases in pedestrian noise along the proposed bridge across the Creek;
- Inadvertent discovery of Native American resources and/or human remains; and
- Inconsistency with City goals to develop housing in central Petaluma.

Table 2-1
Summary of Impacts and Mitigation Measures

Impact	Level of Significance Prior to Mitigation	Mitigation Measures	Level of Significance After Mitigation
4.1. Biological Resources			
4.1-1 Have a substantial adverse effect, either directly or through habitat modifications, on special-status plant species.	S	*4.1-1 Prior to initial ground-disturbing activities, special-status plant surveys shall be conducted by a qualified biologist in areas proposed for disturbance in accordance with the USFWS Guidelines for Conducting and Reporting Botanical Inventories for Federally Listed, Proposed, and Candidate Plants, the CNPS Botanical Survey Guidelines of the California Native Plant Society, and CDFW Protocols for Surveying and Evaluating Impacts to Special Status Native Plant Populations and Natural Communities. A report summarizing the results of the special-status plant surveys shall be submitted for review and approval to the City of Petaluma Community Development Department. If special-status plant species are not found, further mitigation shall not be required.* *If special-status perennial species are found within the proposed impact area, such as Sanford's arrowhead, the plants shall be dug up and transplanted into a suitable avoided area on-site (or elsewhere as appropriate to facilitate greatest success of transplanting) prior to construction. If the plant found is an annual, such as Pacific Grove clover, then mitigation shall consist of collecting seed-bearing soil and spreading it into a suitable constructed wetland at a mitigation site. If special-status plants would be impacted, as determined by a qualified biologist, a mitigation plan shall be*	LS

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Table 2-1
Summary of Impacts and Mitigation Measures

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			developed and submitted for review and approval to the City of Petaluma and California Department of Fish and Wildlife (CDFW). Mitigation for the transplantation and/or establishment of rare plants shall result in no net loss of individual plants after a five-year monitoring period.	
4.1-2 Have a substantial adverse effect, either directly or through habitat modifications, on western bumble bee.	S	*4.1-2(a)*	*If feasible, initial ground-disturbing activities associated with the proposed project (e.g., grading, vegetation removal, staging) shall take place between September 1 and March 31 (i.e., outside the colony active period) to avoid potential impacts on western bumble bee. If completing all initial ground-disturbing activities between September 1 and March 31 is not feasible, then at a maximum of 14 days prior to the commencement of construction activities, a qualified biologist with 10 or more years of experience conducting biological resource surveys within California shall conduct a preconstruction survey for western bumble bees in the area(s) proposed for impact.* *The survey shall occur during the period from one hour after sunrise to two hours before sunset, with temperatures between 65 degrees Fahrenheit and 90 degrees Fahrenheit, with low wind and zero rain. If the timing of the start of construction makes the survey infeasible due to the temperature requirements, the surveying biologist shall select the most appropriate days based on the National Weather Service seven-day forecast and shall survey*	LS

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Table 2-1
Summary of Impacts and Mitigation Measures

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		at a time of day that is closest to the temperature range stated above. The survey duration shall be commensurate with the extent of suitable floral resources (which represent foraging habitat) present within the area proposed for impact, and the level of effort shall be based on the metric of a minimum of one person-hour of searching per three acres of suitable floral resources/foraging habitat. A meandering pedestrian survey shall be conducted throughout the area proposed for impact in order to identify patches of suitable floral resources. Suitable floral resources for western bumble bee include species in the following families: Asteraceae, Fabaceae, Rhamnaceae, and Rosaceae, as well as plants in the genera Eriogonum and Penstemon. *At a minimum, preconstruction survey methods shall include the following:* • *Search areas with floral resources for foraging western bumble bees. Observed foraging activity may indicate a nest is nearby, and therefore, the survey duration shall be increased when foraging western bumble bees are present;* • *If western bumble bees are observed, watch any special-status western bumble bees present and observe their flight patterns. Attempt to track their movements between foraging areas and the nest;*	

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		• *Visually look for nest entrances. Observe burrows, any other underground cavities, logs, or other possible nesting habitat;* • *If floral resources or other vegetation preclude observance of the nest, small areas of vegetation may be removed via hand removal, line trimming, or mowing to a height of a minimum of four inches to assist with locating the nest;* • *Look for concentrated western bumble bee activity;* • *Listen for the humming of a nest colony; and* • *If western bumble bees are observed, attempt to photograph the individual and identify it to species.* *The biologist conducting the survey shall record when the survey was conducted, a general description of any suitable foraging habitat/floral resources present, a description of observed western bumble bee activity, a description of any vegetation removed to facilitate the survey, and their determination of if survey observations suggest a western bumble bee nest(s) may be present or if construction activities could result in take of western bumble bee. The report shall be submitted to the City of Petaluma Community Development Department prior to the commencement of construction activities.*	

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Table 2-1
Summary of Impacts and Mitigation Measures

Impact	Level of Significance Prior to Mitigation	Mitigation Measures	Level of Significance After Mitigation
		If western bumble bees are not located during the preconstruction survey, then further mitigation or coordination with the CDFW is not required. *If any sign(s) of a bumble bee nest is observed, and if the species present cannot be established as a common bumble bee, then construction shall not commence until either (1) the bumble bees present are positively identified as common (i.e., not a western bumble bee), or (2) the completion of coordination with CDFW to identify appropriate mitigation measures, which may include, but not be limited to, waiting until the colony active season ends, establishment of nest buffers, or obtaining an Incidental Take Permit (ITP) from CDFW.* *If western bumble bees are located, and after coordination with CDFW take of western bumble bees cannot be avoided, the project applicant shall obtain an ITP from CDFW, and the applicant shall implement all conditions identified in the ITP. Mitigation required by the ITP may include, but not be limited to, the project applicant translocating nesting substrate in accordance with the latest scientific research to another suitable location (i.e., a location that supports similar or better floral resources as the impact area), enhancing floral resources on areas of the project site that will remain appropriate habitat, worker awareness training, and/or other measures specified by CDFW.*	

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Summary of Impacts and Mitigation Measures

Impact	Level of Significance Prior to Mitigation	Mitigation Measures	Level of Significance After Mitigation
		4.1-2(b) *If western bumble bees are identified on-site by a qualified biologist, the following provisions shall be implemented to offset the loss or disturbance of foraging habitat (native forbs and shrubs): plant species that are known nectar sources of the western bumble bee shall be replaced at a 2:1 ratio, or as otherwise recommended by a qualified biologist and CDFW, and shall be included in a revised landscaping plan. The revised landscaping plan shall be submitted to the City of Petaluma Community Development Department for review and approval prior to commencement of construction activities. Plant species shall be sited in concentrated locations selected in consultation with a qualified biologist and CDFW, as necessary, to ensure the long-term survival of such plants and to limit disturbance throughout project operation. Plant species known to benefit the western bumble bee include, but are not limited to, Asteraceae, Fabaceae, Rhamnaceae, and Rosaceae, as well as plants in the genera Eriogonum and Penstemon. If western bumble bee are not identified on-site, the requirements of this measure shall be limited to the inclusion of native plant species in the aforementioned taxonomic families within the project landscaping plan, to the satisfaction of the City of Petaluma Community Development Department.*	
4.1-3 Have a substantial adverse effect, either directly or	S	*4.1-3(a)* *Construction activities within 50 feet of Adobe Creek (Creek) shall be conducted outside of the known*	LS

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Table 2-1
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Impact	Level of Significance Prior to Mitigation	Mitigation Measures	Level of Significance After Mitigation
through habitat modifications, on anadromous fish.		*salmonid winter and fall runs (known to occur from November to April for the project region). Prior to issuance of grading permit, the foregoing provision shall be noted on the final improvement plans, which shall be subject to review and approval by the City of Petaluma Community Development Department. The City shall also coordinate with the National Oceanic and Atmospheric Administration (NOAA) Fisheries/West Coast Region to obtain its concurrence that the language is acceptable, prior to approval of final improvement plans.* *4.1-3(b) Prior to the commencement of construction, standard erosion-control best management practices (BMPs) shall be implemented around the proposed disturbance areas. A qualified biologist shall be present during installation of the BMPs to ensure special-status wildlife species are not harmed during installation or become entrapped within the disturbance area. The BMPs shall be included in the final improvement plans and subject to review and approval by the City of Petaluma Community Development Department. The City shall also coordinate with the NOAA Fisheries/West Coast Region to obtain its concurrence that the BMPs are acceptable, prior to approval of final improvement plans.* *4.1-3(c) Implement Mitigation Measures 4.1-7(a) and 4.1-7(b) and Mitigation Measures 4.1-8(a) through 4.1-8(c).*	

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Summary of Impacts and Mitigation Measures

Impact	Level of Significance Prior to Mitigation	Mitigation Measures	Level of Significance After Mitigation
4.1-4 Have a substantial adverse effect, either directly or through habitat modifications, on foothill yellow-legged frog, California red-legged frog, and northwestern pond turtle.	S	*4.1-4(a)* *Within 14 days prior to the commencement of construction (including tree trimming and removal), a qualified biologist approved by the U.S. Fish and Wildlife Service (USFWS) and/or CDFW shall conduct preconstruction surveys of all areas proposed for ground disturbance within suitable habitats for special-status species, including foothill yellow-legged frog (FYLF), California red-legged frog (CRLF), and northwestern pond turtle. The preconstruction surveys shall occur in areas within and adjacent to the project site to determine if the foregoing special-status species are present and shall not be completed more than five days prior to the initiation of grading activities in habitats where FYLF, CRLF, and northwestern pond turtle have potential to occur. A report summarizing the results of the preconstruction surveys shall be submitted for review and approval to the City of Petaluma Community Development Department.* *If any special-status species are found, the qualified biologist shall contact the CDFW (and USFWS) to determine whether relocation and/or additional exclusion buffers are appropriate. If CDFW approves relocating the animal(s), the qualified biologist shall be given sufficient time to move the animal(s) from the work site before work construction activities begin.*	LS

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Summary of Impacts and Mitigation Measures

Impact	Level of Significance Prior to Mitigation	Mitigation Measures	Level of Significance After Mitigation
		Following construction activities, results from any sensitive species surveys shall be documented in a memorandum and provided to the City of Petaluma Community Development Department within 30 days following the end of construction activities, or sooner, if requested by City staff.	
		4.1-4(b) If disturbance is to occur within the ordinary high-water mark (OHWM) of the Creek, the project applicant shall complete Section 7 consultation with the USFWS and the National Oceanic and Atmospheric Administration (NOAA) Fisheries/National Marine Fisheries Service (NMFS) for potential impacts to federally listed species, prior to the commencement of construction. Proof of compliance with the foregoing provisions shall be documented and submitted for review and approval to the City of Petaluma Community Development Department.	
		4.1-4(c) Within 14 days prior to the commencement of construction activities, exclusionary fencing shall be installed along the work area boundary, as determined by a qualified biologist. Exclusionary fencing shall act as a barrier to keep special-status species from entering the work area. An Exclusionary Fence Plan shall be prepared by a qualified biologist and subject to review and approval by USFWS/CDFW and the City of Petaluma Community Development Department. The Exclusionary Fence	

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		Plan shall include, but not necessarily be limited to, the following components: *a. Areas approved for grading and clearing shall be delineated with suitable fencing materials and dimensions (such as temporary high-visibility orange-colored fence or silt fence at least four feet in height, flagging, or other barriers and buried to a depth of at least four inches) to act as a barrier to keep special-status species from entering the project site. Signs shall be posted that clearly state that construction personnel and equipment are excluded from the marked area. The fencing shall be inspected and approved by a qualified biologist and maintained daily until all construction activities are complete. The fencing shall be removed only when all construction equipment is not on-site any longer. Construction activities shall not take place outside the delineated project site.* *b. To avoid attracting predators, food-related trash shall be kept in closed containers and removed daily from the exclusion zone.* *c. At the end of each day, all construction-related holes or trenches deeper than one foot shall be covered to prevent entrapment of special-status species.*	

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Impact	Level of Significance Prior to Mitigation	Mitigation Measures	Level of Significance After Mitigation
		d. Prior to the commencement of daily construction activities, all conduits and pipes shall be inspected for the presence of animals. Removal of any animals shall be done in consultation with the approved qualified biologist. *e. Prior to the commencement of construction, any vegetation removed prior to the start of construction activities shall be placed away from sensitive species exclusion areas so that cut vegetation does not remain once exclusionary fencing is installed. All removed non-native, invasive vegetation shall be discarded off-site and away from aquatic resources to prevent reseeding.* *4.1-4(d) Within 14 days prior to the commencement of construction, a qualified biologist shall conduct an Environmental Awareness Training session to familiarize all construction personnel with identification of special-status species and associated habitats, general provisions and protections afforded by the federal Endangered Species Act (FESA) and California Endangered Species Act (CESA), measures implemented to protect such species, actions to be taken if protected species are observed on-site, and a review of project site boundaries and job site maintenance protocols (i.e., worker-generated trash, worker vehicle and construction equipment parking, and disposal of*	

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Impact	Level of Significance Prior to Mitigation	Mitigation Measures	Level of Significance After Mitigation
		construction wastes). All personnel shall sign an affidavit acknowledging participation in the training and understanding species legal status, penalties for violations, and all protective measures. A wallet-sized card or fact sheet handout shall be distributed to all crews on-site. Proof of completion of the training for all on-site personnel shall be kept on-site and submitted for review and approval to the City of Petaluma Community Development Department. *4.1-4(e) During project construction, grading activities shall cease a half-hour before sunset and shall not commence prior to a half-hour before sunrise. Grading activities shall be prohibited during rain events that meet the following conditions: within 24 hours of events predicted to deliver more than 0.2-inch of rain and within 24 hours after rain events exceeding 0.2-inch in measurable precipitation. Grading shall not occur after 0.5-inch of rain has occurred after November 1 in the year construction grading work is occurring unless a one-week extension based on fair weather is approved by the City of Petaluma, CDFW, and the Regional Water Quality Control Board (RWQCB). The foregoing provisions shall be noted on the final improvement plans, which shall be verified by the City of Petaluma Community Development Department.* *4.1-4(f) Prior to the commencement of any effort to advertise or promote the sale of any of the proposed dwelling*	

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Impact	Level of Significance Prior to Mitigation	Mitigation Measures	Level of Significance After Mitigation
		units, all promotional materials, deeds/rental agreements, etc., shall include information that informs all tenants that dogs are to be leashed at all times within development boundaries, including within 50 feet of the riparian habitat within the study area, in order to ensure that sensitive resources and riparian habitat are preserved. Proof of compliance with the foregoing provision shall be submitted for review and approval to the City of Petaluma Community Development Department. *4.1-4(g) Prior to the commencement of construction, the project applicant shall include a design sheet of the proposed trash enclosure and receptacles as part of the improvement plan submittal. The design sheet shall note that trash receptacles must be secured within enclosures that exclude mesopredators (e.g., racoons and coyotes) to avoid attracting and subsidizing such predators. On-site trash enclosures and receptacles shall also be routinely maintained. Inclusion of the design sheet shall be subject to review and approval by the City of Petaluma Community Development Department.*	
4.1-5 Have a substantial adverse effect, either directly or through habitat modifications, on Swainson's hawk and other nesting birds and raptors protected under the MBTA and CFGC.	S	*4.1-5 During project construction, site preparation activities, including tree trimming and removal, should occur between September 1 and January 31, outside of the bird nesting season. If vegetation removal or construction begins between February 1 and August 31, preconstruction nesting bird surveys shall be conducted by a qualified biologist within*	LS

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Impact	Level of Significance Prior to Mitigation	Mitigation Measures	Level of Significance After Mitigation
		seven days prior to vegetation removal or ground-disturbing activities to determine the presence or absence and location of nesting bird species. A report summarizing the results of the preconstruction nesting bird surveys shall be submitted for review and approval to the City of Petaluma Community Development Department. If a lapse in construction activity occurs for more than seven consecutive days or if construction activity is phased at the work site, preconstruction and nesting bird surveys shall be repeated. *If active nests are present within 500 feet of construction areas, temporary protective construction exclusion zones shall be established by a qualified biologist in order to avoid direct or indirect mortality or disruption of the birds, nests, or young. The appropriate buffer distance shall be dependent on the species, surrounding vegetation, and topography and shall be determined by a qualified biologist, but shall be a minimum of 500 feet for raptors and 100 feet for songbirds. Exclusion zones shall remain in place until all young have fledged or until the nest has been naturally abandoned or predated. Work may proceed if active nests are not found during surveys or once nests are determined by a qualified biologist to be inactive.* *The non-disturbance buffers may be reduced if a smaller, sufficiently protective buffer is approved by*	

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		the City after taking into consideration the natural history of the species of bird nesting, the proposed activity level adjacent to the nest, the nest occupants' habituation to existing or ongoing activity, and nest concealment (i.e., whether visual or acoustic barriers occur between the proposed activity and the nest). A qualified biologist may visit the nest, as needed, to determine when the young have fledged the nest and are independent of the site or the nest can be left undisturbed until the end of the nesting season. If the nest buffer is reduced but construction activities cause a nesting bird to vocalize, make defensive flights at intruders, get up from a brooding position, or fly off the nest in a way that would be considered a result of construction activities, then the exclusionary buffer shall be increased such that activities are far enough from the nest to stop the agitated behavior. The revised non-disturbance buffer shall remain in place until the chicks have fledged or as otherwise determined by a qualified biologist in consultation with the City. *Cleared vegetation during the nesting season shall be collected and transported off-site during each week to prevent birds from nesting in vegetative debris.* *Results from any survey for nesting birds shall be documented in a memorandum and provided to the City of Petaluma Community Development*	

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Impact	Level of Significance Prior to Mitigation	Mitigation Measures	Level of Significance After Mitigation
		Department within 30 days following the end of construction activities.	
4.1-6 Have a substantial adverse effect, either directly or through habitat modifications, on pallid bat.	S	*4.1-6 Prior to the commencement of construction, a qualified biologist shall conduct a preconstruction survey of suitable habitat for special-status bats, including existing structures proposed for demolition or removal, that could support special-status bats, at most, 14 days prior to initiation of ground disturbance, including tree trimming and removal. A report summarizing the results of the preconstruction survey shall be submitted for review and approval to the City of Petaluma Community Development Department. If a lapse in construction activity occurs for more than seven consecutive days or if construction activity is phased at the work site, preconstruction bat surveys shall be repeated.* *If special-status bat roosts are observed, ground disturbance within 50 feet of roosts shall be restricted to between August 31 and October 15 and between March 1 and April 15 to avoid hibernation and rearing periods. Removal of potential suitable bat roost trees shall occur over a two-day phased process with a qualified biologist present.* *In addition, if bats or evidence of bat roosting are observed, exclusionary fencing and/or construction activity avoidance limits shall be put in place. Exclusion devices may include features such as one-way exits from roost habitat and shall be installed by*	LS

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		a qualified biologist, in consultation with CDFW, and shall not occur outside of the date ranges listed above to avoid hibernation or rearing periods. *Following construction activities, results from any sensitive bat species survey shall be documented in a memorandum, written by the qualified biologist, and provided to the City of Petaluma Community Development Department within 30 days following the end of construction activities.*	
4.1-7 Have a substantial adverse effect on any riparian habitat or other Sensitive Natural Community identified in local or regional plans, policies, regulations or by the CDFW or USFWS.	S	*4.1-7(a)* *Prior to the commencement of construction, the project applicant shall implement minimization and avoidance measures that may include, but not necessarily be limited to, preconstruction species surveys and reporting, protective fencing around avoided biological resources, worker environmental awareness training, seeding disturbed areas adjacent to open space areas with native seed, and installation of project-specific stormwater BMPs. Mitigation for impacts to riparian habitat may include, but not be limited to, restoration or enhancement of resources on- or off-site, purchase of habitat credits from an agency-approved mitigation/conservation bank, working with a local land trust to preserve land, or any other method acceptable to CDFW. Mitigation shall result in no net loss of riparian habitat. Prior to the commencement of construction, the project applicant shall apply for a Section 1600 Lake or Streambed Alteration Agreement (LSAA) from CDFW. The project applicant shall comply with any*	LS

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		terms and conditions contained within the final LSAA for the proposed project, which may differ from the above. Written verification of the Section 1600 LSAA shall be submitted to the City of Petaluma Community Development Department. *4.1-7(b)* *A 50-foot setback from riparian vegetation shall be established prior to the commencement of grading activities, except for construction of the stormwater outfall facilities, pedestrian bridge connection, and the off-site public multi-use pathway, where a lesser setback shall be established in consultation with a qualified biologist. Construction and staging of vehicles and equipment shall not occur within 50 feet of riparian vegetation and shall be parked only in designated staging areas. Silt fencing shall be installed along the outer edge of the project's disturbance footprint and shall remain during grading activities associated with the proposed project. The foregoing provisions shall be based on recommendations by a qualified biologist, comply with agency approval, and noted on the final improvement plans, which shall be subject to review and approval by the City of Petaluma Community Development Department.* *4.1-7(c)* *Implement Mitigation Measures 4.1-8(b) and 4.1-10.*	
4.1-8 Have a substantial adverse effect on State or federally protected wetlands (including,	S	*4.1-8(a)* *Prior to the commencement of grading activities, a 50-foot setback from the OHWM of the Creek shall be established and noted on the improvement plans,*	LS

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but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means.		*except for construction of the stormwater outfall facilities and the off-site public multi-use pathway and bridge, where a lesser setback shall be established in consultation with a qualified biologist. Construction and staging of vehicles and equipment shall not occur within the Creek channel. Silt fencing shall be installed along the outer edge of the project's disturbance footprint and shall remain during grading activities. Inclusion of the 50-foot setback from the OHWM of the Creek on the improvement plans shall be subject to review and approval by the City of Petaluma Community Development Department.* *4.1-8(b)* *Prior to initiation of any ground-disturbing activities, the project proponent shall submit a formal Aquatic Resources Delineation to the USACE for verification purposes and determination as to whether the project activities will require a Clean Water Act (CWA) Section 404 permit. A copy of the USACE's determination shall be submitted to the City of Petaluma Community Development Department. If a Section 404 permit is not required, further mitigation shall not be required. If a Section 404 permit is required, the project proponent shall apply for a Clean Water Act (CWA) Section 404 permit from the USACE. Waters that would be lost or disturbed shall be restored, replaced, or rehabilitated on a "no-net-loss" basis. Habitat restoration, rehabilitation, and/or replacement shall be at a location and by methods acceptable to the USACE. If a Section 404 permit is*	

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		required, the project applicant shall also apply for a Section 401 water quality certification from the RWQCB prior to the issuance of grading permits and adhere to the certification conditions. A copy of the Section 404 and 401 permits detailing the provisions with which the proposed project must comply shall be submitted to the City of Petaluma Community Development Department.	
4.1-9 Interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites.	LS	*None required.*	N/A
4.1-10 Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance, or have a substantial adverse effect on the environment by converting oak woodlands.	S	*4.1-10* *Prior to approval of the final improvement plans, the project applicant shall obtain a Tree Removal Permit from the City of Petaluma Community Development Department. In addition, all protected trees to be removed, as identified in the Tree Protection and Removal Plan prepared by Urban Forestry Associates, Inc. for the proposed project, shall be replaced in accordance with the ratios established in the Tree Replacement Calculations table in the Tree Protection and Removal Plan. All trees to be preserved and protected, as detailed in Table 2 of the Tree Protection and Removal Plan shall be preserved in accordance with the recommendations established therein. Proof of compliance with the foregoing*	LS

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Table 2-1
Summary of Impacts and Mitigation Measures

Impact	Level of Significance Prior to Mitigation	Mitigation Measures	Level of Significance After Mitigation
		provisions shall be submitted for review and approval to the City of Petaluma Community Development Department.	
4.1-11 Cumulative loss of habitat for special-status species.	LCC	*None required.*	N/A
4.2 GHG Emissions			
4.2-1 Generate GHG emissions, either directly or indirectly, that may have a significant impact on the environment, or conflict with an applicable plan, policy, or regulation adopted for the purpose of reducing the emissions of GHGs.	CC, SU	*4.2-1* *Prior to the approval of project improvement plans, the applicant shall implement the following measure:* • *Consistent with BAAQMD's Transportation criterion b., a total of three EV Capable parking spaces shall be installed throughout the nine undesignated on-street parking spaces within the project site, consistent with the current CALGreen Tier 2 standards.* *Compliance with the foregoing measure shall be ensured by the City of Petaluma Community Development Department.*	CC, SU
4.3 Hydrology and Water Quality			
4.3-1 Violate any water quality standards or waste discharge requirements or otherwise substantially degrade surface or ground water quality during construction.	S	*4.3-1(a)* *Prior to issuance of grading permits, the applicant shall prepare a Storm Water Pollution Prevention Plan (SWPPP). The developer shall file the Notice of Intent (NOI) and associated fee to the State Water Resources Control Board (SWRCB). The SWPPP shall serve as the framework for identification, assignment, and implementation of Best Management Practices (BMPs). The SWPPP shall be submitted to the Director of Public Works and Utilities/City Engineer for review and approval and*	LS

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Table 2-1
Summary of Impacts and Mitigation Measures

Impact	Level of Significance Prior to Mitigation	Mitigation Measures	Level of Significance After Mitigation
		shall remain on the project site during all phases of construction. Following implementation of the SWPPP, the contractor shall subsequently demonstrate the SWPPP's effectiveness and provide for necessary and appropriate revisions, modifications, and improvements to reduce pollutants in stormwater discharges to the maximum extent practicable. The contractor shall implement BMPs to reduce pollutants in stormwater discharges to the maximum extent practicable. *4.3-1(b) Prior to issuance of grading permits, the project applicant shall ensure that a final grading plan is prepared by a State-registered civil engineer in accordance with Petaluma Municipal Code (PMC) Chapter 17.31. The final grading plan shall include, but not be limited to, the following:* • *A project vicinity map that shows the location of the proposed grading activities within the project site and off-site areas associated with Adobe Creek (Creek);* • *The property line boundaries of the project site and off-site areas of disturbance associated with the Creek;* • *All existing improvements on and adjacent to the project site;* • *The existing and proposed contours of the project site and off-site areas proposed for disturbance;*	

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Table 2-1
Summary of Impacts and Mitigation Measures

Impact	Level of Significance Prior to Mitigation	Mitigation Measures	Level of Significance After Mitigation
		• *The existing and proposed drainage of the project site and off-site areas;* • *The extent and manner of tree cutting and vegetation clearing, the disposal of vegetation, and the measures to be taken for the protection of undisturbed trees and vegetation in on-site and off-site areas proposed for disturbance, unless the foregoing information is provided on the final erosion and sediment control plan;* • *Specifications of the proposed construction methods and materials to be used in on-site and off-site areas; and* • *Any other information required by the Director of Public Works and Utilities.* *The final grading plan shall be submitted for review and approval to the City of Petaluma Public Works and Utilities Department.*	
4.3-2 Violate any water quality standards or waste discharge requirements or otherwise substantially degrade surface or ground water quality during operation.	S	*4.3-2* *Prior to approval of final project improvement plans, a final Stormwater Control Plan shall be submitted to the Director of Public Works and Utilities/City Engineer for review and approval. The final Stormwater Control Plan shall be in compliance with all applicable provisions of the National Pollutant Discharge Elimination System (NPDES) Phase II MS4 General Permit (NPDES General Permit No. CAS612008, Order No. R2-2022-0018) and shall meet the standards of the California Stormwater Quality Association (CASQA) Stormwater BMP*	LS

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Table 2-1
Summary of Impacts and Mitigation Measures

Impact	Level of Significance Prior to Mitigation	Mitigation Measures	Level of Significance After Mitigation
		Handbook for New Development and Redevelopment. Site design measures, source-control measures, hydromodification management, and Low Impact Development (LID) standards, as necessary, shall be incorporated into the design and shown on the improvement plans. The final plans shall include calculations demonstrating that the water quality BMPs are appropriately sized, using methodology in the CASQA Stormwater BMP Handbook for New Development and Redevelopment. The final plans shall also incorporate the proposed components for maintaining the stormwater-treatment facilities. The final plans shall be submitted to the City of Petaluma Public Works and Utilities Department for review and approval.	
4.3-3 Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river or through the addition of impervious surfaces, in a manner which would: substantially increase the rate or amount of surface runoff in a manner which would result in substantial erosion or siltation on- or off-site; substantially increase the rate or amount of surface runoff in	LS	*None required.*	LS

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Table 2-1
Summary of Impacts and Mitigation Measures

Impact	Level of Significance Prior to Mitigation	Mitigation Measures	Level of Significance After Mitigation
a manner which would result in flooding on- or off-site; create or contribute runoff water which would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff; or impede or redirect flood flows.			
4.3-4 In flood hazard, tsunami, or seiche zones, risk release of pollutants due to project inundation.	LS	*None required.*	LS
4.3-5 Cumulative impacts related to the violation of water quality standards or waste discharge requirements, and impacts resulting from the alteration of existing drainage patterns.	LS	*None required.*	LS
4.4 Transportation			
4.4-1 Conflict with a program, plan, ordinance, or policy, except LOS, addressing the circulation system during construction activities.	S	*4.4-1 Prior to issuance of grading and building permits, a construction management plan shall be prepared by the applicant for review and approval by the City of Petaluma Public Works and Utilities Department. The plan shall include, but not necessarily be limited to, the following items:* *a. Comprehensive traffic control measures, including scheduling of major truck trips and*	LS

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Table 2-1
Summary of Impacts and Mitigation Measures

Impact	Level of Significance Prior to Mitigation	Mitigation Measures	Level of Significance After Mitigation
		deliveries to avoid peak traffic hours, including school peak times, detour signs if required, lane closure procedures if required, sidewalk closure procedures if required, cones for drivers, and designated construction access routes. *b. Evaluation of the need to provide flaggers or temporary traffic control at key intersections along the truck route(s).* *c. Notification procedures for adjacent property owners, Casa Grande High School, and public safety personnel regarding schedules when major deliveries, detours, and lane closures would occur.* *d. Location of construction staging areas for materials, equipment, and vehicles if there is insufficient staging area within the work zone of the proposed project.* *e. Identification of truck routes for movement of construction vehicles that would minimize impacts on vehicular and pedestrian traffic, circulation and safety; provision for monitoring surface streets used for truck movement so that any damage and debris attributable to the proposed project's construction trucks can be identified and corrected by the proposed project applicant.* *f. A process for responding to and tracking complaints pertaining to construction activity,*	

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Table 2-1
Summary of Impacts and Mitigation Measures

Impact	Level of Significance Prior to Mitigation	Mitigation Measures	Level of Significance After Mitigation
		including identification of an on-site complaint manager. *g. Documentation of road pavement conditions for all routes that would be used by construction vehicles both before and after proposed project construction. Roads found to have been damaged by construction vehicles shall be repaired to the level at which they existed prior to construction of the proposed project.*	
4.4-2 Conflict with a program, plan, ordinance, or policy, except LOS, addressing the circulation system, including transit, roadway bicycle, and pedestrian facilities, during operations.	LS	*None required.*	N/A
4.4-3 Result in VMT which exceeds an applicable threshold of significance, except as provided in CEQA Guidelines Section 15064.3, subdivision (b).	SU	*None required.*	N/A
4.4-4 Substantially increase hazards to vehicle safety due to a geometric design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment), or	LS	*None required.*	N/A

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Table 2-1
Summary of Impacts and Mitigation Measures

	Impact	Level of Significance Prior to Mitigation		Mitigation Measures	Level of Significance After Mitigation
	result in inadequate emergency access.				
Initial Study Impacts Requiring Mitigation					
V-b.	**Cause a substantial adverse change in the significance of a unique archaeological resource pursuant to Section 15064.5?**	S	*V-1*	*If during the course of ground-disturbing activities, including, but not limited to, excavation, grading, and construction, a potentially significant prehistoric or historic resource is encountered, all work within a 100-foot radius of the find shall be suspended for a time deemed sufficient for a qualified and City-approved archaeologist to adequately evaluate and determine significance of the discovered resource and provide treatment recommendations.* *Should a significant archeological resource be identified, a qualified archaeologist shall prepare a resource mitigation plan and monitoring program to be carried out during all construction activities. Prehistoric archaeological site indicators include: obsidian and chert flakes and chipped stone tools; grinding and mashing implements (e.g., slabs and handstones, and mortars and pestles); bedrock outcrops and boulders with mortar cups; and locally darkened midden soils. Midden soils may contain a combination of any of the previously listed items with the possible addition of bone and shell remains, and fire-affected stones. Historic period site indicators generally include: fragments of glass, ceramic, and metal objects; milled and split lumber; and structure and feature remains such as building foundations and discrete trash deposits (e.g., wells, privy pits, dumps).*	LS

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Table 2-1
Summary of Impacts and Mitigation Measures

Impact		Level of Significance Prior to Mitigation	Mitigation Measures		Level of Significance After Mitigation
VII-d.	**Be located on expansive soil, as defined in Table 18-1B of the Uniform Building Code (1994), creating substantial direct or indirect risks to life or property**	S	*VII-1*	*Prior to the issuance of grading permits, the project civil engineer shall show on the final improvement plans that the project design adheres to all engineering recommendations provided in the site-specific Geotechnical Investigation prepared for the project by PJC & Associates, Inc. The recommendations incorporated into the final improvement plans shall include, but not be limited to, those pertaining to the top 18 inches of soil beneath exterior flatwork consisting of imported engineered fill; demolition and stripping; excavation and compaction; temporary slopes; and vertical loads and lateral loads of post-tension slab-on-grade foundations. Proof of compliance with all recommendations set forth in the Geotechnical Investigation shall be subject to review and approval by the City Engineer.*	LS
IX-b.	**Create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the likely release of hazardous materials into the environment?**	S	*IX-1*	*Prior to issuance of a demolition permit by the City for the on-site structure at 280 Casa Grande Road, the project applicant shall provide a site assessment that determines whether the structure to be demolished contains lead-based paint (LBP) or asbestos. If the structure does not contain LBP or asbestos, further mitigation shall not be required; however, if LBP is found, all loose and peeling paint shall be removed and disposed of by a licensed and certified lead paint removal contractor, in accordance with California Air Resources Board recommendations and Occupational Safety and Health Administration (OSHA) requirements. If asbestos is found, all*	LS

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Table 2-1
Summary of Impacts and Mitigation Measures

Impact	Level of Significance Prior to Mitigation	Mitigation Measures	Level of Significance After Mitigation
		construction activities shall comply with all requirements and regulations promulgated through the Bay Area Air Quality Management District (BAAQMD) Asbestos Demolition and Renovation Program. The demolition contractor shall be informed that all paint on the building shall be considered as containing lead and/or asbestos. The contractor shall follow all work practice standards set forth in the Asbestos National Emission Standards for Hazardous Air Pollutants (Asbestos NESHAP, 40 CFR, Part 61, Subpart M) regulations, as well as Section V, Chapter 3 of the OSHA Technical Manual. Work practice standards generally include appropriate precautions to protect construction workers and the surrounding community, and appropriate disposal methods for construction waste containing lead paint or asbestos in accordance with federal, State, and local regulations subject to approval by the City Engineer. *IX-2* *Prior to issuance of a demolition permit by the City for the on-site structure at 280 Casa Grande Road, the project applicant shall prepare an Off-Hauling and Disposal Plan that incorporates industry standard BMPs during proposed off-hauling activities associated with waste from on-site demolition activities. The following Best Management Practices (BMPs) shall be incorporated:*	

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Table 2-1
Summary of Impacts and Mitigation Measures

Impact	Level of Significance Prior to Mitigation	Mitigation Measures	Level of Significance After Mitigation
		• *During loading activities, the project contractor shall place two layers of heavy plastic sheeting (minimum thickness of six mils) beneath trucks to be used for off-hauling activities to collect any spilled soil;* • *After each truck is loaded and prior to removing the plastic sheeting, visible dust or soil spilled during loading shall be removed from the top rails, fences, tires, and all other surfaces by dry brushing methods at the point of loading;* • *Collected soil on the plastic sheeting shall be removed periodically to avoid the spreading of contaminated soil on truck tires;* • *The soil shall be transported by a licensed transporter;* • *All off-hauling trucks shall be loaded at the project site and appropriately covered (tarped), in accordance with U.S. Department of Transportation regulations;* • *Loaded trucks shall use the most direct routes to the disposal site(s) to provide the least risk of exposure to surrounding communities and avoid residential areas to the maximum extent feasible and;* • *Any additional BMPs determined necessary by the City Engineer.* *During loading activities, the project contractor shall ensure that all applicable work practice standards set*	

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Table 2-1
Summary of Impacts and Mitigation Measures

Impact	Level of Significance Prior to Mitigation	Mitigation Measures	Level of Significance After Mitigation
		forth in Section V, Chapter 3 of the OSHA Technical Manual are followed, including appropriate precautions to protect construction workers and the surrounding community, in accordance with applicable federal, State, and local regulations, including those set forth by the Sonoma County Environmental Health and Safety Division (SCEHD) and the Department of Toxic Substances Control (DTSC). The Off-Hauling and Disposal Plan shall be subject to approval by the City Engineer.	
		IX-3 *Prior to improvement plan approval, the project applicant shall ensure that the on-site septic systems are abandoned in compliance with applicable SCEHSD standards. Upon removal, the septic tanks shall be inspected for leaks. Should any leaks be identified, the project applicant shall conduct additional testing of soils at the location of the on-site septic systems for chemicals associated with the on-site septic systems in accordance with applicable USEPA Methods. Where concentrations exceed applicable DTSC screening levels, the soil shall be excavated and that portion of material shall be transported and disposed of off-site at an appropriate Class I or Class II facility permitted by DTSC, or other options implemented as deemed satisfactory to SCEHSD. The results of soil sampling and analysis, as well as verification of proper remediation and disposal, shall be submitted to the City of Petaluma Planning Division for review and approval. Any*	

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Table 2-1
Summary of Impacts and Mitigation Measures

Impact	Level of Significance Prior to Mitigation	Mitigation Measures	Level of Significance After Mitigation
		remediation shall be completed prior to acceptance of the site improvements for that phase. *IX-4* *Prior to improvement plan approval, the project applicant shall hire a licensed well contractor to obtain a well abandonment permit from the SCEHSD for all on-site wells, and properly abandon the on-site wells, pursuant to Department of Water Resources Bulletin 74-81 (Water Well Standards, Part III), for review and approval by the SCEHSD.*	
XIII-a. Generation of a substantial temporary or permanent increase in ambient noise levels in the vicinity of the project in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies	S	*XIII-1* *The following criteria shall be included in the Improvement Plans. Exceptions to allow expanded construction activities shall be reviewed on a case-by-case basis, as determined by the Community Development Director.* • *Limit construction hours to between 8:00 AM and 5:30 PM, Monday through Friday, and between 9:00 AM and 5:00 PM on Saturday. Construction activities shall be prohibited on Sundays and State, federal and local holidays;* • *High noise-producing activities, such as excavation and grading and construction finishing, shall only occur between the hours of 8:00 AM and 5:00 PM to minimize disruption at adjacent noise sensitive uses;* • *Equip all internal combustion engine-driven equipment with intake and exhaust mufflers*	LS

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Table 2-1
Summary of Impacts and Mitigation Measures

Impact	Level of Significance Prior to Mitigation	Mitigation Measures	Level of Significance After Mitigation
		that are in good condition and appropriate for the equipment; • *Locate stationary noise-generating equipment (e.g., compressors) as far as possible from adjacent residential receivers;* • *Acoustically shield stationary equipment located near residential receivers with temporary noise barriers;* • *Utilize "quiet" air compressors and other stationary noise sources where technology exists;* • *The project contractor shall implement appropriate additional noise-reduction measures that include shutting off idling equipment after five minutes (as feasible) and notifying adjacent residences (at least one time) in advance of construction work;* • *Construction workers; radios shall be controlled to not exceed ambient noise levels beyond the limits of the project site boundaries;* • *Heavy equipment, such as paving and grading equipment, shall be stored on-site whenever possible to minimize the need for extra heavy truck trips on local streets;* • *Two weeks prior to the commencement of construction, notification in writing shall be provided to residents within 500 feet of the project site and if during the school year, officials at the Casa Grande High School*	

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Table 2-1
Summary of Impacts and Mitigation Measures

Impact	Level of Significance Prior to Mitigation	Mitigation Measures	Level of Significance After Mitigation
		campus, disclosing the construction schedule, including the various types of activities that would be occurring throughout the duration of the construction period; and • *The project contractor shall designate a "disturbance coordinator" responsible for responding to any complaints about construction noise. The disturbance coordinator shall determine the cause of the noise complaint (e.g., bad muffler, etc.) and shall require that reasonable measures be implemented to correct the problem.*	
XVIII-a. Listed or eligible for listing in the California Register of Historical Resources, or in a local register of historical resources as defined in Public Resources Code Section 5020.1(k). **XVIII-b. A resource determined by the lead agency, in its discretion and supported by substantial evidence, to be significant pursuant to criteria set forth in subdivision (c) of Public Resources Code Section 5024.1. In applying the criteria set forth in subdivision (c) of Public Resources Code**	S	*XVIII-1* *To protect buried tribal cultural resources that may be encountered during ground disturbing activities, the project shall implement Mitigation Measure V-1.* *XVIII-2* *Prior to initiation of ground-disturbing activities, a qualified archaeologist retained by the project applicant shall conduct a short awareness training session for all construction workers and supervisory personnel. The course shall explain the importance of, and legal basis for, the protection of significant archaeological resources, as well as the legal and regulatory implications of knowingly destroying cultural resources or removing historic or precontact artifacts, human remains, and other cultural materials from the project site. Each worker shall also learn the proper procedures to follow in the event cultural resources or human remains/burials are uncovered during construction activities, including work*	LS

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Table 2-1
Summary of Impacts and Mitigation Measures

Impact	Level of Significance Prior to Mitigation	Mitigation Measures	Level of Significance After Mitigation
Section 5024.1, the lead agency shall consider the significance of the resource to a California Native American tribe.		*curtailment or redirection and to immediately contact their supervisor and the archaeological monitor. The worker education session shall include visuals of artifacts (prehistoric and historic) that might be found in the project vicinity, and take place on the construction site immediately prior to the start of construction. All ground-disturbing equipment operators shall be required to receive the training and sign a form that acknowledges receipt of the training. The signed form shall be submitted to the City of Petaluma Community Development Department.*	

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3. Project Description

3. PROJECT DESCRIPTION

3.1 INTRODUCTION

The Project Description chapter of the EIR provides a comprehensive description of the 270 and 280 Casa Grande Road Creekwood Housing Development Project (project) in accordance with CEQA Guidelines Section 15124. A detailed description of the project location, project setting and surrounding uses, project objectives, project components, and required project approvals is presented below.

3.2 PROJECT LOCATION

The project site consists of two parcels totaling 5.2 acres that abut the eastern boundary of Casa Grande Road in the City of Petaluma (see Figure 3-1 and Figure 3-2). The parcels are identified by the following addresses and Assessor's Parcel Numbers (APN): 270 Casa Grande Road (APN 017-040-051) and 280 Casa Grande Road (APN 017-040-016). In addition, a City-owned parcel identified by APN 017-410-042 is immediately adjacent to the project site's eastern boundary. The City of Petaluma General Plan designates the project site as Medium Density Residential, and the site is zoned Residential 4 (R4).

3.3 PROJECT SETTING AND SURROUNDING LAND USES

Section 15125 of the CEQA Guidelines requires an EIR to include a description of the physical environmental conditions in the vicinity of the project, as they exist at the time the Notice of Preparation (NOP) is published, from a local and regional perspective. Knowledge of the existing environmental setting is critical to the assessment of environmental impacts. Pursuant to CEQA Guidelines Section 15125, the description of the environmental setting shall not be longer than necessary to understand the potential significant effects of the project.

The following sections describe the existing setting of the project site and the surrounding land uses in the project vicinity. Please note that detailed discussions of the existing setting in compliance with CEQA Guidelines Section 15125, specific to each environmental resource area, are included in each corresponding technical chapter of this EIR.

Site Characteristics

The 280 Casa Grande Road (APN 017-040-016) parcel contains an existing residence and undeveloped land covered in grasses. The 270 Casa Grande Road (APN 017-040-051) parcel contains an existing residence, a gravel driveway, several associated outbuildings, a landscaped backyard, and a small orchard in the northeast corner of the project site, within a depressed area, near Adobe Creek (Creek). The Creek is an ephemeral creek that flows in a north-south direction and is tributary to the Petaluma River to the south, which then flows into the San Pablo Bay. Along with its associated vegetation, the Creek forms the eastern boundary of the project site (APN 017-410-042). The remaining portions of the 270 Casa Grande Road parcel are generally characterized by grasses that are routinely mowed or grazed to reduce fire hazards. Grazing of both parcels is conducted by several sheep owned and cared for by the current 270 Casa Grande Road property owner.

Figure 3-1
Regional Vicinity Map

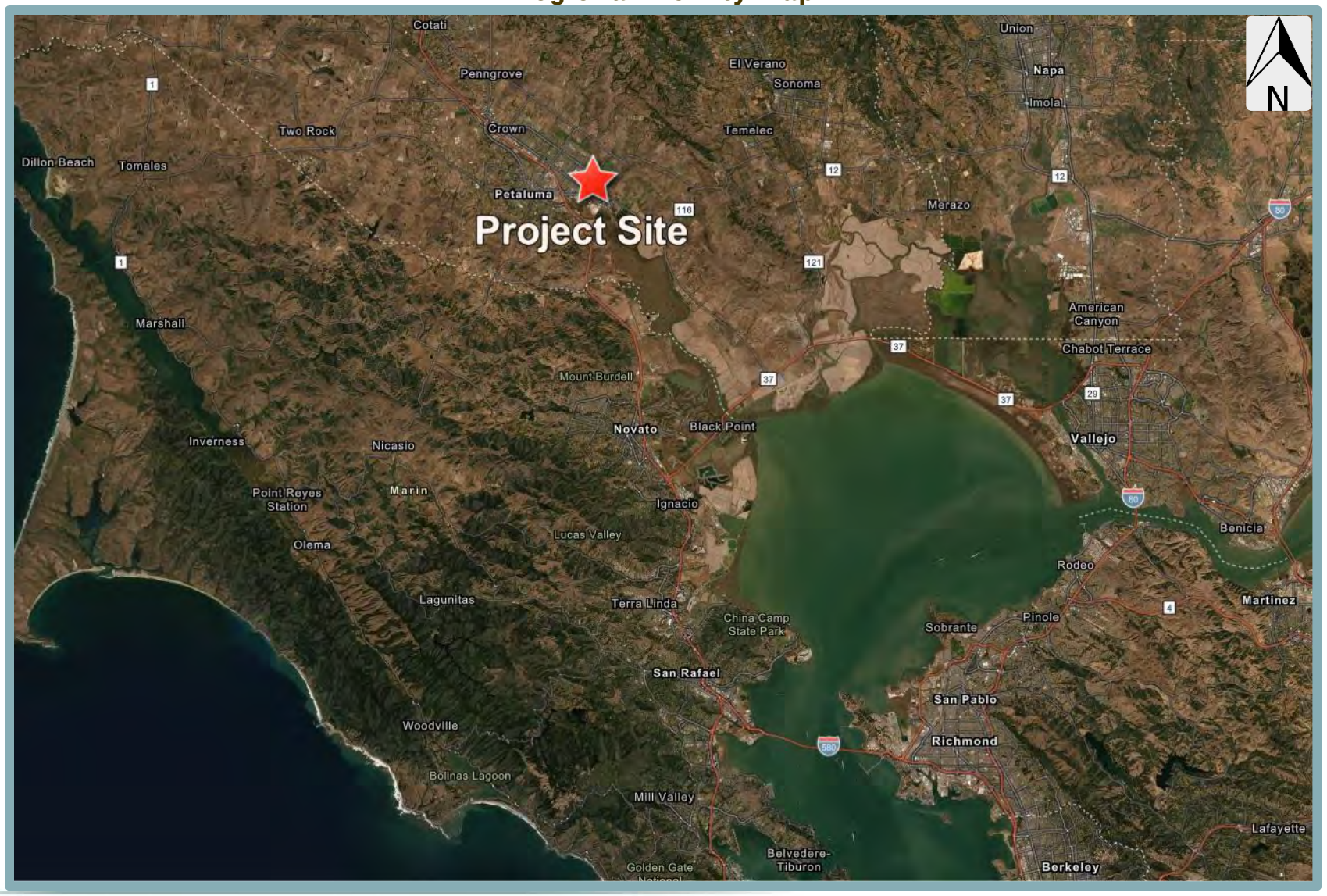


Figure 3-2
Project Site Boundaries

Surrounding Land Uses

The project site is bound to the west by Casa Grande Road and to the east by the Creek and its associated riparian corridor. Casa Grande High School and Crinella Park are located to the west, across Casa Grande Road, from the project site. The project site's northern boundary abuts the Casa Grande Senior Apartments. A single-family residence located at 500 Casa Grande Road is located further to the north and abuts the Casa Grande Senior Apartments' northern property line. A single-family residential neighborhood is located to the east, across from the Creek, with access from Spyglass Road. A walking path is located on the west side of Spyglass Road, allowing north-south access along the Creek. Further east from the single-family residences is a multifamily neighborhood, to which Lakeville Circle provides access. The project site's southern boundary abuts the Casa Grande Subdivision (now referred to as Makenna), which consists of 36 single-family residential units. An existing single-family residential neighborhood is located further to the south and abuts the southern property line of the Casa Grande Subdivision site.

Table 3-1 describes the land use and zoning designations of the parcels surrounding the project site.

Table 3-1
Surrounding General Plan Land Use and Zoning Designations

Parcel Location	Land Use	Zoning
North of the Project Site	High Density Residential	Planned Unit District
East of the Project Site	Open Space	Open Space Park
South of the Project Site	Medium Density Residential	Residential 4
West of the Project Site	Education	Planned Unit District

3.4 PROJECT OBJECTIVES

The following project objectives have been developed by the project applicant:

1. Promote and maximize new and diverse for-sale housing opportunities within the City limits and urban growth boundary through using an existing residentially zoned property;
2. Develop a high-quality residential project within the eastern City limits that is compatible with existing residential subdivisions to the east and south of the project site, Casa Grande High School to the west of the site, and the Petaluma Ecumenical Properties Senior Housing to the north of the site;
3. Develop for-sale inclusionary housing that provides site location and model types in an equitable manner;
4. Construct a public multi-use pathway through the project site and along the westerly side of Adobe Creek that connects to the Casa Grande Subdivision public pathway to the south and allows for future extension to the north of the site;
5. Install a bridge connection over Adobe Creek that connects the proposed public multi-use pathway with the residential neighborhoods to the east of the project site, allowing for pedestrian access from the easterly residential neighborhoods to Casa Grande High School and the Casa Grande Road transit locations to the west of the project site;
6. Provide public access and maintenance access to a landlocked and isolated site; and
7. Preserve Adobe Creek in its natural state.

3.5 PROJECT COMPONENTS

The project would include demolition of the on-site residence at 280 Casa Grande Road, retention of the existing residence at 270 Casa Grande Road, development of 59 dwelling units, construction of various on-site road and utility improvements, landscaping, and a new off-site public multi-use pathway, with a bridge connection over the Creek. The project would require City approval of a Vesting Tentative Parcel Map, Site Plan and Architectural Review, and a Tree Removal Permit. The project components, along with all required entitlements and approvals, are described in the following sections.

Vesting Tentative Parcel Map

The project would include a Vesting Tentative Parcel Map, in accordance with Petaluma Municipal Code (PMC) Chapter 20.18, to establish a single-lot parcel (Parcel 1) to allow the sale of the proposed dwelling units as condominiums and a 0.637-acre Remainder that would not be a part of the proposed residential community. The purpose of the Remainder is to allow the property owner of 270 Casa Grande Road to retain their residence and continue to live on the property. As shown in Figure 3-3, following demolition of the other on-site residence in the site's western portion, the proposed 59 dwelling units would be constructed across three blocks (Blocks 1, 2, and 3).

Block 1 units would be arranged in tri-plex configurations with a building height of 33 feet and four inches and designed in accordance with two plan types. Each plan would consist of three floors, featuring an entryway and covered parking garage on the first floor; kitchen, dining, and living room areas, as well as a deck on the second floor; and either two or three bedrooms on the third floor. Units within Blocks 2 and 3 would primarily be arranged in duet unit configurations with building heights ranging from 23 feet and one inch to 26 feet and one inch and designed in accordance with five plan types. Each plan would consist of two floors and include an entryway, porch, covered parking garage, kitchen, dining area, living room, and powder room on the first floor. Second floors would include three bedrooms, two bathrooms, and a laundry area. A portion of the Block 2 and 3 units would also include a loft area on the second floor, depending on the plan type.

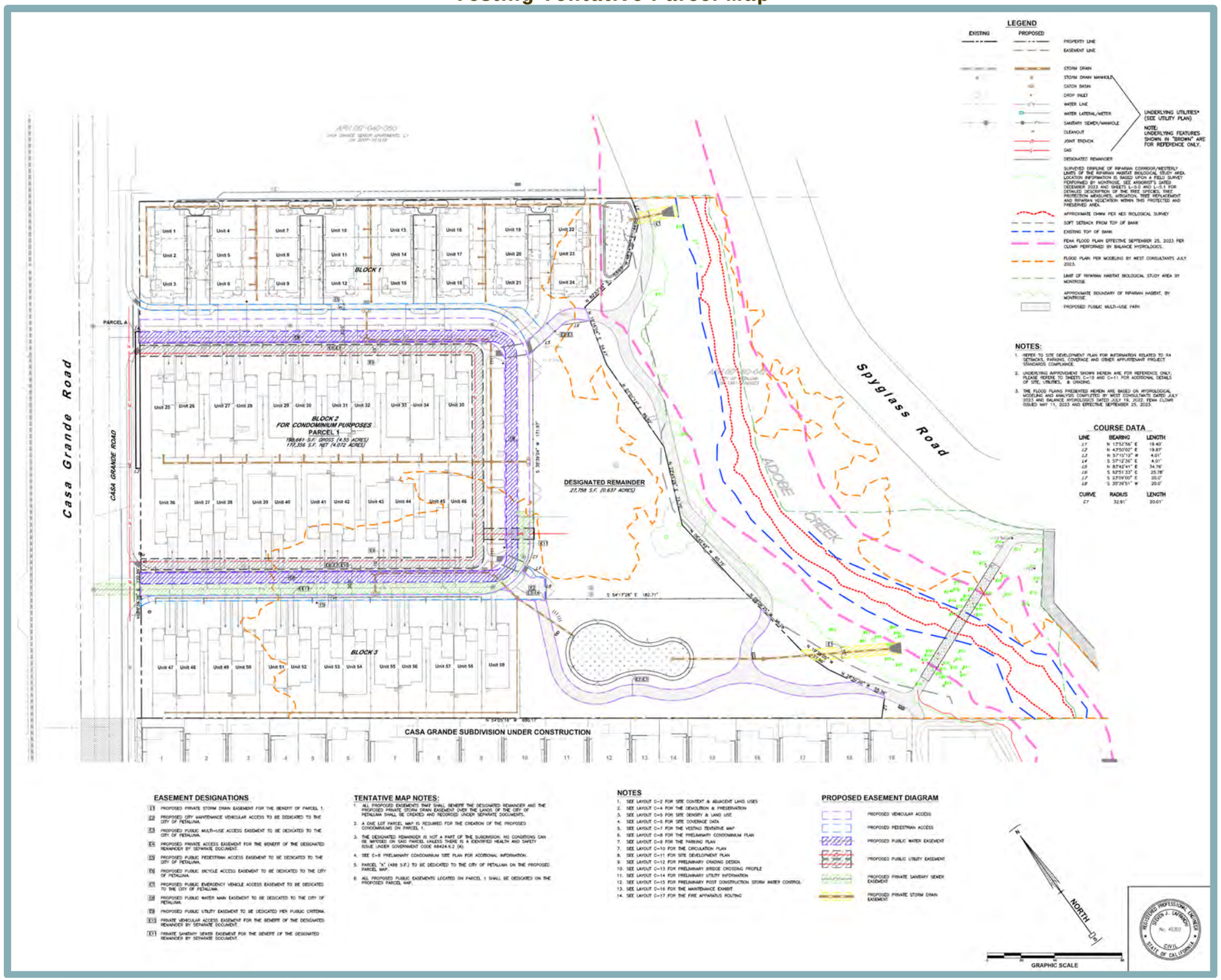
As discussed further under the Site Plan and Architectural Review heading below, the City would confirm the project's compliance with applicable development standards, such as the proposed architectural design, through the City's Site Plan and Architectural Review process.

Table 3-2 summarizes the unit layouts within each block.

Table 3-2
Unit Layout Summary

Units	Bedrooms	Garage (sf)	Living Area (sf)	Porch / Deck (sf)	Usable Open Space (sf)
Block 1					
24	2-3	470-562	1,312-1,458	63-80	304-811
Blocks 2 and 3, Without Loft					
12	3	231	1,395	94	684-1,132
Blocks 2 and 3, With Loft					
23	3	241	1,660	94	547-1,299

Figure 3-3
Vesting Tentative Parcel Map



All new dwellings would be located beyond the 50-foot setback that applies to new development when adjacent to a creek (in accordance with Petaluma General Plan Policy 4-P-1, which prohibits development from occurring within 50 feet of any tributary of the Petaluma River). A 488-square-foot (sf) portion of the property, designated as Parcel A on the Vesting Tentative Parcel Map, along the Casa Grande Road frontage, would be dedicated to the City of Petaluma for street right-of-way (ROW).

Access, Circulation, and Parking

Access to the project site would be provided by two new entries from Casa Grande Road, as shown in Figure 3-4. From the two entries, a new internal looped private street would extend eastward into the project site. The new street would provide access to all proposed units, as well as the existing residence at 270 Casa Grande Road, and be comprised of two 10-foot-wide driving lanes along all segments. In addition, an eight-foot-wide parking lane would be provided along the street's northern segment to allow for designated on-street parallel parking for various Block 1 units. It should be noted that on-site bicycle lanes are not proposed.

A rolled curb and gutter would be constructed along both sides of the internal street segments that do not include on-street parking. In areas adjacent to on-street parking, a curb and gutter would be constructed, in accordance with Standard 203 of the City of Petaluma Design and Construction Standards.

In addition, five-foot-wide sidewalks would be constructed along the street in accordance with the applicable City of Petaluma Street Construction Standards, where a pedestrian easement would exist to connect the public sidewalk along Casa Grande Road to the public path along the Creek and the bridge over the Creek. Four-foot-wide sidewalks would be provided along private portions of the street. The portion of the street that fronts the Remainder area would not include a sidewalk.

The project would include 178 total parking spaces (see Figure 3-5). A total of 83 covered parking spaces would be provided within the proposed garages. A total of 35 standard uncovered parking spaces would be provided on the driveways within Blocks 2 and 3, as well as a total of 35 compact uncovered parking spaces within the permeable areas adjacent to each driveway. A total of 17 on-street parking spaces would be provided along the main access street, east of the Block 2 units. An additional eight standard uncovered parallel parking spaces would be provided immediately south of the tri-plex units. Finally, the project would include space for bicycle parking within each garage, which would consist of mounting hardware for a minimum of two bicycles. In addition, the project includes an off-site public multi-use pathway with a bridge connection over the Creek, which is discussed further below.

Utilities and Public Services

The project would require the removal of the existing on-site septic system, as well as any private well(s) that could potentially be located within the project site. Water and sewer service would be provided to the new dwellings and existing residence at 270 Case Grande Road by the City of Petaluma through new connections to the existing eight-inch water and sewer mains in Casa Grande Road (see Figure 3-6). The City purchases Russian River water from Sonoma Water (formerly Sonoma County Water Agency), which supplies water to Petaluma and seven other water contractors. From the point of connection, new eight-inch water and sewer lines would be extended into the site within the new internal street.

Figure 3-4
Circulation Plan

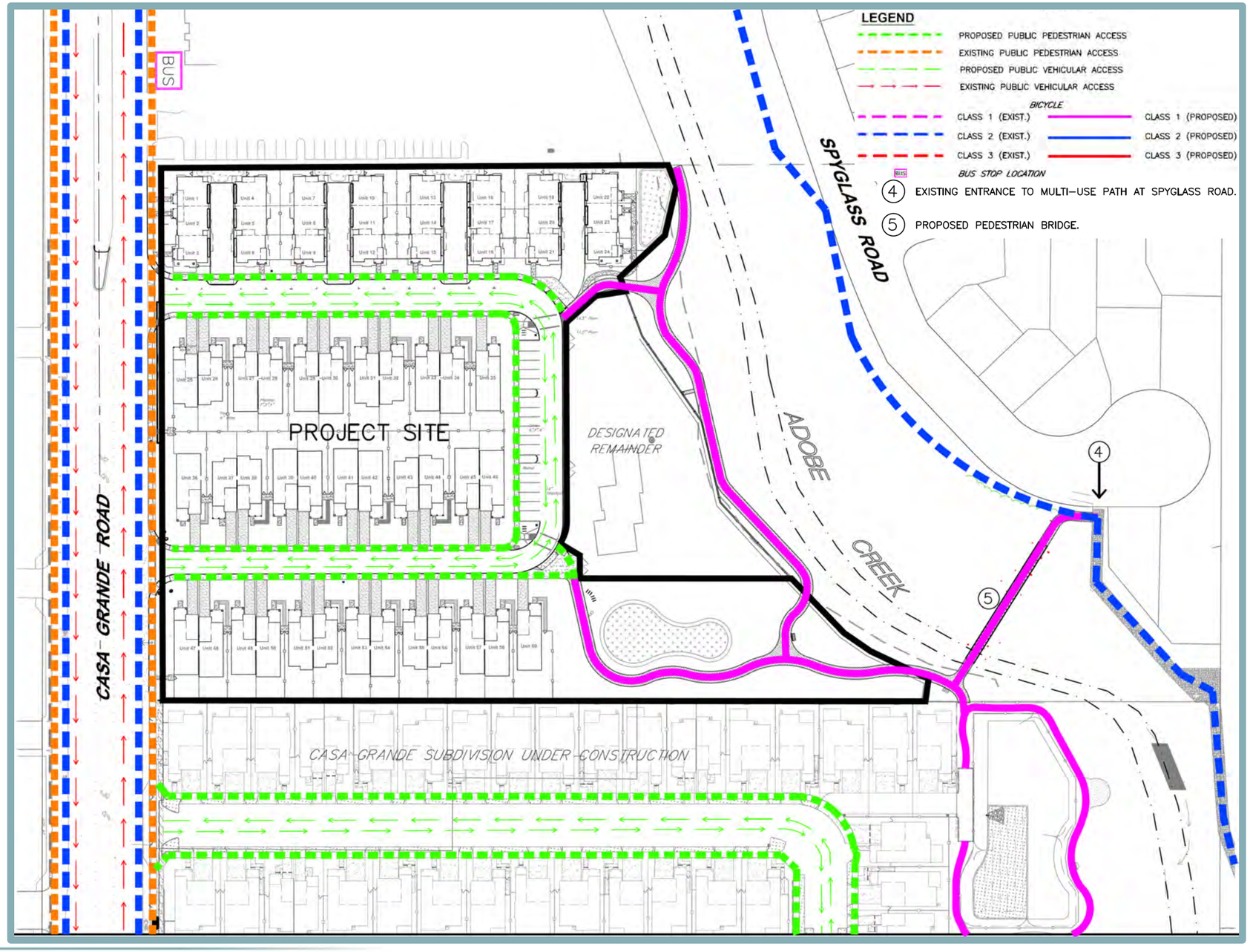


Figure 3-5
Parking Plan

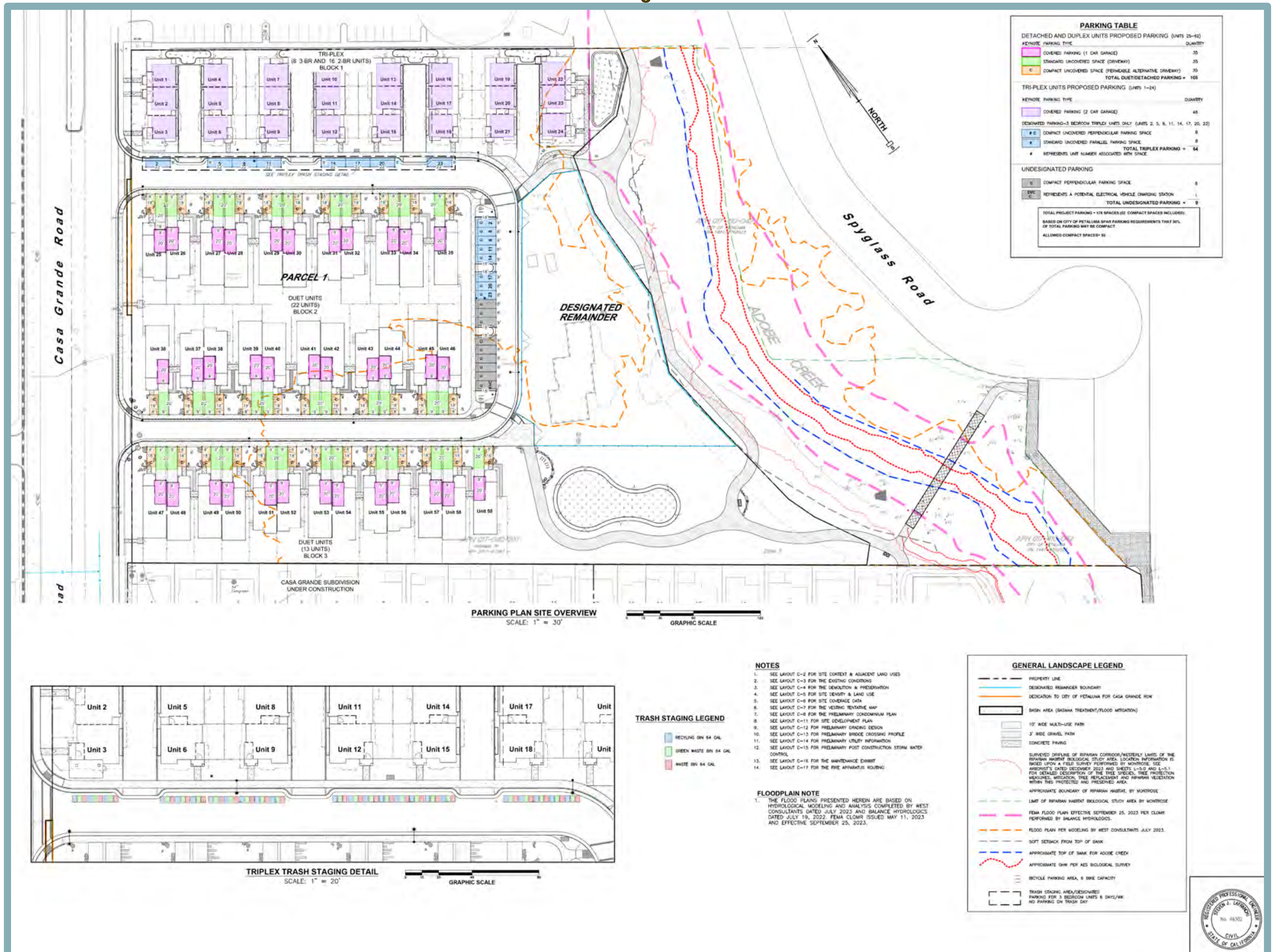
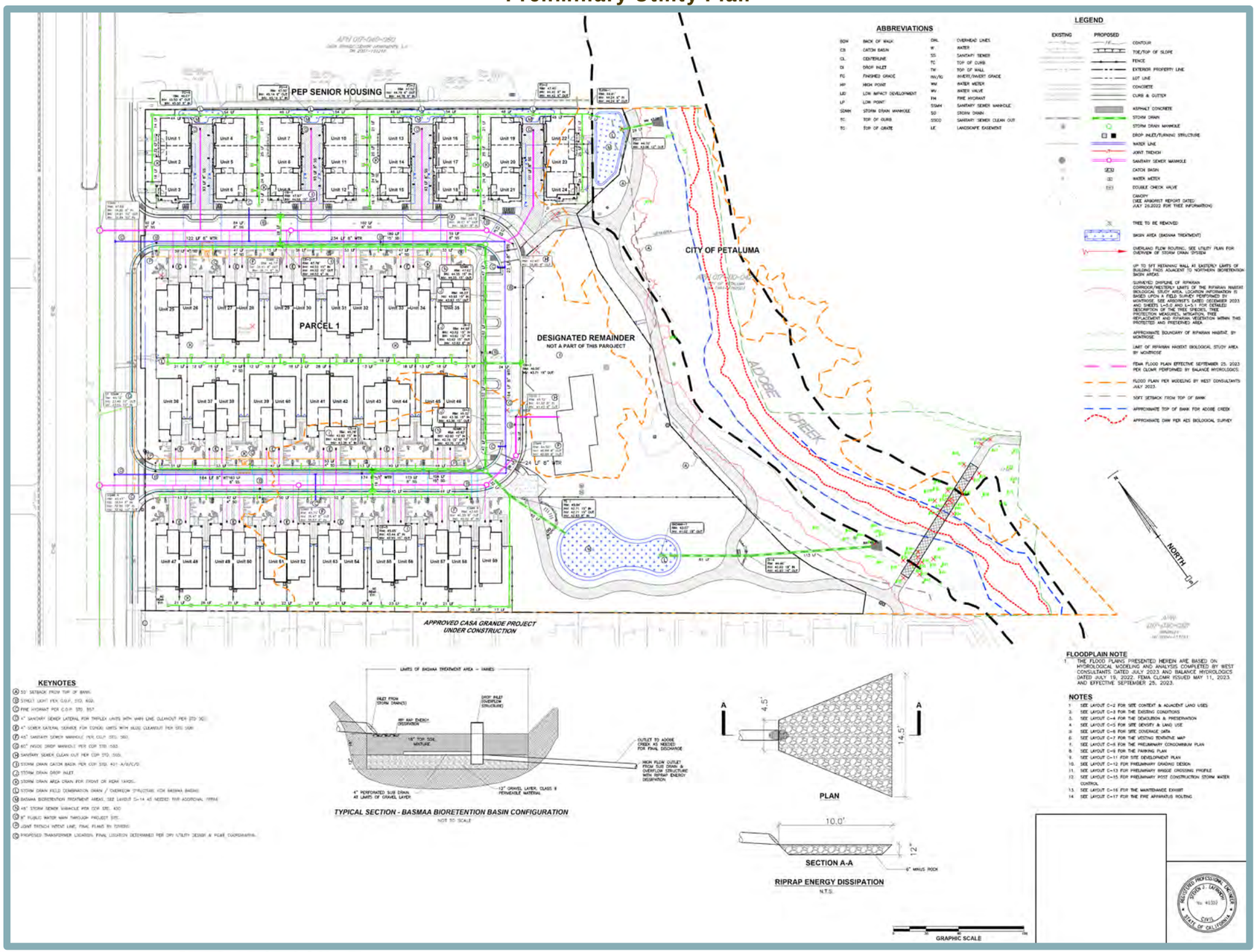


Figure 3-6
Preliminary Utility Plan



From the new eight-inch water line, new water service laterals would be extended to each unit, including the existing residence at 270 Casa Grande Road. Similarly, all units would connect to the new eight-inch sewer line by way of new sanitary sewer laterals. All new water infrastructure would be designed in accordance with the City's Water System Design Guidelines. All new sewer infrastructure would be designed in accordance with the applicable sections of the City's Sewer System Construction Standards.

The project would also include new on-site stormwater facilities to retain and treat stormwater runoff from the site's proposed impervious surfaces. The project site's stormwater facilities would be dispersed across five drainage management areas (DMAs) (see Figure 3-7). DMAs 1 through 4 would encompass the Block 1 units and would each contain corresponding Basin Retention Areas 1 through 4 (see red areas in Figure 3-7). DMA 5 would encompass the new internal street, Blocks 2 and 3 units, and Basin Retention Area 5 (see blue areas in Figure 3-7). Within DMAs 1 through 4, runoff from impervious surfaces would be directed to grassy areas, where flows would be collected by inlets and conveyed by way of private storm drain lines to each DMA's Basin Retention Area for retention and treatment. Following retention and treatment, excess flows would be routed to a detention basin in the northeast corner of the project site, where peak flows that do not percolate into underlying soils would be metered and released through a new outfall structure to the Creek. In addition, the detention basin would accept surface flow from waters overtopping the Creek bank or backing up through the storm drain system during storm events. Similarly, within DMA 5, runoff would be directed to inlets installed in each dwelling unit's backyard area and to gutters installed along the new internal street. From the inlets and gutters, flows would be conveyed by way of new private storm drain lines to Basin Retention Area 5 for retention and treatment. From Basin Retention Area 5, peak flows would be metered to the Creek through a new outfall structure. All new storm drain infrastructure would be designed in accordance with the applicable Sonoma Water standards.

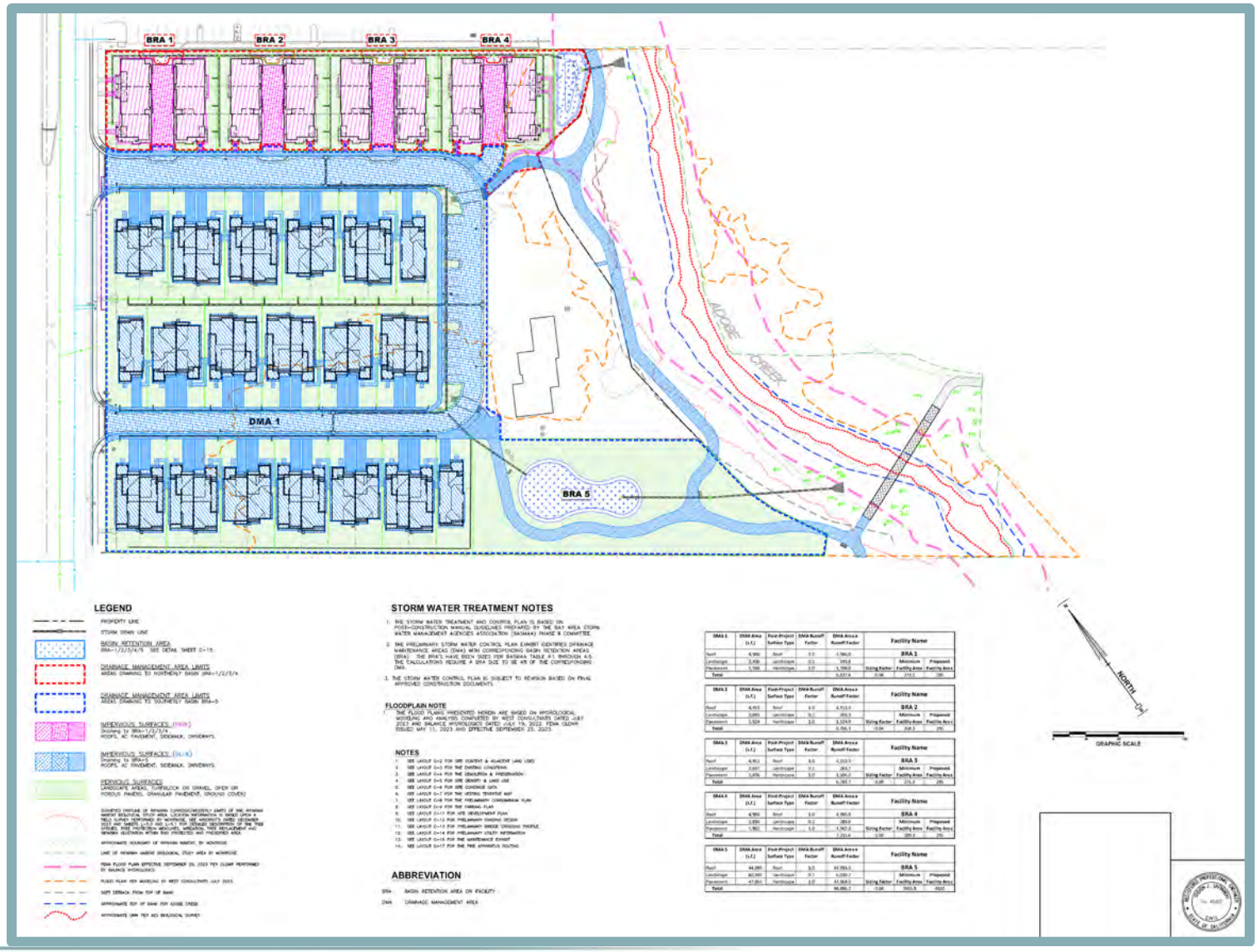
Electrical service would be provided to the project by Pacific Gas and Electric Company (PG&E) using the existing aboveground transmission lines located along Casa Grande Road, adjacent to the project site's western boundary. All other new utility infrastructure would be installed below grade. The project would not use natural gas.

The City of Petaluma contracts with Recology for recycling, organics, and solid waste services. The project would be served by the Petaluma Police Department (PPD), Petaluma Fire Department (PFD), the Petaluma City Elementary School District (PCESD) (grades K-8), and the Petaluma Joint Union High School District (PJUHSD) (grades 9-12). The PPD is stationed at 969 Petaluma Boulevard North, approximately 2.6 miles west of the project site. The nearest PFD station to the project site is Station 3 at 831 South McDowell Boulevard, approximately 0.8-mile west of the site.

Open Space, Landscaping, and Fencing

Each dwelling unit would include Usable Open Space (UOS) in the form of semi-private or private yard areas. The UOS would range in size from 304 sf to 811 sf for Block 1 units, 684 sf to 1,132 sf for Block 2 units, and 547 sf to 1,299 sf for Block 3 units.

Figure 3-7
Post-Construction Stormwater Control and Treatment Plan



The project would include new landscaping along the project's Casa Grande Road frontage, as well as along front and side yard areas of on-site residential units, the bioretention basin in the site's southern portion, and in open space areas adjacent to the Creek's riparian corridor, the latter of which includes areas within the City-owned parcel that encompasses the Creek (see Figure 3-8). Newly planted trees adjacent to the Creek would consist of native 24-inch box trees such as coast live oak, valley oak, and California Buckeye. In addition, new trees adjacent to the proposed structures would include 24-inch box trees such as marina arbutus and Chinese pistache, 15-gallon trees such as pink dawn chiltalpa and swan hill fruitless olive, and various-sized shrubs, perennials, and grasses. Final species selection would be in accordance with Petaluma Implementing Zoning Ordinance (IZO) Section 14.010.

The project would include various types of fencing throughout the project site (see Figure 3-9). While the majority of the project frontage along Casa Grande Road would not include fencing, small portions of the frontage west of Block 1 would include segments of 42-inch-tall wood and wire fencing interspersed with segments of eight-foot, double-sided, wood and wire fencing. In addition, the project would construct an eight-foot, double-sided, wood and wire fence along the northern property line, as well as along the eastern and southern boundaries of the Remainder and the eastern boundary of Block 3. The Remainder's western boundary, along the new internal street frontage, would include 42-inch-tall wood and wire fencing. The backyard areas of the proposed units would be separated by six-foot-tall wood fencing.

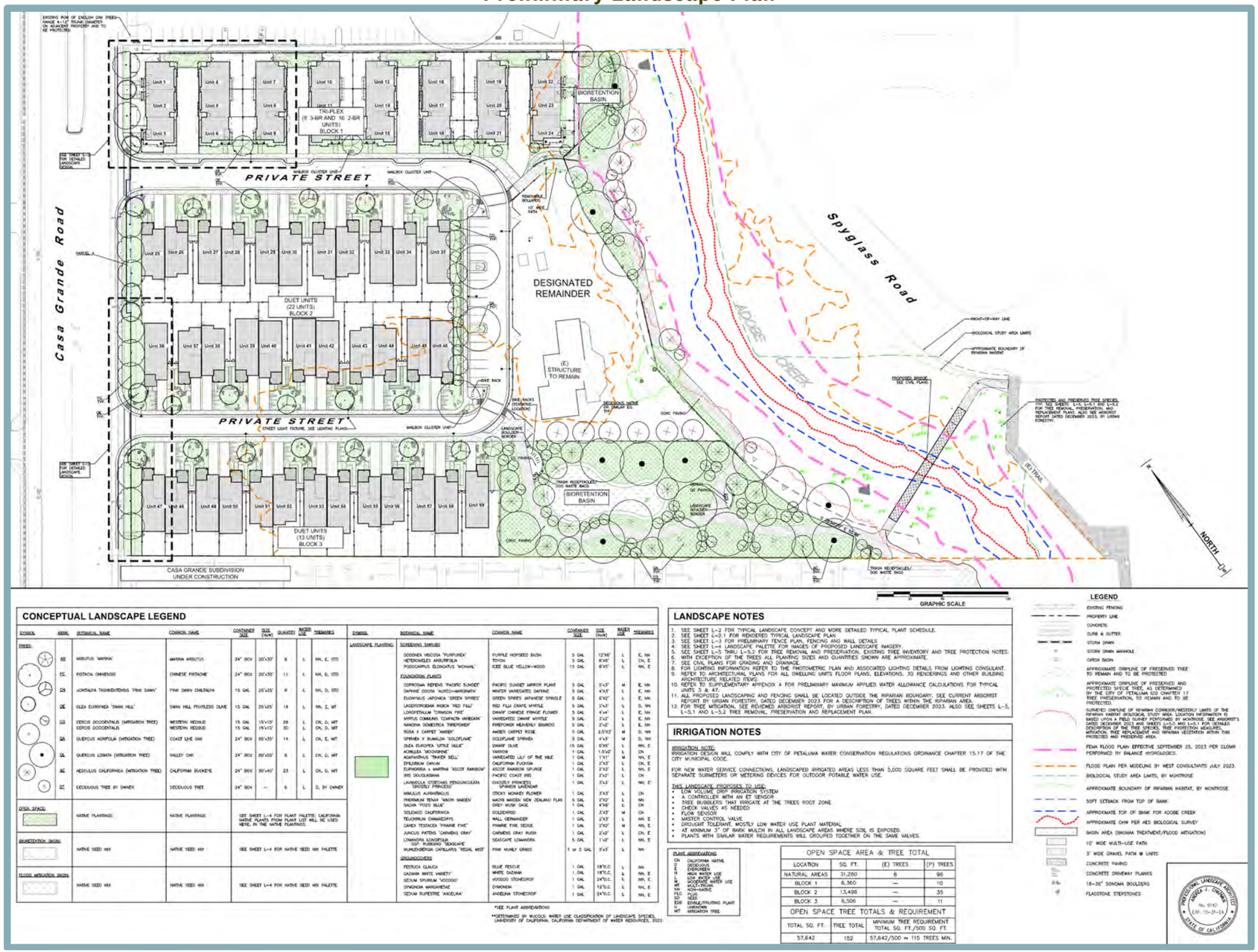
In addition, the boundaries of the southern bioretention basin and northern detention basin would be lined with three-foot-tall split-rail fencing in areas facing the proposed off-site pathway. All fencing would be designed in accordance with IZO Section 13.020.

Off-Site Improvements

The project includes an off-site public multi-use pathway with a bridge connection over the Creek (see Figure 3-3 and Figure 3-10). The multi-use pathway would be 10 feet in width and installed along the project site's eastern boundary, west of the Creek. The pathway would connect to the Casa Grande Subdivision to the south and be stubbed at the northern property line, north of which is located the Casa Grande Senior Apartments. The project's internal pathway system would connect to the multi-use pathway at two locations, generally north and south of the existing residence at 270 Casa Grande Road. Although the project site would be private, it should be noted that the project would dedicate a public pedestrian easement to provide access to the pathway and bridge.

The bridge, located on a City-owned parcel, would connect to the proposed multi-use pathway along the west side of the Creek, as well as the existing path along Spyglass Road, on the east side of the Creek. The bridge would span the Creek and be located atop bridge abutments. The bridge would be 90 feet in length, eight feet in width, and composed of steel framing, as well as wood decking for the walking surface. Safety rails standing a minimum of 4.5 feet in height would line each side of the bridge. The western and eastern approaches, as well as the bridge abutments and deck, would be elevated above the Federal Emergency Management Agency (FEMA) Flood Insurance Rate Map (FIRM) 100-year floodplain base flood elevation. The project would require approximately 90 cubic yards (CY) of net fill for the abutment fill slopes, including approximately 78 CY placed below the 100-year floodplain base flood elevation.

Figure 3-8
Preliminary Landscape Plan



OPEN SPACE AREA & TREE TOTAL			
LOCATION	SQ. FT.	(E) TREES	(P) TREES
NATURAL AREAS	31,250	6	96
BLOCK 1	6,360	—	10
BLOCK 2	13,498	—	35
BLOCK 3	6,508	—	11

OPEN SPACE TREE TOTALS & REQUIREMENT		
TOTAL SQ. FT.	TREE TOTAL	MINIMUM TREE REQUIREMENT TOTAL SQ. FT./500 SQ. FT.
57,642	152	57,642/500 = 115 TREES MIN.

Figure 3-9
Preliminary Fence Plan

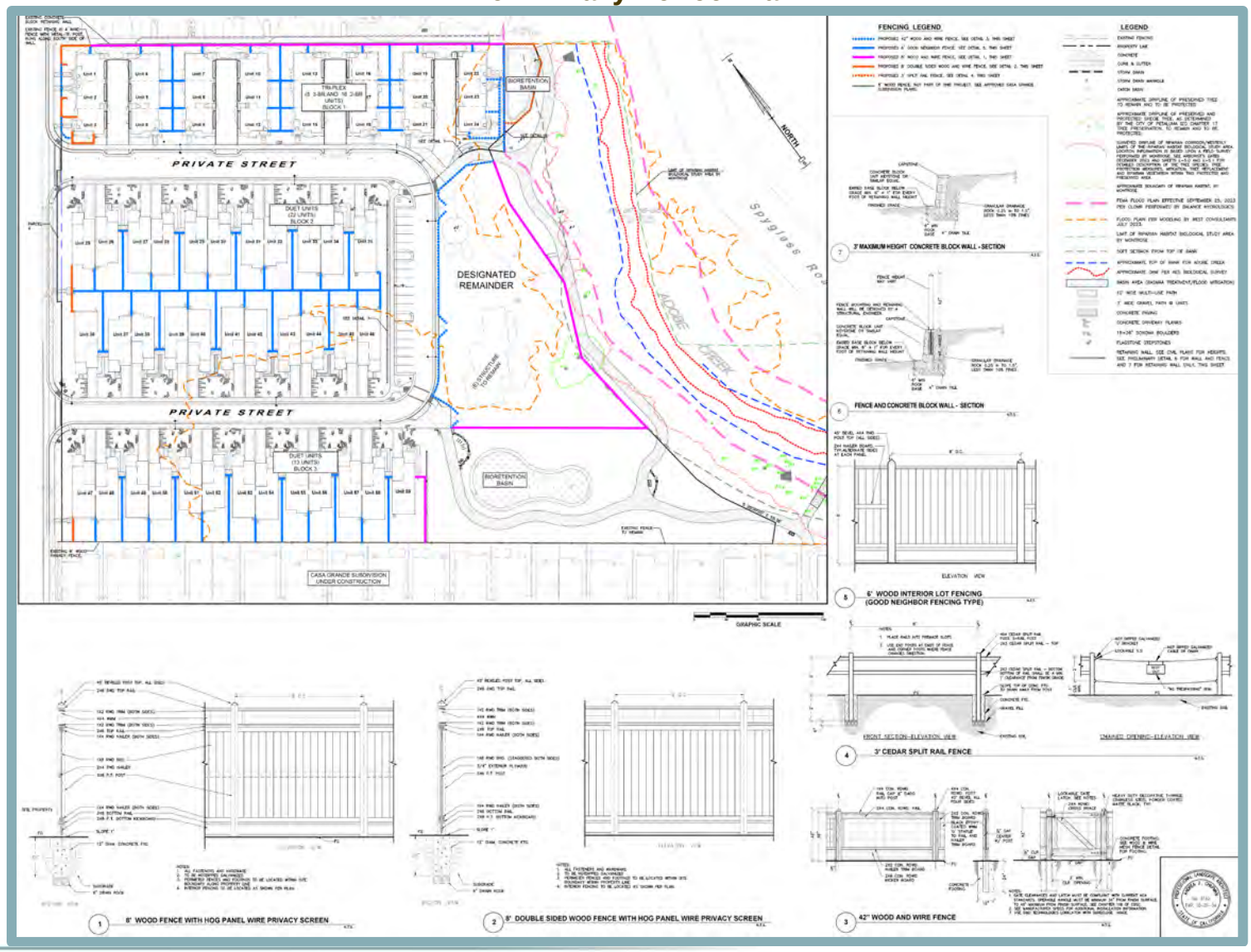
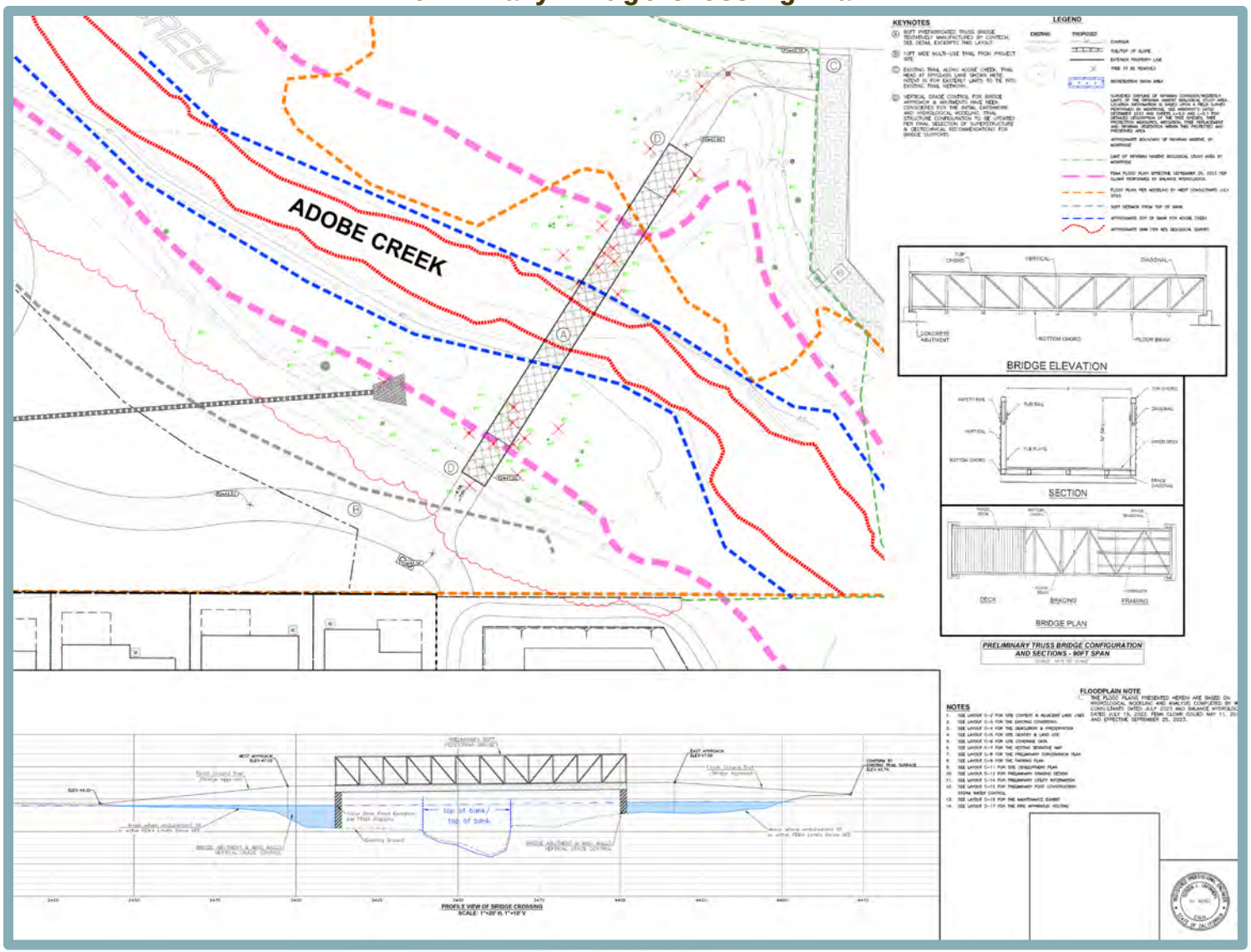


Figure 3-10
Preliminary Bridge Crossing Plan



In addition, as previously discussed, the proposed project would include two new stormwater outfall structures to the Creek (see Figure 3-7). Peak flows that do not percolate into underlying soils in the detention basin in the northern portion of the site would be routed, metered, and released to a new outfall structure to the Creek near the northeastern corner of the site. Similarly, peak flows from Basin Retention Area 5 would be routed, metered, and released to a new outfall structure to the Creek near the southeastern portion of the site.

Inclusionary Housing

In accordance with IZO Section 3.040, the project would reserve 15 percent of the proposed 59 dwelling units as Below Market Rate (BMR) units, with half of the BMR units reserved for low-income households and half reserved for moderate-income households. Sale prices for the BMR units would be subject to the limitations associated with Area Median Income (AMI) of Sonoma County. The sale prices for the market rate units would be subject to market conditions at the time of project construction.

Protected Trees

The project would require the permanent removal of 31 trees, including seven unprotected trees outside the riparian dripline and 24 trees that are designated as protected by IZO Section 17.040. The 24 protected trees that would require permanent removal are generally located within the alignment of the proposed off-site bridge, within the City-owned parcel associated with the Creek. In addition, the following five protected trees are located in proximity to the off-site bridge and are not proposed for removal, but would be subject to pruning as part of installation of the bridge connection and outfall structures:

- Tree #30, California buckeye: The tree would be preserved and protected, but also pruned to create clearance for the bridge connection;
- Tree #31, red willow: The tree would be preserved and protected, but also pruned to create clearance for the bridge connection;
- Tree #53, red willow: The tree would be preserved and protected, but also pruned to create clearance for the bridge connection;
- Tree #64, California buckeye: The tree would be preserved and protected, but also pruned to create clearance for the proposed southern outfall structure.
- Tree #72, Oregon ash: The tree would be preserved and protected, but also pruned to create clearance for the proposed northern outfall structure.

In accordance with IZO Section 17.060, the removal, cutting down, or otherwise destruction of a protected tree requires a Tree Removal Permit issued by the City of Petaluma Community Development Department. All other trees in on-site areas and along the riparian corridor would be retained and protected in place during construction. The project would include the planting of 152 new trees, which includes 73 trees planted for the purposes of mitigating project impacts to protected trees, in accordance with IZO Section 17.065.

Site Plan and Architectural Review

Pursuant to IZO Section 24.050, Site Plan and Architectural Review is required for proposed uses of more than one dwelling unit per lot, except for accessory dwellings. The purpose of the review is to ensure compliance with the development standards set forth by the IZO and to promote the orderly and harmonious development of the City. The project would consist of 59 units on a single lot. As such, the project is subject to Site Plan and Architectural Review.

3.6 PROJECT APPROVALS

The City of Petaluma has discretionary authority and is the lead agency for the project. The project would require City approval of the following entitlements:

- Vesting Tentative Parcel Map for Condominium purposes;
- Site Plan and Architectural Review; and
- Tree Removal Permit.

Review or Approvals by Other Agencies

A number of other agencies will serve as Responsible and Trustee Agencies, pursuant to CEQA Guidelines Section 15381 and Section 15386, respectively. This EIR will provide environmental information to these agencies and other public agencies, which may be required to grant approvals or coordinate with other agencies, as part of project implementation. The agencies could include, but may not be limited to, the following:

- Section 401 Water Quality Certification (Regional Water Quality Control Board [RWQCB] – San Francisco Bay Region);
- Section 1600 Lake and Streambed Alteration Agreement (California Department of Fish Wildlife – Region 3);
- National Pollutant Discharge Elimination System (NPDES) Construction General Permit (RWQCB – San Francisco Bay Region); and
- NPDES Phase II MS4 General Permit (RWQCB – San Francisco Bay Region).

While not a State Responsible Agency, the proposed project could require issuance of a Clean Water Act Section 404 permit by the U.S. Army Corps of Engineers, if the project would result in discharges of fill below the Ordinary High-Water Mark of the Creek.

4. Existing Environmental Setting, Impacts, and Mitigation

4.0 Introduction to the Analysis

4.0 INTRODUCTION TO THE ANALYSIS

4.0.1 INTRODUCTION

The technical chapters of the EIR analyze the potential impacts of buildout of the proposed project on Biological Resources, Greenhouse Gas Emissions, Hydrology and Water Quality, and Transportation. Chapters 4.1 through 4.4 of the EIR include the following: the existing environmental setting; regulatory context; standards of significance; method of analysis; and project-specific impacts and mitigation measures. Additionally, Chapters 4.1 through 4.4 describe the cumulative impacts of the project combined with past, present, and reasonably probable future projects for each issue area. The format of each of the technical chapters is described at the end of this chapter. It should be noted that technical reports are either attached to this EIR or available at the City by request.

4.0.2 DETERMINATION OF SIGNIFICANCE

Under CEQA, a significant effect is defined as a substantial or potentially substantial adverse change in the environment (Public Resources Code Section 21068). The Guidelines implementing CEQA direct that the determination be based on scientific and factual data. The specific criteria for determining the significance of a particular impact are identified within the impact discussion in each chapter and are consistent with significance criteria set forth in the CEQA Guidelines or as based on the professional judgement of the EIR preparers.

Significance Criteria

The CEQA Guidelines define a significant effect on the environment as "a substantial, or potentially substantial adverse change in any of the physical conditions within the area affected by the project, including land, air, water, minerals, flora, fauna, ambient noise, and objects of historic and aesthetic significance." In addition, the Guidelines state, "An economic or social change by itself shall not be considered a significant effect on the environment. A social or economic change related to a physical change may be considered in determining whether the physical change is significant." (CEQA Guidelines Section 15382).

As presented in Section 4.0.5 below, the level of significance of an impact prior to mitigation is included at the end of each impact discussion throughout the technical chapters of this EIR. The following levels of significance prior to mitigation are used in this EIR:

1) Less than Significant: Impacts that may be adverse, but that do not exceed the specified thresholds of significance;
2) Significant: Impacts that exceed the defined standards of significance and require mitigation;
3) Less than Cumulatively Considerable: Where cumulative impacts have been identified, but the project's incremental contribution towards the cumulative impacts would not be considered significant; and
4) Cumulatively Considerable: Where cumulative impacts have been identified and the project's incremental contribution towards the cumulative impact would be considered significant.

If an impact is determined to be significant or cumulatively considerable, mitigation is included, if available, in order to reduce the specific impact. A statement of the level of significance of an impact after mitigation is also included in each impact discussion throughout the technical chapters of this EIR. The following levels of significance after implementation of mitigation are used in the EIR:

1) Less than Significant: Impacts that exceed the defined standards of significance but can be eliminated or reduced to a less-than-significant level through the implementation of feasible mitigation measures;
2) Less than Cumulatively Considerable: Where the project's incremental contribution towards cumulative impacts would be eliminated or reduced to a less than cumulatively considerable level through the implementation of feasible mitigation measures; and
3) Significant and Unavoidable Impact: An impact (project-level or cumulative) that cannot be eliminated or reduced to a less-than-significant or less than cumulatively considerable level through the implementation of feasible mitigations measures.

Each environmental area of analysis uses a distinct set of significance criteria. The significance criteria are identified at the beginning of the Impacts and Mitigation Measures section in each of the technical chapters of this EIR. Although significance criteria are necessarily different for each resource considered, the provided significance levels ensure consistent evaluation of impacts for all resource areas evaluated.

4.0.3 ENVIRONMENTAL ISSUES DISMISSED IN THE INITIAL STUDY

The Initial Study prepared for the proposed project (Appendix A to this EIR) includes a detailed environmental checklist addressing a range of technical environmental issues. For each technical environmental issue, the Initial Study identifies the level of impact for the proposed project. The Initial Study identifies the environmental effects as "no impact," "less than significant," "less than significant with mitigation incorporated," and "potentially significant."

Impacts identified in the Initial Study as less than significant, less than significant with mitigation incorporated, or no impact are summarized below. All remaining issues identified in the Initial Study as potentially significant are discussed in the subsequent technical chapters of this EIR.

- *Aesthetics (All Checklist Questions):* Although the proposed project site is located within one mile of the Rocky Memorial Dog Park, a designated scenic vista, due to the intervening development between the two locations and the flat nature of the site, development of the proposed project would not block views of the hills in the surrounding environs. Furthermore, the project is not located in the vicinity of an officially designated State Scenic Highway. Therefore, the proposed project would not have a substantial adverse effect on a scenic vista and would not substantially damage scenic resources. The Initial Study concluded that, because the project site is located within an urbanized area and the proposed project would be consistent with the uses allowed by the site's zoning and General Plan land use designations, impacts related to a conflicts with applicable zoning and other regulations governing scenic quality would be less than significant. In addition, the introduction of new sources of light and glare would be less than significant. Overall, the proposed project would result in *less-than-significant* impacts related to aesthetics.

- *Agriculture and Forestry Resources (All Checklist Questions):* The project site is not subject to a Williamson Act program, and is not designated as Prime Farmland, Unique Farmland, or Farmland of Statewide Importance. Therefore, development of the project would not result in the conversion of Farmland to non-agricultural use, and a *less-than-significant* impact would occur. The project is not considered forest land or timberland and is not zoned for Timberland Production; thus the proposed project would have *no impact* regarding conversion of such land.

- *Air Quality (All Checklist Questions):* The project's construction and operational emissions were quantified as part of a Construction Health Risk and Greenhouse Gas Assessment prepared for the project by Illingworth & Rodkin, Inc. Because the project's construction and operational criteria pollutant emissions would be below the applicable thresholds of significance, the project would not be considered to conflict with implementation of the applicable air quality plan or result in a cumulatively considerable increase of a criteria pollutant for which the project region is non-attainment. Thus, a *less-than-significant* impact would occur.

  The nearest existing sensitive receptors to the project site are the Casa Grande Senior Apartments to the north and the Casa Grande Subdivision to the south. The Initial Study determined that the proposed project would not expose any sensitive receptors identified in the project vicinity to excess concentrations of localized carbon monoxide (CO), toxic air contaminants (TACs), or criteria pollutants during construction or operation of the project. Consequently, the project would result in a *less-than-significant* impact related to the exposure of sensitive receptors to substantial pollutant concentrations.

  Construction activities often include diesel-fueled equipment and heavy-duty trucks, which could create odors associated with diesel fumes that may be considered objectionable, as well as emissions of dust. However, given the existing State and local regulations governing the use of construction equipment, the Initial Study determined that substantial objectionable odors would not be expected to occur during construction activities. With respect to dust, the proposed project would be required to implement the Bay Area Air Quality Management District's (BAAQMD) Basic Construction Mitigation Measures (BCMMs) during project construction, which would substantially reduce emissions of dust. Therefore, construction and operation of the project would not result in emissions (such as those leading to odors) adversely affecting a substantial number of people, and a *less-than-significant* impact would result.

  It should be noted that the Construction Health Risk and Greenhouse Gas Assessment prepared for the project by Illingworth & Rodkin, Inc. that was used for the Initial Study analysis did not specifically account for the construction activities associated with the proposed fill necessary for the elevated pads upon which the new residences would be constructed. The Construction Health Risk and Greenhouse Gas Assessment has since been updated to reflect such details (i.e., the import of 4,788 cubic yards of fill material). The updated analysis confirms that, even with the inclusion of soil import activities, the construction emissions associated with the proposed project would remain below the applicable BAAQMD thresholds of significance. Therefore, the conclusions within the Initial Study related to air quality remain adequate.

- *Biological Resources (Checklist Question f):* The project site is not located in an area with an approved Habitat Conservation Plan/Natural Community Conservation Plan (HCP/NCCP); therefore, *no impact* would occur regarding a conflict with a HCP/NCCP.

- *Cultural Resources (All Checklist Questions):* According to the Cultural Resources Study (CRS) prepared for the proposed project, historical and archeological resources have not been identified within the project site. Although the two existing on-site structures, due to their age alone, appear to be eligible for listing in the National Register of Historic Places (NRHP), such structures do not meet the criteria for NRHP listing. Thus, the proposed project would have a *less-than-significant* impact upon historic resources. While known archeological resources are not present on the project site, the site is located within the Coastal Miwok ethnographic territory; however, with implementation of Mitigation Measure V-1, the Initial Study determined that impacts related to archeological resources would be reduced to a *less-than-significant* level. Similarly, although the project site does not include evidence suggesting that human remains have been interred within the site boundaries, in the event that human remains are encountered during ground-disturbing activities, the project would comply with all requirements set forth by California Health and Safety Code Section 7050.5. Compliance with California Health and Safety Code Section 7050.5 and performance of actions therein would ensure that in the event of accidental discovery of historically significant human remains, all potential impacts would remain *less than significant*.

- *Energy (All Checklist Questions):* The proposed project is anticipated to result in increased energy usage during construction and operations of the project. However, the Initial Study determined that energy usage associated with the proposed project would not be considered a wasteful, inefficient, or unnecessary consumption of energy resources and would not conflict with or obstruct a State or local plan for renewable energy or energy efficiency. Thus, the proposed project would result in a *less-than-significant* impact related to energy.

- *Geology and Soils (All Checklist Questions):* According to the Initial Study, because the project is not located within an Alquist-Priolo Earthquake Fault Zone, the proposed project would not directly or indirectly cause potential substantial adverse effects involving the rupture of a known earthquake fault or strong seismic ground shaking, and a *less-than significant* impact would occur. In addition, given that the project site is located on relatively flat terrain, the project site would not be in an area where landslides are expected to occur. As a result, the proposed project would not directly or indirectly cause potential substantial adverse effects, including the risk of loss, injury, or death, involving landslides, and the proposed project would result in a *less-than-significant* impact.

  While the project site has moderate susceptibility to liquefaction and subsidence, the Initial Study determined that given compliance with California Building Standards Code (CBSC) requirements, a *less-than-significant* impact would occur. Similarly, because the proposed project would disturb one or more acres of land, the proposed project would be required to comply with the National Pollutant Discharge Elimination System (NPDES) Construction General Permit, as well as local regulations, which would ensure that impacts related to soil erosion or loss of topsoil would be *less than significant*. However, the Initial Study determined that the project site has very high potential for expansion; and implementation of Mitigation Measure VII-1, which requires final improvement plans for the proposed

project to show that the project design adheres to all engineering recommendations provided in the site-specific Geotechnical Investigation prepared by PJC & Associates, Inc., would reduce impacts related to soil expansion to a *less-than-significant* level.

Furthermore, the proposed project would connect to an existing sewer system, and thus, would not require the use of septic systems. Therefore, the proposed project would not have soils incapable of adequately supporting the use of septic tanks or alternative wastewater disposal systems where sewers are not available for the disposal of wastewater; and the project would result in *no impact*.

Finally, because the project site has been subject to significant ground disturbance, is not known to contain identified paleontological resources, and because the proposed project would be required to comply with local regulations concerning the protection of paleontological resources, the Initial Study determined that impacts upon such resources would be *less than significant*.

- *Hazards and Hazardous Materials (All Checklist Questions):* Due to the residential use of the proposed project, project operations would not create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials. In addition, during project construction, the project contractor would be required to comply with all California Health and Safety Codes and local County ordinances regulating the handling, storage, and transportation of hazardous and toxic materials. Thus, the Initial Study determined that the project would not create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials, and a *less-than-significant* impact would occur.

  According to the Phase I Environmental Site Assessment (Phase I ESA) prepared for the proposed project, the existing residences located on-site use septic tanks for wastewater disposal. Without proper removal of the septic tanks and soil testing to confirm contamination has not occurred, the project could create a significant hazard to the environment. In addition, given their age, the on-site structures have the potential to contain asbestos-containing materials and lead-based paints. However, the Initial Study determined that with implementation of Mitigation Measures IX-1 through IX-4, which require compliance with federal, State, and local regulations related to the demolition of on-site structures and abandonment and removal of the existing on-site septic systems and well, impacts related to the creation of a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials would be reduced to a *less-than-significant* level.

  The project site is located within a quarter mile of the Casa Grande High School. However, as discussed above, operation of the project site is not anticipated to result in the release of hazardous materials; furthermore, implementation of Mitigation Measures IX-1 through IX-4 would ensure that all recognized environmental concerns within the project site are handled in accordance with federal, State, and local regulations. Thus, impacts would be reduced to a *less-than-significant* level. In addition, the project site is not identified on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5, and *no impact* would occur. Although the project site is located within two miles of the Petaluma Municipal Airport, the project site is not located within any of the safety zones established for the airport by the City of Petaluma. Thus, the proposed project would not result in a safety hazard or excessive noise for people residing or working in the project

area and a *less-than-significant* impact would occur. The project site is not located within a very high fire hazard severity zone. Furthermore, through compliance with the City's Emergency Operations Plan, the proposed project would not impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan and would not expose people or structures, either directly or indirectly, to a significant risk of loss, injury, or death involving wildland fires, and the project would result in a *less-than-significant* impact.

- *Hydrology and Water Quality (Checklists Questions b and e):* The Initial Study determined that because the proposed project is consistent with the site's General Plan land use designation and would comply with all applicable policies set forth by the City's General Plan, the project would not conflict with or obstruct implementation of the Petaluma Valley Groundwater Sustainability Agency (PVGSA) Groundwater Sustainability Plan (GSP). Furthermore, the Initial Study states that the City would have sufficient water supplies to serve demand within the City, including demand generated by the proposed project. Therefore, the project would not substantially decrease groundwater supplies or interfere substantially with groundwater recharge such that the project may impede sustainable groundwater management of the basin or conflict with or obstruct implementation of the GSP, and a *less-than-significant* impact would occur.

- *Land Use and Planning (All Checklist Questions):* The proposed project is consistent with the site's General Plan land use and zoning designations, and includes the development of pedestrian improvements that would be a continuation of the existing infrastructure. Thus, the proposed project would not physically divide an established community, and would not 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, and a *less-than-significant* impact would occur.

- *Mineral Resources (All Checklist Questions):* The City's General Plan planning area does not contain mineral resources that would be affected by development facilitated by buildout of the General Plan. Thus, the project site does not constitute a likely source of minerals that would be of value to the region or residents of the State. Because the proposed project would not result in the loss of availability of a known mineral resource or locally important recovery site, *no impact* would occur.

- *Noise (All Checklist Questions):* The Initial Study determined that project operations would not result in significant noise impacts. However, the proposed project could generate a substantial temporary increase in ambient noise levels and groundborne vibration at noise-sensitive land uses in the vicinity of the project in excess of standards established by the City and County during construction activities. The Initial Study includes Mitigation Measure XIII-1, which would ensure compliance with the applicable standards during construction and operation of the proposed project. Furthermore, the Initial Study determined that the proposed project would be located outside of all noise impact zones associated with the Petaluma Municipal Airport, resulting in a *less-than-significant* impact regarding the potential exposure of people residing or working in the project area to excessive noise levels. Overall, the proposed project would result in noise and vibration impacts that would be *less-than-significant* or *less-than-significant with mitigation incorporated*.

- *Population and Housing (All Checklist Questions):* The proposed project is consistent with the General Plan land use and zoning designations for the project site; thus, development of the proposed project has been anticipated in the General Plan EIR, and the project would not induce substantial unplanned population growth either directly or indirectly, and a *less-than-significant* impact would occur. Although the proposed project would include the demolition of the on-site residence at 280 Casa Grande Road, the project would include a 0.637-acre Remainder that would not be a part of the proposed residential community; the purpose of the Remainder is to allow the property owner of 270 Casa Grande Road to retain their residence and continue to live on the property. In addition, while one existing residence would be removed, the proposed project would include the development of 59 additional dwelling units, thus bolstering the housing stock within the City. As such, the project would not displace a substantial number of existing housing or people and would not necessitate the construction of replacement housing elsewhere, and a *less-than-significant* impact would occur.

- *Public Services (All Checklist Questions):* The project would be required to comply with General Plan policies and pay development fees that support schools and emergency police and fire services. The proposed project would not directly result in substantial adverse physical impacts associated with the provision of or 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 . Therefore, the proposed project would result in a *less-than-significant* impact with regard to public services.

- *Recreation (All Checklist Questions):* The Initial Study determined that through the payment of applicable in-lieu fees, any increase in the use of existing parks and recreational facilities resulting from a population increase induced by the proposed project would be *less-than-significant*.

- *Tribal Cultural Resources (All Checklist Questions):* The CRS prepared for the proposed project determined that the project site does not contain any recorded archeological resources. However, based on AB 52 consultation with the Federated Indians of Graton Rancheria (FIGR), the possibility exists that construction of the proposed project could result in a substantial adverse change in the significance of a tribal cultural resource. The Initial Study determined that implementation of Mitigation Measure XVIII-1 would reduce potential impacts related to tribal cultural resources to a *less-than-significant* level. Subsequent to finalizing the Initial Study, through further AB 52 consultation efforts, FIGR requested that additional analysis be completed. As such, an Extended Phase 1 (XPI) Archaeological Study was performed for the project site. The XPI Archeological Study included the excavation of 10 test pits and inspection of soils for evidence of archeological and tribal cultural resources. Seven historic period artifacts were observed in three test pits and one precontact artifact was observed on the ground surface; no precontact features, sites, or buried soils were encountered. The seven historic period artifacts were not found in concentration and are not representative of a historic-period archaeological site. As such, they do not constitute a resource type that would be eligible for listing on the National Register of Historic Places (NRHP) or the California Register of Historical Resources (CRHR) or be considered a unique archaeological resource. Similarly, the precontact artifact observed on the surface was not found in association with any other precontact artifacts, features, sites, or buried soils, and does not constitute a resource

type that would be eligible for listing on the NRHP or the CRHR or be considered a unique archaeological resource. The City shared the findings of the XPI Archeological Study with FIGR, who requested that the EIR require preconstruction worker awareness training. Based on FIGR's request, an additional measure, Mitigation Measure XVIII-2, has been added to the EIR. Mitigation Measure XVIII-2 is included in Table 2-1, Summary of Impacts and Mitigation Measures, in Chapter 2, Executive Summary, of this EIR. Mitigation Measure XVIII-2 requires preconstruction training by a qualified archeologist for all construction workers and supervisory personnel, including the importance of the protection of significant archaeological and tribal cultural resources, as well as proper procedures to follow in the event that such resources are uncovered during construction activities.

- *Utilities and Service Systems (All Checklist Questions):* Water supply for the project site would be sourced from the Russian River Water System and occasionally supplemented with local groundwater. Although the City could experience a shortfall of water supply during single dry year scenarios from 2030 to 2045, the City's Water Shortage Contingency Plan (WSCP) contains the City's strategic plan in preparation for and response to water shortages, including the water shortage stages and associated actions that would be implemented in the event of a water supply shortage. Thus, adequate water supply exists to serve the proposed project. Given the project's consistency with the General Plan land use designation, buildout of the project site with residential uses was considered in the Urban Water Management Plan (UWMP) projections. Therefore, the proposed project would not require or result in the relocation of new water infrastructure, or result in insufficient water supplies to serve the project, existing water users, or future development.

  The project would be provided sanitary sewer conveyance service by the City of Petaluma through new connections to the existing sewer main in Casa Grande Road. Pursuant to Petaluma Municipal Code (PMC) Section 19.32.020, the project would be subject to the City's Wastewater Capacity Fee, the revenues from which would help fund future construction of sanitary sewer facilities in the City's service area. In addition, based on the available capacity remaining at the City's treatment facility, the City's wastewater infrastructure and treatment facility are anticipated to be sufficient to accommodate the increased demand that would be generated by the project. Furthermore, because the proposed project would be consistent with the site's Medium Density Residential land use designation and would be consistent with applicable General Plan policies, the project would not result in impacts beyond those identified in the General Plan EIR, and a *less-than-significant* impact would occur.

  With respect to the new storm drain infrastructure that would be implemented as part of the project, the project would include new on-site stormwater facilities to treat and hold back (i.e., "detain") stormwater runoff so that the amount of runoff from the developed site would not exceed the site's current runoff rates. The final drainage system design for the project would be subject to review and approval by Sonoma Water to confirm that the proposed drainage system for the project is consistent with applicable standards. Therefore, the project would not require or result in the construction of new stormwater drainage facilities or expansion of existing facilities, the construction of which could cause significant environmental effects, and a *less-than-significant* impact would occur.

Electricity would be provided by Pacific Gas and Electric Company (PG&E) and Sonoma Clean Power, a community choice program provider that sells electricity generated from renewable energy sources that is then delivered through PG&E's grid. Internet and telephone services would be provided by Comcast Xfinity or a similar service provider operating within the City. The project would not require major upgrades to, or extension of, existing infrastructure. Thus, impacts to electricity and telecommunications infrastructure would be *less than significant*.

Solid waste disposal services are provided to the City of Petaluma by Recology Sonoma Marin, a private company under contract with the City. Solid waste is disposed of at the Central Landfill, located at 500 Mecham Road. The Initial Study determined that the Central Landfill has adequate available capacity to accommodate solid waste generated by the proposed dwelling units. Furthermore, the City's General Plan EIR evaluated the potential for development facilitated by buildout of the General Plan planning area, including the project site, to result in increased demand for solid waste disposal and concluded that through compliance with applicable General Policies, a less-than-significant impact would occur. Given that the project is consistent with the site's General Plan land use designation and would comply with applicable policies set forth in the General Plan, the project would not generate solid waste in excess of State or local standards, or in excess of the capacity of local infrastructure, or otherwise impair the attainment of solid waste reduction goals, and a *less-than-significant* impact would occur.

- *Wildfire (All Checklist Questions):* According to the CAL FIRE's Fire and Resource Assessment Program, the proposed project is located within a Local Responsibility Area (LRA) that is not designated as a Very High Fire Hazard Severity Zone (FHSZ). In addition, the project site is not located on a substantial slope. Use of construction equipment can result in sparks that could ignite grassland fires; however, construction equipment would include spark arrestors or guards, as appropriate and applicable. Furthermore, wildfire risks would not be anticipated to be exacerbated during project operation, as residential uses typically do not involve operational components that would increase the risk of wildfire. The project would be required to be designed in compliance with the California Fire Code, California Building Code, and the California Strategic Fire Plan. Thus, a *less-than-significant* impact would occur.

4.0.4 ENVIRONMENTAL ISSUES ADDRESSED IN THIS EIR

The EIR provides the analysis necessary to address the technical environmental impacts of the proposed project. The following environmental issues are addressed in this EIR:

- Biological Resources;
- Greenhouse Gas Emissions;
- Hydrology and Water Quality; and
- Transportation.

See Chapter 5, Section 5.3, for additional information on the scope of the cumulative impact analysis for each environmental issue addressed in the EIR.

4.0.5 CHAPTER FORMAT

Each technical chapter addressing a specific environmental issue begins with an **introduction** describing the purpose of the section. The introduction is followed by a description of the project's

existing environmental setting as the setting pertains to that particular issue. The setting description is followed by the **regulatory context** and the **impacts and mitigation measures** discussion, which contains the **standards of significance**, followed by the **method of analysis**. The **impact and mitigation** discussion includes impact statements prefaced by a number in bold-faced type (for both project-level and cumulative analyses). An explanation of each impact and an analysis of the impact's significance follow each impact statement. All mitigation measures pertinent to each individual impact follow directly after the impact statement (see below). The degree of relief provided by identified mitigation measures is also evaluated. An example of the format is shown below.

Project-Specific Impacts and Mitigation Measures

The following discussion of impacts is based on the implementation of the proposed project in comparison with the standards of significance.

4.x-1 Statement of Project-Specific Impact

Discussion of impact for the proposed project in paragraph format.

Statement of ***level of significance*** of impact prior to mitigation is included at the end of each impact discussion. The following levels of significance are used in the EIR: less than significant, significant, or significant and unavoidable. If an impact is determined to be significant, mitigation will be included in order to reduce the specific impact. Impacts that cannot be reduced to a less-than-significant level with implementation of all feasible mitigation would be considered to remain significant and unavoidable.

Mitigation Measure(s)

Statement of *level of significance* after the mitigation is included immediately preceding mitigation measures.

4.x-1(a) *Required mitigation measure(s) presented in italics and listed in consecutive order.*

4.x-1(b) *Required additional mitigation measure, if necessary.*

Cumulative Impacts and Mitigation Measures

The following discussion of cumulative impacts is based on implementation of the proposed project in combination with cumulative development within the applicable area or region.

4.x-2 Statement of Cumulative Impact

Discussion of cumulative impacts for the proposed project in paragraph format.

As discussed in detail in Chapter 5, Statutorily Required Sections, of the EIR, the cumulative setting for the proposed project is generally considered to be development anticipated to occur upon buildout of the project, as well as buildout of a number of approved or reasonably foreseeable projects within the City of Petaluma.

Statement of ***level of significance*** of cumulative impact prior to mitigation is included at the end of each impact discussion. The following levels of significance are used in the EIR for cumulative impacts: less than significant, less than cumulatively considerable, cumulatively considerable, or significant and unavoidable. If an impact is determined to be cumulatively considerable, mitigation will be included in order to reduce the specific impact. Impacts that cannot be reduced to a less than cumulatively considerable level with the implementation of all feasible mitigation would be considered to remain significant and unavoidable.

Mitigation Measure(s)

Statement of *level of significance* after the mitigation is included immediately preceding mitigation measures.

4.x-2(a) *Required mitigation measure(s) presented in italics and listed in consecutive order.*

4.x-2(b) *Required additional mitigation measure, if necessary.*

4.1 Biological Resources

4.1 BIOLOGICAL RESOURCES

4.1.1 INTRODUCTION

The Biological Resources chapter of the EIR evaluates the biological resources known to occur or potentially occur within the project site and surrounding area. The chapter describes the project's potential impacts to biological resources and identifies measures to eliminate or substantially reduce impacts to a less-than-significant level. Existing plant communities, wetlands, wildlife habitats, and potential for special-status species and communities are discussed for the project region. The information contained in the analysis is primarily based on a Biological Resources Assessment (BRA) (see Appendix C of this EIR)[1] prepared for the proposed project by Montrose Environmental. In addition, information from a Tree Protection and Removal Plan prepared by Urban Forestry Associates, Inc. has been incorporated into this chapter (see Appendix D of this EIR).[2] Further information was sourced from the City of Petaluma General Plan 2025,[3] and the associated City of Petaluma General Plan EIR.[4]

4.1.2 EXISTING ENVIRONMENTAL SETTING

The following sections describe the regional biological setting in which the project site is located, the biological setting of the project site, and the special-status species and Sensitive Natural Communities known to occur within the project site and vicinity.

Regional Setting

The City of Petaluma is within the northern sub-unit of the San Francisco Bay, where the regional climate is heavily influenced by the proximity to the coastline. According to the BRA, annual rainfall averages 26.7 inches, and annual temperatures range from an average high of 82 degrees Fahrenheit in August to an average low of 57 degrees Fahrenheit in January. The Sonoma Valley winemaking region stretches between Petaluma to the south and Healdsburg to the north and is surrounded by the Coastal Range Mountains to the northeast and southwest. The winemaking region encompasses a wide range of terrestrial and aquatic habitats, including grassland, oak savannah, fresh emergent wetlands, seasonal wetlands, riparian, northern coastal salt marsh, and brackish water marsh.

Within the Petaluma City limits, most of the land is developed, primarily with residential uses. Commercial and industrial uses also occur, primarily along U.S. 101 and State Route (SR) 116. The Petaluma River runs through the City in a northwest-southeast direction and flows directly into San Pablo Bay. Areas along the river and its tributaries provide valuable habitat for several special-status plant and wildlife species, as do grassland and oak savannah habitats primarily located along the western portion of the City limits. Oak woodlands are found to the south of the City along the streams, creeks, and rivers that comprise the watersheds to the south of the City and flow into the Petaluma River. The banks of the creeks, streams, and rivers in and around the

1 Montrose Environmental. *Biological Resources Assessment: Falcon Point Associates, LLC, Creekwood Housing Development Project*. May 2024.
2 Urban Forestry Associates, Inc. *Creekwood Development Tree Protection and Removal Plan*. December 19, 2023.
3 City of Petaluma. *City of Petaluma General Plan 2025.* Adopted May 19, 2008.
4 City of Petaluma. *City of Petaluma General Plan 2025 Environmental Impact Report*. February 2008.

City consist of riparian and riparian forest communities, which act as movement corridors for wildlife. Large swaths of vineyard and irrigated pasture also occur along Frates Road and South Ely Road to the east of the City limits.

Project Setting

The approximately 6.87-acre study area includes the project site, which consists of two parcels totaling approximately 5.2 acres that abut the eastern boundary of Casa Grande Road in the City of Petaluma and are identified by the following addresses: 270 Casa Grande Road and 280 Casa Grande Road. In addition, the study area includes approximately 1.67 off-site acres associated with Adobe Creek (Creek) and its riparian corridor, wherein the proposed pedestrian bridge would be located. Overall, the project site is primarily composed of agricultural fields classified as *Avena* spp. – *Bromus* spp. On-site grasses are routinely mowed and/or grazed to reduce fire hazards. Grazing of both parcels is conducted by several sheep owned and cared for by the current 270 Casa Grande Road property owner. Elevations at the site are approximately 49 feet above mean sea level (amsl).

In addition to the aforementioned on-site agricultural fields, the 280 Casa Grande Road parcel contains an existing residence. The 270 Casa Grande Road parcel contains an existing residence, several associated outbuildings, a landscaped backyard, and a small orchard in the northeast corner of the project site, within a depressed area. The Creek and its associated vegetation form the eastern boundary of the project site. The Creek is an ephemeral creek that flows in a north-south direction and is tributary to the Petaluma River to the south. A riparian corridor comprised of various plant species, which are discussed further in the Terrestrial Vegetation Communities subsection of this chapter, occurs along the banks of the Creek.

Terrestrial Vegetation Communities

Montrose Environmental identified three terrestrial habitat types within the study area, including developed/disturbed, riparian, and annual grassland.[5] The terrestrial land cover types, which are summarized in Table 4.1-1 and shown in Figure 4.1-1, are discussed further below.

Table 4.1-1
Terrestrial Land Cover Types Mapped Within the Study Area

Land Cover	Acreage
Developed/Disturbed	1.29
Annual Grassland	4.15
Riparian	1.22
Total	**6.66**

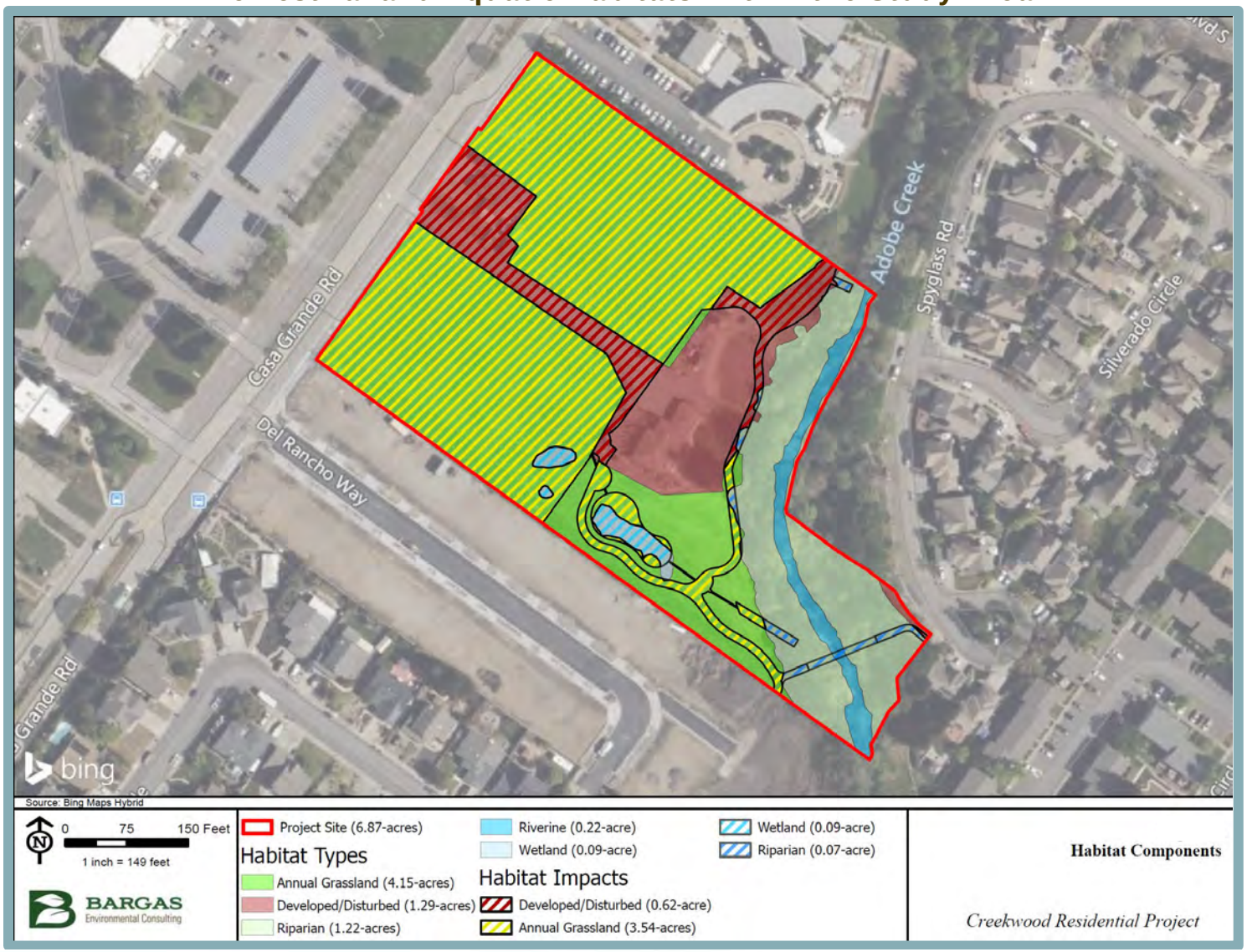
Source: Montrose Environmental, 2024.

Developed/Disturbed

A total of approximately 1.29 acres within the study area are classified as developed/disturbed. A gravel driveway off Casa Grande Road provides access to the existing residence and multiple outbuildings at 270 Casa Grande Road. An additional residence at 280 Casa Grande Road is located at the entrance to the project site.

[5] It should be noted that the study area, as evaluated by Montrose Environmental, includes a portion of the Adobe Creek riparian corridor located to the east of the project site where the public multi-use pathway and pedestrian bridge would be installed. The project site boundaries, as established in the Project Description chapter of this EIR, are entirely to the west of the Creek. As such, the total acreage of the terrestrial vegetation communities within the study area is larger than the overall acreage of the project site.

Figure 4.1-1
Terrestrial and Aquatic Habitats Within the Study Area



A large portion of the area surrounding the outbuildings and houses is characterized by bare ground with compressed gravel for vehicle driving and parking. Areas that are not graveled are planted with ornamental and garden vegetation species and are subject to regular landscaping maintenance activities. The developed/disturbed habitat type is not considered sensitive and is of low quality for accommodating plant and wildlife species.

Annual Grassland

Approximately 4.15 acres of annual grassland habitat occurs within the study area. The annual grasslands are classified as herbaceous semi-natural alliance (*Avena* spp. – *Bromus* spp.) and are disked and planted with mixed non-native grasses and forbs, which are used as forage crops for sheep grazing. Species within the habitat include oats (*Avena* spp.), soft brome (*Bromus hordeaceus*), ripgut brome (*Bromus diandrus*), field bindweed (*convolvulus arvensis*), wall barley (*Hordeum murinum*), Bristly ox-tongue (*Helminthotheca echioides*), common stork's bill (*Erodium cicutarium*), and Italian ryegrass (*Festuca perennis*). This annual grassland habitat type is dominated by non-natives and is of low quality for accommodating plant and wildlife species.

Riparian

A total of approximately 1.22 acres of riparian habitat occurs within the riparian corridor along the Creek in the eastern portion of the study area. The riparian corridor includes species such as Himalayan blackberry (*Rubus armeniacus*), coast live oak (*Quercus argifolia*), valley oak (*Quercus latifolia*), arroyo willow (*Salix lasiolepis*), red willow (S*alix laevigata*), California buckeye (*Aesculus californica*), big leaf maple (*Acer macrophyllum*), fennel (*Foeniculum vulgare*), and flat top sedge (*Cyperus eragrostis*). The Creek flows downstream within the riparian corridor, where the Creek confluences with the Petaluma River. The riparian habitat is considered a Sensitive Natural Community protected under California Fish and Game Code (CFGC) Section 1600, et seq.

Aquatic Resources

Montrose Environmental conducted a protocol-level Preliminary Jurisdictional Delineation (PJD) of the study area as part of the BRA on April 15 and June 15, 2020 and November 24, 2021. A subsequent Aquatic Resources Delineation (ARD) was conducted by Bargas Environmental Consulting on March 5, 2024. Aquatic resources identified within the study area include three seasonal wetlands in the southwestern portion of the project site and the Creek, which flows adjacent to the eastern site boundary. Table 4.1-2 summarizes the aquatic resources within the study area, which are also discussed further below.

Table 4.1-2
Aquatic Resources Mapped Within the Study Area

Aquatic Resource	Acres
Seasonal Wetlands	0.09
Riverine	0.22
Source: Montrose Environmental, 2024.	

Seasonal Wetlands

Three separate seasonal wetlands totaling approximately 0.09-acre occur in the annual grassland in the southern portion of the project site, as shown in Figure 4.1-2. The wetlands include species such as clustered dock (*Rumex conglomeratus*), water pygmyweed (*Crassula aquatica*), hyssop loosestrife (*Lythrum cisopotholia*), and Italian ryegrass.

Figure 4.1-2
On-Site Seasonal Wetlands

Riverine

Approximately 621 linear feet of the Creek flows through the study area within 0.22-acre of riverine habitat, generally shown in blue hashing on Figure 4.1-2. The width of the Creek averages 25 feet, and the substrates vary from cobble to sand bars. The majority of the riverine habitat is covered by tree canopy with more openings in the canopy in the southern section. The Creek was assessed by the California Department of Fish and Wildlife (CDFW) and determined to provide suitable habitat for anadromous fishes. The Creek flows south to where the waterway confluences with the Petaluma River, thence the San Pablo Bay, thence the San Francisco Bay, and finally, the Pacific Ocean. The Creek is a second order stream and mapped as a blue line stream according to the U.S. Geological Survey (USGS) National Hydrography Dataset. The U.S. Fish and Wildlife Service (USFWS) National Wetlands Inventory identifies the Creek as riverine habitat. According to the BRA, the Creek displays a clear ordinary high-water mark (OHWM), top of bank, and therefore, is a water of the U.S. and State subject to U.S. Army Corps of Engineers (USACE) and Regional Water Quality Control Board (RWQCB) jurisdiction, respectively. The riverine habitat is considered a Sensitive Natural Community protected under California Fish and Game Code (CFGC) Section 1600, et seq.

Special-Status Species

Special-status species are species that have been listed as threatened or endangered under the federal Endangered Species Act (FESA), California Endangered Species Act (CESA), or are of special concern to federal resource agencies, the State, or private conservation organizations. A species may be considered to have special status due to declining populations, vulnerability to habitat change, or restricted distributions. A general description of the criteria and laws pertaining to special-status classifications is described below. Special-status plant and wildlife species may meet one or more of the following criteria:

1. Listed as threatened or endangered, or proposed or candidates for listing by the USFWS or National Marine Fisheries Service (NMFS);
2. Listed as threatened or endangered and candidates for listing by the CDFW;
3. Identified as Fully Protected species, Species of Special Concern, or Watch List species by CDFW;
4. Identified as a Bird of Conservation Concern by the USFWS; and
5. Identified as Medium or High priority species by the Western Bat Working Group (WBWG);
6. Plant species considered to be rare, threatened, or endangered in California by the California Native Plant Society (CNPS) and CDFW (California Rare Plant Rank [CRPR] 1, 2, and 3):
    a. CRPR 1A: Plants presumed extinct.
    b. CRPR 1B: Plants rare, threatened, or endangered in California and elsewhere.
    c. CRPR 2A: Plants extirpated in California, but common elsewhere.
    d. CRPR 2B: Plants rare, threatened, or endangered in California, but more common elsewhere.
    e. CRPR 3: Plants about which the CNPS needs more information – a review list.

Listed and Special-Status Plant Species

According to the records of the California Natural Diversity Database (CNDDB) maintained by the CDFW, 63 special-status plant species have the potential to occur in the vicinity of the study area.

Based on special-status plant surveys and literature review (detailed further in this chapter under the Method of Analysis subsection), three of the plant species were determined to have potential

to occur within the project site. These include congested-headed hayfield tarplant, Sanford's arrowhead, and Pacific Grove clover.

Further details on each of the plant species with potential to occur in the greater vicinity of the study area is provided in Appendix C of the BRA (see Appendix C of this EIR). The following discussions provide further details of the three special-status plant species with potential to occur within the project site.

Congested-Headed Hayfield Tarplant

Congested-headed hayfield tarplant (*Hemizonia congesta* ssp. *congesta*) is not listed pursuant to either the FESA or CESA; however, the species is a CRPR List 1B.2 plant. The species is an annual herb in the *Asteraceae* family and occurs in valley and foothill grasslands, as well as sometimes along roadsides, at elevations of 30 to 1,060 meters amsl. The bloom period for congested-headed hayfield tarplant occurs from April through November. The species' range extends through Mendocino, Marin, San Francisco, San Mateo, and Sonoma counties.

The agricultural habitat between the Creek and the project site's existing development, as well as the small patches of vegetation within the developed/disturbed habitat, may provide suitable habitat for congested-headed hayfield tarplant. Because the species can occur within roadsides and other disturbed areas, the possibility of the species occurring on-site cannot be completely ruled out. However, the species' potential to occur on-site is considered low, due to the project site's routine vegetation management. Biological surveys conducted during the bloom period for congested-headed hayfield tarplant did not observe any individuals.

Sanford's Arrowhead

Sanford's arrowhead (*Sagittaria sanfordii*) is not listed pursuant to either the FESA or CESA; however, the species is a CRPR List 1B.2 plant. The species is an emergent rhizomatous herb in the water-plantain family (*Alismataceae*) and found in assorted shallow freshwater marshes and swamps, ditches, ponds, and slow-moving streams from sea level to 650 meters amsl.

The nearest occurrence of Sanford's arrowhead was documented approximately 14 miles south of the project site within Arroyo de San Jose growing in standing water or on low shelves adjacent to flowing water. Marginal habitat for the species can occur within riverine habitat during low flows or along the edge of riverine and riparian habitats where standing water may occur, creating saturated conditions for prolonged periods. Sanford's arrowhead plants were not observed during the biological surveys.

Pacific Grove Clover

Pacific Grove clover (*Trifolium polyodont*) is not listed pursuant to either the FESA or CESA; however, the species is a CRPR List 1B.1 plant. The species is an annual herb documented predominantly along the Central California coast and occurs predominantly in meadows or adjoining riparian habitat. Pacific Grove clover may also be found in meadows associated with coastal prairie or closed-cone pine forest and is typically found in wetland habitats, but can also occur outside of wetlands.

The nearest documented occurrence of Pacific Grove clover to the project site is 1.2 miles from the site. While the species may occur within the riparian corridor on the southeastern edge of the site, due to the regular disturbance around the corridor and the presence of invasive vegetation within the corridor, the likelihood of occurrence is low. In addition, although regular disturbance

does not occur within the riparian habitat, the surrounding upstream and downstream development and presence of invasive species has severely degraded the quality of the foregoing riparian habitat. Biological surveys conducted during the bloom period for Pacific Grove clover did not observe any individuals.

Listed and Special-Status Wildlife Species

According to the records search conducted as part of the BRA, 25 special-status wildlife species have the potential to occur within the vicinity of the study area, which are detailed in Table 4.1-3. Based on field observations and literature review (detailed further in this chapter under the Method of Analysis subsection), seven of the 25 wildlife species were determined to have potential to occur within the study area.

The species considered to have potential to occur in the study area include western bumble bee, steelhead, foothill yellow-legged frog (FYLF), California red-legged frog (CRLF), northwestern pond turtle, Swainson's hawk, and pallid bat. The following discussions provide further details of the foregoing special-status wildlife species.

Western Bumble Bee

The western bumble bee (*Bombus occidentalis*) is not federally listed, but is a candidate for listing as endangered under CESA. Western bumble bee is a generalist forager that will visit and pollinate a variety of flowering plants. The species is also a known pollinator of agricultural crop production plants. The current range for western bumble bee includes Alaska through the westernmost part of Canada and throughout the western U.S. Western bumble bee is found in open grassy areas, urban parks and gardens, chaparral and shrub areas, and mountain meadows at elevations from sea level to above 2000 meters amsl. Nesting occurs underground in abandoned rodent burrows or other cavities.

The largest declines of the species are believed to have occurred within Central California and Western California, Oregon, and Washington. The western bumble bee is believed to be imperiled by invasive species and their associated foreign pathogens, as well as climate change. The nearest known occurrence is from 1965 and is located approximately 1.3 miles west of the project site. Burrows suitable for western bumble bee nesting habitat were not observed during surveys. However, the study area contains suitable foraging habitat within the annual grassland or in openings in the riparian and riverine habitats. As such, western bumble bee could occur within the study area.

Steelhead – Central California Coast DPS

Steelhead (*Oncorhynchus mykiss irideus*) is listed as a federally threatened species, pursuant to the FESA. The species is the anadromous form of rainbow trout. As such, steelhead spawn in the freshwater streams in which they were born. Juveniles remain in the freshwater environment for one to two years prior to their out-migration into the ocean. Unlike other types of salmonoids, steelhead are capable of spawning multiple times throughout their life and do not typically die immediately after spawning. The steelhead in the Central California Coast Evolutionary Significant Unit (ESU) are a winter-run species. Winter-run steelhead typically migrate from November through April and spawn shortly after they arrive to their natal spawning habitat. Although steelhead in the foregoing ESU are classified as a winter-run species, hydro-modification has fundamentally changed the life history strategies of the fish over time. As cold waters persist at predictable flow patterns from dams on an annual basis, the occurrence of the species can be outside the November-to-April migratory window.

Table 4.1-3
Special-Status Species with Potential to Occur Within the Study Area

Scientific Name (Common Name)	Federal Status	State Status	Distribution	Habitat Requirements	Potential to Occur On-Site
Invertebrates					
Bombus occidentalis Western bumble bee	--	CCE	Known to occur along the West Coast and Mountain West of North America, including Arizona, New Mexico, Mediterranean California, the Pacific Northwest, and Alaska.	Found in open grassy areas, urban parks and gardens, chaparral and shrub areas, and mountain meadows. Found at elevations from sea level to above 2000 meters amsl. Nesting occurs underground in abandoned rodent burrows or other cavities.	**Yes.** Suitable habitat for the species is present on-site.
Danus plexippus Monarch butterfly	FC	--	Known to occur in Mexico and North America. Populations that occur where winter conditions are not suitable travel along well-established migratory routes to overwintering areas. Overwintering sites are known to occur in Mexico and Coastal California.	Migratory populations begin migration in the fall and can be found along established migratory routes where nectar sources are available. During breeding (typically February to March), monarch butterflies require milkweed upon which to lay their eggs. Overwintering monarchs require sites with sufficient roosts for the population (such as eucalyptus trees) that provide appropriate sunlight and shelter from the wind. Where climate is suitable for year-round habitation, monarchs are found in areas with nectar sources and milkweed as breeding can occur year-round.	**No.** Suitable habitat for the species is not present within the study area.
Fish					
Oncorhynchus mykiss irideus pop. 8 Steelhead-Central California Coast Distinct Population Segment (DPS)	FT	--	Spawns in drainages from the Russian River Basin, Sonoma and Mendocino counties, to Soquel Creek, Santa Cruz County (including the San Francisco Bay Basin, but not the Sacramento and San Joaquin rivers or their tributaries).	Found in cool, clear, fast-flowing permanent streams and rivers with riffles and ample cover from riparian vegetation or overhanging banks. Spawning occurs in streams with pool and riffle complexes. For successful breeding, requires cold water and gravelly streambed.	**Yes.** The study area contains the Creek, which is designated by the National Oceanic and Atmospheric Administration (NOAA) Fisheries/NMFS as critical habitat

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Table 4.1-3
Special-Status Species with Potential to Occur Within the Study Area

Scientific Name (Common Name)	Federal Status	State Status	Distribution	Habitat Requirements	Potential to Occur On-Site
					for steelhead. The species has also been documented within the Creek in the CNDDB.
Pogonichthys macrolepidotus Sacramento splittail	--	CSC	Endemic to the Central Valley. Occurs below the Red Bluff Diversion Dam in Tehama County to the downstream reaches of the Sacramento and American rivers. Also occurs in the lower reaches of the Feather, Merced, and the San Joaquin rivers. The species is largely confined to the delta, Suisun Bay, Suisun Marsh, Napa River, Petaluma River, and Sacramento-San Joaquin estuary.	Found predominantly in freshwater estuarine systems. Prefers low-salinity, shallow-water habitats. Occurs in slow-moving sections of rivers, sloughs, and marshes. Abundance is strongly tied to outflows, because spawning occurs over flooded vegetation.	**No.** Suitable habitat for the species is not present within the study area.
Amphibians					
Ambystoma californiense California tiger salamander	FT	CT	Occurs in Alameda, Butte, Contra Costa, Fresno, Glenn, Kern, Madera, Merced, Monterey, Sacramento, San Benito, San Joaquin, San Luis Obispo, San Mateo, Santa Barbara, Santa Clara, Solano, Sonoma, Stanislaus, Tulare, and Yolo counties.	Occurs in vernal pools, ephemeral wetlands, and seasonal ponds, including constructed stock ponds, in grassland and oak savannah plant communities. Elevations range from sea level to 460 meters amsl.	**No.** Suitable habitat for the species is not present within the study area.
Dicamptodon ensatus California giant salamander	--	CSC	Known to occur in Mendocino, Lake, Glenn, Sonoma, Marin, San Mateo, Santa Cruz, and historically Monterey counties.	Occurs in wet coastal forests near streams and seepages.	**No.** Suitable habitat for the species is not present within the study area.

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Table 4.1-3
Special-Status Species with Potential to Occur Within the Study Area

Scientific Name (Common Name)	Federal Status	State Status	Distribution	Habitat Requirements	Potential to Occur On-Site
Rana boylii Foothill yellow-legged frog North Coast DPS	--	CSC	Known to occur from California and Oregon.	Requires shallow, flowing water in moderate-sized streams with some cobble substrate.	**Yes.** Suitable habitat for the species is present in the Creek, which is within the study area.
Rana draytonii California red-legged frog	FT	CSC	Known to occur along the coast from Mendocino County to Baja California, and inland through the northern Sacramento Valley into foothills of the Sierra Nevada, south to eastern Tulare County, and possibly eastern Kern County. Current accepted range excludes the Central Valley.	Occurs in permanent and temporary pools of streams, marshes, and ponds with dense grassy and/or shrubby vegetation. Elevations range from sea level to 1,160 meters amsl.	**Yes.** Suitable habitat for the species is present in the Creek, which is within the study area.
Taricha rivularis Red-bellied newt	--	CSC	Known to occur in the Coast Range from Mendocino County to San Diego County. Also known in the Peninsular Ranges, south of Boulder Creek, and in the southern Sierra Nevada foothills.	Occurs primarily in valley-foothill hardwood, hardwood conifer, coastal scrub, and mixed chaparral, but may also occur in annual grassland and mixed conifer forests. Elevation ranges from sea level to 1,830 meters amsl.	**No.** Suitable habitat for the species is not present within the study area.
Reptiles					
Chelonia mydas Green sea turtle	FT	--	Globally distributed in tropical and subtropical waters along continental coasts and islands between 30 degrees north and 30 degrees south. In the eastern North Pacific, occurs from Baja California to Alaska.	Nests on oceanic beaches, feeds in benthic grounds in coastal areas, and frequents convergence zones in the open ocean.	**No.** Suitable habitat for the species is not present within the study area.

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Table 4.1-3
Special-Status Species with Potential to Occur Within the Study Area

Scientific Name (Common Name)	Federal Status	State Status	Distribution	Habitat Requirements	Potential to Occur On-Site
Actinemys marmorata Northwestern pond turtle	FPT	CSC	Distribution ranges from Washington to northern Baja California.	Inhabits rivers, streams, lakes, ponds, reservoirs, stock ponds, and permanent wetlands with basking sites.	**Yes.** Suitable habitat for the species is present within the study area.
Birds					
Aquila chrysaetos Golden eagle	--	FP, WL	Occurs in Alameda, Colusa, Contra Costa, El Dorado, Fresno, Humboldt, Kern, Lake, Lassen, Los Angeles , Madera, Merced, Modoc, Mono, Monterey, Napa, Orange, Riverside, Sacramento, San Bernardino, San Diego, San Joaquin, San Luis Obispo, Santa Clara, Siskiyou, Solano, Stanislaus, Trinity, Tulare, and Ventura counties.	Generally open country, in prairies, arctic and alpine tundra, open wooded country, and barren areas, especially in hilly or mountainous regions.	**No.** Suitable habitat for the species is not present within the study area.
Buteo swainsoni Swainson's hawk	--	CT	In California, breeds in the Central Valley, Klamath Basin, Northeastern Plateau, Lassen County, and Mojave Desert. Very limited breeding reported from Lanfair Valley, Owens Valley, Fish Lake Valley, Antelope Valley, and in eastern San Luis Obispo County.	Breeds in stands with few trees in juniper-sage flats, riparian areas, and in oak savannah. Requires adjacent suitable foraging areas such as grasslands, alfalfa, or grain fields supporting rodent populations.	**Yes.** Suitable habitat for the species is present within the study area.
Charadrius alexandrines nivosus Western snowy plover	FT	CSC	The Pacific Coast breeding population of the western snowy plover (*Charadrius alexandrinus nivosus*) currently extends from Damon Point, Washington, to Bahia Magdalena, Baja California, and Mexico. The	Snowy plovers (Pacific Coast population) breed primarily above the high tide line on coastal beaches, sand spits, dune-backed beaches, sparsely vegetated dunes, beaches at creek and river mouths, and salt pans at lagoons and estuaries. In winter, snowy plovers are found on many	**No.** Suitable habitat for the species is not present within the study area.

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Table 4.1-3
Special-Status Species with Potential to Occur Within the Study Area

Scientific Name (Common Name)	Federal Status	State Status	Distribution	Habitat Requirements	Potential to Occur On-Site
			snowy plover winters mainly in coastal areas from southern Washington to Central America.	of the beaches used for nesting as well as on beaches where they do not nest, in man-made salt ponds, and on estuarine sand and mud flats.	
Geothlypis trichas sinuosa Salt-marsh common yellowthroat	--	CSC	Breeding range bounded by Tomales Bay on the north, Carquinez Strait on the east, and Santa Cruz County to the south, with occurrences in the Bay Area during migration and winter.	Found in salt, brackish, and freshwater marshes. Nests just above ground or over water, in thick herbaceous vegetation, often at base of shrub or sapling, sometimes higher in weeds or shrubs up to about one meter.	**No.** Suitable habitat for the species is not present within the study area.
Laterallus jamaicensis coturniculus California black rail	--	CT, FP	In Coastal California during breeding season, the species is currently found at Bodega Bay, Tomales Bay, Bolinas Lagoon, San Francisco Bay estuary, and Morro Bay. Overwhelming majority of birds in San Francisco Bay (San Pablo Bay) at relatively few sites. Occurs irregularly south to Baja California and inland in small numbers in Salton Trough and on lower Colorado River from Bill Williams River (historically) to Laguna Dam.	Nests in high portions of salt marshes, shallow freshwater marshes, wet meadows, and flooded grassy vegetation. Uses sites with shallower water than other North American rails. Most breeding areas vegetated by fine-stemmed emergent plants, rushes, grasses, or sedges. Sites used in Coastal California characterized by taller vegetation, greater coverage and height of alkali heath (*Frankenia grandifolia*).	**No.** Suitable habitat for the species is not present within the study area.
Melospiza melodia samuelis San Pablo song sparrow	--	CSC	Distributed in marshes around San Pablo Bay continuously from Gallinas Creek in the west, along the northern San Pablo Bayshore, and throughout the extensive marshes along the Petaluma, Sonoma, and Napa rivers.	Commonly found in salt marsh, brackish marsh, salt marsh (altered), brackish marsh (altered), and fringe areas, where marsh vegetation is limited to edges of dikes, landfills, or other margins of high ground bordering salt or brackish water areas.	**No.** Suitable habitat for the species is not present within the study area.

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Table 4.1-3
Special-Status Species with Potential to Occur Within the Study Area

Scientific Name (Common Name)	Federal Status	State Status	Distribution	Habitat Requirements	Potential to Occur On-Site
Rallus obsoletus obsoletus California Ridgway's rail	FE	CE, FP	Locally common year-long in coastal wetlands and brackish areas around San Francisco Bay.	In saline emergent wetlands, nests mostly in lower zones with abundant cordgrass and near tidal sloughs. Builds platforms concealed by canopies of woven cordgrass stems or pickleweed and gumweed. Uses dead drift vegetation as platform. In fresh or brackish water, builds nest in dense cattail or bulrush. Forages in high marsh vegetation along vegetation and mudflat interface and along tidal creeks.	**No.** Suitable habitat for the species is not present within the study area.
Riparia riparia Bank swallow	--	CT	About 50 to 60 colonies remain along the middle Sacramento River and 15 to 25 colonies occur along lower Feather River. Other colonies persist along the Central Coast from Monterey to San Mateo counties, and Northeastern California in Shasta, Siskiyou, Lassen, Plumas, and Modoc counties.	Colonial nester; nests primarily in riparian scrub, riparian woodland, and other lowland habitats west of the desert. Requires vertical banks/cliffs with fine-textured, sandy soils near streams, rivers, lakes, and the ocean to dig nesting holes.	**No.** Suitable habitat for the species is not present within the study area.
Sternula antillarum browni California least tern	FE	CE, FP	Found along the Pacific Coast of California, from San Francisco southward to Baja.	Nests in colonies on relatively open beaches kept free of vegetation by natural scouring from tidal action.	**No.** Suitable habitat for the species is not present within the study area.
Strix occidentalis caurina Northern spotted owl	FT	CT	Geographic range extends from British Colombia to Northwestern California south to San Francisco. The breeding range includes the Cascade Range, North Coast Ranges, and the Sierra Nevada. Some breeding populations also occur in the	Resides in mixed conifer, redwood, and Douglas-fir habitats, from sea level to approximately 2,300 meters amsl. Prefers old-growth forests but use of managed (previously logged) lands is not uncommon. Does not use logged habitat until approximately 60 years after logging, unless larger trees or snags remain.	**No.** Suitable habitat for the species is not present within the study area.

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Table 4.1-3
Special-Status Species with Potential to Occur Within the Study Area

Scientific Name (Common Name)	Federal Status	State Status	Distribution	Habitat Requirements	Potential to Occur On-Site
			Transverse Ranges and Peninsular Ranges.	Nesting habitat is a tree or snag cavity, or the broken top of a large tree. Requires a nearby, permanent source of water. Foraging habitat consists of any forest habitat with sufficient prey.	
Mammals					
Antrozous pallidus Pallid bat	--	CSC	Locally common species at low elevations. The species occurs throughout California except for the high Sierra Nevada, from Shasta to Kern counties, and the northwestern corner of the State from Del Norte and western Siskiyou counties to northern Mendocino County.	Habitats occupied include grasslands, shrublands, woodlands, and forests from sea level up through mixed conifer forests, generally below 2,000 meters amsl. The species is most common in open, dry habitats with rocky areas for roosting. Roosts also include cliffs, abandoned buildings, bird boxes, under exfoliating bark, and under bridges.	**Yes.** Suitable habitat for the species is present within the study area.
Corynorhinus townsendii Townsend's big-eared bat	--	CSC	Known to occur throughout California, excluding subalpine and alpine habitats. The species' range extends through Mexico to British Columbia and the Rocky Mountain states. Also occurs in several regions of the central Appalachians.	Requires caves, mines, tunnels, buildings, or other cave analog structures such as hollowed-out redwoods for roosting. Hibernation sites must be cold, but above freezing.	**No.** Suitable habitat for the species is not present within the study area.
Reithrodontomys raviventris Salt marsh harvest mouse	FE	CE, FP	Only found in the saline emergent wetlands of San Francisco Bay and its tributaries.	Critically dependent on dense cover and their preferred habitat is pickleweed (*Salicornia virginica*). Seldomly found in cordgrass or alkali bulrush. In marshes with an upper zone of peripheral halophytes (salt-tolerant plants), mice use the vegetation to escape the higher tides, and may even spend a considerable portion of their lives there. Mice also move into the adjoining grasslands during the highest winter tides.	**No.** Suitable habitat for the species is not present within the study area.

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Table 4.1-3
Special-Status Species with Potential to Occur Within the Study Area

Scientific Name (Common Name)	Federal Status	State Status	Distribution	Habitat Requirements	Potential to Occur On-Site
Taxidea taxus American badger	--	CSC	Found throughout most of California in suitable habitat.	Suitable habitat occurs in the drier open stages of most shrub, forest, and herbaceous habitats with friable soils. Badgers are generally associated with treeless regions, prairies, parklands, and cold desert areas.	**No.** Suitable habitat for the species is not present within the study area.

Status Codes:
FE: Federally Endangered
FT: Federally Threatened
FPT: Federally Proposed Threatened
FPE: Federally Proposed Endangered
FC: Candidate for Federal Listing
CE: CDFW Endangered
CT: CDFW Threatened
CSC: California Species of Special Concern
CCE: California Candidate for State Endangered Listing
CCT: California Candidate for State Threatened Listing
CR: California Rare

FP: Fully Protected Species
WL: California Watch List
1A: Plants Presumed Extinct in California
1B: Plants Rare, Threatened, or Endangered in California and Elsewhere
2B: Plants Rare, Threatened, or Endangered in California, but More Common Elsewhere
3: Plants About Which We Need More Information – A Review List
4: Plants of Limited Distribution – A Watch List
0.1: Seriously Threatened in California
0.2: Fairly Threatened in California
0.3: Not Very Threatened in California

Source: Montrose Environmental, 2024.

Steelhead have an average lifespan of six to seven years. The Creek, which runs through the southeastern portion of the study area, provides suitable habitat for the species and is designated by the NOAA Fisheries/NMFS as critical habitat for steelhead. According to the BRA, a Stream Assessment completed by CDFW determined that the Creek along the eastern boundary of the project site provides suitable fish habitat for anadromous species. Steelhead have also been observed in the Creek, as recorded in CNDDB, as well as by the United Anglers of Casa Grande, Inc., a Petaluma nonprofit organization that restores habitat and supports the survival and recovery of federally threatened salmon species, including through specifically rescuing stranded steelhead within the Creek and other areas of the Petaluma River watershed. Fish passage barriers do not occur from the Pacific Ocean to the project site. As such, steelhead could occur within the study area.

Foothill Yellow-Legged Frog – North Coast DPS

FYLF (*Rana boylii*) is a California Species of Special Concern. FYLF is named for its abdomen and hindlegs, which are distinctively yellowish in color. The species occurs in partially shaded, rocky streams at low to moderate elevations in areas of chaparral, cismontane woodland, and broad-leafed upland forest habitats. Ideal habitat consists of open, slow-moving perennial streams with rocky or bedrock substrates and small deeper pools. The species can also occur in smaller perennial streams that have cobble-size rocks and riffles. FYLF breeds from March through May in pools within perennial streams and attaches its eggs to gravel or rocks at the edges or along the banks.

The Creek, which runs through the southeastern portion of the study area, may provide suitable habitat for FYLF species. According to the BRA, a Stream Assessment completed by CDFW on the Creek in 2008 noted multiple observations of FYLF within the vicinity of the project site, both upstream and immediately downstream of the project site. As such, FYLF could occur within the study area.

California Red-Legged Frog

CRLF (*Rana draytonii*) is listed as threatened, pursuant to the FESA, and a California Species of Special Concern. CRLF require a variety of habitat elements with aquatic breeding areas embedded within a matrix of riparian and upland dispersal habitats. Breeding sites occur in aquatic habitats including pools and backwaters within streams and creeks, ponds, marshes, springs, sag ponds, dune ponds and lagoons. CRLF also breed in artificial impoundments including stock ponds. The breeding period is from November to March. During periods of wet weather, starting with the first rains of fall, some individuals may make overland excursions through upland habitats. Most of the overland movements occur at night. CRLF may travel up to 1.6 kilometers throughout a wet season. CRLF rest and forage in riparian vegetation.

Summer habitats include spaces under boulders or rocks and organic debris, such as downed trees or logs; industrial debris; and agricultural features, such as drains, watering troughs, abandoned sheds, or hay-ricks. CRLF require 11 to 30 weeks of permanent water for larval development. The Creek, which runs through the southeastern portion of the study area, may provide suitable habitat for the species. According to the BRA, a Stream Assessment completed by CDFW on the Creek in 2008 noted multiple observations CRLF within the vicinity of the project site, approximately 6.5 miles upstream of the project site. Thus, CRLF could occur within the study area.

Northwestern Pond Turtle

Northwestern pond turtle (*Actinemys marmorata*) has been proposed for listing as threatened under FESA and is a California Species of Special Concern. The species is found in Pacific-slope drainages to an elevation of approximately 1,450 meters. The turtles are found along ponds, marshes, rivers, streams, and irrigation ditches that typically have muddy or rocky bottoms and grow aquatic vegetation. Northwestern pond turtles require basking sites, such as logs or mats of submerged vegetation. The species prefers habitats with stable banks and open areas to bask in, as well as the underwater cover provided by logs, large rocks, bulrushes, or other vegetation.

Northwestern pond turtles generally leave their aquatic sites only to reproduce and to hibernate. Hibernation typically takes place from October or November to March or April. Egg-laying typically occurs in May and June and may take place up to 0.5-kilometer from water. The biological survey completed as part of the BRA observed marginal northwestern pond turtle habitat along the Creek. Although the project site lacks suitable hibernation and nesting habitat for northwestern pond turtles, the species has the potential to occur within the study area outside of breeding and hibernation. The nearest documented occurrence of the species is 0.7-mile from the vicinity of the Creek. Thus, northwestern pond turtle could occur within the study area.

Swainson's Hawk

Swainson's hawk (*Buteo swainsoni*) is listed as threatened, pursuant to the CESA. Swainson's hawks arrive at their breeding grounds in the Central Valley in early March. They often nest peripherally to valley riparian systems, as well as utilize lone trees or groves of trees in agricultural fields. Valley oak, Fremont cottonwood, walnut, and large willow trees, ranging in height from 41 to 82 feet, are the most commonly used nest trees in the Central Valley. Breeding pairs construct nests composed of sticks, leaves, and bark. Eggs are laid from mid- to late-April and are incubated into mid-May, when the young begin to hatch. The young remain near the nest and depend on the adults for approximately four weeks after fledging until they permanently leave the breeding territory.

Nesting occurs from March 1 to August 15. Swainson's hawks feed primarily on small mammals, birds, and insects. When not breeding, the Swainson's hawk is atypical, because the species is almost exclusively insectivorous. Typical foraging habitat includes annual grasslands, alfalfa, and other dry farm crops that provide suitable habitat for small mammals. Suitable foraging habitat nearby nesting sites is critical for fledgling success. A single known documented occurrence of the species has been reported within five miles of the project site. Given the high levels of disturbance, nesting is unlikely to occur on-site; however, marginally suitable foraging habitat for the species occurs in the on-site open grassy area. Thus, Swainson's hawk could occur within the study area.

Pallid Bat

The pallid bat (*Antrozous pallidus*) is a California Species of Special Concern. Pallid bat is a medium-sized bat with large, wide ears that are clearly separated at the base. The species occurs in a wide variety of habitats including grasslands, shrublands and chaparrals, woodlands, and forests. Pallid bat is most abundant in open dry habitats that have abundant rocky areas for roosting, forages over open ground, and is mostly a nocturnal hunter. Pallid bat (like most bat species) is most active during the dawn and dusk hours. The species will establish daytime roosts in caves, crevices, mines, large hollow trees, and unoccupied buildings.

Pallid bats mate during the months of October through February and most young are born from April through July. The range for pallid bat includes most of California, with the exception of the high Sierra Nevada from Shasta to Kern counties and the northwesternmost corner of the State. Pallid bats may roost in riparian trees present within the study area and forage over the project site's open grassy area. Although habitat is marginal and individual trees were not evaluated for roost potential, three occurrences of the species have been documented within five miles of the project site. Thus, pallid bat could occur within the study area.

Critical Habitat

CRLF-designated critical habitat is present approximately 3.4 miles northeast and 3.2 miles southwest of the project site. The Creek, within the study area, is designated by NOAA Fisheries/NMFS as critical habitat for steelhead and as Essential Fish Habitat (EFH) for Pacific salmon.

Trees

According to the Tree Removal, Preservation, and Replacement Plan prepared for the proposed project, 72 trees are located within the on-site and off-site areas proposed for development (see Figure 4.1-4). Of the total, 56 qualify as protected trees, pursuant to Petaluma Implementing Zoning Ordinance (IZO) Section 17.040. Table 4.1-4 provides a summary of all existing trees within the study area.

Table 4.1-4
Tree Inventory

No.	Common Name	Botanical Name	Trunk Diameter (inches)	Health & Structure (0-5)
Proposed Residential Development Area and Creek Riparian Corridor				
1	Edible Fig	*Ficus carica*	7, 6.4, 6.2	5
2	Apple	*Malus domestica*	6	4
3	Plum sp.	*Prunus* sp.	14.5	4
4	Plum sp.	*Prunus* sp.	11.5	3
5	English Walnut	*Juglans regia*	8.5, 7.5, 5.5	5
6	Edible Fig	*Ficus carica*	8, 6.5	5
7	Edible Fig	*Ficus carica*	10	5
8	**Coast Redwood**	***Sequoia sempervirens***	**37**	**5**
9	**Coast Redwood**	***Sequoia sempervirens***	**38**	**4**
10	**Coast Redwood**	***Sequoia sempervirens***	**33**	**4**
11	Olive	*Olea europaea*	6, 6, 4	5
12	English Walnut	*Juglans regia*	7	5
13	Sweetgum	*Liquidambar styraciflua*	14	4
14	Photinia	*Photinia Fraseri*	7, 5, 4	4
15	Crape Myrtle	*Lagerstroemia* sp.	6	4
16	**Riparian Zone**	***Various Native Species***	**--**	**4**
17	Row of Upright English Oaks	*Quercus robur 'Fastigiata'*	4 to 12	5
18	**Coast Live Oak**	***Quercus agrifolia***	**19.5**	**5**
19	**Valley Oak**	***Quercus lobata***	**7.5**	**4**
20	**Coast Live Oak**	***Quercus agrifolia***	**21.5**	**4**
21	**Coast Live Oak**	***Quercus agrifolia***	**17**	**5**
22	**Coast Live Oak**	***Quercus agrifolia***	**16, 6.5**	**5**
23	**Coast Live Oak**	***Quercus agrifolia***	**12.5**	**5**

(Continues on next page)

Table 4.1-4
Tree Inventory

No.	Common Name	Botanical Name	Trunk Diameter (inches)	Health & Structure (0-5)
24	Coast Live Oak	*Quercus agrifolia*	8.5, 7.5	5
25	Coast Live Oak	*Quercus agrifolia*	12.5	5
26	Valley Oak	*Quercus lobata*	9	4
27	Valley Oak	*Quercus lobata*	6	5
28	Coast Live Oak	*Quercus agrifolia*	12.5	5
29	Valley Oak	*Quercus lobata*	10	4
30	California Buckeye	*Aesculus californica*	6, 6, 4	4
31	Red Willow	*Salix laevigata*	13.5, 10.5, 7.5	4
32	Oregon Ash	*Fraxinus latifolia*	7.5	5
33	Northern California Walnut	*Juglans hindsii*	6	5
34	Oregon Ash	*Fraxinus latifolia*	6	5
35	Red Willow	*Salix laevigata*	8.5	4
36	Red Willow	*Salix laevigata*	9.5	1
37	Red Willow	*Salix laevigata*	8	3
38	Red Willow	*Salix laevigata*	11	4
39	California Buckeye	*Aesculus californica*	6, 6, 5	4
40	Valley Oak	*Quercus lobata*	15	5
41	Red Willow	*Salix laevigata*	12.5	5
42	Red Willow	*Salix laevigata*	13	4
43	Coast Live Oak	*Quercus agrifolia*	23	5
44	Red Willow	*Salix laevigata*	17.5	2
45	Valley Oak	*Quercus lobata*	7	5
46	Oregon Ash	*Fraxinus latifolia*	1.5	4
47	Red Willow	*Salix laevigata*	3	2
48	Red Willow	*Salix laevigata*	3	4
49	Red Willow	*Salix laevigata*	4	3
50	Red Willow	*Salix laevigata*	5, 3.5, 3	2
51	Red Willow	*Salix laevigata*	3.5	3
52	California Buckeye	*Aesculus californica*	1.5	4
53	Red Willow	*Salix laevigata*	3	3
54	Red Willow	*Salix laevigata*	3	3
55	California Buckeye	*Aesculus californica*	3.5	4
56	California Buckeye	*Aesculus californica*	3, 2.5, 2.5	4
57	California Buckeye	*Aesculus californica*	5, 2.5	2
58	California Buckeye	*Aesculus californica*	2.5, 2.5, 1.5	4
59	Toyon	*Heteromeles arbutifolia*	3, 1.5	4
Southern Storm Drainage Outfall				
60	Coast Live Oak	*Quercus agrifolia*	2.5	4
61	Coast Live Oak	*Quercus agrifolia*	2	4
62	Coast Live Oak	*Quercus agrifolia*	2.5, 1	4
63	California Buckeye	*Aesculus californica*	6	4
64	California Buckeye	*Aesculus californica*	10 stems 4 to 8 inches	4
65	California Buckeye	*Aesculus californica*	6, 3	4
66	California Buckeye	*Aesculus californica*	2	3
67	California Buckeye	*Aesculus californica*	6, 3	4
68	California Buckeye	*Aesculus californica*	4	4

(Continues on next page)

Table 4.1-4
Tree Inventory

No.	Common Name	Botanical Name	Trunk Diameter (inches)	Health & Structure (0-5)
Northern Storm Drainage Outfall				
69	**Coast Live Oak**	***Quercus agrifolia***	**4**	**4**
70	**Coast Live Oak**	***Quercus agrifolia***	**7**	**4**
71	Fruiting Pear	*Pyrus* spp.	3	2
72	**Oregon Ash**	***Fraxinus latifolia***	**8, 8, 7, 6**	**4**

Note: The Health & Structure column includes a rating for condition, based on The Guide for Plant Appraisal, 10th Edition. The numeric scale ranges from 5 (being the highest) to 0 (the worst condition, dead). Rating 1 (Very Poor) indicates the tree appears to be dying and in the last stages of life, with little live foliage. Rating 2 (Poor) indicates the tree has a single or multiple serious structural defects and is unhealthy and declining in appearance. Rating 3 (Fair) indicates the tree has a single serious structural defect or multiple moderate defects and reduced vigor. Rating 4 (Good) indicates the tree has minor structural defects that can be corrected and normal vigor. Rating 5 (Excellent) indicates the tree is free of structural defects and has nearly perfect health.

Trees designated as protected pursuant to IZO Section 17.040 are **bolded**.

Source: Urban Forestry Associates, Inc., 2023.

4.1.3 REGULATORY CONTEXT

A number of federal, State, and local policies provide the regulatory framework that guides the protection of biological resources. The following discussion summarizes those laws that are most relevant to biological resources in the vicinity of the project site.

Federal Regulations

The following are the federal environmental laws and policies relevant to biological resources.

Federal Endangered Species Act

The U.S. Congress passed the FESA in 1973 to protect species that are endangered or threatened with extinction. FESA is intended to operate in conjunction with the National Environmental Policy Act (NEPA) to help protect the ecosystems upon which endangered and threatened species depend. Under the FESA, the Secretary of the Interior and the Secretary of Commerce have joint authority to list a species as threatened or endangered (16 U.S. Code [USC] Section 1533[c]). Two federal agencies oversee the FESA: the USFWS has jurisdiction over plants, wildlife, and resident fish, while the NOAA Fisheries/NMFS has jurisdiction over anadromous fish and marine fish and mammals. Section 7 of the FESA mandates that federal agencies consult with the USFWS and NOAA Fisheries/NMFS to ensure that federal agency actions do not jeopardize the continued existence of a listed species or destroy or adversely modify critical habitat for listed species.

FESA prohibits the "take" of endangered or threatened wildlife species. "Take" is defined to include harassing, harming, pursuing, hunting, shooting, wounding, killing, trapping, capturing, or collecting wildlife species or any attempt to engage in such conduct (FESA Section 3 [3], [19]). Harm is further defined to include significant habitat modification or degradation that results in death or injury to listed species by significantly impairing behavioral patterns (50 Code of Federal Regulations [CFR] Section 17.3). Harass is defined as actions that create the likelihood of injury to listed species to such an extent as to significantly disrupt normal behavior patterns (50 CFR

Section 17.3). Actions that result in take can result in civil or criminal penalties. Section 10 requires the issuance of an "incidental take" permit before any public or private action may be taken that could take an endangered or threatened species. The permit requires preparation and implementation of a habitat conservation plan (HCP) that would offset the take of individuals that may occur, incidental to implementation of a proposed project, by providing for the protection of the affected species.

Pursuant to the requirements of the FESA, a federal agency reviewing a project within the jurisdiction of the agency must determine whether any federally listed threatened or endangered species may be present in the project area and whether the proposed project would have a potentially significant impact on such species. In addition, the agency is required to determine whether the proposed action is likely to jeopardize the continued existence of any species proposed to be listed under FESA or result in the destruction or adverse modification of critical habitat proposed to be designated for such species (16 USC Section 1536[3], [4]).

In addition, critical habitat is defined under FESA as specific geographic areas within a listed species range that contain features considered essential for the conservation of the listed species. Designated critical habitat for a given species has been determined by USFWS or NOAA Fisheries/NMFS to be important for the recovery of the species. Under FESA, critical habitat loss is considered an impact to the species.

Magnuson-Stevens Act

Under the Magnuson-Stevens Act, EFH is defined as "those waters and substrates necessary to fish for spawning, breeding, feeding, or growth to maturity." EFH is designated for those fish species with a federal Fisheries Management Plan, as determined by the Magnuson-Stevens Act and NOAA Fisheries/NMFS. Projects that have the potential to adversely affect EFH must initiate consultation with the NOAA Fisheries/NMFS. Adverse impacts include actions that reduce the quality and/or quantity of EFH and can include direct (e.g., contamination or physical disruption), indirect (e.g., loss of prey or reduction in species fecundity), and site-specific or habitat-wide impacts. Impacts are considered adverse at the level of the individual, cumulative, or synergistic consequences of actions (50 CFR 600.810).

Migratory Bird Treaty Act

Raptors (birds of prey), migratory birds, and other avian species are protected by a number of State and federal laws. The federal Migratory Bird Treaty Act (MBTA) prohibits the killing, possessing, or trading of migratory birds except in accordance with regulations prescribed by the Secretary of Interior.

Clean Water Act

The USACE regulates discharge of dredged or fill material into waters of the U.S. under Section 404 of the Clean Water Act (CWA). "Discharge of fill material" is defined as the addition of fill material into waters of the U.S., including, but not limited to, the following: placement of fill that is necessary for the construction of any structure, or impoundment requiring rock, sand, dirt, or other material for the construction; site-development fills for recreational, industrial, commercial, residential, and other uses; causeways or road fills; and fill for intake and outfall pipes and sub-aqueous utility lines (33 CFR Section 328.2[f]). In addition, Section 401 of the CWA (Title 33 USC, Section 1341) requires any applicant for a federal license or permit to conduct any activity that may result in a discharge of a pollutant into waters of the U.S. to obtain a certification that the discharge would comply with the applicable effluent limitations and water quality standards.

Waters of the U.S. include a range of wet environments such as lakes, rivers, streams (including intermittent streams), mudflats, sandflats, wetlands, sloughs, and wet meadows. Wetlands are defined as "those areas that are inundated or saturated by surface or groundwater at a frequency and duration sufficient to support and under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions" (33 CFR Section 328.3[b]).

Furthermore, jurisdictional waters of the U.S. can be defined by exhibiting a defined bed and bank and OHWM. The OHWM is defined by the USACE as "that line on shore established by the fluctuations of water and indicated by physical character of the soil, destruction of terrestrial vegetation, the presence of litter and debris, or other appropriate means that consider the characteristics of the surrounding areas" (33 CFR Section 328.3[e]).

In May 2023, the U.S. Supreme Court interpreted the term "waters of the U.S." as understood in wetland permitting in its decision in *Sackett v. Environmental Protection Agency*, 598 U.S. 651, 143 S.Ct. 1322 (2023). The Court's decision has been generally understood to contract the legal jurisdiction previously asserted by the USACE. In its opinion, the Court held that the "waters" protected under the CWA are limited to "geographic[al] features that are described in ordinary parlance as 'streams, oceans, rivers, and lakes'" and to adjacent wetlands that are "indistinguishable" from those bodies of water due to a continuous surface connection, though "temporary interruptions in surface connection may sometimes occur because of phenomena like low tides or dry spells."

On August 29, 2023, in response to the *Sackett* decision, USACE and the U.S. Environmental Protection Agency (USEPA) issued a final rulemaking that revises the definition of waters of the U.S. within USACE and USEPA regulations. The adopted document is known as the "Waters of the U.S. Rule," which defines waters of the U.S. to include the following:

- Traditional navigable waters, the territorial seas, and interstate waters (jurisdictional waters);
- Impoundments of jurisdictional waters (jurisdictional impoundments);
- Relatively permanent, standing or continuously flowing tributaries to either jurisdictional waters or jurisdictional impoundments (jurisdictional tributaries);
- Wetlands having a continuous surface connection to either jurisdictional waters, jurisdictional impoundments, or jurisdictional tributaries (jurisdictional wetlands); and
- Relatively permanent, standing or continuously flowing intrastate lakes and ponds with a continuous surface connection to (but are not themselves) a jurisdictional water, jurisdictional impoundment, jurisdictional tributary, or jurisdictional wetland.

In addition to discharge of dredged or fill material into waters of the U.S. under Section 404, the CWA regulates municipal and industrial discharges to surface waters of the U.S through the National Pollutant Discharge Elimination System (NPDES) permit system, which is discussed in detail in Chapter 4.3, Hydrology and Water Quality, of this EIR.

State Regulations

The following are the State environmental laws and policies relevant to biological resources.

California Department of Fish and Wildlife

CDFW administers a number of laws and programs designed to protect fish and wildlife resources under the CFGC, such as CESA (CFGC Section 2050, et seq.), Fully Protected Species (CFGC

Section 3511) and the Lake or Streambed Alteration Agreement (LSAA) Program (CFGC Sections 1600 to 1616). Such regulations are summarized in the following sections.

California Endangered Species Act

The State of California enacted CESA in 1984. CESA is similar to the FESA but pertains to State-listed endangered and threatened species. CESA requires State agencies to consult with CDFW when preparing CEQA documents to ensure that the State lead agency actions do not jeopardize the existence of listed species. CESA directs agencies to consult with CDFW on projects or actions that could affect listed species, directs CDFW to determine whether jeopardy would occur, and allows CDFW to identify "reasonable and prudent alternatives" to the project consistent with conserving the species. Agencies can approve a project that affects a listed species if they determine that "overriding considerations" exist; however, the agencies are prohibited from approving projects that would result in the extinction of a listed species.

CESA directs agencies to consult with CDFW on projects or actions that could affect listed species, directs CDFW to determine whether jeopardy would occur, and allows CDFW to identify "reasonable and prudent alternatives" to the project consistent with conserving the species. CESA allows CDFW to authorize exceptions to the State's prohibition against take of a listed species if the "take" of a listed species is incidental to carrying out an otherwise lawful project that has been approved under CEQA (CFGC Section 2081).

California Fish and Game Codes

A number of species have been designated "fully protected" species under Sections 5515, 5050, 3511, and 4700 of the CFGC, but are not listed as endangered (Section 2062) or threatened (Section 2067) species under CESA. Except for take related to scientific research, all take of fully protected species is prohibited. The CFGC defines take as "hunt, pursue, catch, capture, or kill, or attempt to hunt, pursue, catch, capture, or kill."

Birds of prey are protected in California under provisions of the CFGC Section 3503.5 (1992), which states, "it is unlawful to take, possess, or destroy any birds in the order *Falconiformes* or *Strigiformes* (birds of prey) or to take, possess, or destroy the nest or eggs of any such bird except as otherwise provided by this code or any regulation adopted pursuant thereto." Construction disturbance during the breeding season could result in the incidental loss of fertile eggs or nestlings, or otherwise lead to nest abandonment. Disturbance that causes nest abandonment and/or loss of reproductive effort is considered "taking" by CDFW.

Lake or Streambed Alteration Program

The CDFW is responsible for conserving, protecting, and managing California's fish, wildlife, and native plant resources. To meet this responsibility, the CFGC Section 1602 requires notification to CDFW of any proposed activity that may substantially modify a river, stream, or lake. Notification is required by any person, business, State or local government agency, or public utility that proposes an activity that would:

- substantially divert or obstruct the natural flow of any river, stream or lake;
- substantially change or use any material from the bed, channel, or bank of any river, stream, or lake; or
- deposit or dispose of debris, waste, or other material containing crumbled, flaked, or ground pavement where it may pass into any river, stream, or lake.

For the purposes of Section 1602, rivers, streams and lakes must flow at least intermittently through a bed or channel. In addition, impacts to riparian habitat are regulated under CFGC 1600 et seq. If notification is required and CDFW believes the proposed activity is likely to result in harm to the natural environment, the CDFW requires that the parties enter into a LSAA.

Because the on-site riparian and riverine habitats are designated as a Sensitive Natural Community, a project's potential impacts to the habitats would be regulated by CDFW. CDFW may choose to address potential impacts to and mitigation for the on-site riparian and riverine habitat areas during the LSAA approval process.

CDFW Species of Special Concern

In addition to formal listings under FESA and CESA, plant and wildlife species receive additional consideration during the CEQA process. Species that may be considered for review are included on a list of "Species of Special Concern" developed by CDFW. Species whose numbers, reproductive success, or habitat may be threatened are tracked by CDFW in California.

Native Plant Protection Act

The Native Plant Protection Act (NPPA) was enacted in 1977 and allows the Fish and Game Commission to designate plants as rare or endangered. Currently, 64 species, subspecies, and varieties of plants are protected as rare under the NPPA. The NPPA prohibits take of endangered or rare native plants, but includes some exceptions for agricultural and nursery operations, emergencies, and after properly notifying CDFW for vegetation removal from canals, roads, and other sites, changes in land use, and in certain other situations.

Regional Water Quality Control Board

Any action requiring a CWA Section 404 permit, or a Rivers and Harbors Act Section 10 permit, must also obtain a CWA Section 401 Water Quality Certification. The State of California Water Quality Certification (WQC) Program was formally initiated by the State Water Resources Control Board (SWRCB) in 1990 under the requirements stipulated by Section 401 of the federal CWA. Although the CWA is a federal law, Section 401 of the CWA recognizes that states have the primary authority and responsibility for setting water quality standards. In California, under Section 401, the SWRCB and RWQCBs are the authorities that certify that issuance of a federal license or permit does not violate California's water quality standards (i.e., that they do not violate the Porter Cologne Water Quality Control Act and the Water Code). The WQC Program currently issues the WQC for discharges requiring USACE's permits for fill and dredge discharges within waters of the U.S., and also implements the State's wetland protection and hydromodification regulation program under the Porter-Cologne Water Quality Control Act (Porter-Cologne Act, Water Code Section 13000, et seq.).

On April 2, 2019, the SWRCB adopted a State Wetland Definition and Procedures for Discharges of Dredged or Fill Material to Waters of the State (Procedures), for inclusion in the forthcoming Water Quality Control Plan for Inland Surface Waters, Enclosed Bays, and Estuaries of California Plan. The Procedures consist of four major elements: (1) a wetland definition; (2) a framework for determining if a feature that meets the wetland definition is a water of the State; (3) wetland delineation procedures; and (4) procedures for the submittal, review, and approval of applications for WQCs and Waste Discharge Requirements (WDR) for dredge or fill activities. The State Office of Administrative Law (OAL) approved the Procedures on August 28, 2019, and the Procedures became effective May 28, 2020.

Under the Procedures and the State Water Code (Water Code Section 13050[e]), "waters of the State" are defined as "any surface water or groundwater, including saline waters, within the boundaries of the state." Unless excluded by the Procedures, any activity that could result in discharge of dredged or fill material to waters of the State, which includes waters of the U.S. and non-federal waters of the State, requires filing of an application under the Procedures.

The Porter-Cologne Act is California's statutory authority for the protection of water quality in conjunction with the federal CWA. The Porter-Cologne Act requires the SWRCB and RWQCBs under the CWA to adopt and periodically update water quality control plans, or basin plans. Basin plans are plans in which beneficial uses, water quality objectives, and implementation programs are established for each of the nine regions in California. The Porter-Cologne Act also requires dischargers of pollutants or dredged or fill material to notify the RWQCBs of such activities by filing Reports of Waste Discharge and authorizes the SWRCB and RWQCBs to issue and enforce waste discharge requirements, NPDES permits, Section 401 water quality certifications, or other approvals.

Local Regulations

The following are the local environmental laws and policies relevant to biological resources.

City of Petaluma General Plan

The following goals and polices from the City of Petaluma General Plan related to biological resources are applicable to the proposed project.

Goal 4-G-1 Protect and enhance biological and natural resources within the UGB.[6]

Policy 4-P-1 Protect and enhance the Petaluma River and its tributaries through a comprehensive river management strategy of the following programs:

A. Fully adopt and incorporate the Goals, Objectives, Policies and Programs of the Petaluma River Access and Enhancement Plan as an integral part of the General Plan 2025. Implement the Petaluma River Access and Enhancement Plan including expanded improvements identified through project specific environmental assessment.
B. Institute and maintain public access to and along the entire length (on one or both sides), of the river while ensuring that natural resources and river dependent industry are protected.
C. Require design review to address the relationship and stewardship of that project to the river or creek for any development on sites with frontage along the river and creeks.
D. Create setbacks for all tributaries to the Petaluma River extending a minimum of 50 feet outward from the top of each bank, with extended buffers where significant habitat

[6] "UGB" in Policy 4-P-1 refers to the City's Urban Growth Boundary.

areas, vernal pools, or wetlands exist. Development shall not occur within this setback, except as part of greenway enhancement (for example, trails and bikeways). Where there is degradation within the zone, restoration of the natural creek channels and riparian vegetation is mandatory at time of adjacent development.

E. Facilitate compliance with Phase II standards of the National Pollutant Discharge Elimination System (NPDES) to improve the water quality and aesthetics of the river and creeks.
F. Work with the State Lands Commission, State Department of Fish and Game, the Sonoma County Water Agency, and other jurisdictional agencies on preservation/enhancement of the Petaluma River as a component of reviewing major development along the River.
G. Expand the planting and retention of trees along the upper banks of the river and creeks to reduce ambient water temperature and shade out invasive, non-native species.
H. Revise the Development Code to include:

- Standards for the four management zones that run the entire length of the river: 1) Restoration Zone, 2) Buffer Zone, 3) Preservation Zone, and 4) River Oriented Development Zone. These standards shall be based on the River Plan's text and sections A-A through O-O as augmented by the cross-section needs identified through the XP-SWMM analyses;
- Design review requirements as articulated in the River Plan for any development on sites with frontage along the river or within 300 ft. of the river;
- The use of transfer of development rights (TDR) from portions adjacent to the river to elsewhere on the parcel by allowing property owners an increase in residential densities or in allowable Floor-to-Area Ratio (FAR) and/or smaller/clustered lots to compensate for the loss of development opportunity on land within the Restoration, Buffer, or Preservation zones of the River Plan. The overall development potential on a site shall be consistent with the General Plan. TDRs shall not be applied to lands within the Floodway as there is no development potential within the Floodway.

I. Develop a consistent design for site furniture, a wayfinding system, and educational signage in the PRC and along the creeks and tributaries leading to it to heighten the recognition and value of the river and its ecosystem.
J. Utilize the Parks and Recreation, Water Resources & Conservation, Public Works departments, property owners

(e.g. Landscape Assessment Districts) and/or other appropriate public agencies (e.g. Sonoma County Water Agency) to manage the long term operations, maintenance responsibilities, and stormwater capacity associated with the river and tributary greenways.

K. Prohibit placement of impervious surfaces in the Floodway (i.e. Parking lots, roadways, etc.) with the exception of pathways and emergency access improvements.
L. Continue to implement, where appropriate, flood terrace improvements to reduce localized flooding in concert with habitat enhancement projects.
M. Cooperate with State and Federal agencies to address and/or eradicate issues and environmental problems associated with possible infestation of the midden crab into the Petaluma River and adjacent tributaries.

Policy 4-P-2 Conserve wildlife ecosystems and sensitive habitat areas in the following order of protection preference: 1) avoidance, 2) on-site mitigation, and 3) off-site mitigation.

A. Utilize Technical Memorandum 3: Biological Resources Review as a baseline document, expanding to address project specific impacts.

Policy 4-P-3 Protect special status species and supporting habitats within Petaluma, including species that are State or Federal listed as endangered, threatened, or rare.

A. As part of the development review process, site-specific biological resource assessments may be required to consider the impacts on riparian and aquatic resources and the habitats they provide for invertebrates, fish, amphibians, reptiles, birds, mammals, and plants. If development is located outside these ecologically sensitive regions, no site-specific assessment of biological resources may be necessary. Appropriate mitigation measures to reduce impacts to sensitive habitats and special status species shall be imposed on a project-by-project basis according to Petaluma's environmental review process.
B. Permit mitigation banking as a conditional use in all land use designations along the Petaluma River and its tributaries.

Goal 4-G-2 Promote resource protection within the Petaluma Watershed to conserve grassland habitats, oak woodlands, and other natural resources that are found in areas between the UGB and the Planning Area boundary.

Policy 4-P-4 Continue to support rural land use designations and Agricultural Best Management Practices within the Sonoma County General Plan.

A. Coordinate with Sonoma County's Agricultural Preservation and Open Space District, Permit and Resource Management Department, and Water Agency to protect riparian corridors and critical biological habitats as well as to reduce cumulative impacts on sensitive watershed areas outside of the city limits.
B. Work with County, State and federal agencies to ensure that development within the Planning Referral Area does not substantially affect State or federally listed rare, endangered, or threatened species or their habitats. Require assessments of biological resources prior to approval of any development in or within 300 feet of ecologically sensitive areas.

Policy 4-P-5 Support wetland mitigation and oak woodlands restoration in the unincorporated areas outside the UGB.

Petaluma Implementing Zoning Ordinance

Petaluma IZO Section 17.040 identifies various tree species as being protected, including the following:

- Various oak species in which the diameter at breast height (DBH) is four inches or greater;
- California buckeye with six-inch DBH or greater;
- California bay with 12-inch DBH or greater;
- California or coast redwood 18-inch DBH or greater;
- Heritage trees as defined by Petaluma Municipal Code (PMC) Title 8;
- Significant groves or stands of trees;
- Trees located in riparian corridors;
- Any tree required to be planted or preserved as environmental mitigation or condition of approval for a discretionary development application or other development permit; and
- Trees in the public rights-of-way (ROW).

Pursuant to IZO Section 17.060, the removal, cutting down, or otherwise destruction of a protected tree requires a Tree Removal Permit issued by the City of Petaluma Community Development Department. All replacement trees must be the same native species as those removed, unless specific approval has been granted by the Community Development Director or the appropriate approval authority. Appraisal value is by using the most recent edition of the "Guide for Plant Appraisal", published by the Council of Tree and Landscape Appraisers. Trees must be replaced on the development site or in reasonable proximity, as required by the approving authority through the development review process or as approved by the Community Development Director during the review process for obtaining a Development Permit.

4.1.4 IMPACTS AND MITIGATION MEASURES

The following section describes the standards of significance and methodology used to analyze and determine the proposed project's potential impacts related to biological resources. In addition, a discussion of the project's impacts, as well as mitigation measures where necessary, is also presented.

Standards of Significance

Consistent with Appendix G of the CEQA Guidelines, the City's General Plan, and professional judgment, a significant impact would occur if the proposed project would result in the following:

- Have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special-status species in local or regional plans, policies, or regulations, or by the CDFW or USFWS;
- Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations or by the CDFW or USFWS;
- Have a substantial adverse effect on State or federally protected wetlands (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means;
- Interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites;
- Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance; and
- Conflict with the provisions of an adopted HCP, NCCP, or other approved local, regional, or State habitat conservation plan.

Issues Not Discussed Further

The Initial Study prepared for the proposed project (see Appendix A of this EIR) determined that development of the proposed project would result in no impact related to the following:

- Conflict with the provisions of an adopted HCP, NCCP, or other approved local, regional, or State habitat conservation plan.

For the reasons cited in the Initial Study (Section IV, Biological Resources), the potential impact associated with the above is not analyzed further in this EIR.

Method of Analysis

The information presented in this chapter is primarily based on the BRA prepared for the proposed project by Montrose Environmental, as well as the Tree Protection and Removal Plan prepared by Urban Forestry Associates, Inc., which are discussed further below.

Biological Resources Assessment

The analysis within the BRA (see Appendix C of this EIR) is based on a preliminary data review, field surveys of the study area, and a PJD and ARD, which are detailed further below.

Literature Review

A list of special-status plant and wildlife species with potential to occur within the study area was developed as part of the BRA through queries of the following sources (see Attachments A and B of the BRA):

- USFWS list of special-status species with the potential to occur on and near the project site;
- USFWS Critical Habitat Mapper;

- NOAA Critical Habitat Mapper;
- NOAA Fisheries/NMFS Essential Fish Habitat Mapper;
- CNDDB query of special-status species with the potential to occur within a five-mile radius of the project site;
- CNPS query of special-status species known to occur in the Petaluma River, Petaluma, Sears Point, San Geronimo, Novato, Cotati, Sonoma, Petaluma Point, and Glen Ellen 7.5-minute USGS topographical quadrangles;
- USFWS National Wetlands Inventory mapper for the project site;
- California Aquatic Resources Inventory;
- Custom Soil Resource Report of the project site from the U.S. Department of Agriculture (USDA) Natural Resources Conservation Service (NRCS);
- Figure 3.8-1 (Habitat Areas and Special Status Species) of the Petaluma General Plan (see Figure 4.1-3); and
- Aerial photography of the project site and surrounding area through Google Earth and Environmental Data Resources, Inc.

Field Surveys

Montrose Environmental conducted biological resource surveys of the project site on April 15, June 15, July 31, 2020, April 29, 2022, and May 17, 2023. Surveys were conducted by walking meandering transects throughout and around the project site. Data was collected through a Trimble GeoXH handheld global positioning system (GPS) receiver. Survey goals consisted of identifying habitat types, sensitive habitats, potential wetlands and waters of the U.S., plant and wildlife species, special-status species, and wildlife corridors. Sensitive habitats included those that are designated by CDFW, considered by the appropriate agency to be communities of limited distribution, or are considered waters of the U.S. or State by regulatory agencies.

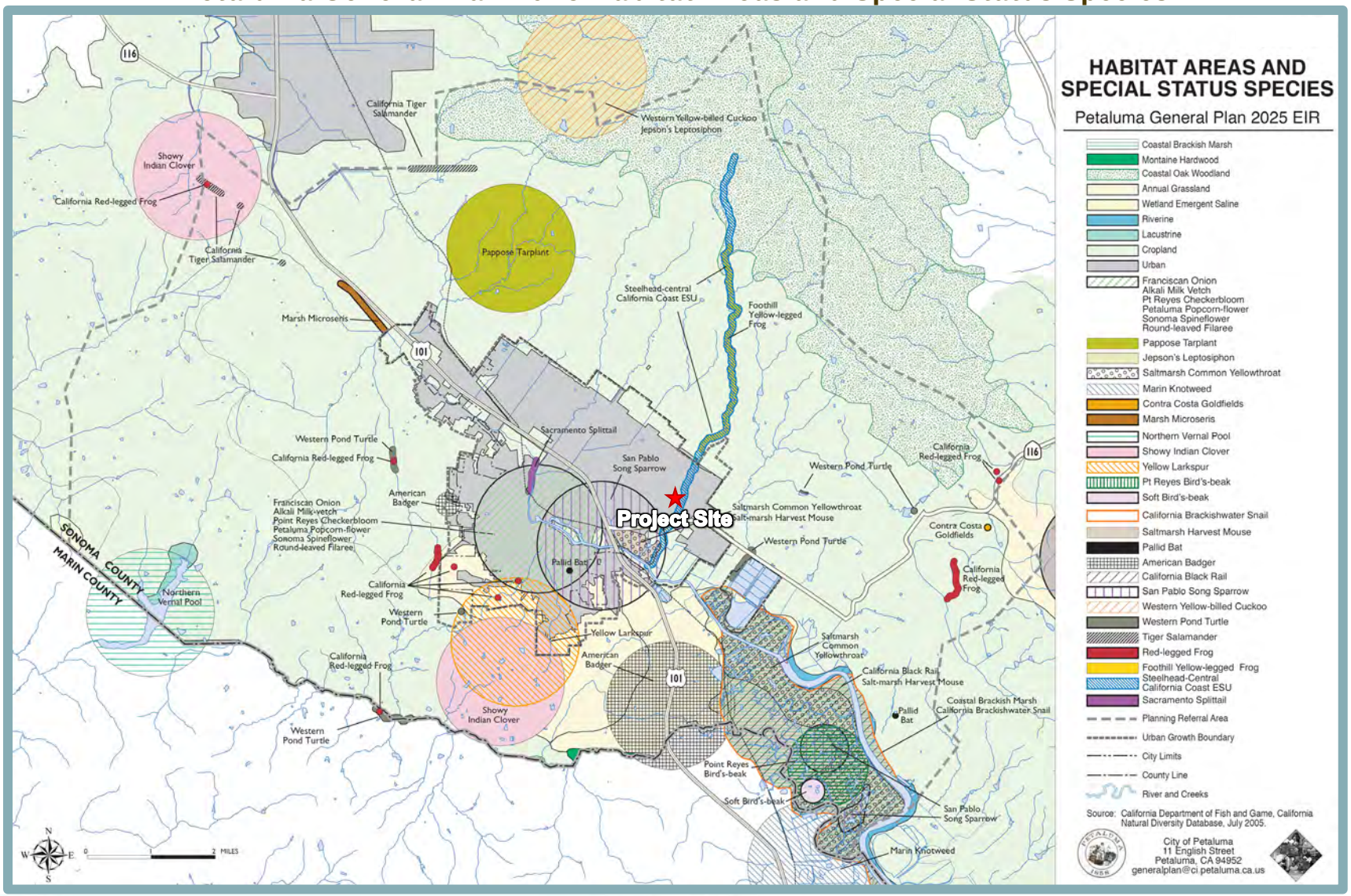
As part of the biological resources surveys, habitat requirements of special-status species were compared to habitats present on and adjacent to the project site based on survey observations, desktop research data, and aerial photographs. Wildlife species were identified to the lowest taxonomic level possible. Evidence of wildlife dens, nests, or burrows, if present, were assessed to identify potentially occurring wildlife species on the project site. Species and habitat types encountered were classified using CDFW's Protocols for Surveying and Evaluating Impacts to Special-Status Native Plant Populations and Sensitive Natural Communities, the Botanical Survey Guidelines of the California Native Plant Society, and The Jepson Manual.

Aerial photographs were also reviewed to assess habitats surrounding the project site for potential wildlife movement or wildlife corridors. Field methodology for identifying corridors for movement included searching for game trails or habitat that would favor movement of wildlife or potential gene flow. Potential barriers were also reviewed to determine if they could prevent or direct movement to particular areas.

Preliminary Jurisdictional Delineation and Aquatic Resources Delineation

A protocol-level aquatic resources survey was conducted as part of the BRA by Montrose Environmental on April 15, 2020 (see Appendix C of this EIR). An additional survey was conducted by Montrose Environmental on June 15, 2020 and November 23, 2021.

Figure 4.1-3
Petaluma General Plan 2025 Habitat Areas and Special Status Species



The aquatic resources delineation report was conducted in accordance with the USACE Minimum Standards for Acceptance of Aquatic Resources Delineation Reports, Corps of Engineers Wetland Delineation Manual, Field Guide to Wetland Delineation, Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Arid West Region (Version 2.0), U.S. Army Corps of Engineers Jurisdictional Determination Form Instructional Guidebook, A Field Guide to the Identification of the Ordinary High Water Mark (OHWM) in the Arid West Region of the Western United States, and the Classification of Wetlands and Deepwater Habitats of the United States.

The boundaries of wetlands and other potential waters of the U.S. were delineated through aerial photograph interpretation and standard field methodologies (i.e., paired data set analyses), and all wetland data were recorded on Wetland Determination Data Forms – Arid West Region. A color aerial photograph was used in the field to assist with delineating the limits of aquatic resources. Munsell Soil Color Charts were used in the field to identify hydric soil features.

Prior to the surveys, a background records search was conducted using the following sources:

- Color aerial photography of the study area and vicinity, including map of the potential inundation area;
- Soil survey maps and unit descriptions from the NRCS;
- Hydric soil information; and
- USFWS National Wetlands Inventory

During the 2020 and 2021 field surveys, Montrose Environmental walked meandering transects throughout the study area to determine locations of potential wetlands and waters of the U.S. The Creek was examined to determine whether diagnostic characteristics of streams, including OHWMs, bed and bank, and evidence of ongoing water-driven erosion and deposition were evident at locations. A GPS handheld unit (Trimble GeoXH) with submeter accuracy was used in the field to collect sample points and demarcate wetlands and other water features.

Locations of wetlands within the study area were determined based on the following three parameter criteria, as described in the USACE Arid West Regional Guide:

- The majority of dominant plant species are wetland associated species;
- Hydric soils are present; and
- Hydrologic conditions exist that result in periods of flooding, ponding, or saturation during the growing season.

The aforementioned three criteria are used as evidence that an area experiences saturated conditions during the growing season for a minimum of two weeks in an average year. Other evidence may be used to support the conclusion in the professional judgement of the delineators. For identification of water bodies other than wetlands that are subject to federal jurisdiction, two principle field characteristics were evaluated: 1) the presence of a bed and bank; and 2) the presence of an OHWM. Other characteristics that were noted, where possible, included a description of the hydrologic feature type and length. USACE regulations (33 CFR Part 328) were consulted to determine if identified water bodies constitute waters of the U.S.

Subsequent to the analysis completed by Montrose, an ARD was conducted by Bargas Environmental Consulting on March 5, 2024 (see Figure 4.1-2) (included as Appendix F to the BRA). The ARD was conducted in accordance with the USACE Minimum Standards for Acceptance of Aquatic Resources Delineation Reports, A Field Guide to the Identification of the Ordinary High Water Mark (OHWM) in the Arid West Region of the Western United States, and the Classification of Wetlands and Deepwater Habitats of the United States. The boundaries of wetlands and other potential waters of the U.S. were delineated through aerial photograph interpretation and queries of the USDA NRCS Web Soil Survey and USFWS National Wetlands Inventory. Wetland boundaries within the study area were surveyed and mapped using GPS technology. Wetlands were mapped by walking along the outer edges of wetted areas. Data was overlain on an aerial photograph provided by Esri ArcGIS World Imagery. The Esri data and GIS software were used to calculate the acreage of the polygon. Mapping requirements, as set forth by USACE Updated Map and Drawing Standards for the South Pacific Division Regulatory Program and the USACE Minimum Standards for Acceptance of Aquatic Resources Delineation Reports, were followed.

Tree Protection and Removal Plan

Urban Forestry Associates, Inc. conducted site visits on March 4 and October 14, 2021; April 6, 2022; and May 17 and October 25, 2023 to evaluate trees in the project site, along the riparian zone near the Creek, and trees on adjacent properties with driplines extending into the project site (see Appendix D of this EIR). In response to requests provided at a site visit with several resource agencies, the October 2023 fieldwork included a more-involved survey of trees one inch in diameter or larger near the proposed bridge connection that would cross the Creek and proposed outfall locations.

Consistent with Petaluma IZO Section 17.070, trees in/near the development footprint with a DBH measuring four inches or larger were evaluated and identified with metal numbered tags corresponding to the inventory. Trees one inch in diameter or larger in the Creek riparian zone were also assessed. The health, structure and form of the trees were assessed and adapted to conform with a numerical rating system which combines those ratings into a single condition rating. Condition ratings were assessed on a scale of 1 to 5, with 1 representing poor condition and 5 representing good condition.

Project-Specific Impacts and Mitigation Measures

The following discussion of impacts related to biological resources is based on implementation of the proposed project in comparison to existing conditions and the standards of significance presented above.

4.1-1 Have a substantial adverse effect, either directly or through habitat modifications, on special-status plant species. Based on the analysis below and with implementation of mitigation, the impact is *less than significant*.

According to the records search conducted as part of the BRA, 63 special-status plant species have the potential to occur in the greater vicinity of the study area. However, based on literature review and biological resources plant surveys conducted during the blooming periods of the foregoing species in 2020, 2022, and 2023, only three of the species have potential to occur within the project site (congested-headed hayfield tarplant, Sanford's arrowhead, and Pacific Grove clover), as the site lacks suitable

habitat to accommodate all other special-status plant species identified as having potential to occur within the greater project region. Existing on-site residential and agricultural land management practices and associated disturbance reduces the potential for congested-headed hayfield tarplant, Sanford's arrowhead, and Pacific Grove clover to occur on-site to a low level. Furthermore, the 2020, 2022, and 2023 field surveys did not identify occurrences of the three special-status plant species within the study area.

Special-status plants could become established within the vegetation communities proposed for disturbance in the interim between surveys/analysis and construction, which could result in potential impacts during construction of the proposed project, including to congested-headed hayfield tarplant, Sanford's arrowhead, and Pacific Grove clover.

Based on the above, the proposed project could have a substantial adverse effect, either directly or through habitat modifications, on a plant species identified as a candidate, sensitive, or special-status species in local or regional plans, policies, or regulations, or by the CDFW or USFWS. Thus, a ***significant*** impact could occur. In order to address the potentially significant impact, Mitigation Measure 4.1-1 shall be required, which necessitates that preconstruction special-status plant surveys be conducted during the blooming season by a qualified biologist. In the event that special-status plants are identified within the study area, the mitigation measure requires implementation of additional protective measures. With implementation of Mitigation Measure 4.1-1, the potential impact would be reduced to a less-than-significant level.

Mitigation Measure(s)

Implementation of the following mitigation measure would reduce the above potential impact to a *less-than-significant* level.

4.1-1 *Prior to initial ground-disturbing activities, special-status plant surveys shall be conducted by a qualified biologist in areas proposed for disturbance during the blooming season in accordance with the USFWS Guidelines for Conducting and Reporting Botanical Inventories for Federally Listed, Proposed, and Candidate Plants, the CNPS Botanical Survey Guidelines of the California Native Plant Society, and CDFW Protocols for Surveying and Evaluating Impacts to Special Status Native Plant Populations and Natural Communities. A report summarizing the results of the special-status plant surveys shall be submitted for review and approval to the City of Petaluma Community Development Department. If special-status plant species are not found, further mitigation shall not be required.*

If special-status perennial species are found within the proposed impact area, such as Sanford's arrowhead, the plants shall be dug up and transplanted into a suitable avoided area on-site (or elsewhere as appropriate to facilitate greatest success of transplanting) prior to construction. If the plant found is an annual, such as Pacific Grove clover, then mitigation shall consist of collecting seed-bearing soil and spreading

it into a suitable constructed wetland at a mitigation site. If special-status plants would be impacted, as determined by a qualified biologist, a mitigation plan shall be developed and submitted for review and approval to the City of Petaluma and California Department of Fish and Wildlife (CDFW). Mitigation for the transplantation and/or establishment of rare plants shall result in no net loss of individual plants after a five-year monitoring period.

4.1-2 Have a substantial adverse effect, either directly or through habitat modifications, on western bumble bee. Based on the analysis below and with implementation of mitigation, the impact is *less than significant*.

As previously discussed, western bumble bee is a generalist forager that will visit and pollinate a variety of flowering plants, including agricultural crop production plants. The species also nests underground in abandoned rodent burrows or other cavities. The project site contains suitable foraging habitat within the annual grassland and in openings in the riparian and riverine habitats. In addition, although burrows suitable for western bumble bee nesting were not observed on-site during the biological resources surveys conducted as part of the BRA, in the event that rodents colonize the project site in the interim between the ceasing of existing residential and agricultural land management practices and commencement of project construction, burrows suitable to accommodate nesting western bumble bees could occur on-site.

Based on the above, the proposed project could have a substantial adverse effect, either directly or through habitat modifications, on a wildlife species (western bumble bee), which is identified as a candidate, sensitive, or special-status species in local or regional plans, policies, or regulations, or by the CDFW or USFWS. Therefore, a ***significant*** impact could occur. In order to address the potentially significant direct impact to the western bumble bee, Mitigation Measure 4.1-2(a) shall be required, which necessitates completion of preconstruction surveys by a qualified biologist and additional protective measures if western bumble bees are identified. Additionally, to address indirect impacts resulting from habitat modification if western bumble bees are identified on-site, Mitigation Measure 4.1-2(b) shall also be required, which necessitates submittal of a revised landscaping plan that include species known to benefit the western bumble bee. With implementation of Mitigation Measures 4.1-2(a) and 4.1-2(b), the potential impact would be reduced to a less-than-significant level.

Mitigation Measure(s)

Implementation of the following mitigation measure would reduce the above potential impact to a *less-than-significant* level.

4.1-2(a) *If feasible, initial ground-disturbing activities associated with the proposed project (e.g., grading, vegetation removal, staging) shall take place between September 1 and March 31 (i.e., outside the colony active period) to avoid potential impacts on western bumble bee. If completing all initial ground-disturbing activities between September 1 and March 31 is not feasible, then at a maximum of 14 days prior to the commencement of construction activities, a qualified biologist with 10*

or more years of experience conducting biological resource surveys within California shall conduct a preconstruction survey for western bumble bees in the area(s) proposed for impact.

The survey shall occur during the period from one hour after sunrise to two hours before sunset, with temperatures between 65 degrees Fahrenheit and 90 degrees Fahrenheit, with low wind and zero rain. If the timing of the start of construction makes the survey infeasible due to the temperature requirements, the surveying biologist shall select the most appropriate days based on the National Weather Service seven-day forecast and shall survey at a time of day that is closest to the temperature range stated above. The survey duration shall be commensurate with the extent of suitable floral resources (which represent foraging habitat) present within the area proposed for impact, and the level of effort shall be based on the metric of a minimum of one person-hour of searching per three acres of suitable floral resources/foraging habitat. A meandering pedestrian survey shall be conducted throughout the area proposed for impact in order to identify patches of suitable floral resources. Suitable floral resources for western bumble bee include species in the following families: Asteraceae, Fabaceae, Rhamnaceae, and Rosaceae, as well as plants in the genera Eriogonum and Penstemon.

At a minimum, preconstruction survey methods shall include the following:

- *Search areas with floral resources for foraging western bumble bees. Observed foraging activity may indicate a nest is nearby, and therefore, the survey duration shall be increased when foraging western bumble bees are present;*
- *If western bumble bees are observed, watch any special-status western bumble bees present and observe their flight patterns. Attempt to track their movements between foraging areas and the nest;*
- *Visually look for nest entrances. Observe burrows, any other underground cavities, logs, or other possible nesting habitat;*
- *If floral resources or other vegetation preclude observance of the nest, small areas of vegetation may be removed via hand removal, line trimming, or mowing to a height of a minimum of four inches to assist with locating the nest;*
- *Look for concentrated western bumble bee activity;*
- *Listen for the humming of a nest colony; and*
- *If western bumble bees are observed, attempt to photograph the individual and identify it to species.*

The biologist conducting the survey shall record when the survey was conducted, a general description of any suitable foraging habitat/floral resources present, a description of observed western bumble bee activity, a description of any vegetation removed to facilitate the survey,

and their determination of if survey observations suggest a western bumble bee nest(s) may be present or if construction activities could result in take of western bumble bee. The report shall be submitted to the City of Petaluma Community Development Department prior to the commencement of construction activities.

If western bumble bees are not located during the preconstruction survey, then further mitigation or coordination with the CDFW is not required.

If any sign(s) of a bumble bee nest is observed, and if the species present cannot be established as a common bumble bee, then construction shall not commence until either (1) the bumble bees present are positively identified as common (i.e., not a western bumble bee), or (2) the completion of coordination with CDFW to identify appropriate mitigation measures, which may include, but not be limited to, waiting until the colony active season ends, establishment of nest buffers, or obtaining an Incidental Take Permit (ITP) from CDFW.

If western bumble bees are located, and after coordination with CDFW take of western bumble bees cannot be avoided, the project applicant shall obtain an ITP from CDFW, and the applicant shall implement all conditions identified in the ITP. Mitigation required by the ITP may include, but not be limited to, the project applicant translocating nesting substrate in accordance with the latest scientific research to another suitable location (i.e., a location that supports similar or better floral resources as the impact area), enhancing floral resources on areas of the project site that will remain appropriate habitat, worker awareness training, and/or other measures specified by CDFW.

4.1-2(b) *If western bumble bees are identified on-site by a qualified biologist, the following provisions shall be implemented to offset the loss or disturbance of foraging habitat (native forbs and shrubs): plant species that are known nectar sources of the western bumble bee shall be replaced at a 2:1 ratio, or as otherwise recommended by a qualified biologist and CDFW, and shall be included in a revised landscaping plan. The revised landscaping plan shall be submitted to the City of Petaluma Community Development Department for review and approval prior to commencement of construction activities. Plant species shall be sited in concentrated locations selected in consultation with a qualified biologist and CDFW, as necessary, to ensure the long-term survival of such plants and to limit disturbance throughout project operation. Plant species known to benefit the western bumble bee include, but are not limited to, Asteraceae, Fabaceae, Rhamnaceae, and Rosaceae, as well as plants in the genera Eriogonum and Penstemon. If western bumble bee are not identified on-site, the requirements of this measure shall be limited to the inclusion of native plant species in the aforementioned taxonomic families within the project landscaping plan, to the satisfaction of the City of Petaluma Community Development Department.*

4.1-3 Have a substantial adverse effect, either directly or through habitat modifications, on anadromous fish. Based on the analysis below and with implementation of mitigation, the impact is *less than significant*.

According to the BRA, a CDFW Stream Assessment found that the Creek provides suitable fish habitat for anadromous species. In addition, steelhead have been observed in the Creek, as recorded in CNDDB, as well as by the United Anglers of Casa Grande, Inc. Furthermore, the Creek, which runs through the southeastern portion of the study area, is designated by the NOAA Fisheries/NMFS as critical habitat for steelhead. It should be noted that the Creek is also designated by NOAA Fisheries/NMFS as EFH for Pacific salmon; although, the species was not observed during the course of the surveys conducted as part of the BRA.

The proposed project would include only limited construction within 50 feet of the Creek channel, which would be restricted to installation of the proposed off-site pedestrian bridge, access to the bridge, and stormwater outfall structures. Consistent with General Plan Policy 4-P-1, which prohibits development from occurring within 50 feet of any tributary of the Petaluma River, all new dwellings would be located beyond the 50-foot setback from the top of the Creek bank. Nevertheless, as discussed further in the Project Description chapter of this EIR, the proposed pedestrian bridge would include installation of bridge abutments, steel framing, wood decking, and 90 cubic yards (CY) of net fill for the abutment fill slopes. Thus, in the event that project-related disturbance occurs within the Creek or construction activities proximate to the Creek result in discharges of erosion/sedimentation to the Creek waters, project construction activities conducted during the known salmonid winter and fall runs (i.e., the months of November to April for the project region) could impact migrating steelhead. Additionally, depending on the water level within the Creek, project construction activities could indirectly result in downstream impacts related to erosion and sedimentation. Thus, the BRA concluded that the proposed project could have a substantial adverse effect on steelhead.

Based on the above, the proposed project could have a substantial adverse effect, either directly or through habitat modifications, on a wildlife species (steelhead) identified as a candidate, sensitive, or special-status species in local or regional plans, policies, or regulations, or by the CDFW or USFWS, and a ***significant*** impact could occur. In order to address the potentially significant impact to steelhead, Mitigation Measures 4.1-3(a) through 4.1-3(c) shall be required, which necessitate that construction activities within 50 feet of the Creek occur outside the known salmonid winter and fall runs and incorporation of standard erosion-control best management practices (BMPs), and compliance with CFGC Section 1600 et seq. and the CWA. With implementation of Mitigation Measures 4.1-3(a) through 4.1-3(c), the potential impact would be reduced to a less-than-significant level.

Mitigation Measure(s)

Implementation of the following mitigation measures would reduce the above potential impact to a *less-than-significant* level.

4.1-3(a) *Construction activities within 50 feet of Adobe Creek (Creek) shall be conducted outside of the known salmonid winter and fall runs (known to occur from November to April for the project region). Prior to issuance of grading permit, the foregoing provision shall be noted on the final improvement plans, which shall be subject to review and approval by the City of Petaluma Community Development Department. The City shall also coordinate with the National Oceanic and Atmospheric Administration (NOAA) Fisheries/West Coast Region to obtain its concurrence that the language is acceptable, prior to approval of final improvement plans.*

4.1-3(b) *Prior to the commencement of construction, standard erosion-control best management practices (BMPs) shall be implemented around the proposed disturbance areas. A qualified biologist shall be present during installation of the BMPs to ensure special-status wildlife species are not harmed during installation or become entrapped within the disturbance area. The BMPs shall be included in the final improvement plans and subject to review and approval by the City of Petaluma Community Development Department. The City shall also coordinate with the NOAA Fisheries/West Coast Region to obtain its concurrence that the BMPs are acceptable, prior to approval of final improvement plans.*

4.1-3(c) *Implement Mitigation Measures 4.1-7(a) and 4.1-7(b) and Mitigation Measures 4.1-8(a) through 4.1-8(c).*

4.1-4 Have a substantial adverse effect, either directly or through habitat modifications, on foothill yellow-legged frog, California red-legged frog, and northwestern pond turtle. Based on the analysis below and with implementation of mitigation, the impact is *less than significant*.

The Creek, which flows through the southeastern portion of the study area, provides suitable habitat for FYLF and CRLF, as ideal FYLF habitat consists of open, slow-moving perennial streams with rocky or bedrock substrates and small deeper pools, and CRLF breeding sites occur in aquatic habitats such as pools and backwaters within streams and creeks, ponds, marshes, springs, sag ponds, dune ponds and lagoons. In addition, a Stream Assessment completed by CDFW on the Creek in 2008 noted multiple observations of FYLF and CRLF within the project vicinity. Northwestern pond turtle could also occur within the Creek, as the species is found along ponds, marshes, rivers, streams, and irrigation ditches that typically have muddy or rocky bottoms and grow aquatic vegetation. Furthermore, the biological surveys completed as part of the BRA observed potential northwestern pond turtle habitat along the Creek.

Although direct work is not anticipated to occur within the Creek channel as part of the proposed project, as previously discussed, the proposed bridge connection would include installation of bridge abutments, steel framing, wood decking, and 90 CY of net fill. In addition, the proposed storm drain system would include installation of two

stormwater outfall structures along the Creek bank. As such, the limited disturbance within the riparian corridor as part of installation of the bridge connection could result in potential impacts to FYLF, CRLF, and northwestern pond turtle, if the foregoing species are present.

Based on the above, the proposed project could have a substantial adverse effect, either directly or through habitat modifications, on a wildlife species (FYLF, CRLF, and northwestern pond turtle) identified as a candidate, sensitive, or special-status species in local or regional plans, policies, or regulations, or by the CDFW or USFWS, and a ***significant*** impact could occur. In order to address the potentially significant impact, Mitigation Measures 4.1-4(a) through 4.1-4(g) shall be required, which necessitate preconstruction surveys for FYLF, CRLF, and northwestern pond turtle, Section 7 consultation with the USFWS if construction would occur within the OHWM, environmental awareness training, and other measures to prevent adverse effects to the foregoing species. With implementation of Mitigation Measures 4.1-4(a) through 4.1-4(g), the potential impact would be reduced to a less-than-significant level.

Mitigation Measure(s)

Implementation of the following mitigation measures would reduce the above potential impact to a *less-than-significant* level.

4.1-4(a) *Within 14 days prior to the commencement of construction (including tree trimming and removal), a qualified biologist approved by the U.S. Fish and Wildlife Service (USFWS) and/or CDFW shall conduct preconstruction surveys of all areas proposed for ground disturbance within suitable habitats for special-status species, including foothill yellow-legged frog (FYLF), California red-legged frog (CRLF), and northwestern pond turtle. The preconstruction surveys shall occur in areas within and adjacent to the project site to determine if the foregoing special-status species are present and shall not be completed more than five days prior to the initiation of grading activities in habitats where FYLF, CRLF, and northwestern pond turtle have potential to occur. A report summarizing the results of the preconstruction surveys shall be submitted for review and approval to the City of Petaluma Community Development Department.*

If any special-status species are found, the qualified biologist shall contact the CDFW (and USFWS) to determine whether relocation and/or additional exclusion buffers are appropriate. If CDFW approves relocating the animal(s), the qualified biologist shall be given sufficient time to move the animal(s) from the work site before work construction activities begin.

Following construction activities, results from any sensitive species surveys shall be documented in a memorandum and provided to the City of Petaluma Community Development Department within 30 days following the end of construction activities, or sooner, if requested by City staff.

4.1-4(b) *If disturbance is to occur within the ordinary high-water mark (OHWM) of the Creek, the project applicant shall complete Section 7 consultation with the USFWS and the National Oceanic and Atmospheric Administration (NOAA) Fisheries/National Marine Fisheries Service (NMFS) for potential impacts to federally listed species, prior to the commencement of construction. Proof of compliance with the foregoing provisions shall be documented and submitted for review and approval to the City of Petaluma Community Development Department.*

4.1-4(c) *Within 14 days prior to the commencement of construction activities, exclusionary fencing shall be installed along the work area boundary, as determined by a qualified biologist. Exclusionary fencing shall act as a barrier to keep special-status species from entering the work area. An Exclusionary Fence Plan shall be prepared by a qualified biologist and subject to review and approval by USFWS/CDFW and the City of Petaluma Community Development Department. The Exclusionary Fence Plan shall include, but not necessarily be limited to, the following components:*

a. *Areas approved for grading and clearing shall be delineated with suitable fencing materials and dimensions (such as temporary high-visibility orange-colored fence or silt fence at least four feet in height, flagging, or other barriers and buried to a depth of at least four inches) to act as a barrier to keep special-status species from entering the project site. Signs shall be posted that clearly state that construction personnel and equipment are excluded from the marked area. The fencing shall be inspected and approved by a qualified biologist and maintained daily until all construction activities are complete. The fencing shall be removed only when all construction equipment is not on-site any longer. Construction activities shall not take place outside the delineated project site.*
b. *To avoid attracting predators, food-related trash shall be kept in closed containers and removed daily from the exclusion zone.*
c. *At the end of each day, all construction-related holes or trenches deeper than one foot shall be covered to prevent entrapment of special-status species.*
d. *Prior to the commencement of daily construction activities, all conduits and pipes shall be inspected for the presence of animals. Removal of any animals shall be done in consultation with the approved qualified biologist.*
e. *Prior to the commencement of construction, any vegetation removed prior to the start of construction activities shall be placed away from sensitive species exclusion areas so that cut vegetation does not remain once exclusionary fencing is installed. All removed non-native, invasive vegetation shall be discarded off-site and away from aquatic resources to prevent reseeding.*

4.1-4(d) *Within 14 days prior to the commencement of construction, a qualified biologist shall conduct an Environmental Awareness Training session to familiarize all construction personnel with identification of special-status species and associated habitats, general provisions and protections afforded by the federal Endangered Species Act (FESA) and California Endangered Species Act (CESA), measures implemented to protect such species, actions to be taken if protected species are observed on-site, and a review of project site boundaries and job site maintenance protocols (i.e., worker-generated trash, worker vehicle and construction equipment parking, and disposal of construction wastes). All personnel shall sign an affidavit acknowledging participation in the training and understanding species legal status, penalties for violations, and all protective measures. A wallet-sized card or fact sheet handout shall be distributed to all crews on-site. Proof of completion of the training for all on-site personnel shall be kept on-site and submitted for review and approval to the City of Petaluma Community Development Department.*

4.1-4(e) *During project construction, grading activities shall cease a half-hour before sunset and shall not commence prior to a half-hour before sunrise. Grading activities shall be prohibited during rain events that meet the following conditions: within 24 hours of events predicted to deliver more than 0.2-inch of rain and within 24 hours after rain events exceeding 0.2-inch in measurable precipitation. Grading shall not occur after 0.5-inch of rain has occurred after November 1 in the year construction grading work is occurring unless a one-week extension based on fair weather is approved by the City of Petaluma, CDFW, and the Regional Water Quality Control Board (RWQCB). The foregoing provisions shall be noted on the final improvement plans, which shall be verified by the City of Petaluma Community Development Department.*

4.1-4(f) *Prior to the commencement of any effort to advertise or promote the sale of any of the proposed dwelling units, all promotional materials, deeds/rental agreements, etc., shall include information that informs all tenants that dogs are to be leashed at all times within development boundaries, including within 50 feet of the riparian habitat within the study area, in order to ensure that sensitive resources and riparian habitat are preserved. Proof of compliance with the foregoing provision shall be submitted for review and approval to the City of Petaluma Community Development Department.*

4.1-4(g) *Prior to the commencement of construction, the project applicant shall include a design sheet of the proposed trash enclosure and receptacles as part of the improvement plan submittal. The design sheet shall note that trash receptacles must be secured within enclosures that exclude mesopredators (e.g., racoons and coyotes) to avoid attracting and subsidizing such predators. On-site trash enclosures and receptacles shall also be routinely maintained. Inclusion of the design sheet shall*

be subject to review and approval by the City of Petaluma Community Development Department.

4.1-5 Have a substantial adverse effect, either directly or through habitat modifications, on Swainson's hawk and other nesting birds and raptors protected under the MBTA and CFGC. Based on the analysis below and with implementation of mitigation, the impact is *less than significant*.

As previously discussed, marginally suitable foraging habitat for Swainson's hawk, a State threatened species, occurs in the on-site open grassy area. Swainson's hawk feed primarily on small mammals, birds, and insects, and typical foraging habitat includes annual grasslands, alfalfa, and other dry farm crops that provide suitable habitat for small mammals. While the 5.2-acre project site includes approximately 4.15 acres of annual grassland, according to the 1994 Staff Report Regarding Mitigation for Impacts to Swainson's Hawks (*Buteo swainsoni*) in the Central Valley of California, CDFW does not recommend mitigation to address the loss of Swainson's hawk foraging habitat for projects in areas that have less than five acres of foraging habitat and are surrounded by existing urban development. Although the City of Petaluma is not located in the Central Valley, the CDFW 1994 Staff Report provides biologically based guidance for use by other jurisdictions, when determining implications of land development projects on Swainson's hawk. Given that the site's annual grassland is less than five acres, and the project site is substantially surrounded by urban development, it is reasonable to conclude, based on CDFW's guidance, that the project site should be considered a small disjunct parcel of foraging habitat that does not warrant mitigation to address loss of Swainson's hawk foraging habitat. In addition, methodology developed by CDFW in 2006 recognizes that Swainson's hawk foraging habitat value is greater in large expansive open spaces and agricultural areas than in areas that have been fragmented by agricultural-residential or urban development. Given the project site's location adjacent to Casa Grande Road and existing urban uses to the north and south, the site's Swainson's hawk foraging habitat value is low. Additionally, as previously discussed, the project site currently includes routine residential and agricultural land management practices, which further reduces the potential for Swainson's hawk to forage on-site. With respect to nesting, given the high levels of disturbance within the project site, Swainson's hawks are unlikely to nest on-site and nests were not observed during the reconnaissance surveys. However, the possibility of nesting Swainson's hawks occurring on-site cannot be entirely ruled out.

Similarly, the vegetation communities within the project site and proposed off-site areas provide suitable nesting habitat to accommodate nesting songbirds and other raptors protected under the MBTA and CGFC. As previously discussed, 72 trees are located within the study area and nest(s) could potentially be established prior to project construction. Should construction activities occur during the nesting season, the possibility remains that such activities could result in potential impacts to protected nesting songbirds and raptors if construction activities were to cause nest abandonment and/or loss of reproductive efforts, or direct mortality if active nests occur within the trees in the study area proposed for removal. Therefore, without the completion of preconstruction surveys to confirm the absence of nesting Swainson's

hawk and other nesting songbirds and raptors, the proposed project could result in a substantial adverse effect on the foregoing species.

Based on the above, the project could have a substantial adverse effect, either directly or through habitat modifications, on Swainson's hawk and other nesting songbirds and raptor species protected under the MBTA and CFGC. Thus, a ***significant*** impact could occur. In order to address the potentially significant impact, Mitigation Measure 4.1-5 shall be required, which recommends that site preparation activities take place outside of the nesting season and necessitates preconstruction surveys and additional protective measures if such activities do occur within the nesting season. With implementation of Mitigation Measure 4.1-5, the potential impact would be reduced to a less-than-significant level.

Mitigation Measure(s)

Implementation of the following mitigation measures would reduce the above potential impact to a *less-than-significant* level.

4.1-5 *During project construction, site preparation activities, including tree trimming and removal, should occur between September 1 and January 31, outside of the bird nesting season. If vegetation removal or construction begins between February 1 and August 31, preconstruction nesting bird surveys shall be conducted by a qualified biologist within seven days prior to vegetation removal or ground-disturbing activities to determine the presence or absence and location of nesting bird species. A report summarizing the results of the preconstruction nesting bird surveys shall be submitted for review and approval to the City of Petaluma Community Development Department. If a lapse in construction activity occurs for more than seven consecutive days or if construction activity is phased at the work site, preconstruction and nesting bird surveys shall be repeated.*

If active nests are present within 500 feet of construction areas, temporary protective construction exclusion zones shall be established by a qualified biologist in order to avoid direct or indirect mortality or disruption of the birds, nests, or young. The appropriate buffer distance shall be dependent on the species, surrounding vegetation, and topography and shall be determined by a qualified biologist, but shall be a minimum of 500 feet for raptors and 100 feet for songbirds. Exclusion zones shall remain in place until all young have fledged or until the nest has been naturally abandoned or predated. Work may proceed if active nests are not found during surveys or once nests are determined by a qualified biologist to be inactive.

The non-disturbance buffers may be reduced if a smaller, sufficiently protective buffer is approved by the City after taking into consideration the natural history of the species of bird nesting, the proposed activity level adjacent to the nest, the nest occupants' habituation to existing or ongoing activity, and nest concealment (i.e., whether visual or acoustic barriers occur between the proposed activity and the nest). A qualified

biologist may visit the nest, as needed, to determine when the young have fledged the nest and are independent of the site or the nest can be left undisturbed until the end of the nesting season. If the nest buffer is reduced but construction activities cause a nesting bird to vocalize, make defensive flights at intruders, get up from a brooding position, or fly off the nest in a way that would be considered a result of construction activities, then the exclusionary buffer shall be increased such that activities are far enough from the nest to stop the agitated behavior. The revised non-disturbance buffer shall remain in place until the chicks have fledged or as otherwise determined by a qualified biologist in consultation with the City.

Cleared vegetation during the nesting season shall be collected and transported off-site during each week to prevent birds from nesting in vegetative debris.

Results from any survey for nesting birds shall be documented in a memorandum and provided to the City of Petaluma Community Development Department within 30 days following the end of construction activities.

4.1-6 Have a substantial adverse effect, either directly or through habitat modifications, on pallid bat. Based on the analysis below and with implementation of mitigation, the impact is *less than significant*.

Pallid bat occurs in a wide variety of habitats including grasslands, shrublands and chaparrals, woodlands, and forests, and will establish daytime roosts in caves, crevices, mines, large hollow trees, and unoccupied buildings. Although on-site habitat to support pallid bat is marginal, three occurrences of the species have been documented within five miles of the project site. In addition, pallid bats may roost in riparian trees present on-site and within the proposed off-site improvement areas and forage over the open grassy area. Furthermore, individual trees with appropriately sized cavities may provide suitable habitat for roosting. Although no sign of pallid bat roosts was observed during the field surveys conducted as part of the BRA, individual trees have not been evaluated for roost potential. Thus, should pallid bat be roosting in trees or structures proposed for removal as part of the proposed project, the foregoing species could be injured or killed during project construction.

Based on the above, the proposed project could have a substantial adverse effect, either directly or through habitat modifications, on a wildlife species (pallid bat) identified as a candidate, sensitive, or special-status species in local or regional plans, policies, or regulations, or by the CDFW or USFWS, and a ***significant*** impact could occur. In order to address the potentially significant impact, Mitigation Measure 4.1-6 shall be required, which necessitates completion of a preconstruction survey of suitable habitat for special-status bats, and if warranted, additional protective measures for identified special-status bats. With implementation of Mitigation Measure 4.1-6, the potential impact would be reduced to a less-than-significant level.

Mitigation Measure(s)

Implementation of the following mitigation measure would reduce the above potential impact to a *less-than-significant* level.

4.1-6 *Prior to the commencement of construction, a qualified biologist shall conduct a preconstruction survey of suitable habitat for special-status bats, including existing structures proposed for demolition or removal, that could support special-status bats, at most, 14 days prior to initiation of ground disturbance, including tree trimming and removal. A report summarizing the results of the preconstruction survey shall be submitted for review and approval to the City of Petaluma Community Development Department. If a lapse in construction activity occurs for more than seven consecutive days or if construction activity is phased at the work site, preconstruction bat surveys shall be repeated.*

If special-status bat roosts are observed, ground disturbance within 50 feet of roosts shall be restricted to between August 31 and October 15 and between March 1 and April 15 to avoid hibernation and rearing periods. Removal of potential suitable bat roost trees shall occur over a two-day phased process with a qualified biologist present.

In addition, if bats or evidence of bat roosting are observed, exclusionary fencing and/or construction activity avoidance limits shall be put in place. Exclusion devices may include features such as one-way exits from roost habitat and shall be installed by a qualified biologist, in consultation with CDFW, and shall not occur outside of the date ranges listed above to avoid hibernation or rearing periods.

Following construction activities, results from any sensitive bat species survey shall be documented in a memorandum, written by the qualified biologist, and provided to the City of Petaluma Community Development Department within 30 days following the end of construction activities.

4.1-7 Have a substantial adverse effect on any riparian habitat or other Sensitive Natural Community identified in local or regional plans, policies, regulations or by the CDFW or USFWS. Based on the analysis below and with implementation of mitigation, the impact is *less than significant*.

Riparian habitats are lands that occur along watercourses and water bodies, with typical examples including streambanks and floodplains. Riparian habitats are distinctly different from surrounding lands, due to a riparian habitat's unique soil and vegetation characteristics, which are strongly influenced by the presence of water. The project site does not include riparian land cover. However, as previously discussed, the study area contains 1.22 acres of riparian habitat and 0.22-acre of riverine habitat, associated with the Creek, both of which are designated as Sensitive Natural Communities.

As previously discussed, the proposed off-site bridge connection over the Creek would include installation of bridge abutments, steel framing, wood decking, and 90 CY of net fill for the abutment fill slopes, including approximately 78 CY placed below the estimated 100-year floodplain base flood elevation. In addition, the proposed project includes an off-site public multi-use pathway that would connect to the bridge and would be 10 feet in width and installed along the project site's eastern boundary, west of the Creek. On the east side of the Creek, an access connection from the bridge to the existing informal pathway would also be installed. Furthermore, the proposed storm drain system would include installation of two off-site stormwater outfall structures along the Creek bank. Installation of the off-site bridge, bridge connections, off-site public multi-use pathway, and outfall structures could potentially impact the riparian and riverine habitat areas within the study area. As summarized in Table 4.1-5, according to the BRA, the proposed project is anticipated to impact approximately 0.07-acre of riparian habitat, with no direct modification to the Riverine habitat.

Table 4.1-5
Summary of Impacted Habitat Acres in Study Area

Habitat Type	Total Acres in Study Area	Impacted Acres
Developed/Disturbed	1.29	0.62
Annual Grassland	4.15	3.54
Riparian	1.22	0.07
Riverine	0.22	0.00
Seasonal Wetland	0.09	0.09

Source: Montrose Environmental, 2024.

Impacts to riparian habitat are regulated under CFGC 1600 et seq. Specifically, CFGC Section 1602 requires notification to CDFW before a project commences "any activity that may substantially divert or obstruct the natural flow or substantially change the bed, channel, or bank of any river, stream, or lake." CDFW then reviews the proposed action(s). If CDFW determines that the proposed activity would substantially affect fish and wildlife resources, an LSAA containing measures to protect affected fish and wildlife resources should be required. The LSAA would be comprised of the final mitigation measure(s) and condition(s) mutually agreed upon by CDFW and the project applicant. Additionally, projects that require a LSAA often additionally require a permit from the USACE under Section 404 of the CWA, and/or a water quality certification from the RWQCB under Section 401 of the CWA. In such instances, the conditions of the Section 404 permit, Section 401 Certification, and the LSAA may overlap. Because the proposed project could result in disturbances to the riparian habitat within the study area, the project would be required to comply with the provisions of CFGC Section 1600, et seq. Without compliance, a significant impact could occur.

Based on the above, without compliance with the provisions of CFGC Section 1600, et seq. and Sections 404 and 401 of the CWA (addressed under Impact 4.1-8), the proposed project could have a substantial adverse effect on riparian habitat or other Sensitive Natural Community identified in local or regional plans, policies, regulations or by the CDFW or USFWS, and a ***significant*** impact could occur. In order to address the potentially significant impact, Mitigation Measures 4.1-7(a) through 4.1-7(c) shall be required, which necessitate compliance with CFGC Section 1600, establishment of a 50-foot setback from the study area's riparian vegetation, and compliance with the

CWA. With implementation of Mitigation Measures 4.1-7(a) through 4.1-7(c), the potential impact would be reduced to a less-than-significant level.

Mitigation Measure(s)

Implementation of the following mitigation measures would reduce the above potential impact to a *less-than-significant* level.

4.1-7(a) *Prior to the commencement of construction, the project applicant shall implement minimization and avoidance measures that may include, but not necessarily be limited to, preconstruction species surveys and reporting, protective fencing around avoided biological resources, worker environmental awareness training, seeding disturbed areas adjacent to open space areas with native seed, and installation of project-specific stormwater BMPs. Mitigation for impacts to riparian habitat may include, but not be limited to, restoration or enhancement of resources on- or off-site, purchase of habitat credits from an agency-approved mitigation/conservation bank, working with a local land trust to preserve land, or any other method acceptable to CDFW. Mitigation shall result in no net loss of riparian habitat. Prior to the commencement of construction, the project applicant shall apply for a Section 1600 Lake or Streambed Alteration Agreement (LSAA) from CDFW. The project applicant shall comply with any terms and conditions contained within the final LSAA for the proposed project, which may differ from the above. Written verification of the Section 1600 LSAA shall be submitted to the City of Petaluma Community Development Department.*

4.1-7(b) *A 50-foot setback from riparian vegetation shall be established prior to the commencement of grading activities, except for construction of the stormwater outfall facilities, pedestrian bridge connection, and the off-site public multi-use pathway, where a lesser setback shall be established in consultation with a qualified biologist. Construction and staging of vehicles and equipment shall not occur within 50 feet of riparian vegetation and shall be parked only in designated staging areas. Silt fencing shall be installed along the outer edge of the project's disturbance footprint and shall remain during grading activities associated with the proposed project. The foregoing provisions shall be based on recommendations by a qualified biologist, comply with agency approval, and noted on the final improvement plans, which shall be subject to review and approval by the City of Petaluma Community Development Department.*

4.1-7(c) *Implement Mitigation Measures 4.1-8(b) and 4.1-10.*

4.1-8 Have a substantial adverse effect on State or federally protected wetlands (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means. Based on the analysis below and with implementation of mitigation, the impact is *less than significant*.

Wetlands are generally considered to be areas that are periodically or permanently inundated by surface or groundwater, and support vegetation adapted to life in saturated soil. Wetlands are recognized as important features on a local, regional, and national level due to their high inherent value to fish and wildlife, use as storage areas for storm and flood waters, and water recharge, filtration, and purification functions. In addition, waters of the U.S. are the oceans, rivers, streams, lakes, creeks, marshes, and wetlands considered jurisdictional under the CWA.

As previously discussed, three seasonal wetlands totaling approximately 0.09-acre occur in the annual grassland in the southern portion of the project site (see Figure 4.1-2). All of the foregoing wetlands would be impacted in their entirety through development of the proposed residences and Basin Retention Area 5. In addition, approximately 621 linear feet of the Creek flows through the study area within 0.22-acre of riverine habitat. While the proposed project is not anticipated to include direct work in the Creek channel or below the OHWM, the ARD has not yet been verified by the USACE, and thus, the OHWM for the Creek has not been definitively established. Project construction activities associated with the proposed bridge connection and stormwater outfall structures could also indirectly result in impacts to the Creek related to erosion and sedimentation.

The USACE, RWQCB, and CDFW have jurisdiction over modifications to stream channels, riverbanks, lakes, and other wetland features. The USACE's jurisdiction is established through the provisions of Section 404 of the CWA, and the jurisdictional authority of the RWQCB is established pursuant to Section 401 of the CWA, which typically requires a WQC when an individual or nationwide permit is issued by the USACE. The RWQCB also has jurisdiction over waters of the State under the Porter-Cologne Water Quality Control Act. As such, the proposed project could be required to obtain a Section 404 permit from the USACE and a Section 401 permit from the RWQCB and could be subject to all the conditions set forth by said permits. Additionally, as discussed further under Impact 4.1-7, the proposed project would be subject to the regulations set forth through CFGC Section 1600, et seq.

Based on the above, without compliance with the CWA and RWQCB, the proposed project could have a substantial adverse effect on State or federally protected wetlands (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means, including indirect impacts. Therefore, a ***significant*** impact could occur. In order to address the potentially significant impact, Mitigation Measures 4.1-8(a) through 4.1-8(c) shall be required, which necessitate a 50-foot setback from the OHWM of the Creek and compliance with Sections 404 and 401 of the CWA. With implementation of Mitigation Measures 4.1-8(a) through 4.1-8(c), the potential impact would be reduced to a less-than-significant level.

Mitigation Measure(s)

Implementation of the following mitigation measures would reduce the above potential impact to a *less-than-significant* level.

4.1-8(a) *Prior to the commencement of grading activities, a 50-foot setback from the OHWM of the Creek shall be established and noted on the*

improvement plans, except for construction of the stormwater outfall facilities and the off-site public multi-use pathway and bridge, where a lesser setback shall be established in consultation with a qualified biologist and applicable regulatory agencies. Construction and staging of vehicles and equipment shall not occur within the Creek channel. Silt fencing shall be installed along the outer edge of the project's disturbance footprint and shall remain during grading activities. Inclusion of the 50-foot setback from the OHWM of the Creek on the improvement plans shall be subject to review and approval by the City of Petaluma Community Development Department.

4.1-8(b) *Prior to initiation of any ground-disturbing activities, the project proponent shall submit a formal Aquatic Resources Delineation to the USACE for verification purposes and determination as to whether the project activities will require a Clean Water Act (CWA) Section 404 permit. A copy of the USACE's determination shall be submitted to the City of Petaluma Community Development Department. If a Section 404 permit is not required, further mitigation shall not be required. If a Section 404 permit is required, the project proponent shall apply for a Clean Water Act (CWA) Section 404 permit from the USACE. Waters that would be lost or disturbed shall be restored, replaced, or rehabilitated on a "no-net-loss" basis. Habitat restoration, rehabilitation, and/or replacement shall be at a location and by methods acceptable to the USACE. If a Section 404 permit is required, the project applicant shall also apply for a Section 401 water quality certification from the RWQCB prior to the issuance of grading permits and adhere to the certification conditions. A copy of the Section 404 and 401 permits detailing the provisions with which the proposed project must comply shall be submitted to the City of Petaluma Community Development Department.*

4.1-9 Interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites. Based on the analysis below, the impact is *less than significant*.

Wildlife corridors link areas of suitable wildlife habitat that are otherwise separated by rugged terrain, changes in vegetation, or human disturbance. The fragmentation of open space areas by urbanization creates isolated "islands" of wildlife habitat. Fragmentation also occurs when a portion of one or more habitats is converted into another habitat, such as when woodland or scrub habitat is altered or converted into grasslands after a disturbance, such as fire, mudslide, or grading activities. Wildlife corridors mitigate the effects of fragmentation by (1) allowing animals to move between remaining habitats, thereby permitting depleted populations to be replenished and promoting genetic exchange; (2) providing escape routes from fire, predators, and human disturbances, thereby reducing the risk of catastrophic events (such as fire or disease) on population or local species extinction; and (3) serving as travel routes for

individual animals as they move within their home ranges in search of food, water, mates, and other needs.

The project site is bounded to the west by Casa Grande Road, beyond which is the Casa Grande High School. The project site's northern boundary abuts the Casa Grande Senior Apartments, and the southern boundary abuts the Casa Grande Subdivision. The foregoing uses preclude east-west and north-south movement through the project site by migratory terrestrial species. Additionally, fencing occurs along the riparian corridor associated with the Creek and the Casa Grande Subdivision immediately to the southwest, which further prevents use of the site as a migratory corridor. Furthermore, the existing on-site residential and agricultural land management practices and associated disturbance reduces the potential of the project site being used as a native wildlife nursery site.

Although the Creek provides suitable habitat for steelhead and other anadromous species, the proposed project would not result in direct modifications to the Creek channel. While the project would include tree removal and limited disturbance associated with installation of the off-site pedestrian bridge, with incorporation of Mitigation Measures 4.1-7(b) and 4.1-8(a), the project would be required to include a 50-foot setback from the riparian habitat within the study area and the OHWM of the Creek,[7] respectively, which would restrict the staging of vehicles and equipment from occurring within the Creek channel and would ensure construction activities associated with the on-site project components do not occur within the 50-foot setback. Introduction of the pedestrian bridge would introduce associated lighting and facilitate public pedestrian and bicycle crossings over the Creek, which could introduce new noise and lighting effects on special-status fish species. However, the vast majority of public use of the bridge is anticipated to occur primarily during daytime and/or evening hours, ensuring public use of the bridge does not discourage wildlife migration through the riparian corridor during nighttime hours. Because the bridge would not block terrestrial or aquatic wildlife from migrating through the Creek's riparian corridor and through compliance with standard operating hours for use and standard conditions of approval related to light and glare, substantial adverse effects would not occur. Thus, the proposed project would not impede use of the Creek as a migratory corridor for aquatic species.

Based on the above, the proposed project would not interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors or impede the use of native wildlife nursery sites. Thus, the proposed project would result in a ***less-than-significant*** impact.

Mitigation Measure(s)

None required.

[7] The OHWM would be confirmed through formal delineation required by USACE.

4.1-10 Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance, or have a substantial adverse effect on the environment by converting oak woodlands. Based on the analysis below and with implementation of mitigation, the impact is *less than significant*.

A total of 72 trees are located within the on-site and off-site areas proposed for development (see Table 4.1-4). As detailed in Table 4.1-6 and shown in Figure 4.1-4, Figure 4.1-5, and Figure 4.1-6, the proposed project would require permanent removal of 31 trees, including seven unprotected trees outside the riparian dripline and 24 trees within the riparian dripline that are designated as protected by Petaluma IZO Section 17.040.

The 24 protected trees that would require removal are located within the riparian habitat associated with the Creek. With the exception of one protected tree (a California buckeye), which would require removal due to the proposed southerly storm drain, all other protected trees would be removed during construction of the off-site bridge within the City-owned parcel.

In addition, the five protected trees listed below are located in proximity to the off-site bridge and not proposed for removal, but would be subject to pruning as part of installation of the bridge connection and outfall structures.

- Tree #30, California buckeye: The tree would be preserved and protected, but also pruned to create clearance for the bridge connection;
- Tree #31, red willow: The tree would be preserved and protected, but also pruned to create clearance for the bridge connection;
- Tree #53, red willow: The tree would be preserved and protected, but also pruned to create clearance for the bridge connection;
- Tree #64, California buckeye: The tree would be preserved and protected, but also pruned to create clearance for the proposed southern outfall structure.
- Tree #72, Oregon ash: The tree would be preserved and protected, but also pruned to create clearance for the proposed northern outfall structure.

Although the proposed project would include the planting of 73 new trees on-site, which includes trees planted for the purposes of mitigating project impacts to protected trees, pursuant to Petaluma IZO Section 17.060 (see Table 4.1-7), the removal, cutting down, or otherwise destruction of a protected tree requires a Tree Removal Permit issued by the City of Petaluma Community Development Department. In addition, protected trees located in proximity to the off-site bridge and not proposed for removal could be subject to pruning, which would be determined at the time of construction by the project arborist.

Based on the above, without compliance with requirements set forth by Petaluma IZO Section 17.060 to address tree impacts, the proposed project could conflict with a local policy or ordinance protecting biological resources, such as a tree preservation policy or ordinance.

Table 4.1-6
Trees Proposed for Permanent Removal

No.	Common Name	Botanical Name	Trunk Diameter (inches)	Health and Structure (0-5)[1]
Proposed Residential Development Area and Creek Riparian Corridor				
2	Apple	*Malus domestica*	6	4
3	Plum sp.	*Prunus* sp.	14.5	4
4	Plum sp.	*Prunus* sp.	11.5	3
13	Sweetgum	*Liquidambar styraciflua*	14	4
14	Photinia	*Photinia Fraseri*	7, 5, 4	4
15	Crape Myrtle	*Lagerstroemia* sp.	6	4
24	**Coast Live Oak**	***Quercus agrifolia***	**8.5, 7.5**	**5**
25	**Coast Live Oak**	***Quercus agrifolia***	**12.5**	**5**
27	**Valley Oak**	***Quercus lobata***	**6**	**5**
29	**Valley Oak**	***Quercus lobata***	**10**	**4**
33	**Northern California Walnut**	***Juglans hindsii***	**6**	**5**
34	**Oregon Ash**	***Fraxinus latifolia***	**6**	**5**
36	**Red Willow**	***Salix laevigata***	**9.5**	**1**
37	**Red Willow**	***Salix laevigata***	**8**	**3**
38	**Red Willow**	***Salix laevigata***	**11**	**4**
39	**California Buckeye**	***Aesculus californica***	**6, 6, 5**	**4**
44	**Red Willow**	***Salix laevigata***	**17.5**	**2**
45	**Valley Oak**	***Quercus lobata***	**7**	**5**
46	**Oregon Ash**	***Fraxinus latifolia***	**1.5**	**4**
47	**Red Willow**	***Salix laevigata***	**3**	**2**
48	**Red Willow**	***Salix laevigata***	**3**	**4**
50	**Red Willow**	***Salix laevigata***	**5, 3.5, 3**	**2**
51	**Red Willow**	***Salix laevigata***	**3.5**	**3**
52	**California Buckeye**	***Aesculus californica***	**1.5**	**4**
54	**Red Willow**	***Salix laevigata***	**3**	**3**
55	**California Buckeye**	***Aesculus californica***	**3.5**	**4**
56	**California Buckeye**	***Aesculus californica***	**3, 2.5, 2.5**	**4**
57	**California Buckeye**	***Aesculus californica***	**5, 2.5**	**2**
59	**Toyon**	***Heteromeles arbutifolia***	**3, 1.5**	**4**
Southern Storm Drainage Outfall				
68	**California Buckeye**	***Aesculus californica***	**4**	**4**
Northern Storm Drainage Outfall				
71	Fruiting Pear	*Pyrus* spp.	3	2

Note: The Health & Structure column includes a rating for condition, based on The Guide for Plant Appraisal, 10th Edition. The numeric scale ranges from 5 (being the highest) to 0 (the worst condition, dead). Rating 2 (Poor) indicates the tree has a single or multiple serious structural defects and is unhealthy and declining in appearance. Rating 3 (Fair) indicates the tree has a single serious structural defect or multiple moderate defects and reduced vigor. Rating 4 (Good) indicates the tree has minor structural defects that can be corrected and normal vigor. Rating 5 (Excellent) indicates the tree is free of structural defects and has nearly perfect health.

Trees designated as protected pursuant to IZO Section 17.040 are **bolded**.

Figure 4.1-4
Tree Removal and Preservation Plan

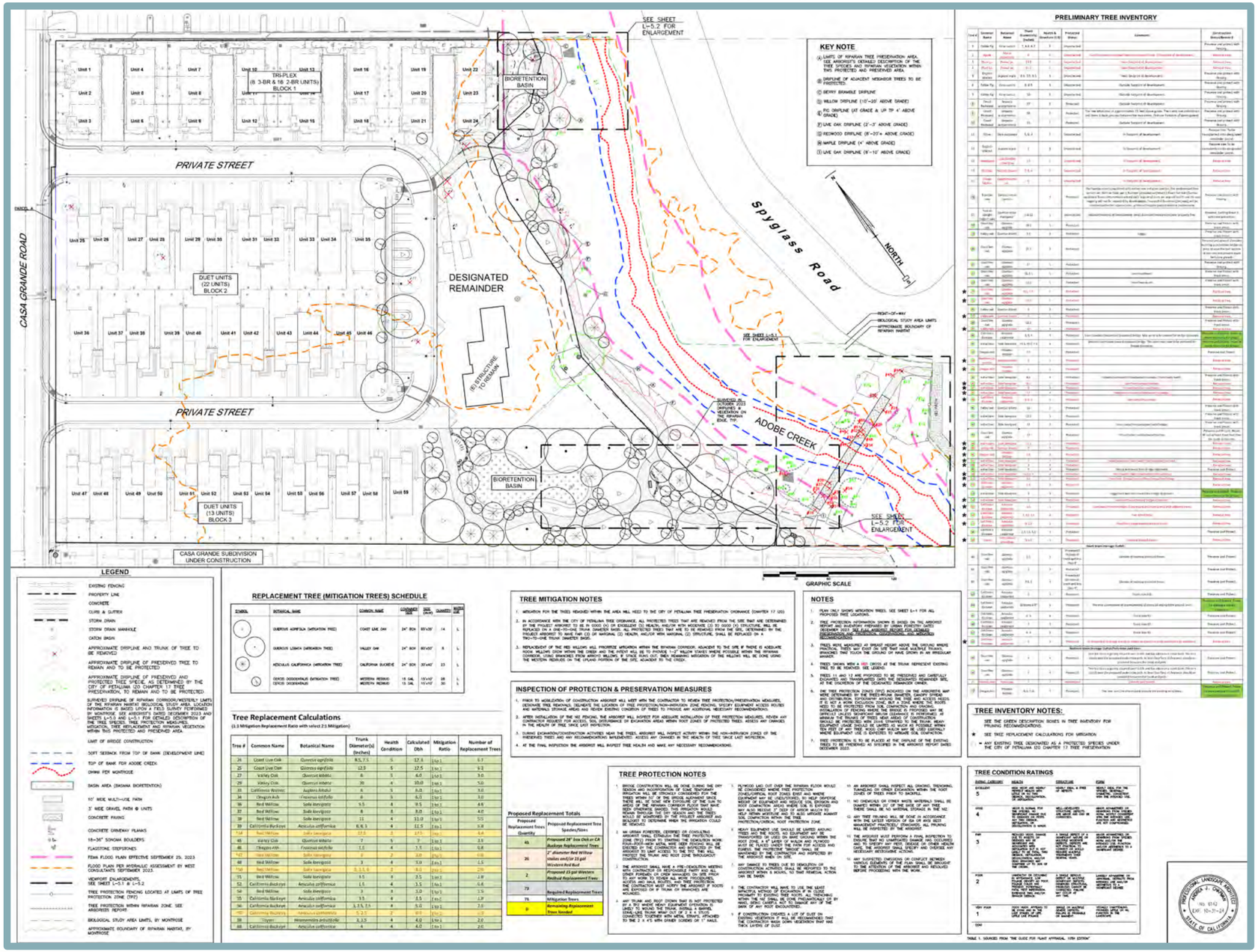


Figure 4.1-5
Tree Removal and Preservation Plan – Bridge Connection

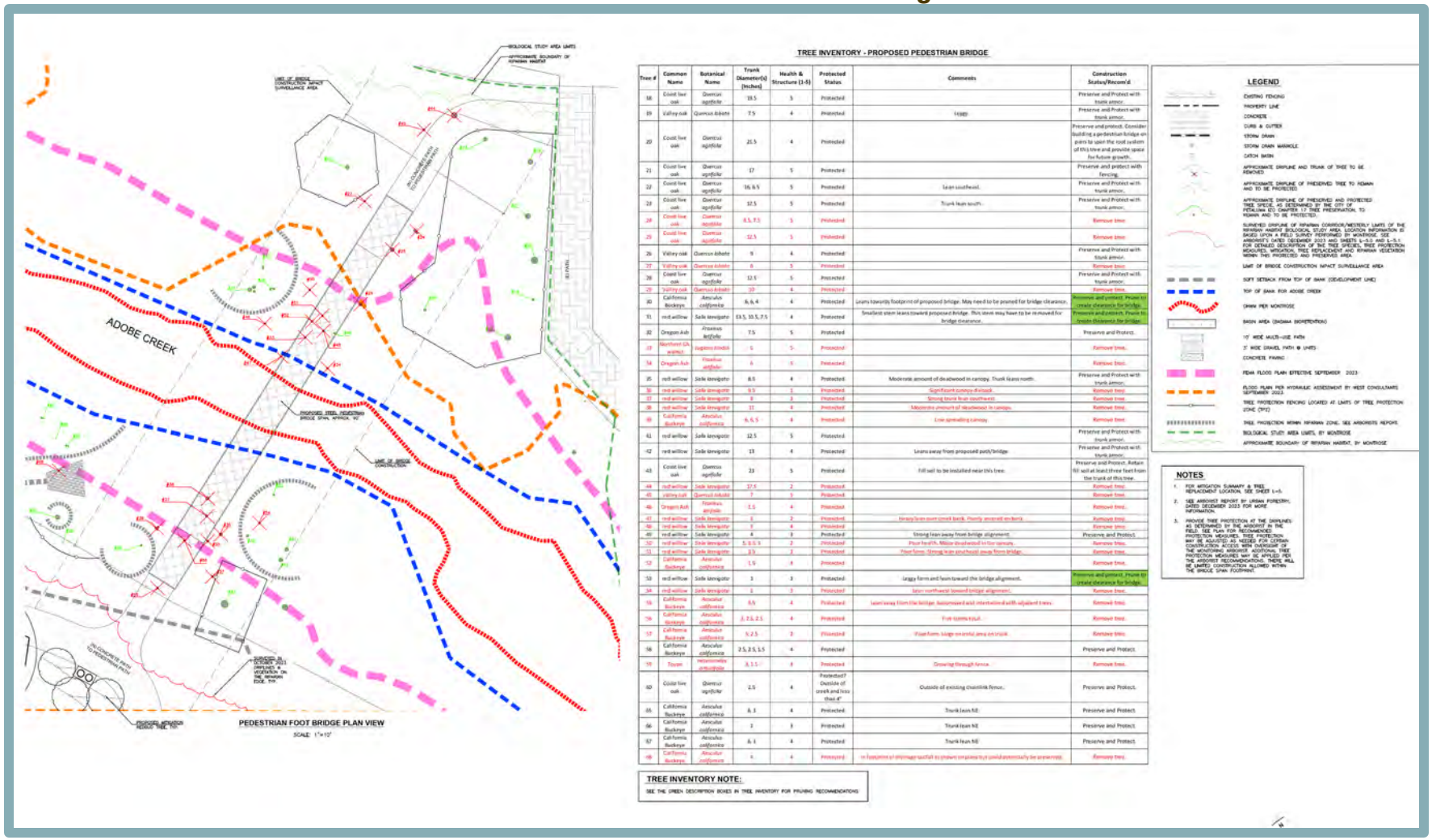


Figure 4.1-6
Tree Removal and Preservation Plan – Outfalls

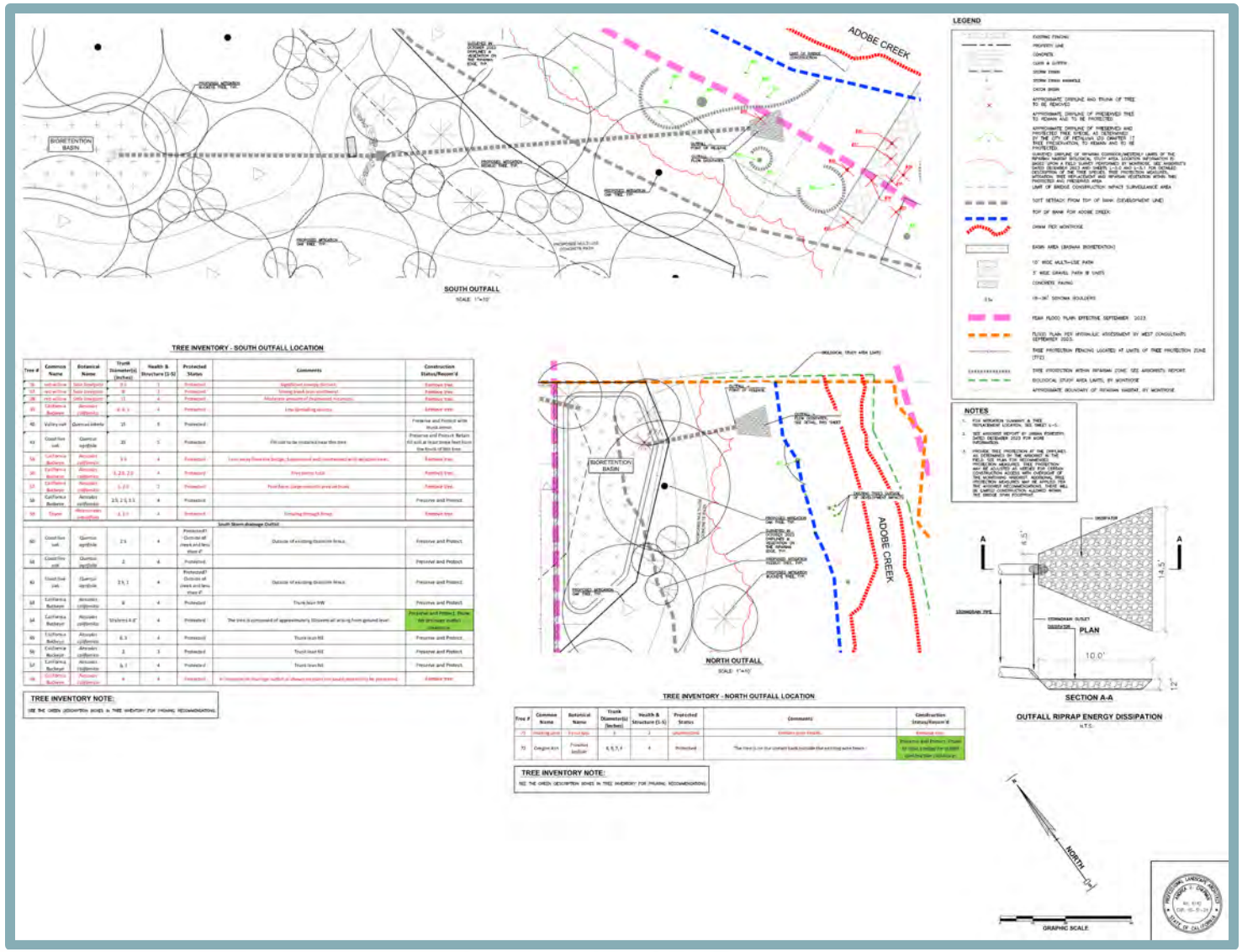


Table 4.1-7
Tree Replacement Calculations

No.	Common Name	Botanical Name	Trunk Diameter (inches)	Health Condition (0-5)	Calculated DBH	Mitigation Ratio	Number of Replacement Trees
Proposed Residential Development Area and Creek Riparian Corridor							
24	Coast Live Oak	*Quercus agrifolia*	8.5, 7.5	5	12.3	1:1	6.1
25	Coast Live Oak	*Quercus agrifolia*	12.5	5	12.5	1:1	6.3
27	Valley Oak	*Quercus lobata*	6	5	6.0	1:1	3.0
29	Valley Oak	*Quercus lobata*	10	4	10.0	1:1	5.0
33	Northern California Walnut	*Juglans hindsii*	6	5	6.0	1:1	3.0
34	Oregon Ash	*Fraxinus latifolia*	6	5	6.0	1:1	3.0
36	Red Willow	*Salix laevigata*	9.5	1	9.5	1:1	4.8
37	Red Willow	*Salix laevigata*	8	3	8.0	1:1	4.0
38	Red Willow	*Salix laevigata*	11	4	11.0	1:1	5.5
39	California Buckeye	*Aesculus californica*	6, 6, 5	4	11.5	1:1	5.8
44	Red Willow	*Salix laevigata*	17.5	2	17.5	2:1	4.4
45	Valley Oak	*Quercus lobata*	7	5	7.0	1:1	3.5
46	Oregon Ash	*Fraxinus latifolia*	1.5	4	1.5	1:1	0.8
47	Red Willow	*Salix laevigata*	3	2	3.0	2:1	0.8
48	Red Willow	*Salix laevigata*	3	4	3.0	1:1	1.5
50	Red Willow	*Salix laevigata*	5, 3.5, 3	2	8.0	2:1	2.0
51	Red Willow	*Salix laevigata*	3.5	3	3.5	1:1	1.8
52	California Buckeye	*Aesculus californica*	1.5	4	1.5	1:1	0.8
54	Red Willow	*Salix laevigata*	3	3	3.0	1:1	1.5
55	California Buckeye	*Aesculus californica*	3.5	4	3.5	1:1	1.8
56	California Buckeye	*Aesculus californica*	3, 2.5, 2.5	4	5.0	1:1	2.5
57	California Buckeye	*Aesculus californica*	5, 2.5	2	6.0	2:1	1.5
59	Toyon	*Heteromeles arbutifolia*	3, 1.5	4	4.0	1:1	2.0
Southern Storm Drainage Outfall							
68	California Buckeye	*Aesculus californica*	4	4	4.0	1:1	2.0

Therefore, a ***significant*** impact could occur. In order to address the potentially significant impact, Mitigation Measure 4.1-10 shall be required, which necessitates that the project applicant obtain a Tree Removal Permit and complies with the tree replacement and preservation recommendations contained in the Tree Protection and Removal Plan. With implementation of Mitigation Measure 4.1-10, the potential impact would be reduced to a less-than-significant level.

Mitigation Measure(s)

Implementation of the following mitigation measure would reduce the above impact to a *less-than-significant* level.

4.1-10 *Prior to approval of the final improvement plans, the project applicant shall obtain a Tree Removal Permit from the City of Petaluma Community Development Department. In addition, all protected trees to be removed, as identified in the Tree Protection and Removal Plan prepared by Urban Forestry Associates, Inc. for the proposed project, shall be replaced in accordance with the ratios established in the Tree Replacement Calculations table in the Tree Protection and Removal Plan. All trees to be preserved and protected, as detailed in Table 2 of the Tree Protection and Removal Plan shall be preserved in accordance with the recommendations established therein. Proof of compliance with the foregoing provisions shall be submitted for review and approval to the City of Petaluma Community Development Department.*

Cumulative Impacts and Mitigation Measures

As defined in Section 15355 of the CEQA Guidelines, "cumulative impacts" refers to two or more individual effects which, when considered together, are considerable, compound, or increase other environmental impacts. The individual effects may be changes resulting from a single project or a number of separate projects. The cumulative impact from several projects is the change in the environment that results from the incremental impact of the project when added to other closely related past, present, and reasonably foreseeable probable future projects.

For further detail related to the cumulative setting of the proposed project, refer to Chapter 5, Statutorily Required Sections, of this EIR.

4.1-11 Cumulative loss of habitat for special-status species. Based on the analysis below, the cumulative impact is *less than cumulatively considerable*.

The City of Petaluma's Planning Referral Area (planning area) comprises the cumulative setting for the proposed project. Within the City's planning area, the Urban Growth Boundary (UGB) area encompasses a total of 10,300 acres. In addition, the planning area includes the 113-square-mile Petaluma River watershed within Sonoma County and the City's Sphere of Influence (SOI) area. Within the City's UGB, most of the land in the lower reaches is developed and urbanized; however, areas along the Petaluma River and its tributaries provide valuable habitat for several special-status plant and animal species, as do grassland and oak savannah habitats along the western portion of the UGB. The planning area consists of the following eight

vegetation types: urban, rural/agricultural, grassland/oak savannah, fresh emergent wetlands, vernal pools/seasonal wetlands, riparian, northern coastal salt marsh, and brackish water marsh.

The City's General Plan EIR evaluated potential impacts that could occur through development facilitated by buildout of the General Plan planning area to a variety of special-status plant and wildlife species and other biological resources (see analyses under Impacts 3.8-1 through 3.8-12) and concluded that without compliance with applicable General Plan policies and federal, State, and local regulations, a significant impact could occur to various protected species and habitat. For example, the General Plan EIR evaluated potential impacts to special-status fish species under Impact 3.8-1 and found that if impacts on wetlands and other waters of the U.S. cannot be avoided, future developers of land within the planning area would be required to obtain Section 404 and 401 permits from the USACE and RWQCB, respectively, and comply with the provisions set forth therein. Developers whose projects could result in disturbance to stream corridors would also be required to obtain a Section 1600 LSAA from CDFW and comply with the provisions established therein. Thus, the City's General Plan EIR acknowledges that compliance with the foregoing requirements, as well as applicable General Plan policies (discussed above in the Regulatory Context section) would be necessary to ensure potential impacts to special-status fish species do not occur. Similarly, the General Plan EIR evaluated potential impacts to other species and biological resources (California brackishwater snail, salt marsh harvest mouse, special-status bat species, American badger, northwestern pond turtle, California tiger salamander, FYLF, CRLF, nesting raptor species, various bird species, oak woodlands and special-status plants, wetlands and other waters of the U.S., migratory corridors) and found that compliance with applicable policies and regulations would be necessary to prevent potential impacts from occurring. Thus, the General Plan EIR found that given the loss of existing habitat to accommodate protected species within the planning area, the potential cumulative impact would be significant without compliance with applicable policies and regulations.

With respect to the proposed project, as discussed above, the study area contains a variety of habitat types, including developed/disturbed, annual grassland, riparian, and seasonal wetlands. In addition, approximately 621 linear feet of the Creek flows through the study area within 0.22-acre of riverine habitat. Development of the proposed project could result in potential impacts to the foregoing areas. As discussed throughout this chapter, the above areas represent potential habitat for various special-status species listed in Table 4.1-2.

This chapter identifies mitigation to minimize potential adverse effects to habitat for special-status species. The mitigation measures ensure that preconstruction surveys are conducted for western bumble bee, FYLF, CRLF, northwestern pond turtle, nesting bird and raptor species protected under the MBTA and CFGC, and pallid bat; applicable agency notifications are completed and permits obtained in accordance with Section 1600 of the CFGC and Sections 404 and 401 of the CWA; and a Tree Removal Permit is obtained in accordance with Petaluma IZO Section 17.060 and mitigation trees are planted as specified in the Tree Protection and Removal Plan. Overall, with incorporation of the mitigation measures set forth herein, potential impact to biological resources would be reduced to a less-than-significant level. As such, the

proposed project would not result in substantial adverse effects to biological resources protected by CEQA.

The above discussion provides substantial evidence that, while the combined effects on biological resources resulting from approved/planned development throughout the City of Petaluma would be considered significant, the proposed project's incremental contribution to the significant cumulative effect would be reduced to a less-than-significant level with implementation of the mitigation measures required in this EIR.

Based on the above, although cumulative buildout of the City of Petaluma would result in a significant cumulative impact related to the loss of special-status species habitat, the proposed project, through the mitigation measures identified herein, would be required to comply with applicable policies and regulations to reduce the project's contribution to the significant impact to a ***less than cumulatively considerable*** level.

Mitigation Measure(s)

None required.

4.2 Greenhouse Gas Emissions

4.2 GREENHOUSE GAS EMISSIONS

4.2.1 INTRODUCTION

The Greenhouse Gas Emissions chapter of the EIR describes the potential impacts of the proposed project related to greenhouse gas (GHG) emissions and climate change. The chapter includes a discussion of the existing GHG setting, construction-related GHG impacts resulting from grading and equipment emissions, direct and indirect emissions associated with operations of the project, the impacts of these emissions on both the local and regional scale, and mitigation measures warranted to reduce or eliminate any identified significant impacts. The chapter is primarily based on information and guidance within the Bay Area Air Quality Management District's (BAAQMD's) California Environmental Quality Act Air Quality Guidelines (Air Quality Guidelines),[1] the City of Petaluma General Plan[2] and associated EIR,[3] and a Construction Health Risk and Greenhouse Gas Assessment prepared for the project by Illingworth & Rodkin, Inc. (see Appendix A of the Initial Study prepared for the proposed project [Appendix A of this EIR]).[4] It should also be noted that while not yet adopted, the City has released a draft Blueprint for Carbon Neutrality (draft Blueprint).[5] As such, further information was sourced from the draft Blueprint, as applicable.

4.2.2 EXISTING ENVIRONMENTAL SETTING

The following information provides an overview of the existing environmental setting in relation to climate change and GHG emissions within the proposed project area.

Background on GHG Emissions

GHGs are gases that absorb and emit radiation within the thermal infrared range, trapping heat in the Earth's atmosphere. Some GHGs occur naturally and are emitted into the atmosphere through both natural processes and human activities. Other GHGs are created and emitted solely through human activities. The principal GHGs that enter the atmosphere due to human activities are carbon dioxide (CO_2), methane (CH_4), nitrous oxide (N_2O), and fluorinated carbons. Other common GHGs include water vapor, ozone, and aerosols. The increase in atmospheric concentrations of GHG due to human activities has resulted in more heat being held within the atmosphere, which is the accepted explanation for global climate change.[6]

The primary GHG emitted by human activities is CO_2, with the next largest components being CH_4 and N_2O. A wide variety of human activities result in the emission of CO_2. Some of the largest sources of CO_2 include the burning of fossil fuels for transportation and electricity, industrial processes including fertilizer production, agricultural processing, and cement production. The

1 Bay Area Air Quality Management District. *California Environmental Quality Act Air Quality Guidelines.* April 2023.
2 City of Petaluma. *City of Petaluma General Plan 2025.* Adopted May 19, 2008.
3 City of Petaluma. *City of Petaluma General Plan 2025 Environmental Impact Report.* February 2008.
4 Illingworth & Rodkin, Inc. *Creekwood Subdivision Construction Health Risk and Greenhouse Gas Assessment, Petaluma, California*. July 11, 2022.
5 City of Petaluma. *Blueprint for Carbon Neutrality – Petaluma's Greenhouse Gas Reduction Plan.* September 2023.
6 U.S. Environmental Protection Agency. *Climate Change Indicators: Atmospheric Concentrations of Greenhouse Gases*. Available at: https://www.epa.gov/climate-indicators/climate-change-indicators-atmospheric-concentrations-greenhouse-gases. Accessed May 2024.

primary sources of CH_4 emissions include domestic livestock sources, decomposition of wastes in landfills, releases from natural gas systems, coal mine seepage, and manure management. The main human activities producing N_2O are agricultural soil management, fuel combustion in motor vehicles, nitric acid production, manure management, and stationary fuel combustion. Emissions of GHG by economic sector indicate that transportation-related activities account for the majority of U.S. emissions. Transportation is the largest single-source of GHG emissions, and energy generation is the second largest source, followed by industrial activities. The agricultural, commercial, and residential sectors account for the remainder of GHG emission sources.[7]

Emissions of GHG are partially offset by uptake of carbon and sequestration in trees, agricultural soils, landfilled yard trimmings and food scraps, and absorption of CO_2 by the Earth's oceans. Additional emission reduction measures for GHG could include, but are not limited to, compliance with local, State, or federal plans or strategies for GHG reductions, on-site and off-site mitigation, and project design features. Attainment concentration standards for GHGs have not been established by the federal or State government.

Global Warming Potential

Global warming potential (GWP) is one type of simplified index (based upon radiative properties) that can be used to estimate the potential future impacts of emissions of various gases. According to the United States Environmental Protection Agency (USEPA), the GWP of a gas, or aerosol, to trap heat in the atmosphere is the "cumulative radiative forcing effects of a gas over a specified time horizon resulting from the emission of a unit mass of gas relative to a reference gas." The reference gas for comparison is CO_2. GWP is based on a number of factors, including the heat-absorbing ability of each gas relative to that of CO_2, as well as the decay rate of each gas relative to that of CO_2. The GWP of each gas is determined by comparing the radiative forcing associated with emissions of that gas versus the radiative forcing associated with emissions of the same mass of CO_2, for which the GWP is set at one. Methane gas, for example, is estimated by the USEPA to have a comparative global warming potential 25 times greater than that of CO_2, as shown in Table 4.2-1.

As shown in the table, at the extreme end of the scale, sulfur hexafluoride is estimated to have a comparative GWP 22,800 times that of CO_2. The atmospheric lifetimes of such GHGs are estimated by the USEPA to vary from 50 to 200 years for CO_2, to 50,000 years for tetrafluoromethane (CF_4). Longer atmospheric lifetimes allow GHG to buildup in the atmosphere; therefore, longer lifetimes correlate with the GWP of a gas. The common indicator for GHG is expressed in terms of metric tons of CO_2 equivalents ($MTCO_2e$), which is calculated based on the GWP for each pollutant.

Effects of Global Climate Change

Globally, climate change has the potential to affect numerous environmental resources through uncertain impacts related to future air temperatures and precipitation patterns. The Intergovernmental Panel on Climate Change's (IPCC) Climate Change 2021: The Physical Science Basis report indicated that warming of the climate system is unequivocal, and since the 1950s, many of the observed changes are unprecedented over decades to millennia.[8]

[7] U.S. Environmental Protection Agency. *Sources of Greenhouse Gas Emissions*. Available at: https://www.epa.gov/ghgemissions/sources-greenhouse-gas-emissions. Accessed May 2024.

[8] Intergovernmental Panel on Climate Change. *Climate Change 2021: The Physical Science Basis Summary for Policymakers*. Available at: https://www.ipcc.ch/report/ar6/wg1/downloads/report/IPCC_AR6_WGI_SPM.pdf. Accessed May 2024.

Table 4.2-1
GWPs and Atmospheric Lifetimes of Select GHGs

Gas	Atmospheric Lifetime (years)	GWP (100 year time horizon)
Carbon Dioxide (CO_2)	50-200[1]	1
Methane (CH_4)	12	25
Nitrous Oxide (N_2O)	114	298
Hydrofluorocarbon (HFC)-23	270	14,800
HFC-134a	14	1,430
HFC-152a	1.4	124
PFC: Tetrafluoromethane (CF_4)	50,000	7,390
PFC: Hexafluoroethane (C_2F_6)	10,000	12,200
Sulfur Hexafluoride (SF_6)	3,200	22,800

1. For a given amount of CO_2 emitted, some fraction of the atmospheric increase in concentration is quickly absorbed by the oceans and terrestrial vegetation, some fraction of the atmospheric increase will only slowly decrease over a number of years, and a small portion of the increase will remain for many centuries or more.

Source: U.S. Environmental Protection Agency. Inventory of U.S. Greenhouse Gas Emissions and Sinks: 1990-2019 [Table 1-2]. April 14, 2021.

Signs that global climate change has occurred include:

- Warming of the atmosphere and ocean;
- Diminished amounts of snow and ice;
- Rising sea levels; and
- Ocean acidification.

Although climate change is driven by global atmospheric conditions, climate change impacts are felt locally. A scientific consensus confirms that climate change is already affecting California. The Office of Environmental Health Hazard Assessment (OEHHA) identified various indicators of climate change in California, which are scientifically based measurements that track trends in various aspects of climate change. Many indicators reveal discernable evidence that climate change is occurring in California and is having significant, measurable impacts in the State. Changes in the State's climate have been observed, including:

- An increase in annual average air temperature with record warmth occurring in recent years;
- More frequent extreme heat events;
- More extreme drought;
- A decline in winter chill; and
- An increase in variability of statewide precipitation.

Warming temperatures and changing precipitation patterns have altered California's physical systems—the ocean, lakes, rivers, and snowpack—upon which the State depends. Winter snowpack and spring snowmelt runoff from the Sierra Nevada and southern Cascade Mountains provide approximately one-third of the State's annual water supply. Impacts of climate on physical systems have been observed, such as high variability of snow-water content (i.e., amount of water stored in snowpack), decrease in snowmelt runoff, glacier change (loss in area), rise in sea levels, increase in average lake water temperature and coastal ocean temperature, and a decrease in dissolved oxygen in coastal waters. Impacts of climate change on biological systems, including

humans, wildlife, and vegetation, have also been observed, including climate change impacts on terrestrial, marine, and freshwater ecosystems.

According to the City's draft Blueprint, projected climate change hazards within the City include sea level rise, flooding, severe weather such as drought and extreme precipitation, temperature increases, and wildfire.

In the City of Petaluma, specifically, the number of extreme heat days (defined as days where temperatures exceed 98 degrees Fahrenheit) could reach an average of 19 days per year, as compared to the three days per year that occur now on average. While California may not see the average annual precipitation changing significantly in the next 50 to 75 years, precipitation could likely be delivered in more intense storms and within a shorter wet season. For example, the 30-year average length of dry spell in the City is 118 days. By the end of the century, the average dry spell could be up to 130 days.[9]

Existing Project-Area GHGs

The project site is located in the northern portion of the nine-county San Francisco Bay Area Air Basin (SFBAAB) and is within the jurisdictional boundaries of the BAAQMD. The SFBAAB consists of coastal mountain ranges, inland valleys, and bays.

According to the City of Petaluma GHG Emissions Inventory, the primary source of GHG emissions in the City is from on-road transportation, which makes up approximately 57 percent of all GHG emissions in the City, followed by energy usage at 36 percent, solid waste at five percent, and off-road equipment at two percent. Water and wastewater combined accounted for less than one percent total of the City's GHG emissions. Overall, the City of Petaluma emits approximately 460,355 $MTCO_2e$ annually.[10]

While the majority of the project site consists of undeveloped lands covered in grasses, one existing residence is currently located within the 280 Casa Grande Road (APN 017-040-016) parcel, and an additional residence, as well as several outbuildings, a landscaped backyard, and a small orchard, are located within the 270 Casa Grande Road (APN 017-040-051) parcel. Therefore, GHG emissions currently associated with the project site include emissions primarily generated by transportation to and from the existing on-site residences, as well as energy use associated with the residences.

4.2.3 REGULATORY CONTEXT

GHG emissions are monitored and regulated through the efforts of various international, federal, State, and local government agencies. Agencies work jointly and individually to reduce GHG emissions through legislation, regulations, planning, policy, education, and a variety of programs. The agencies responsible for monitoring or reducing GHG emissions are discussed below.

Federal Regulations

The following are the federal regulations relevant to GHG emissions.

[9] Cal-Adapt. *Local Climate Change Snapshot for Petaluma, California*. Available at: https://cal-adapt.org/tools/local-climate-change-snapshot/. Accessed May 2024.

[10] City of Petaluma. *2018 Community Greenhouse Gas Inventory*. October 2021.

Federal Vehicle Standards

In 2010, President Obama issued a memorandum directing the Department of Transportation, Department of Energy, USEPA, and National Highway Traffic Safety Administration (NHTSA) to establish additional standards regarding fuel efficiency and GHG reduction, clean fuels, and advanced vehicle infrastructure. In response to this directive, the USEPA and NHTSA proposed stringent, coordinated federal GHG and fuel economy standards for model years 2017 through 2025 light-duty vehicles. The proposed standards were projected to achieve emission rates as low as 163 grams of CO_2 per mile by model year 2025 on an average industry fleet-wide basis, which is equivalent to 54.5 miles per gallon if the foregoing emissions level was achieved solely through fuel efficiency. The final rule was adopted in 2012 for model years 2017 through 2021 (77 FR 62624–63200), and NHTSA intended to set standards for model years 2022 through 2025 in future rulemaking.

In August 2016, the USEPA and NHTSA announced the adoption of the phase two program related to the fuel economy and GHG standards for medium- and heavy-duty trucks. The phase two program would have applied to vehicles with model years 2018 through 2027 for certain trailers, and model years 2021 through 2027 for semi-trucks, large pickup trucks, vans, and all types of sizes of buses and work trucks. The final standards were expected to lower CO_2 emissions by approximately 1.1 billion MT, and reduce oil consumption by up to two billion barrels over the lifetime of the vehicles sold under the program.

In August 2018, the USEPA and NHTSA proposed to amend certain fuel economy and GHG standards for passenger cars and light trucks and establish new, less-stringent standards for model years 2021 through 2026. Compared to maintaining the post-2020 standards that were previously in place, the 2018 proposal would increase U.S. fuel consumption by approximately 0.5 million barrels per day, and would impact the global climate by 3/1000th of one degree Celsius by 2100. California and other states stated their intent to challenge federal actions that would delay or eliminate GHG reduction measures, and committed to cooperating with other countries to implement global climate change initiatives.

On September 27, 2019, the USEPA and NHTSA published the Safer Affordable Fuel-Efficient (SAFE) Vehicles Rule Part One: One National Program (84 FR 51,310), which became effective November 26, 2019. The Part One Rule revokes California's authority to set its own GHG emissions standards and set zero-emission-vehicle mandates in California. On March 31, 2020, the USEPA and NHTSA issued the Part Two Rule, which sets CO_2 emissions standards and corporate average fuel economy standards for passenger vehicles and light-duty trucks for model years 2021 through 2026. On January 20, 2021, an Executive Order (EO) was issued on Protecting Public Health and the Environment and Restoring Science to Tackle the Climate Crisis, which includes review of the Part One Rule by April 2021 and review of the Part Two Rule by July 2021. In response to the Part One Rule, in December 2021, the U.S. Department of Transportation withdrew its portions of the "SAFE I" rule. As a result, states are now allowed to issue their own GHG emissions standards and zero-emissions vehicle mandates.[11] In addition, the Part Two Rule was adopted to revise the existing national GHG emission standards for passenger cars and light trucks through model year 2026. These standards are the strongest

[11] National Highway Traffic Safety Administration. *In Removing Major Roadblock to State Action on Emissions Standards, U.S. Department of Transportation Advances Biden-Harris Administration's Climate and Jobs Goals.* Available at: https://www.nhtsa.gov/press-releases/cafe-preemption-final-rule. Accessed May 2024.

vehicle emissions standards ever established for the light-duty vehicle sector and will result in avoiding more than three billion tons of GHG emissions through 2050.[12]

State Regulations

The statewide GHG emissions regulatory framework is summarized below. The following text describes EOs, legislation, regulations, and other plans and policies that would directly or indirectly reduce GHG emissions and/or address climate change issues. The following discussion does not include an exhaustive list of applicable regulations; rather, only the most prominent and applicable California legislation related to GHG emissions and climate change is included below.

State Climate Change Targets

California has taken a number of actions to address climate change, including EOs, legislation, and California Air Resources Board (CARB) plans and requirements, which are summarized below.

Executive Order S-3-05

EO S-3-05 (June 2005) established California's GHG emissions reduction targets and laid out responsibilities among the State agencies for implementing the EO and for reporting on progress toward the targets. The EO established the following targets:

- By 2010, reduce GHG emissions to 2000 levels;
- By 2020, reduce GHG emissions to 1990 levels; and
- By 2050, reduce GHG emissions to 80 percent below 1990 levels.

EO S-3-05 also directed the California Environmental Protection Agency (CalEPA) to report biannually on progress made toward meeting the GHG targets and the impacts to California due to global warming, including impacts to water supply, public health, agriculture, the coastline, and forestry. The Climate Action Team was formed, which subsequently issues yearly GHG reduction report cards to track the progress of emission reduction strategies. Each report card documents the effectiveness of measures to reduce GHG in California, presents GHG emissions from State agencies' operations, and shows reductions that have occurred in the two years prior to publication.

Assembly Bill 32

In furtherance of the goals established in EO S-3-05, the Legislature enacted Assembly Bill (AB) 32 (Núñez and Pavley). The bill is referred to as the California Global Warming Solutions Act of 2006 (September 27, 2006). AB 32 provided initial direction on creating a comprehensive, multi-year program to limit California's GHG emissions at 1990 levels by 2020 and initiate the transformations required to achieve the State's long-range climate objectives. AB 32 also required that the CARB prepare a "scoping plan" for achieving the maximum technologically feasible and cost-effective GHG emission reductions by 2020. The CARB's Scoping Plan is described in further detail below.

[12] U.S. Environmental Protection Agency. *Final Rule to Revise Existing National GHG Emissions Standards for Passenger Cars and Light Trucks Through Model Year 2026*. Available at: https://www.epa.gov/regulations-emissions-vehicles-and-engines/final-rule-revise-existing-national-ghg-emissions. Accessed May 2024.

Executive Order B-30-15

EO B-30-15 (April 2015) identified an interim GHG reduction target in support of targets previously identified under EO S-3-05 and AB 32. EO B-30-15 set an interim target goal of reducing GHG emissions to 40 percent below 1990 levels by 2030 to keep California on its trajectory toward meeting or exceeding the long-term goal of reducing GHG emissions to 80 percent below 1990 levels by 2050 as set forth in EO S-3-05. To facilitate achieving this goal, EO B-30-15 called for an update to the CARB's Climate Change Scoping Plan: A Framework for Change (Scoping Plan) to express the 2030 target in terms of million metric tons (MMT) CO_2e. CARB's Scoping Plan is discussed in further detail below. The EO also called for State agencies to continue to develop and implement GHG emission reduction programs in support of the reduction targets.

Senate Bill 32 and Assembly Bill 197

Senate Bill (SB) 32 and AB 197 (enacted in 2016) are companion bills. SB 32 codified the 2030 emissions reduction goal of EO B-30-15 by requiring CARB to ensure that statewide GHG emissions are reduced to 40 percent below 1990 levels by 2030. AB 197 established the Joint Legislative Committee on Climate Change Policies, consisting of at least three members of the Senate and three members of the Assembly, to provide ongoing oversight over implementation of the State's climate policies. AB 197 also added two members of the Legislature to the Board as non-voting members; requires CARB to make available and update (at least annually via the CARB's website) emissions data for GHGs, criteria air pollutants, and toxic air contaminants (TACs) from reporting facilities; and requires CARB to identify specific information for GHG emissions reduction measures when updating the Scoping Plan.

CARB's Climate Change Scoping Plan

One specific requirement of AB 32 is for CARB to prepare a scoping plan for achieving the maximum technologically feasible and cost-effective GHG emission reductions by 2020 (Health and Safety Code Section 38561[a]), and to update the Scoping Plan at least once every five years. In 2008, CARB approved the first Scoping Plan. The Scoping Plan included a mix of recommended strategies that combined direct regulations, market-based approaches, voluntary measures, policies, and other emission reduction programs calculated to meet the 2020 statewide GHG emission limit and initiate the transformations needed to achieve the State's long-range climate objectives. The key elements of the Scoping Plan include the following:

1. Expanding and strengthening existing energy efficiency programs as well as building and appliance standards;
2. Achieving a statewide renewable energy mix of 33 percent;
3. Developing a California cap-and-trade program that links with other Western Climate Initiative partner programs to create a regional market system and caps sources contributing 85 percent of California's GHG emissions;
4. Establishing targets for transportation-related GHG emissions for regions throughout California, and pursuing policies and incentives to achieve those targets;
5. Adopting and implementing measures pursuant to existing State laws and policies, including California's clean car standards, goods movement measures, and the Low Carbon Fuel Standard (LCFS) (17 California Code of Regulations (CCR), Section 95480 et seq.); and
6. Creating targeted fees, including a public goods charge on water use, fees on high GWP gases, and a fee to fund the administrative costs of the State's long-term commitment to AB 32 implementation.

The Scoping Plan also identified local governments as essential partners in achieving California's goals to reduce GHG emissions because they have broad influence and, in some cases, exclusive authority over activities that contribute to significant direct and indirect GHG emissions through their planning and permitting processes, local ordinances, outreach and education efforts, and municipal operations. Specifically, the Scoping Plan encouraged local governments to adopt a reduction goal for municipal operations and for community emissions to reduce GHGs by approximately 15 percent from 2008 levels by 2020. Many local governments developed community-scale local GHG reduction plans based on this Scoping Plan recommendation.

In 2014, CARB approved the first update to the Scoping Plan. The First Update to the Climate Change Scoping Plan: Building on the Framework (First Update) defined the State's GHG emission reduction priorities for the next five years and laid the groundwork to start the transition to the post-2020 goals set forth in EO S-3-05 and EO B-16-2012. The First Update concluded that California is on track to meet the 2020 target but recommended a 2030 mid-term GHG reduction target be established to ensure a continuation of action to reduce emissions. The First Update recommended a mix of technologies in key economic sectors to reduce emissions through 2050, including energy demand reduction through efficiency and activity changes; large-scale electrification of on-road vehicles, buildings, and industrial machinery; decarbonizing electricity and fuel supplies; and the rapid market penetration of efficient and clean energy technologies. As part of the First Update, CARB recalculated the State's 1990 emissions level using more recent GWPs identified by the IPCC, from 427 MMT CO_2e to 431 MMT CO_2e.

In 2015, as directed by EO B-30-15, CARB began working on an update to the Scoping Plan to incorporate the 2030 target of 40 percent below 1990 levels by 2030 to keep California on a trajectory toward meeting or exceeding the long-term goal of reducing GHG emissions to 80 percent below 1990 levels by 2050, as set forth in EO S-3-05. In summer 2016, the Legislature affirmed the importance of addressing climate change through passage of SB 32 (Pavley, Chapter 249, Statutes of 2016).

In December 2017, the Scoping Plan was once again updated. The 2017 Scoping Plan built upon the successful framework established in the initial Scoping Plan and First Update, while identifying new, technologically feasible and cost-effective strategies that would serve as the framework to achieve the 2030 GHG target as established by SB 32 and define the State's climate change priorities to 2030 and beyond. For local governments, the 2017 Scoping Plan replaced the initial Scoping Plan's 15 percent reduction goal with a recommendation to aim for a communitywide goal of no more than six $MTCO_2e$ per capita by 2030, and no more than two $MTCO_2e$ per capita by 2050, which are consistent with the State's long-term goals. The 2017 Scoping Plan recognized the benefits of local government GHG planning (e.g., through Climate Action Plans [CAPs]) and provided more information regarding tools to support those efforts. The 2017 Scoping Plan also recognized the CEQA streamlining provisions for project-level review where a legally adequate CAP exists.

When discussing project-level GHG emissions reduction actions and thresholds in the context of CEQA, the 2017 Scoping Plan stated that "achieving no net additional increase in GHG emissions, resulting in no contribution to GHG impacts, is an appropriate overall objective for new development" for project-level CEQA analysis, but also recognized that such a standard may not be appropriate or feasible for every development project. The 2017 Scoping Plan further provided that "the inability of a project to mitigate its GHG emissions to net zero does not imply the project results in a substantial contribution to the cumulatively significant environmental impact of climate change under CEQA."

The most recent update to the Scoping Plan, the 2022 Scoping Plan for Achieving Carbon Neutrality (2022 Scoping Plan Update) was adopted by the CARB in December 2022.[13] The 2022 Scoping Plan Update builds upon previous efforts to reduce GHG emissions and is designed to continue to shift the California economy away from dependence on fossil fuels. The 2022 Scoping Plan Update, the most comprehensive and far-reaching Scoping Plan developed to date, identifies a technologically feasible and cost-effective path to achieve carbon neutrality by 2045 while also assessing the progress California is making toward reducing its GHG emissions by at least 40 percent below 1990 levels by 2030, as called for in SB 32 and laid out in the 2017 Scoping Plan. The 2030 target is an interim but important stepping stone along the critical path to the broader goal of deep decarbonization by 2045. The relatively longer path assessed in the Scoping Plan incorporates, coordinates, and leverages many existing and ongoing efforts to reduce GHGs and air pollution, while identifying new clean technologies and energy. Given the focus on carbon neutrality, the Scoping Plan also includes discussion for the first time of the Natural and Working Lands (NWL) sectors as both sources of emissions and carbon sinks.

The 2022 Scoping Plan Update lays out a path to achieve targets for carbon neutrality and reduce GHG emissions by 85 percent below 1990 levels by 2045, as directed by AB 1279. The actions and outcomes in the plan will achieve significant reductions in fossil fuel combustion by deploying clean technologies and fuels, further reductions in short-lived climate pollutants, support for sustainable development, increased action on natural and working lands to reduce emissions and sequester carbon, and the capture and storage of carbon.

CARB's Regulations for the Mandatory Reporting of GHG Emissions

CARB's Regulation for the Mandatory Reporting of GHG Emissions (17 CCR 95100–95157) incorporated by reference certain requirements that the USEPA promulgated in its Final Rule on Mandatory Reporting of GHGs (40 Code of Federal Regulations [CFR] Part 98). In general, entities subject to the Mandatory Reporting Regulation that emit more than 10,000 $MTCO_2e$ per year are required to report annual GHGs through the California Electronic GHG Reporting Tool. Certain sectors, such as refineries and cement plants, are required to report regardless of emission levels. Entities that emit more than the 25,000 $MTCO_2e$ per year threshold are required to have their GHG emission report verified by a CARB-accredited third party.

Senate Bill 1383

SB 1383 (enacted in 2016) establishes specific targets for the reduction of short-lived climate pollutants (SLCPs) (40 percent below 2013 levels by 2030 for CH_4 and hydrofluorocarbons (HFCs), and 50 percent below 2013 levels by 2030 for anthropogenic black carbon), and provides direction for reductions from dairy and livestock operations and landfills. Accordingly, CARB adopted its SLCP Reduction Strategy in March 2017. The SLCP Reduction Strategy establishes a framework for the statewide reduction of emissions of black carbon, CH_4, and fluorinated gases.

Executive Order B-55-18/Assembly Bill 1279

EO B-55-18 (September 2018) establishes a statewide policy for California to achieve carbon neutrality as soon as possible, and no later than 2045, and achieve and maintain net-negative emissions thereafter. The goal is an addition to the existing statewide targets of reducing the State's GHG emissions. CARB intends to work with relevant State agencies to ensure that future scoping plan updates identify and recommend measures to achieve the carbon neutrality goal.

[13] California Air Resources Board. *2022 Scoping Plan for Achieving Carbon Neutrality*. November 16, 2022.

On September 16, 2022, AB 1279, also known as the California Climate Crisis Act, codified the carbon neutrality goal established by EO B-55-18.

Mobile Sources

The following regulations relate to the control of GHG emissions from mobile sources. Mobile sources include both on-road vehicles and off-road equipment.

Assembly Bill 1493

AB 1493 (Pavley) (July 2002) was enacted in response to the transportation sector accounting for more than half of California's CO_2 emissions. AB 1493 required CARB to set GHG emission standards for passenger vehicles, light-duty trucks, and other vehicles determined by the State board to be vehicles that are primarily used for non-commercial personal transportation in the State. The bill required that CARB set GHG emission standards for motor vehicles manufactured in 2009 and all subsequent model years. CARB adopted the standards in September 2004. When fully phased in, the near-term (2009–2012) standards would result in a reduction of approximately 22 percent of GHG emissions compared to the emissions from the 2002 fleet, and the mid-term (2013–2016) standards would result in a reduction of approximately 30 percent.

Senate Bill 375

SB 375 (Steinberg) (September 2008) addresses GHG emissions associated with the transportation sector through regional transportation and sustainability plans. SB 375 requires CARB to adopt regional GHG reduction targets for the automobile and light-truck sector for 2020 and 2035, and to update those targets every eight years. SB 375 requires the State's 18 regional metropolitan planning organizations to prepare a sustainable communities strategy as part of their Regional Transportation Plans that will achieve the GHG reduction targets set by CARB. If a metropolitan planning organization is unable to devise a sustainable communities strategy to achieve the GHG reduction target, the metropolitan planning organization must prepare an alternative planning strategy demonstrating how the GHG reduction target would be achieved through alternative development patterns, infrastructure, or additional transportation measures or policies.

Pursuant to California Government Code Section 65080(b)(2)(K), a sustainable communities strategy does not (1) regulate the use of land, (2) supersede the land use authority of cities and counties, or (3) require that a city's or county's land use policies and regulations, including those in a general plan, be consistent with the sustainable community strategy. Nonetheless, SB 375 makes regional and local planning agencies responsible for developing those strategies as part of the federally required metropolitan transportation planning process and the State-mandated housing element process.

Advanced Clean Cars Program and Zero-Emissions Vehicle Program

The Advanced Clean Cars program (January 2012) is an emissions-control program for model years 2015 through 2025. The program combines the control of smog- and soot-causing pollutants and GHG emissions into a single coordinated package. The package includes elements to reduce smog-forming pollution, reduce GHG emissions, promote clean cars, and provide the fuels for clean cars. To improve air quality, CARB has implemented new emission standards to reduce smog-forming emissions beginning with 2015 model year vehicles. By 2025, implementation of the rule is anticipated to reduce emissions of smog-forming pollution from cars by 75 percent compared to the average new car sold in 2015. To reduce GHG emissions, CARB, in conjunction with the USEPA and NHTSA, adopted GHG standards for model year 2017 to 2025

vehicles; the standards were estimated to reduce GHG emissions by 34 percent by 2025. The zero-emissions vehicle program acts as the focused technology of the Advanced Clean Cars program by requiring manufacturers to produce increasing numbers of zero-emissions vehicles and plug-in hybrid electric vehicles (EVs) in the 2018 to 2025 model years.

Executive Order B-16-12

EO B-16-12 (March 2012) required that State entities under the governor's direction and control support and facilitate the rapid commercialization of zero-emissions vehicles. The order directed CARB, California Energy Commission (CEC), California Public Utilities Commission (CPUC), and other relevant agencies to work with the Plug-In Electric Vehicle Collaborative and the California Fuel Cell Partnership to establish benchmarks to help achieve goals by 2015, 2020, and 2025. On a statewide basis, EO B-16-12 established a target reduction of GHG emissions from the transportation sector equaling 80 percent less than 1990 levels by 2050. EO B-16-12 did not apply to vehicles that have special performance requirements necessary for the protection of the public safety and welfare.

Assembly Bill 1236

AB 1236 (October 2015) (Chiu) required a city, county, or city and county to approve an application for the installation of EV charging stations, as defined, through the issuance of specified permits unless the city or county makes specified written findings based on substantial evidence in the record that the proposed installation would have a specific, adverse impact upon the public health or safety, and a feasible method to satisfactorily mitigate or avoid the specific, adverse impact does not exist. The bill provided for appeal of that decision to the planning commission, as specified. AB 1236 required EV charging stations to meet specified standards. The bill required a city, county, or city and county with a population of 200,000 or more residents to adopt an ordinance, by September 30, 2016, that created an expedited and streamlined permitting process for EV charging stations. The bill also required a city, county, or city and county with a population of less than 200,000 residents to adopt the ordinance by September 30, 2017.

Water

The following regulations relate to the conservation of water, which reduces GHG emissions related to electricity demands from the treatment and transportation of water.

Executive Order B-29-15

In response to a drought in California, EO B-29-15 (April 2015) set a goal of achieving a statewide reduction in potable urban water usage of 25 percent relative to water use in 2013. The term of the EO extended through February 28, 2016, although many of the directives subsequently became permanent water-efficiency standards and requirements. The EO includes specific directives that set strict limits on water usage in the State. In response to EO B-29-15, the California Department of Water Resources modified and adopted a revised version of the Model Water Efficient Landscape Ordinance (MWELO) that, among other changes, significantly increases the requirements for landscape water use efficiency, and broadens the applicability of the ordinance to include new development projects with smaller landscape areas. The City of Petaluma's landscape water use efficiency standards are included in Section 15.17.050 of the Petaluma Municipal Code (PMC).

Solid Waste

The following regulations relate to the generation of solid waste and means to reduce GHG emissions from solid waste produced within the State.

Assembly Bill 939 and Assembly Bill 341

In 1989, AB 939, known as the Integrated Waste Management Act (California Public Resources Code [PRC] Sections 40000 et seq.), was passed because of the observed increase in waste stream and the decrease in landfill capacity.

AB 341 (Chapter 476, Statutes of 2011 [Chesbro]) amended the California Integrated Waste Management Act of 1989 to include a provision declaring that the policy goal of the State is that not less than 75 percent of solid waste generated be source-reduced, recycled, or composted by 2020, and annually thereafter. In addition, AB 341 required the California Department of Resources Recycling and Recovery to develop strategies to achieve the State's policy goal.

Other State Actions

The following State regulations are broadly related to GHG emissions.

Senate Bill 97

SB 97 (Dutton) (August 2007) directed the Governor's Office of Planning and Research (OPR) to develop guidelines under CEQA for the mitigation of GHG emissions. In 2008, the Governor's OPR issued a technical advisory as interim guidance regarding the analysis of GHG emissions in CEQA documents. The advisory indicated that the lead agency should identify and estimate a project's GHG emissions, including those associated with vehicular traffic, energy consumption, water usage, and construction activities. The advisory further recommended that the lead agency determine the significance of the impacts and impose all mitigation measures necessary to reduce GHG emissions to a level that is less than significant. The California Natural Resource Agency (CNRA) adopted the CEQA Guidelines amendments in December 2009, and the amended CEQA Guidelines became effective in March 2010.

Under the amended CEQA Guidelines, a lead agency has the discretion to determine whether to use a quantitative or qualitative analysis, or apply performance standards to determine the significance of GHG emissions resulting from a particular project (14 CCR 15064.4[a]). The CEQA Guidelines require a lead agency to consider the extent to which the project complies with regulations or requirements adopted to implement a statewide, regional, or local plan for the reduction or mitigation of GHG emissions (14 CCR 15064.4[b]). The CEQA Guidelines also allow a lead agency to consider feasible means of mitigating the significant effects of GHG emissions, including reductions in emissions through the implementation of project features or off-site measures. The adopted amendments do not establish a GHG emission threshold, instead allowing a lead agency to develop, adopt, and apply the lead agency's own thresholds of significance or those developed by other agencies or experts. CNRA acknowledges that a lead agency may consider compliance with regulations or requirements implementing AB 32 in determining the significance of a project's GHG emissions.

With respect to GHG emissions, the CEQA Guidelines state that lead agencies should "make a good faith effort, to the extent possible on scientific and factual data, to describe, calculate or estimate" GHG emissions (14 CCR 15064.4[a]). The CEQA Guidelines note that an agency may identify emissions by either selecting a "model or methodology" to quantify the emissions or by relying on "qualitative analysis or other performance-based standards" (14 CCR 15064.4[a]). Section 15064.4(b) states that the lead agency should consider the following when assessing the significance of impacts from GHG emissions on the environment: (1) the extent to which a project may increase or reduce GHG emissions as compared to the existing environmental setting; (2) whether the project emissions exceed a threshold of significance that the lead agency determines

applies to the project; and (3) the extent to which the project complies with regulations or requirements adopted to implement a statewide, regional, or local plan for the reduction or mitigation of GHG emissions (14 CCR 15064.4[b]).

Executive Order S-13-08

EO S-13-08 (November 2008) is intended to hasten California's response to the impacts of global climate change, particularly sea-level rise. Therefore, the EO directs State agencies to take specified actions to assess and plan for such impacts. The final 2009 California Climate Adaptation Strategy report was issued in December 2009, and an update, Safeguarding California: Reducing Climate Risk, followed in July 2014. To assess the State's vulnerability, the report summarizes key climate change impacts to the State for the following areas: agriculture, biodiversity and habitat, emergency management, energy, forestry, ocean and coastal ecosystems and resources, public health, transportation, and water. Issuance of the Safeguarding California: Implementation Action Plans followed in March 2016. In January 2018, the CNRA released the Safeguarding California Plan: 2018 Update, which communicates current and needed actions that the State government should take to build climate change resiliency.

Local Regulations

The following are the regulatory agencies and regulations pertinent to the proposed project on a local level.

Plan Bay Area 2050

Plan Bay Area 2050 (PBA 50) is a long-range transportation and land use/housing strategy through 2050 for the San Francisco Bay Area, designed to reduce GHG emissions from the mobile sector.[14] PBA 50 was approved by the Metropolitan Transportation Commission (MTC) and Association of Bay Area Governments (ABAG) on October 21, 2021. PBA 50 also meets all State and federal requirements for a Regional Transportation Plan and Sustainable Communities Strategy.

PBA 50 provides an outline for growth in four focus areas: Priority Development Areas (PDA); Transit-Rich Areas; Priority Production Areas; and High-Resource Areas. The project site is not located within a PDA. According to the PBA 50 Forecasting and Modeling Appendix, by 2050, housing in Sonoma County is projected to increase by 32,000 households, or 17 percent, and jobs are projected to increase by 251,000, or 17 percent.[15]

Local jurisdictions seeking to implement development projects consistent with PBA 50 are eligible for funding for PDA planning and transportation projects. In addition, jurisdictions have the option to streamline the development process for projects consistent with PBA 50 and meet the other criteria included in SB 375.

Bay Area Air Quality Management District

The BAAQMD is the public agency entrusted with regulating air pollution in the nine counties that surround San Francisco Bay: Alameda, Contra Costa, Marin, Napa, San Francisco, San Mateo, Santa Clara, southwestern Solano, and southern Sonoma counties.

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14 Association of Bay Area Governments and Metropolitan Transportation Commission. *Plan Bay Area 2050: Final.* October 2021.

15 Association of Bay Area Governments and Metropolitan Transportation Commission. *Forecasting and Modeling Report, Appendix 1: Growth Pattern*. October 2021.

The BAAQMD has prepared Air Quality Guidelines, which are intended to be used for assistance with CEQA review. The BAAQMD Air Quality Guidelines include thresholds of significance and project screening levels for GHGs, as well as methods to assess and mitigate project-level and plan-level impacts. The most recent BAAQMD Air Quality Guidelines were released in April 2023.

Sonoma County Regional Climate Action Plan

The Sonoma County Regional CAP,[16] developed in 2016, includes GHG emission reduction measures for the City of Petaluma, in combination with other cities within the County. The regional CAP is an advisory document that the City uses to assist in achieving reduction of GHG emissions. Development projects within the City of Petaluma are encouraged to comply with the intent of the CAP and realize GHG reductions through voluntary application of reduction measures. The reduction measures are categorized by goals for State and Regional Measures and then by Local Measures.

City of Petaluma General Plan

The following goals and policies from the City of Petaluma General Plan related to GHG emissions are applicable to the proposed project:

Goal 4-G-6 Greenhouse Gas Emissions: Reduce the contribution to greenhouse gases from existing sources and minimize the contribution of greenhouse gases from new construction and sources.

- Policy 4-P-24 Comply with AB 32 and its governing regulations to the full extent of the City's jurisdictional authority.
- Policy 4-P-25 To the full extent of the City's jurisdictional authority, implement any additional adopted State legislative or regulatory standards, policies and practices designed to reduce greenhouse gas emissions, as those measures are developed.
- Policy 4-P-26 Implement all measures identified in the municipal Climate Action Plan to meet the municipal target set in Resolution 2005-118 (20% below 2000 levels by 2010).
- Policy 4-P-30 Continue to monitor new technology and innovative sustainable design practices for applicability to ensure future development minimizes or eliminates the use of fossil fuel and GHG-emitting energy consumption.

Petaluma Municipal Code Chapter 17.09

PMC Chapter 17.09 requires that all newly constructed buildings and substantial building alterations satisfy the definition of an all-electric building and/or have an all-electric design, except as otherwise provided therein. Exceptions include additions and alterations to existing buildings, except for substantial building alterations; the use of portable propane appliances outside of the building envelope, such as for outdoor cooking and outdoor heating appliances; essential services buildings that are electric-ready; back-up power facilities for essential services buildings; and

[16] Regional Climate Protection Authority. *Sonoma County Regional Climate Action Plan.* July 2016.

development projects that obtained vested rights prior to the effective date of the chapter (May 3, 2021). In addition, as detailed in PMC Section 17.09.050, the chief building official may grant a permit in response to an application to construct a new mixed-fuel building, notwithstanding the requirements of PMC Section 17.09.030, if the chief building official, in his or her sole discretion, determines in writing, based on sufficient information submitted by the permit applicant, that the application qualifies for a waiver, in accordance with the following:

1. The proposed newly constructed building cannot satisfy all-electric building or all-electric design prescriptive requirements based on the newly constructed building's intended use(s) when compared to the same building and intended use(s) modeled with natural gas under the California Energy Code; or
2. The proposed newly constructed building cannot satisfy all-electric building or all-electric design performance requirements based on the newly constructed building's intended use(s) when compared to the same building and intended uses modeled with natural gas using commercially available technology and an approved calculation method under the California Energy Code; and
3. The installation of natural gas piping systems, fixtures and/or infrastructure in the proposed newly constructed building is strictly limited to the system(s) and/or area(s) of the building regarding which the chief building official has determined that meeting all-electric building and/or all-electric design requirements is infeasible; and
4. The proposed newly constructed building is electric-ready.

Financial considerations are not a basis for determining the infeasibility for a proposed building to meet all-electric building and/or all-electric design requirements included in PMC Chapter 17.09.

City of Petaluma Blueprint for Carbon Neutrality

In 2019 the City of Petaluma declared a Climate Emergency and established a Climate Action Commission to inform City action towards climate neutrality. Over the course of 2020, the Climate Action Commission and City staff developed the Climate Emergency Framework, which was adopted on January 11, 2021.[17] The purpose of the Climate Emergency Framework was to outline principles to guide the City's ongoing response to and discussion about the climate crisis and to guide and inform subsequent policies and implementation strategies. The framework consists of four sections: Equity and Climate Justice, Mitigation and Sequestration, Adaptation and Social Resilience, and Community Engagement. The Climate Emergency Framework is the foundation for community engagement and further input regarding climate action, but the actions proposed within the Framework do not commit the City to a specific action, nor does the Framework amend any existing City legislation or regulations.

In October 2023, the City released a draft Blueprint. The draft Blueprint is the product of Petaluma's Climate Emergency Framework, and was prepared through engagement with City staff, the Climate Action Commission, and members of the community. The draft Blueprint is intended to create a roadmap to achieve carbon neutrality (i.e., net zero carbon emissions) by 2030. The draft Blueprint contains GHG reduction actions, as well as adaptation measures, consistent with State climate mitigation targets (SB 32 and EO B-55-18) and new legislation that requires cities to plan for the impacts of climate change.

The GHG reduction actions included within the draft Blueprint were developed to reduce the City's GHG emissions to reach its adopted reduction target for 2030 through reductions related to seven

[17] City of Petaluma. *Climate Emergency Framework*. January 11, 2021.

different emissions sectors: clean energy, buildings, transportation and land use, water, resource consumption, natural systems and sequestration, and municipal operations. The draft Blueprint includes both quantifiable actions that directly demonstrate how Petaluma will reach its adopted 2030 target, as well as non-quantifiable actions that support the City's general goal of GHG emission reductions.

As previously noted, the draft Blueprint has not yet been formally adopted by the City of Petaluma.

4.2.4 IMPACTS AND MITIGATION MEASURES

The following section describes the standards of significance and methodology used to analyze and determine the proposed project's potential impacts related to GHG emissions. A discussion of the project's impacts, as well as mitigation measures where necessary, is also presented.

Standards of Significance

Based on the recommendations of BAAQMD, City of Petaluma standards, and consistent with Appendix G of the CEQA Guidelines, the proposed project would result in a significant impact related to GHG emissions if the project would result in any of the following:

- Generate GHG emissions, either directly or indirectly, that may have a significant impact on the environment; or
- Conflict with any applicable plan, policy or regulation of an agency adopted for the purpose of reducing the emissions of GHGs.

Pursuant to CEQA Guidelines Section 15064.4(b)(2), the lead agency is charged with determining a threshold of significance that is applicable to the project. For the analysis within this EIR, the City has elected to use the BAAQMD's thresholds of significance, as discussed below.

As noted previously, in April 2023 the BAAQMD adopted updated Air Quality Guidelines. The updated guidelines included new GHG thresholds, which are qualitative and consist of two distinct categories of criteria that must be met: Buildings and Transportation.

The BAAQMD's Buildings criteria require that a project must meet the following minimum project design elements:

a. The project will not include natural gas appliances or natural gas plumbing (in both residential and nonresidential development).
b. The project will not result in any wasteful, inefficient, or unnecessary energy usage as determined by the analysis required under Sections 21100(b)(3) and 15126.2(b) of the State CEQA Guidelines.

The BAAQMD's Transportation criteria require that a project must meet the following:

a. Achieve a reduction in project-generated vehicle miles traveled (VMT) below the regional average consistent with the current version of the California Climate Change Scoping Plan (currently 15 percent) or meet a locally adopted SB 743 VMT target, reflecting the recommendations provided in the Governor's Office of Planning and Research's Technical Advisory on Evaluating Transportation Impacts in CEQA:
    i. Residential projects: 15 percent below the existing VMT per capita;
    ii. Office projects: 15 percent below the existing VMT per employee; or

iii. Retail projects: no net increase in existing VMT.

b. Achieve compliance with off-street EV requirements in the most recently adopted version of CALGreen Tier 2.

Alternatively, a project is not required to implement the foregoing design elements if the project shows consistency with a local GHG reduction strategy that meets the criteria under State CEQA Guidelines Section 15183.5(b). In the case of the proposed project, as noted above, the City's draft Blueprint has not yet been formally adopted by the City of Petaluma. Thus, the City of Petaluma does not have an adopted GHG reduction strategy, and the option to evaluate consistency with a local GHG reduction strategy is not applicable.

Method of Analysis

A comparison of the proposed project to the BAAQMD's qualitative thresholds discussed above shall determine the significance of the potential impacts related to GHGs and climate change resulting from the proposed project. Where potentially significant impacts related to GHG emissions are identified, mitigation measures are described that would reduce or eliminate the impact.

In addition, for informational purposes, the project's construction and operational GHG emissions were quantified as part of the Construction Health Risk and Greenhouse Gas Assessment prepared for the project by Illingworth & Rodkin, Inc. The emissions were estimated using the CalEEMod version 2020.4.0, which is a statewide model designed to provide a uniform platform for government agencies, land use planners, and environmental professionals to quantify air quality emissions from land use projects. The model applies inherent default values for various land uses, including trip generation rates based on the Institute of Transportation Engineers (ITE) Manual, vehicle mix, trip length, average speed, etc. However, where project-specific data was available, such data was input into the model. Results of the modeling are expressed in $MTCO_2e$/yr. All CalEEMod modeling results, as well as the further information regarding the inherent design features and project-specific information that was applied to the model is included within the Construction Health Risk and Greenhouse Gas Assessment (refer to Appendix A of the Initial Study prepared for the proposed project [Appendix A of this EIR]). It is noted that the estimated GHG emissions are presented for disclosure purposes only, as the BAAQMD no longer relies on quantitative thresholds of significance for GHG emissions.

Project-Specific and Cumulative Impacts and Mitigation Measures

Global climate change is, by nature, a cumulative impact. As defined in Section 15355 of the CEQA Guidelines, "cumulative impacts" refers to two or more individual effects which, when considered together, are considerable, compound, or increase other environmental impacts. The individual effects may be changes resulting from a single project or a number of separate projects. The cumulative impact from several projects is the change in the environment that results from the incremental impact of the project when added to other closely related past, present, and reasonably foreseeable probable future projects.

Emissions of GHG contribute, on a cumulative basis, to the significant adverse environmental impacts of global climate change (e.g., sea level rise, impacts to water supply and water quality, public health impacts, impacts to ecosystems, impacts to agriculture, and other environmental impacts). While GHG emissions from a project in combination with other past, present, and future projects contribute to global climate change and the associated environmental impacts, a single project could not generate enough GHG emissions to contribute noticeably to a change in the

global average temperature. Due to the existing regulations within the State, for the purposes of this analysis, the geographic context for the analysis of GHG emissions presented in this EIR is the State of California.

Because the effects of GHG emissions are cumulative by nature, separate discussions for project-level and cumulative-level impacts for the proposed project are not necessary for this chapter of the EIR.

4.2-1 Generate GHG emissions, either directly or indirectly, that may have a significant impact on the environment, or conflict with an applicable plan, policy, or regulation adopted for the purpose of reducing the emissions of GHGs. Based on the analysis below and with implementation of mitigation, the project's incremental contribution to this significant cumulative impact is *cumulatively considerable* and *significant and unavoidable*.

An individual project's GHG emissions are at a micro-scale level relative to global emissions and effects to global climate change; however, an individual project could result in a cumulatively considerable incremental contribution to a significant cumulative macro-scale impact. As such, impacts related to emissions of GHGs are inherently considered cumulative impacts.

Estimated GHG emissions attributable to future development would be primarily associated with increases of CO_2 and, to a lesser extent, other GHG pollutants, such as CH_4 and N_2O. Sources of GHG emissions include area sources, mobile sources or vehicles, utilities (electricity and natural gas), water usage, wastewater generation, and the generation of solid waste.

Based on the modeling conducted for the proposed project, construction of the project was estimated to generate total unmitigated GHG emissions of 360 $MTCO_2e$/yr during the construction period. The total unmitigated annual operational GHG emissions are presented in Table 4.2-2.

As noted previously, the applicable BAAQMD thresholds of significance for GHG emissions are qualitative, and the foregoing information is provided for disclosure purposes only. Potential impacts related to GHG emissions resulting from implementation of the proposed project are considered in comparison with BAAQMD's adopted thresholds of significance below.

BAAQMD Thresholds of Significance

According to the BAAQMD thresholds of significance, a project must either include specific project design elements related to buildings and transportation or be consistent with a local GHG reduction strategy that meets the criteria under State CEQA Guidelines Section 15183.5(b). The City of Petaluma has not prepared a qualified CAP under State CEQA Guidelines Section 15183.5(b). Thus, this discussion evaluates project consistency with the BAAQMD's Buildings and Transportation criteria.

Table 4.2-2
Unmitigated Project Operational GHG Emissions

Source	Annual GHG Emissions ($MTCO_2e$/yr)
Area	0.73
Energy	21.61
Mobile	443.58
Waste	26.67
Water	3.98
Total Annual Operational GHG Emissions	**496.58**

Source: Illingworth & Rodkin, Inc., 2022 (see Appendix A).

With regard to Buildings criterion a., pursuant to PMC Chapter 17.09, all newly constructed buildings within the City of Petaluma must be constructed to be all-electric and/or have an all-electric design. As shown in the Preliminary Utility Plan prepared for the proposed project (see Figure 3-6 in the Project Description chapter of this EIR), natural gas connections and infrastructure are not proposed on-site. Thus, the proposed project would be built in compliance with PMC Chapter 17.09 and, as a result, would not conflict with Buildings criterion a.

Consistency with Buildings criterion b. was evaluated in Section VI, Energy, of the Initial Study prepared for the proposed project (refer to Appendix A of this EIR). As noted therein, the temporary increase in energy use occurring during construction of the proposed project would not result in a significant increase in peak or base demands or require additional capacity from local or regional energy supplies. During project operations, the proposed project would be required to comply with all applicable regulations related to energy conservation and fuel efficiency, including the Building Energy Efficiency Standards and the CALGreen Code, which would ensure that building energy use associated with the proposed project would not be wasteful, inefficient, or unnecessary. As a result, the proposed project would comply with Buildings criterion b.

Consistency with Transportation criterion a. is evaluated in Chapter 4.4, Transportation, of this EIR. As presented therein, the proposed project would generate VMT per resident that exceeds 15 percent below the existing citywide average VMT per capita. Therefore, the proposed project would conflict with Transportation criterion a.

With regard to Transportation criterion b., the proposed project would include 178 total parking spaces, including 83 covered garage parking spaces, 35 standard uncovered driveway parking spaces, and 35 compact uncovered parking spaces within the permeable areas adjacent to each driveway. In addition, a total of 17 on-street parking spaces would be provided along the main access street of the project site, and an additional eight standard uncovered parallel parking spaces would be provided immediately south of the tri-plex units. Eight of the 17 on-street parking spaces, as well as the eight standard uncovered parallel parking spaces, would be designated to a specific tri-plex unit, and are, therefore, considered as part of the residential parking associated with the proposed project. The remaining nine on-street parking spaces would not be designated to a unit and are, therefore, considered non-residential.

The 2022 CALGreen Code requires residential uses be EV capable (i.e., each dwelling unit must have a listed raceway to accommodate a dedicated 208/40-volt branch circuit), which would be suitable for EV charging. For the residential parking associated with the proposed project, compliance with the 2022 CALGreen Code would satisfy the requirements established by BAAQMD criterion b. However, with regard to the nine undesignated on-street parking spaces within the project site, as shown in Figure 3-5 of this EIR, one space is proposed to be EV capable. In order to meet the 2022 CALGreen Tier 2 requirements, the Code requires non-residential uses with zero to nine parking spaces to provide three EV capable spaces. Thus, the proposed project would not comply with Transportation criterion b. related to the nine undesignated on-street parking spaces on-site.

Conclusion

Based on the above, the proposed project could generate GHG emissions, either directly or indirectly, that may have a significant impact on the environment, or conflict with an applicable plan, policy, or regulation adopted for the purpose of reducing the emissions of GHGs. Thus, a ***cumulatively considerable*** and ***significant*** impact related to GHG emissions could occur. In order to address the potentially significant impact, Mitigation Measure 4.2-1 shall be required. However, even with implementation of Mitigation Measure 4.2-1, the potential impact would remain cumulatively considerable and significant and unavoidable.

Mitigation Measure(s)

Mitigation Measure 4.2-1 would address Transportation criterion b. However, as discussed further in Chapter 4.4, Transportation, of this EIR, the proposed project's per capita VMT exceeds thresholds, and feasible mitigation measures to reduce VMT impacts to level below significance are not available. Evidence has not been established that VMT reduction measures, when applied to people working, living, or visiting areas of Petaluma with higher density and greater mixes of uses within a convenient walk, bike, or transit trip would reduce citywide VMT. As such, feasible measures are not currently available that would reduce VMT impacts to a less-than-significant level, given the uncertainties related to outside agency approval requirements, the timing necessary to implement such measures, the lack of design or plans in place, and the lack of a citywide administration plan to oversee the collection of VMT fees and the implementation and monitoring of VMT reductions. Consequently, the project would not comply with BAAQMD's Transportation criterion a., and the project's incremental contribution to the cumulatively significant effects of GHG emissions and global climate change would remain *cumulatively considerable* and *significant and unavoidable* even with implementation of all feasible mitigation measures.

4.2-1 Prior to the approval of project improvement plans, the applicant shall implement the following measure:

- *Consistent with BAAQMD's Transportation criterion b., a total of three EV Capable parking spaces shall be installed throughout the nine undesignated on-street parking spaces within the project site, consistent with the current CALGreen Tier 2 standards.*

Compliance with the foregoing measure shall be ensured by the City of Petaluma Community Development Department.

4.3 Hydrology and Water Quality

4.3 HYDROLOGY AND WATER QUALITY

4.3.1 INTRODUCTION

The Hydrology and Water Quality chapter of the EIR describes existing drainage patterns on the project site, current stormwater flows, and stormwater infrastructure. The chapter also evaluates potential impacts of the proposed project with respect to increases in impervious surface area and associated stormwater flows, degradation of water quality, and increases in on- and off-site flooding. Information used for the chapter was primarily drawn from a Hydraulic Assessment prepared for the proposed project by WEST Consultants, Inc. (see Appendix E of this EIR)[1] and a Stormwater Control Plan prepared for the project by Steven J. Lafranchi & Associates, Inc. (see Appendix F of this EIR).[2] Additional information was drawn from the City of Petaluma General Plan 2025,[3] the associated City of Petaluma General Plan EIR,[4] and the Environmental Background Report for the City of Petaluma General Plan 2045 Update.[5] It should be noted that issues associated with water supply availability are addressed in Section XIX, Utilities and Service Systems, of the Initial Study prepared for the proposed project (see Appendix A of the EIR).

4.3.2 EXISTING ENVIRONMENTAL SETTING

The section below describes regional hydrology, the existing drainage patterns within the project site, including peak flows, existing water quality, and groundwater conditions.

Regional Hydrology

The 5.2-acre project site consists of two parcels (identified by Assessor's Parcel Numbers (APNs) 017-040-051 and 017-040-016) and is located at 270 Casa Grande Road and 280 Casa Grande Road in the City of Petaluma, California. According to the Environmental Background Report for the City's General Plan 2045 Update, the majority of the City is located in the Petaluma River watershed, which encompasses the southern portion of Sonoma County and northern portion of Marin County and includes the 550-acre Adobe Creek (Creek) watershed within which the project site is located. Tributaries to the Petaluma River include the Creek, as well as Petaluma Creek, Willow Brook Creek, Lichau Creek, Liberty Creek, Marin Creek, Wiggins Creek, Wilson Creek, Corona Creek, Capri Creek, Lynch Creek, Washington Creek, East Washington Creek, Thompson Creek, and Kelly Creek. The lower 11 miles of the Petaluma River flow through the Petaluma Marsh and ultimately empty into the northwest portion of the San Pablo Bay watershed, which includes the easternmost portion of the City. Tidal influence extends approximately 14 miles upstream of San Pablo Bay, near the confluence of Lynch Creek above Downtown Petaluma. Due to its flow, the Petaluma River has great importance to ecological systems in the Petaluma region, as well as a direct impact on the health of San Pablo Bay. Originally, the Petaluma River was a tidal marsh that was fully influenced by the ebb and flow of tides. Prior to dredging by the U.S. Army Corps of Engineers (USACE), the Petaluma River could be difficult to navigate due to

1 WEST Consultants, Inc. *Creekwood Condominium Project Hydraulic Assessment*. September 2023.
2 Steven J. Lafranchi & Associates, Inc. *Stormwater Control Plan For a Regulated Project, Creekwood Condominiums*. July 14, 2023.
3 City of Petaluma. *City of Petaluma General Plan 2025.* Adopted May 19, 2008.
4 City of Petaluma. *City of Petaluma General Plan 2025 Environmental Impact Report*. February 2008.
5 City of Petaluma. *Environmental Background Report: Water Quality and Resources*. September 2022.

sediment buildup caused by tidal flows. Currently, the river remains tidal from the Petaluma River-Frontal San Pablo Bay Estuary to San Pablo Bay.

Due to surrounding surface hydrology, which consists of steep, dry terrain, stream flows in the project region are highly correlated with rainfall intensity. Rainfall is generally most prevalent in the City over an eight-month period, starting in late-September and extending until late-May.[6] The month with the most rain in Petaluma is February, with an average rainfall of 5.1 inches. Flood events are almost exclusively associated with rainfall events that occur in January or February. Petaluma's location at the convergence of multiple rivers, creeks, and streams in the region causes low-lying parts of the City to be designated by the Federal Emergency Management Agency (FEMA) as being within the 100-year or 500-year floodplains. The Petaluma River is known to flood into low-lying areas of the City during periods of heavy precipitation. The most recent occurrence of flooding was in 2019.

Project Site and Surrounding Area Drainage

With respect to the project site, the 280 Casa Grande Road parcel (APN 017-040-016) contains an existing residence and undeveloped land covered in grasses. The 270 Casa Grande Road parcel (APN 017-040-051) contains an existing residence, several associated outbuildings, a landscaped backyard, and a small orchard within a depressed area near the Creek. The Creek is an ephemeral creek that flows in a north-south direction and is tributary to the Petaluma River to the south. Along with its associated vegetation, the Creek forms the eastern boundary of the project site. The remaining portions of the 270 Casa Grande Road parcel are generally characterized by grasses that are routinely mowed or grazed.

Currently, neither the project site, nor the portion of Casa Grande Road fronting the site include a storm drain system. According to the Phase I Environmental Site Assessment (ESA) prepared for the proposed project by Montrose Environmental, the rock stratigraphic unit of the project site is of the Mesozoic era, Cretaceous system, and Washita Group series, and the on-site soil is composed of Clear Lake clay, sandy substratum.[7] Clear Lake clay is a fine-grained soil composed of silt-clay materials that feature a very low infiltration rate and a high water table. In addition, elevations change across the project site by approximately four feet.[8] During and following rainfall events, surface runoff within the majority of the project site flows towards the southeast to the Creek. The Creek flows south to where the waterway confluences with the Petaluma River, thence the San Pablo Bay, thence the San Francisco Bay, and finally, the Pacific Ocean.

According to a Letter of Map Revision (LOMR) issued by FEMA on May 11, 2023 for Flood Insurance Rate Map (FIRM) 06097C1001G, the majority of the project site, including the portions of the site in which the proposed residences would be developed, are designated as being within Zone X (see Figure 4.3-1).[9] The Zone X portions of the project site include areas within the 500-year floodplain, as well as areas outside the 100-year and 500-year floodplain. In addition, the Creek corridor is shown as being within Zone AE, which is the 100-year floodplain and a Special Flood Hazard Area (SFHA).

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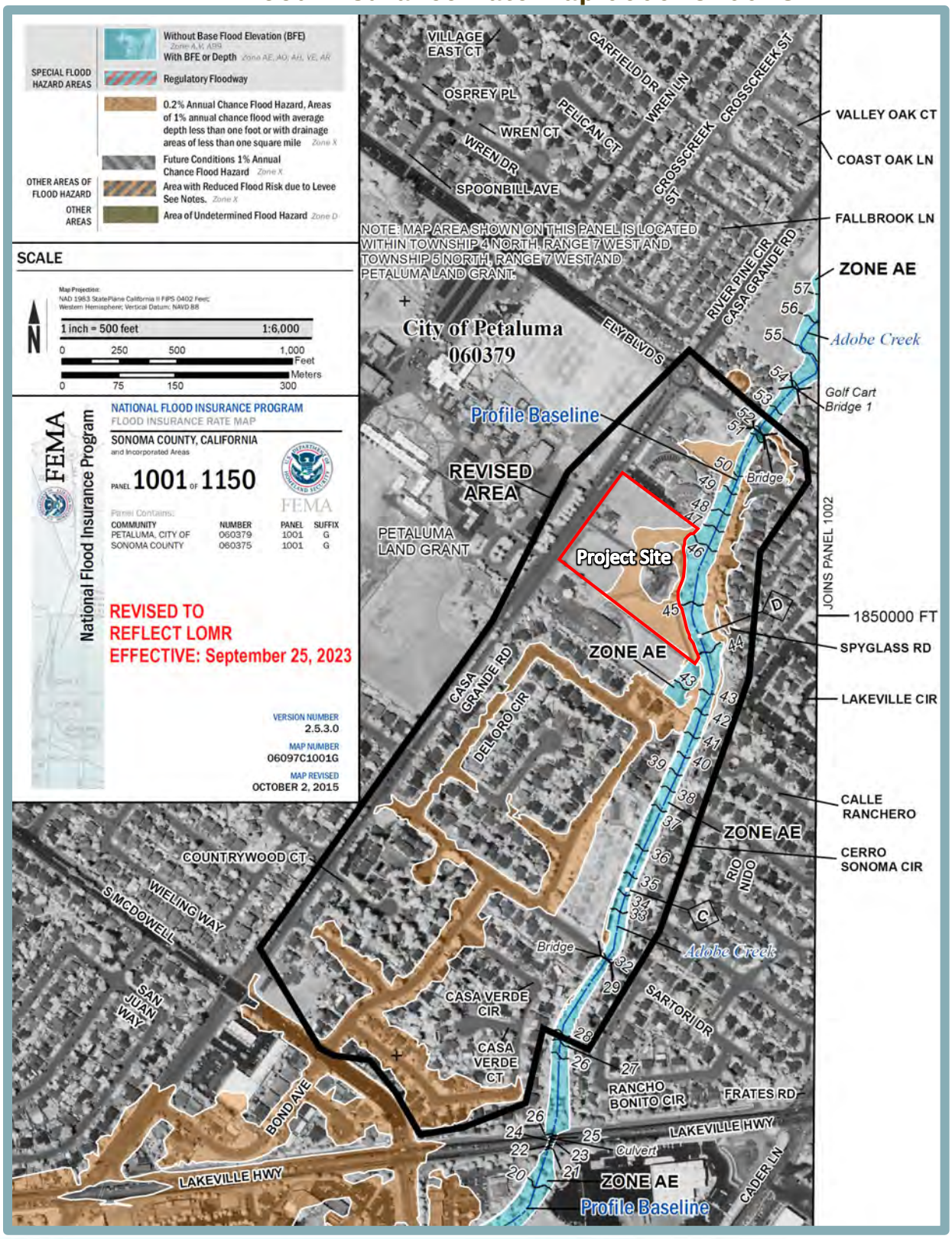
6 Weather Spark. *Climate and Average Weather Year Round in Petaluma*. Available at: https://weatherspark.com/y/619/Average-Weather-in-Petaluma-California-United-States-Year-Round. Accessed May 2024.

7 Montrose Environmental. *Phase I Environmental Site Assessment: Falcon Point Associates, LLC, Creekwood Housing Development Project*. June 2022.

8 Steven J. Lafranchi & Associates, Inc. *Stormwater Control Plan For a Regulated Project, Creekwood Condominiums*. July 14, 2023.

9 Federal Emergency Management Agency. *Letter of Map Revision Determination Document*. May 11, 2023.

Figure 4.3-1
FEMA Flood Insurance Rate Map 06097C1001G



Nonetheless, to ensure consistency with the citywide hydraulic model developed by WEST Consultants for the City's General Plan 2045 Update (discussed further in the Method of Analysis section of this chapter), the City has elected to employ the same modeling results to the project site as part of this EIR in order to provide a conservative analysis.

Based on modeling of the project site conducted as part of the Hydraulic Assessment, the majority of the project site is located in the 100-year floodplain (see Figure 4.3-2). The on-site baseline hydraulic conditions (e.g., water surface elevations and floodplain extents) were calculated using the citywide hydraulic model developed by WEST Consultants (discussed further in the Method of Analysis section of this chapter) and consist of the following:

- The peak 100-year flood flow rate in the Creek is approximately 1,400 cubic feet per second (cfs);
- The maximum 100-year floodplain water surface elevation[10] in the Creek immediately upstream of the project site is approximately 47.2 feet;
- The maximum 100-year floodplain water surface elevation in the Creek immediately downstream of the project site is 46.7 feet; and
- The 100-year floodplain depth on the project site is generally less than half a foot, with a maximum depth of two feet.

Water Quality

Activities and/or conditions that have the potential to degrade water quality include, but are not limited to, construction activities and urban stormwater runoff. Construction activities have the potential to cause erosion and sedimentation associated with ground-disturbing and clearing activities, which could cause unstabilized soil to be washed or wind-blown into nearby surface water. In addition, the use of heavy equipment during construction activities, especially during rainfall events, has the potential to cause petroleum products and other pollutants to enter nearby drainages.

Water quality degradation from urban stormwater runoff is primarily the result of runoff carrying pollutants from the land surface (i.e., streets, parking lots, etc.) to the receiving waters (i.e., streams and lakes). Pollutants typically found in urban runoff include facility maintenance and lawn-care/landscaping chemicals (insecticides, herbicides, fungicides and rodenticides), heavy metals (such as copper, zinc and cadmium), oils and greases from automobiles and other mechanical equipment, and nutrients (nitrogen and phosphorus). As discussed further in Section IX, Hazards and Hazardous Materials, of the Initial Study (see Appendix A of this EIR), the Phase I ESA prepared for the proposed project determined that past and existing uses within the project site have not included activities resulting in improper storage of hazardous materials or substantial levels of pesticides.[11] It should be noted that the Phase I ESA determined that due to the age of the existing residence at 280 Casa Grande Road, which was constructed as early as 1942, the residence potentially contains asbestos-containing insulation and lead-based paints (LBPs). In addition, both on-site residences use septic tanks for wastewater disposal.

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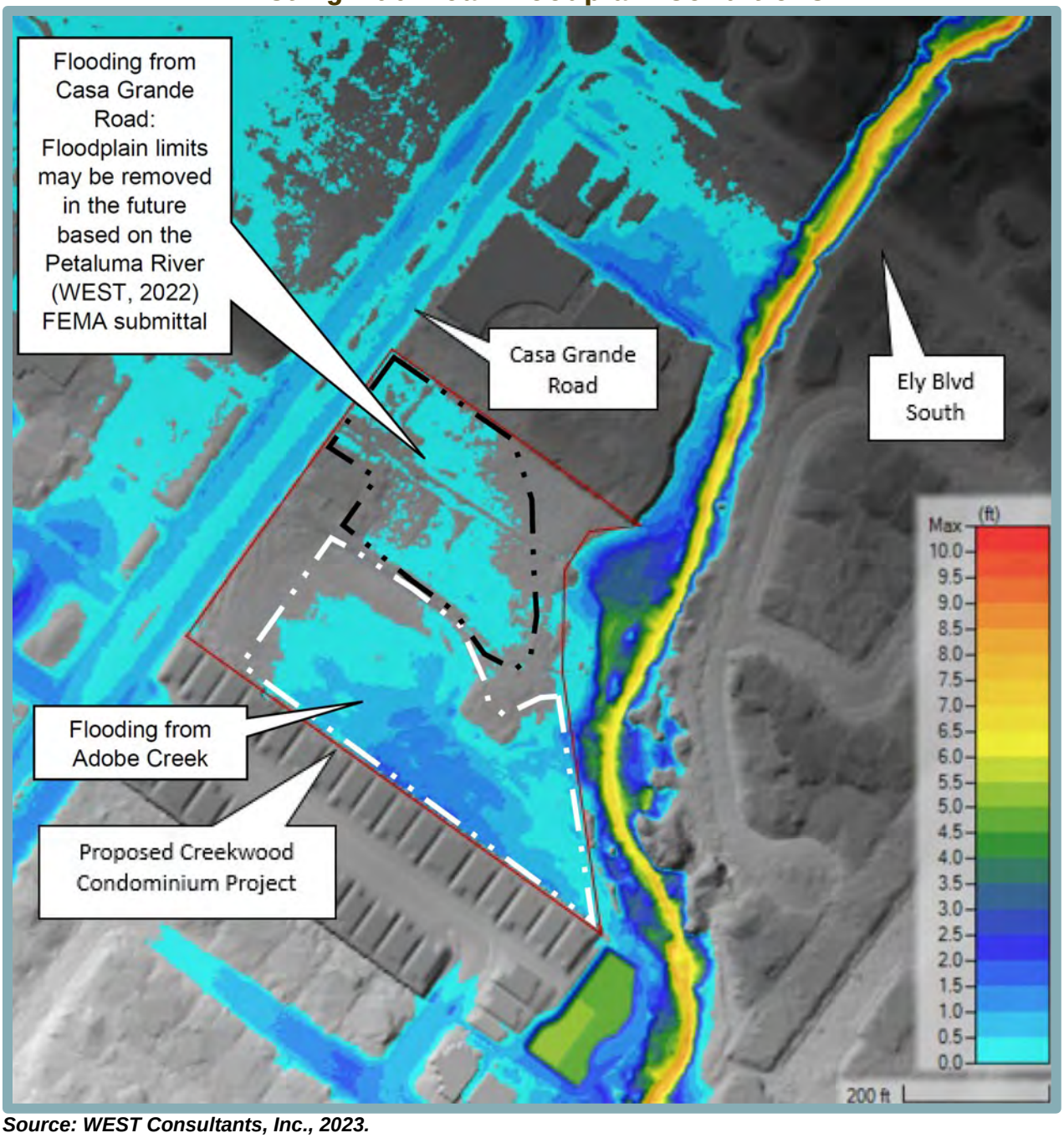
[10] Water surface elevation refers to the height, in relation to the North American Vertical Datum (NAVD) of 1988, of floods of various magnitudes and frequencies in the floodplains of coastal or riverine areas. NAVD 88 consists of a leveling network on North America, ranging from Alaska, through Canada, across the U.S., affixed to a single origin point on the continent. NAVD 88 was established for vertical control surveying in the U.S.

[11] Montrose Environmental. *Phase I Environmental Site Assessment: Falcon Point Associates, LLC, Creekwood Housing Development Project*. June 2022.

Figure 4.3-2
Existing 100-Year Floodplain Conditions



Source: WEST Consultants, Inc., 2023.

Thus, if the 280 Casa Grande Road residence and septic tanks are improperly demolished and disposed of, the hazardous materials located on the project site could potentially act as pollutants in the Creek.

4.3.3 REGULATORY CONTEXT

A number of federal, State, and local policies provide the regulatory framework that guides the protection of water resources. The following discussion summarizes those laws that are most relevant to hydrology and water quality in the vicinity of the project site.

Federal Regulations

The following are the federal environmental laws and policies relevant to hydrology and water quality.

Federal Emergency Management Agency

The FEMA is responsible for determining flood elevations and floodplain boundaries based on USACE studies. FEMA is also responsible for distributing the FIRMs, which are used in the National Flood Insurance Program (NFIP). The FIRMs identify the locations of SFHAs, including the 100-year floodplains.

FEMA allows non-residential development in the floodplain; however, construction activities are restricted within SFHAs, depending upon the potential for flooding within each area. Federal regulations governing development in a floodplain are set forth in Title 44, Part 60 of the Code of Federal Regulations (CFR). The standards are implemented at the State level through construction codes and local ordinances; however, the regulations only apply to residential and non-residential structure improvements. Although roadway construction or modification is not explicitly addressed in the FEMA regulations, the California Department of Transportation (Caltrans) has also adopted criteria and standards for roadway drainage systems and projects situated within designated floodplains. Standards that apply to floodplain issues are based on federal regulations (Title 23, Part 650 of the CFR). At the State level, roadway design must comply with drainage standards included in Chapters 800-890 of the Caltrans Highway Design Manual. CFR Section 60.3(c)(10) restricts cumulative development from increasing the water surface elevation of the base flood by more than one foot within the floodplain.

Federal Clean Water Act

The National Pollutant Discharge Elimination System (NPDES) permit system was established in the federal Clean Water Act (CWA) to regulate municipal and industrial discharges to surface waters of the U.S. Each NPDES permit contains limits on allowable concentrations and mass emissions of pollutants contained in the discharge. Sections 401 and 402 of the CWA contain general requirements regarding NPDES permits. Section 307 of the CWA describes the factors that the U.S. Environmental Protection Agency (USEPA) must consider in setting effluent limits for priority pollutants.

Nonpoint sources are diffuse and originate over a wide area rather than from a definable point. Nonpoint pollution often enters receiving water in the form of surface runoff, but is not conveyed by way of pipelines or discrete conveyances. As defined in the federal regulations, such nonpoint sources are generally exempt from federal NPDES permit program requirements. However, two types of nonpoint source discharges are controlled by the NPDES program – nonpoint source discharge caused by general construction activities, and the general quality of stormwater in municipal stormwater systems. The 1987 amendments to the CWA directed the USEPA to

implement the stormwater program in two phases. Phase I addressed discharges from large (population 250,000 or above) and medium (population 100,000 to 250,000) municipalities and certain industrial activities. Phase II addresses all other discharges defined by USEPA that are not included in Phase I.

Section 402 of the CWA mandates that certain types of construction activities comply with the requirements of the NPDES stormwater program. The Phase II Rule, issued in 1999, requires that construction activities that disturb land equal to or greater than one acre require permitting under the NPDES program. In California, permitting occurs under the General Permit for Stormwater Discharges Associated with Construction Activity, issued to the State Water Resources Control Board (SWRCB), implemented and enforced by the nine Regional Water Quality Control Boards (RWQCBs).

As of July 1, 2010, all dischargers with projects that include clearing, grading or stockpiling activities expected to disturb one or more acres of soil are required to obtain compliance under the NPDES Construction General Permit Order 2009-0009-DWQ. The Construction General Permit requires all dischargers, where construction activity disturbs one or more acres, to take the following measures:

1. Develop and implement a Stormwater Pollution Prevention Plan (SWPPP) to include a site map(s) of existing and proposed building and roadway footprints, drainage patterns and stormwater collection and discharge points, and pre- and post- project topography;
2. Describe types and placement of Best Management Practices (BMPs) in the SWPPP that will be used to protect stormwater quality;
3. Provide a visual and chemical (if non-visible pollutants are expected) monitoring program for implementation upon BMP failure; and
4. Provide a sediment monitoring plan if the area discharges directly to a water body listed on the 303(d) list for sediment.

To obtain coverage, a SWPPP must be submitted to the RWQCB electronically and a copy of the SWPPP must be submitted to the City of Petaluma. When project construction is completed, the landowner must file a Notice of Termination (NOT).

State Regulations

The following are the State environmental laws and policies relevant to hydrology and water quality.

State Water Resources Control Board

The SWRCB and the RWQCBs are responsible for ensuring implementation and compliance with the provisions of the federal CWA and California's Porter-Cologne Water Quality Control Act. The project site is situated within the jurisdictional boundaries of the San Francisco Bay RWQCB (Region 2). The San Francisco Bay RWQCB has the authority to implement water quality protection standards through the issuance of permits for discharges to waters at locations within their jurisdiction.

San Franscisco Bay Regional Water Quality Control Board

As authorized by the Porter-Cologne Water Quality Control Act, the San Francisco Bay RWQCB's primary function is to protect the quality of the waters within its jurisdiction for all beneficial uses. State law defines beneficial uses of California's waters that may be protected against quality

degradation to include, but not be limited to, the following: domestic, municipal, agricultural and industrial supply, power generation, recreation, aesthetic enjoyment, navigation, and preservation and enhancement of fish, wildlife, and other aquatic resources or preserves.

The San Francisco Bay RWQCB implements water quality protection measures by formulating and adopting water quality control plans (referred to as basin plans, as discussed below) for specific groundwater and surface water basins, and by prescribing and enforcing requirements on all agricultural, domestic, and industrial waste discharges. The San Francisco Bay RWQCB oversees many programs to support and provide benefit to water quality, including the following major programs: Agricultural Regulatory; Above-Ground Tanks; Basin Planning; CALFED; Confined Animal Facilities; Landfills and Mining; Non-Point Source; Spills, Leaks, Investigations, and Cleanups (SLIC); Stormwater; Total Maximum Daily Load (TMDL); Underground Storage Tanks (UST), Wastewater Discharges (including the NPDES); Water Quality Certification; and Watershed Management.

The San Francisco Bay RWQCB is responsible for issuing permits for a number of various activities. Activities subject to the San Francisco Bay RWQCB permitting requirements include stormwater, wastewater, and industrial water discharge, disturbance of wetlands, and dewatering. Permits issued and/or enforced by the San Francisco Bay RWQCB include, but are not limited to, the NPDES Construction General Permit, NPDES Municipal Stormwater Permits, Industrial Stormwater General Permits, CWA Section 401 and 404 Permits, and Dewatering Permits.

Basin Plans and Water Quality Objectives

The Porter-Cologne Water Quality Control Act provides for the development and periodic review of water quality control plans (basin plans) that are prepared by the RWQCBs. Basin plans designate beneficial uses of California's major rivers and groundwater basins, and establish narrative and numerical water quality objectives for those waters. Beneficial uses represent the services and qualities of a water body (i.e., the reasons why the water body is considered valuable), while water quality objectives represent the standards necessary to protect and support those beneficial uses. Basin plans are primarily implemented through the NPDES permitting system and by issuing waste discharge regulations to ensure that water quality objectives are met.

Basin plans provide the technical basis for determining waste discharge requirements and taking regulatory enforcement actions if deemed necessary. The project site is located within the jurisdiction of the San Francisco Bay RWQCB. The City of Petaluma is located within the plan area of the Water Quality Control Plan for the San Francisco Bay Basin (Basin Plan).[12]

The Basin Plan sets water quality objectives for the surface waters in its region for the following substances and parameters: bacteria, bioaccumulation, biostimulatory substances, color, dissolved oxygen, floating material, oil and grease, population and community ecology, pH, radioactivity, salinity, sediment, settleable material, suspended material, sulfide, taste and odor, temperature, toxicity, turbidity, and un-ionized ammonia. For groundwater, water quality objectives applicable to all groundwater have been set for bacteria, chemical constituents, radioactivity, taste, odors, and toxicity.

[12] San Francisco Bay Regional Water Quality Control Board. *The Water Quality Control Plan for the San Francisco Bay Basin*. Amended March 7, 2023.

Local Regulations

The following are the local environmental laws and policies relevant to hydrology and water quality.

City of Petaluma General Plan

The following goals and policies from the Petaluma General Plan related to hydrology and water quality are applicable to the proposed project.

Goal 4-G-1 Protect and enhance biological and natural resources within the UGB.[13]

Policy 4-P-1 Protect and enhance the Petaluma River and its tributaries through a comprehensive river management strategy of the following programs:

A. Fully adopt and incorporate the Goals, Objectives, Policies and Programs of the Petaluma River Access and Enhancement Plan as an integral part of the General Plan 2025. Implement the Petaluma River Access and Enhancement Plan including expanded improvements identified through project specific environmental assessment.
B. Institute and maintain public access to and along the entire length (on one or both sides), of the river while ensuring that natural resources and river dependent industry are protected.
C. Require design review to address the relationship and stewardship of that project to the river or creek for any development on sites with frontage along the river and creeks.
D. Create setbacks for all tributaries to the Petaluma River extending a minimum of 50 feet outward from the top of each bank, with extended buffers where significant habitat areas, vernal pools, or wetlands exist. Development shall not occur within this setback, except as part of greenway enhancement (for example, trails and bikeways). Where there is degradation within the zone, restoration of the natural creek channels and riparian vegetation is mandatory at time of adjacent development.
E. Facilitate compliance with Phase II standards of the National Pollutant Discharge Elimination System (NPDES) to improve the water quality and aesthetics of the river and creeks.
F. Work with the State Lands Commission, State Department of Fish and Game, the Sonoma County Water Agency, and other jurisdictional agencies on preservation/enhancement of the Petaluma River as a

[13] "UGB" in Policy 4-P-1 refers to the City's Urban Growth Boundary.

component of reviewing major development along the River.

G. Expand the planting and retention of trees along the upper banks of the river and creeks to reduce ambient water temperature and shade out invasive, non-native species.

H. Revise the Development Code to include:

- Standards for the four management zones that run the entire length of the river: 1) Restoration Zone, 2) Buffer Zone, 3) Preservation Zone, and 4) River Oriented Development Zone. These standards shall be based on the River Plan's text and sections A-A through O-O as augmented by the cross-section needs identified through the XP-SWMM analyses;
- Design review requirements as articulated in the River Plan for any development on sites with frontage along the river or within 300 ft. of the river;
- The use of transfer of development rights (TDR) from portions adjacent to the river to elsewhere on the parcel by allowing property owners an increase in residential densities or in allowable Floor-to-Area Ratio (FAR) and/or smaller/clustered lots to compensate for the loss of development opportunity on land within the Restoration, Buffer, or Preservation zones of the River Plan. The overall development potential on a site shall be consistent with the General Plan. TDRs shall not be applied to lands within the Floodway as there is no development potential within the Floodway.

I. Develop a consistent design for site furniture, a wayfinding system, and educational signage in the PRC and along the creeks and tributaries leading to it to heighten the recognition and value of the river and its ecosystem.

J. Utilize the Parks and Recreation, Water Resources & Conservation, Public Works departments, property owners (e.g. Landscape Assessment Districts) and/or other appropriate public agencies (e.g. Sonoma County Water Agency) to manage the long term operations, maintenance responsibilities, and stormwater capacity associated with the river and tributary greenways.

K. Prohibit placement of impervious surfaces in the Floodway (i.e. Parking lots, roadways, etc.) with the

exception of pathways and emergency access improvements.

L. Continue to implement, where appropriate, flood terrace improvements to reduce localized flooding in concert with habitat enhancement projects.
M. Cooperate with State and Federal agencies to address and/or eradicate issues and environmental problems associated with possible infestation of the midden crab into the Petaluma River and adjacent tributaries.

Goal 8-G-9 Preserve the design conveyance capacity of the surface water drainage system.

Policy 8-P-35 Protect private and public properties and capital investments including those designed to minimize flooding potential.

A. Work with SCWA, regulatory agencies, and/or property owners, as appropriate given maintenance authority, to insure maintenance of the engineered channels, natural creeks, and enclosed surface water system.
B. Support continuation of Zone 2A parcel tax for funding regional surface water improvements.
C. Work with regulatory and advisory agencies to facilitate preservation and environmental enhancement of the natural corridor for species of importance and native to the area.
D. Promote public education and stewardship of the riparian corridors.
E. Work with the U.S. Army Corps of Engineers to dredge the river channel downstream of the transition weir to maintain the 100-year design conveyance capacity and navigable channel.
F. Initiate the formation of an Assessment District, or other funding mechanism, to ensure periodic dredging occurs and the dredge materials disposal site is maintained.
G. The City shall continue to inspect and maintain the conveyance capacity of open channels and the piped system within our authority.
H. The City shall facilitate and advise property owners to ensure the maintenance of privately owned creeks and channels (e.g. Kelly Creek). Assistance may include facilitation of regulatory permitting and design standards.
I. Continue to evaluate, and take appropriate action, to monitor and maintain the adequacy, safety, and strength of existing berms and levees and other flood protection/reduction facilities.
J. The Development Code shall require the identification of any disposal site for excavated soil and require that any disposal be located outside the regulatory floodplain within the Planning Referral Area.

K. Monitor changes in tide elevations and related effects on Petaluma River tidal levels over time in order to determine if there is a trend that increases the level of Mean Higher High Water, as determined by the Corps of Engineer.

    - Assess the effect of any such trend or changes on habitable structures in the regulatory floodplain.

L. Require flood protection of new or significantly remodeled first floor habitable structures within the regulatory floodplain.
M. Continue to monitor precipitation data in order to maintain current data in the XPSWMM model.
N. Improve the data available for the XPSWMM model. Add stream level gages at the following locations:

    - Petaluma River at Petaluma Blvd. (southbound bridge)
    - Petaluma River at the railroad trestle bridge downstream of Corona Creek
    - Corona Creek at McDowell Blvd.
    - Capri Creek at McDowell Blvd.
    - Adobe Creek at Lakeville Road
    - Lynch Creek at Maria Dr.
    - Lynch Creek at McDowell Blvd. or HWY 101 (northbound)
    - Washington Creek at McDowell Blvd. or HWY 101 (northbound)
    - East Washington Creek at Washington St.
    - Petaluma River at HWY 101 (southbound bridge)

Policy 8-P-37 No new inhabited structure or development shall be permitted within that portion of properties containing areas of water depths exceeding one foot as illustrated in Figure 8-2, unless mitigation and/or on-site or off-site improvements are constructed to reduce the 100-year flood depth to less than one foot.

A. The City shall maintain a 2-D model of the Petaluma River within the City of Petaluma and continue to work with SCWA to achieve a 2-D model for the Petaluma Watershed.
B. Utilizing the 2-D model, the City of Petaluma will work with SCWA to identify, design, fund, and construct regional solutions to minimize the flooding impacts associated with historic and increasing out-of-bank flows

which occur from increasing storm flow and velocity from out-of-City areas into the City.

C. Working with Sonoma County, the City will continue to ensure that zero net fill policies are enforced within the unincorporated area for areas encumbered by the regulatory floodplain of the Petaluma River.
D. Utilizing an approved modeling tool, the City shall diligently pursue the remapping of the regulatory Floodway and Floodplain, through the Corps of Engineers, following the completion of the Payran Reach Corps project.
E. Working with Sonoma County, the City shall develop a plan and identify funding opportunities to acquire and move, relocate, or demolish housing, which remain located within the regulatory Floodway, once remapping occurs.
F. Until remapping of the regulatory floodplain occurs, new residential development in the 100-year flood boundary area as illustrated in Figure 8-1 [of the City's General Plan], with depths of less than one foot of water during a 100-year storm event will be required to elevate the lowest floor two feet (2') above the BFE as determined by the City 2-D model.
G. New non-residential development in the 100-year flood boundary area, identified in Figure 8-1 [of the City's General Plan], with less than one foot of water depth during a 100-year storm event will be required to provide flood protection at least 1 foot above the BFE, or elevate the lowest floor two feet above the BFE.
H. Residential development shall be prohibited on the first floor of new structures within the regulatory floodplain after remapping of the FEMA floodway/floodplain.
I. After remapping the City should pursue acquisition of properties in the regulatory Floodway and seek funding for implementation of surface water improvements and riparian habitat enhancements.
J. Consider development of a program whereby projects may acquire property(ies) and construct planned flood terracing and/or detention/retention facilities as mitigation for surface water impacts. The result of the improvements must result in an improvement to the pre-project conditions by way of a net reduction in storm water elevations and downstream flows.

Goal 8-G-10 Reduce pollutant load in surface water runoff, thereby improving water quality within the Petaluma River and its tributaries.

Policy 8-P-38 All development activities shall be constructed and maintained in accordance with Phase 2 National Pollutant Discharge Elimination System (NPDES) permit requirements.

A. The Water Resources and Conservation Department shall review, and have the authority to conditionally approve, all development permits to insure compliance with NPDES Phase 2 requirements.
B. Maintain, update as needed, and implement the City's Storm Water Management Plan to retain a current storm water discharge permit with the California Regional Water Quality Control Board.
C. A funding mechanism, such as a storm water utility fee, shall be implemented by the City to insure a dedicated source of funds is available for all surface water drainage system maintenance and improvement needs.

NPDES Small Municipal Separate Storm Sewer System General Permit

The NPDES Municipal Stormwater Permitting Program regulates stormwater discharges from municipal separate storm sewer systems (MS4s). NPDES Municipal Stormwater Permits are issued in two phases. Phase I regulates stormwater discharges from large- and medium-sized municipal separate storm sewer systems (those serving more than 100,000 persons). Most Phase I permits are issued to a group of co-permittees encompassing an entire metropolitan area. Phase II provides coverage for smaller municipalities, including nontraditional MS4s, which include governmental facilities such as military bases, public campuses, and prison and hospital complexes. The NPDES Municipal Stormwater Permits require the discharger to develop and implement a Stormwater Management Plan/Program with the goal of reducing the discharge of pollutants to the maximum extent practicable.

The San Francisco Bay RWQCB issued NPDES Permit No. CAS612008, Order No. R2-2022-0018, Waste Discharge Requirements for Stormwater Discharges from Small Municipal Separate Storm Sewer Systems, which became effective on May 11, 2022. An "MS4" is a conveyance or system of conveyances (including roads with drainage systems, municipal streets, catch basins, curbs, gutters, ditches, man-made channels, or storm drains): (i) designed or used for collecting or conveying stormwater; (ii) which is not a combined sewer; and (iii) which is not part of a Publicly Owned Treatment Works (POTW). The City of Petaluma is a Phase II MS4 permittee. Projects subject to the requirements of the Phase II MS4 NPDES permit (Regulated Projects) must submit the appropriate Post-Construction Stormwater Plan based on the project type/development category. Regulated Projects include projects that create or replace 5,000 square feet (sf) or more of impervious surface. Regulated Projects that create and/or replace one or more acres of impervious surface are considered regulated hydromodification management projects. The proposed project would create more than one acre of impervious area, and, thus, is considered a Regulated Hydromodification Management Project subject to Phase II MS4 NPDES permit post-construction stormwater-treatment requirements.

Regulated Projects are required to divide the project area into Drainage Management Areas (DMAs) and implement and direct water to appropriately sized Site Design Measures (SDMs) and Baseline Hydromodification Measures to each DMA to the Maximum Extent Practicable (MEP). Regulated Projects must additionally include Source-Control BMPs where possible. SDMs and Baseline Hydromodification Measures include, but are not limited to:

- Rooftop and impervious area disconnection;
- Porous pavement;
- Rain barrels and cisterns;
- Vegetated swales;
- Bio-retention facilities;
- Green roofs; or
- Other equivalent measures.

Petaluma Municipal Code

The following regulations from the Petaluma Municipal Code (PMC) related to hydrology and water quality are applicable to the proposed project.

Stormwater Management and Pollution Control Ordinance

PMC Chapter 15.80 establishes the City's Stormwater Management and Pollution Control Ordinance. Pursuant to PMC Section 15.80.060, discharges of any materials, including, but not limited to, pollutants or waters containing any pollutants that cause or contribute to a violation of applicable water quality standards, other than stormwater, to the City's MS4 or watercourses is prohibited. In accordance with PMC Section 15.80.150, new development and redevelopment must install, implement, and maintain BMPs consistent with the appropriate California Stormwater Quality Association (CASQA) Stormwater BMP Handbooks, or equivalent. In addition, the selection and the design of the BMPs, including post-construction treatment control measures, must be consistent with the City's Storm Drain System Construction Standards.

Grading Ordinance

PMC Chapter 17.31 establishes the City's Grading Ordinance. Pursuant to PMC Section 17.31.040, the City prohibits discharges of stormwater or non-stormwater to surface waters associated with any construction activity that is subject to the NPDES Construction General Permit, without first having complied with the provisions contained in said permit. Additionally, grading in such a manner as to cause erosion or sedimentation on other property or on public streets or to obstruct or otherwise interfere with drainage, or deposit sediment in natural or artificial drainage facilities is prohibited.

Grading work cannot be commenced within the City limits without a developer first obtaining a grading permit in accordance with the provisions of PMC Chapter 17.31. According to PMC Section 17.31.170, a site map and grading plan (grading plan) must be submitted to the City as part of obtaining a grading permit. The grading plan must include, among other things, runoff calculations, details of any drainage structures or retaining walls, and the proposed construction methods and materials that would be used. The grading plan must be prepared by a State-registered civil engineer.

In addition, as established by PMC Section 17.31.190, a final erosion and sediment control plan, prepared by a State-registered civil engineer, must be submitted to the City as part of obtaining a grading permit. The final erosion and sediment control plan must demonstrate how a development project would minimize soil erosion and sedimentation from the developed project site and control for runoff from the site and include, among other things, a description and delineation of the BMPs to be taken to minimize erosion and sedimentation and to retain sediment on-site.

Petaluma Implementing Zoning Ordinance

Petaluma Implementing Zoning Ordinance (IZO) Chapter 6 defines the City's Floodway as the channel of a river or other watercourse and the adjacent land areas that must be reserved in order to discharge the base flood without cumulatively increasing the water surface elevation more than one foot. According to the City's Zoning Map, while the Petaluma River and other watercourses are zoned as Floodway, the Creek is not zoned as such.

All areas within the boundaries of an SFHA, but outside Floodway areas, are considered Flood Plain-Combining District (FP-C) areas. As previously discussed, based on modeling of the project site conducted as part of the Hydraulic Assessment, the majority of the project site may be located in the 100-year floodplain (see Figure 4.3-2). Thus, the project site may meet the criteria for being considered an FP-C area. Development projects within FP-C areas must obtain a development permit, the application for which must include, among other things, the proposed elevation in relation to mean sea level of the lowest floor of all structures, proposed elevation in relation to mean sea level of any structure that would be floodproofed, and a description of the extent to which any watercourse would be altered or relocated as a result of the proposed development.

4.3.4 IMPACTS AND MITIGATION MEASURES

The following section describes the standards of significance and methodology used to analyze and determine the proposed project's potential impacts related to hydrology and water quality. In addition, a discussion of the project's impacts, as well as mitigation measures where necessary, is also presented.

Standards of Significance

Consistent with Appendix G of the CEQA Guidelines, a significant impact would occur if the proposed project would result in any of the following:

- Violate any water quality standards or waste discharge requirements, or otherwise substantially degrade water quality;
- Substantially decrease groundwater supplies or interfere substantially with groundwater recharge such that the project may impede sustainable groundwater management of the basin;
- Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river or through the addition of impervious surfaces, in a manner which would:
    - Result in substantial erosion or siltation on- or off-site;
    - Substantially increase the rate or amount of surface runoff in a manner which would result in flooding on- or off-site;
    - Create or contribute runoff water which would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff;
    - Impede or redirect flood flows;
- In flood hazard, tsunami, or seiche zones, risk release of pollutants due to project inundation; or
- Conflict with or obstruct implementation of a water quality control plan or sustainable groundwater management plan.

Issues Not Discussed Further

The Initial Study prepared for the proposed project (see Appendix A of this EIR) determined that development of the proposed project would result in a less-than-significant impact related to the following:

- Substantially decrease groundwater supplies or interfere substantially with groundwater recharge such that the project may impede sustainable groundwater management of the basin; and
- Conflict with or obstruct implementation of a water quality control plan or sustainable groundwater management plan.

For the reasons cited in the Initial Study (Section X, Hydrology and Water Quality), the potential impacts associated with the above are not analyzed further in this EIR.

The analysis in this chapter takes account of the California Supreme Court's decision in *California Building Industry Association v. Bay Area Air Quality Management District* (2015) 62 Cal.4th 369, 377-378, in which the court held that "agencies subject to CEQA generally are not required to analyze how existing environmental conditions will impact a project's future users or residents. But when a proposed project risks exacerbating those environmental hazards or conditions that already exist, an agency must analyze the potential impact of such hazards on future residents or users. In those specific instances, it is the project's impact on the environment—and not the environment's impact on the project—that compels an evaluation of how future residents or users could be affected by exacerbated conditions."

Under this precedent, CEQA does not consider the impact of the environment on a project (such as the impact of existing flooding on new project receptors) to be an impact requiring consideration under CEQA. Rather, CEQA is only concerned with the extent to which, if any, a proposed project would exacerbate an existing environmental hazard. Existing hazards are considered to be part of baseline conditions.

Method of Analysis

The information contained in the analysis is primarily based on the Hydraulic Assessment prepared for the proposed project by WEST Consultants, Inc. (see Appendix E of this EIR) and the Stormwater Control Plan prepared for the project by Steven J. Lafranchi & Associates, Inc. (see Appendix F of this EIR). The Hydraulic Assessment and Stormwater Control Plan are discussed further below.

Hydraulic Assessment

The 2022 citywide hydraulic model developed by WEST Consultants, Inc. as part of the City's General Plan 2045 Update, which has not yet been adopted and is currently underway, was used in the Hydraulic Assessment to establish the on-site water surface elevations and floodplain extents.

The USACE Hydraulic Engineering Center's River Analysis System (HEC-RAS) two-dimensional (2D) model (version 6.3.1) was used to perform the post-development hydraulic calculations, which is consistent with the software implemented in the 2022 citywide hydraulic model. Potential 100-year flooding impacts associated with the proposed residences, local roadway grading, and bridge connection across the Creek were evaluated as part of the "Development With Bridge" scenario in the Hydraulic Assessment. The approach walkway and transition grading

specifications were provided by Steven J. Lafranchi & Associates, Inc. The bridge connection was assumed to be a single-span, 85-foot-long (from abutment to abutment), and eight-foot-wide bridge. The Development With Bridge model was created by adding the bridge geometry and approach grading to the "Development Without Bridge" model, which is detailed in Section 3.1.1 of the Hydraulic Assessment.

Stormwater Control Plan

The Stormwater Control Plan evaluated the preliminary design of the proposed stormwater-treatment facilities and other BMPs in accordance with the current edition of the Bay Area Stormwater Management Agencies Association (BASMAA) Post-Construction Manual.[14] Specifically, the Stormwater Control Plan assessed the proposed stormwater facilities consistency with Appendix A of the Post-Construction Manual. Appendix A includes a Construction Checklist that requires preparers to list each stormwater source-control and treatment measure and identify where in the project plan sheets the measure is shown. In addition, documentation of the proposed drainage design was completed in accordance with Table 4.5 of the Post-Construction Manual, which requires tabulation of areas draining to bioretention facilities and calculation of minimum bioretention facility size.

Project Impacts and Mitigation Measures

The following discussion of impacts is based on the implementation of the proposed project in comparison with the standards of significance identified above.

4.3-1 Violate any water quality standards or waste discharge requirements or otherwise substantially degrade surface or ground water quality during construction. Based on the analysis below and with implementation of mitigation, the impact is *less than significant*.

Project construction activities such as grading, excavation, and trenching for site improvements would result in the disturbance of on-site soils. During the early stages of project construction activities, topsoil would be exposed due to grading and excavation of the project site. After grading and prior to overlaying the ground surface with impervious surfaces and structures, the potential exists for wind and water erosion to discharge sediment and/or urban pollutants into stormwater runoff, which could adversely affect water quality downstream.

Exposed soils have the potential to affect water quality in two ways: 1) suspended soil particles and sediments transported through runoff; or 2) sediments transported as dust that eventually reach local water bodies. Spills or leaks from heavy equipment and machinery, staging areas, or building sites also have the potential to enter runoff. Typical pollutants include, but are not limited to, petroleum and heavy metals from equipment and products such as paints, solvents, and cleaning agents, which could contain hazardous constituents. Sediment from erosion of graded or excavated surface materials, leaks or spills from equipment, or inadvertent releases of building products could result in water quality degradation if runoff containing the sediment or contaminants enters receiving waters in sufficient quantities. Impacts from construction-related activities would generally be short-term and of limited duration.

[14] Bay Area Stormwater Management Agencies Association. *BASMAA Post-Construction Manual*. July 14, 2014.

Because the proposed project would require construction activities that would result in on-site land disturbance of up to approximately 5.2 acres, as well as disturbance of off-site areas through installation of the off-site public multi-use pathway, bridge connection, and two outfall structures (greater than one acre), the project applicant would be required by the State to comply with the most current NPDES Construction General Permit requirements. Consistent with the requirements, a SWPPP would be required to be prepared for the proposed project, comprised of the site plan, drainage patterns and stormwater collection and discharge points, BMPs, and a monitoring and reporting framework for implementing the proposed BMPs, as necessary. In addition, a Notice of Intent (NOI) would be filed with the San Francisco Bay RWQCB. Development of the SWPPP would include plans to treat stormwater runoff in accordance with the standards of the CASQA Stormwater BMP Handbook for New Development and Redevelopment.

Additionally, non-stormwater management and material management controls reduce non-sediment-related pollutants from potentially leaving the construction site to the extent practicable. The Construction General Permit prohibits the discharge of materials other than stormwater and authorized non-stormwater discharges (such as irrigation and pipe flushing and testing). Non-stormwater BMPs tend to be management practices with the purpose of preventing stormwater from coming into contact with potential pollutants. Examples of non-stormwater BMPs include preventing illicit discharges, and implementing good practices for vehicle and equipment maintenance, cleaning, and fueling operations, such as using drip pans under vehicles. Waste and materials management BMPs include implementing practices and procedures to prevent pollution from materials used on construction sites. Examples of materials management BMPs include the following:

- Good housekeeping activities, such as storing of materials covered and elevated off the ground, in a central location and covering and/or containing stockpiled materials;
- Securely locating portable toilets away from the storm drainage system and performing routine maintenance;
- Providing a central location for concrete washout and performing routine maintenance;
- Providing several dumpsters and trash cans throughout the construction site for litter/floatable management; and

While the final materials management BMPs to be used during construction of the proposed project are currently unknown, the project would likely include a combination of the BMP examples listed above. Final BMPs for the proposed construction activities would be selected in accordance with the applicable CASQA Stormwater BMP Handbooks and implemented by the project contractor.

As necessitated by the NPDES Construction General Permit, the project site would be inspected during construction before and after storm events and every 24 hours during extended storm events in order to identify maintenance requirements for the implemented BMPs and to determine the effectiveness of the implemented BMPs. As a “living document”, the site-specific SWPPP prepared for the proposed project would be modified as construction activities progress. A Qualified SWPPP Practitioner (QSP)

would ensure compliance with the SWPPP through regular monitoring and visual inspections during construction activities. The QSP for the project would amend the SWPPP and revise project BMPs, as determined necessary through field inspections, to protect against substantial erosion or siltation on- or off-site. To ensure the implementation of the above measures, Mitigation Measure 4.3-1(a) shall be required to ensure preparation of a SWPPP, as detailed below.

Additionally, PMC Chapter 17.31 prohibits commencement of grading activities by new development without the developer first obtaining a grading permit. According to PMC Section 17.31.170, a grading plan must be prepared by a State-registered civil engineer and submitted to the City in order to obtain a grading permit. The contents of the grading plan must include, but not be limited to, a project vicinity map that shows the location of the proposed grading activities; the property line boundaries of the project site; the existing and proposed contours of the site and off-site areas proposed for disturbance, the existing and proposed drainage of the project site and off-site areas, the extent and manner of tree cutting and vegetation clearing within on- and off-site areas, and specifications of the proposed construction methods and materials to be used.

Finally, it should be noted that demolition of the existing residence at 280 Casa Grande Road and removal and disposal of the on-site septic tanks could result in the release of pollutants associated with asbestos-containing insulation, LBPs, and wastewater. Therefore, the proposed project would be subject to Mitigation Measures IX-1 through IX-4 of the Initial Study (see Appendix A of this EIR). Mitigation Measures IX-1 and IX-2 require verification of the presence of asbestos or LBP in the existing on-site residence and additional protective measures, if such pollutants are found, that would require disposal of the contaminants, consistent with applicable standards and/or regulations established by the Bay Area Air Quality Management District (BAAQMD), Occupational Safety and Health Administration (OSHA), Department of Toxic Substances Control (DTSC), and Sonoma County Environmental Health and Safety Division (SCEHSD). Mitigation Measures IX-3 and IX-4 require that the on-site septic tanks be abandoned in compliance with applicable SCEHSD standards by a licensed well contractor. Thus, through compliance with Mitigation Measures IX-1 through IX-4 of the Initial Study, potential degradation of water quality as a result of the proposed demolition activities and removal of existing on-site septic systems would not occur.

Based on the above, compliance with the NPDES Construction General Permit and PMC Chapter 17.31 for the proposed on-site and off-site project components would minimize the potential for degradation of surface or groundwater quality to occur during project construction. However, because a SWPPP and grading plan have not yet been prepared for the proposed project, proper compliance with the aforementioned regulations cannot be ensured at this time. Thus, project construction activities could violate water quality standards or waste discharge requirements or otherwise degrade water quality, and a ***significant*** impact could occur. In order to address the potentially significant impact, Mitigation Measures 4.3-1(a) and 4.3-1(b) shall be required to ensure preparation of a SWPPP, incorporation of industry standard BMPs, and preparation of a final grading plan by a State-registered engineer. With implementation of Mitigation Measures 4.3-1(a) and 4.3-1(b), the potential impact would be reduced to a less-than-significant level.

Mitigation Measure(s)

Implementation of the following mitigation measures would reduce the above potential impact to a *less-than-significant* level.

4.3-1(a) *Prior to issuance of grading permits, the applicant shall prepare a Storm Water Pollution Prevention Plan (SWPPP). The developer shall file the Notice of Intent (NOI) and associated fee to the State Water Resources Control Board (SWRCB). The SWPPP shall serve as the framework for identification, assignment, and implementation of Best Management Practices (BMPs). The SWPPP shall be submitted to the Director of Public Works and Utilities/City Engineer for review and approval and shall remain on the project site during all phases of construction. Following implementation of the SWPPP, the contractor shall subsequently demonstrate the SWPPP's effectiveness and provide for necessary and appropriate revisions, modifications, and improvements to reduce pollutants in stormwater discharges to the maximum extent practicable. The contractor shall implement BMPs to reduce pollutants in stormwater discharges to the maximum extent practicable.*

4.3-1(b) *Prior to issuance of grading permits, the project applicant shall ensure that a final grading plan is prepared by a State-registered civil engineer in accordance with Petaluma Municipal Code (PMC) Chapter 17.31. The final grading plan shall include, but not be limited to, the following:*

- *A project vicinity map that shows the location of the proposed grading activities within the project site and off-site areas associated with Adobe Creek (Creek);*
- *The property line boundaries of the project site and off-site areas of disturbance associated with the Creek;*
- *All existing improvements on and adjacent to the project site;*
- *The existing and proposed contours of the project site and off-site areas proposed for disturbance;*
- *The existing and proposed drainage of the project site and off-site areas;*
- *The extent and manner of tree cutting and vegetation clearing, the disposal of vegetation, and the measures to be taken for the protection of undisturbed trees and vegetation in on-site and off-site areas proposed for disturbance, unless the foregoing information is provided on the final erosion and sediment control plan;*
- *Specifications of the proposed construction methods and materials to be used in on-site and off-site areas; and*
- *Any other information required by the Director of Public Works and Utilities.*

The final grading plan shall be submitted for review and approval to the City of Petaluma Public Works and Utilities Department.

4.3-2 Violate any water quality standards or waste discharge requirements or otherwise substantially degrade surface or ground water quality during operation. Based on the analysis below and with implementation of mitigation, the impact is *less than significant*.

Following project construction activities, pollutants associated with the operational phase of the proposed project could include nutrients, oil and grease, metals, organics, pesticides, bacteria, sediment, trash, and other debris. Nutrients that could be present in post-construction stormwater include nitrogen and phosphorous resulting from fertilizers applied to landscaping. Excess nutrients could affect water quality by promoting excessive and/or a rapid growth of aquatic vegetation, which reduces water clarity and results in oxygen depletion. Pesticides, which are toxic to aquatic organisms and can bioaccumulate in larger species, such as birds and fish, can potentially enter stormwater after application to landscaped areas within the project site. Oil and grease could enter stormwater from vehicle leaks, traffic, and maintenance activities. Metals could enter stormwater as surfaces corrode, decay, or leach. Clippings associated with landscape maintenance and street litter could be carried into storm drainage systems. Pathogens (from wildlife and human activities) have the potential to affect downstream water quality.

Development of the proposed project could also increase polluted non-stormwater runoff (e.g., wash water and landscape irrigation runoff). Such non-stormwater runoff could flow down sidewalks, parking areas, and streets, and pick up additional pollutants deposited on impervious surfaces prior to discharge into the storm drain system and surface waters. Discharge of polluted stormwater or non-stormwater runoff could violate waste discharge requirements.

The project site is located within the permit area covered by the City of Petaluma's Phase II MS4 general permit (NPDES General Permit No. CAS612008, Order No. R2-2022-0018). Thus, consistent with NPDES permitting program and PMC Section 15.80.150, project-related stormwater discharges would be subject to all applicable requirements of said permit. Specifically, as previously discussed, regulated projects are required to divide the project area into DMAs and implement and direct water to appropriately sized SDMs and Baseline Hydromodification Measures within each DMA. Source-control measures must be designed for pollutant-generating activities or sources consistent with recommendations from the CASQA Stormwater BMP Handbook for New Development and Redevelopment, or equivalent manual, and must be shown on the improvement plans.

As shown in Figure 3-7 of the Project Description chapter of this EIR, the project site's stormwater facilities would be installed across five DMAs. DMAs 1 through 4 would encompass the Block 1 units and would each contain corresponding Basin Retention Areas 1 through 4 (see red areas in Figure 3-7). DMA 5 would encompass the new internal street, Blocks 2 and 3 units, and Basin Retention Area 5 (see blue areas in Figure 3-7). Within DMAs 1 through 4, runoff from impervious surfaces would be directed to grassy areas, where flows would be collected by inlets and conveyed by way of private storm drain lines to each DMA's Basin Retention Area for retention and treatment. Following retention and treatment, excess flows would be routed to a

detention basin in the northeast corner of the project site, where peak flows that do not percolate into underlying soils would be metered and released through a new outfall structure to the Creek. In addition, the detention basin would accept surface flow from waters overtopping the Creek bank or backing up through the storm drain system during storm events. Similarly, within DMA 5, runoff would be directed to inlets installed in each dwelling unit's backyard area and to gutters installed along the new internal street. From the inlets and gutters, flows would be conveyed by way of new private storm drain lines to Basin Retention Area 5 for retention and treatment. From Basin Retention Area 5, peak flows would be metered to the Creek through a new outfall structure. All new storm drain infrastructure would be designed in accordance with the applicable Sonoma Water (formerly Sonoma County Water Agency) standards. As discussed further under Impact 4.3-3, the proposed storm drain system would consist of a total of 5,530 sf of new stormwater-treatment facilities, which would exceed the minimum square footage of facilities necessary for containing and treating all stormwater runoff from the developed project site in such a manner to reduce runoff and mimic the project site's predevelopment hydrology. Thus, the proposed project would comply with the City's Phase II MS4 general permit.

According to the Stormwater Control Plan, each Basin Retention Area would feature a minimum depth of 30 inches (18-inch minimum planting medium above a 12-inch gravel layer) and a hydraulically flat bottom, ensuring that all points within the bottom of the basins have the same elevation. In addition, as established by the Stormwater Control Plan, the proposed stormwater facilities would be required to be annually inspected prior to October 15 by a State-registered civil engineer. As part of inspection activities, inlets and swales leading to the Basin Retention Areas would be inspected for erosion and damage due to foot or vehicle traffic and repaired accordingly. The Basin Retention Areas would be checked to ensure that they are free of silt and draining freely to the 12-inch gravel layer, with each basin's upslope berm also verified to be intact and functioning, as intended. The civil engineer would prepare a report that indicates the results of the inspection and identifies any actions necessary to ensure proper operation of the storm drain system and would submit the report to the City of Petaluma. To ensure the implementation of the above measures, Mitigation Measure 4.3-2 shall be required to ensure the submission and implementation of a final Stormwater Control Plan, as detailed below.

Following significant rain events, which are defined as those producing approximately 0.5-inch or more of rainfall in a 24-hour period, the surface of the stormwater-treatment facilities would be observed to confirm ponding has not occurred. In addition, inlets would be inspected and any accumulated trash and debris would be removed. Any erosion at the inlets would be restored to grade. Outlet structures would also be inspected to check for obstructions. Prior to the start of the annual rainy season, inlets and outlets would also be checked for debris accumulation to prevent blockages. Finally, each year during the winter, occurring at a point between December and February, vegetation associated with each Basin Retention Area would be cut back, debris removed, and plants replaced, as needed. Concrete work would also be checked for damage.

Based on the above, the proposed project includes Basin Retention Areas to ensure that stormwater runoff is properly treated prior to discharging to the Creek. Thus, urban pollutants entering and potentially degrading local water quality are not expected to

occur as a result of the project. However, because a final Stormwater Control Plan has not been prepared, ongoing maintenance of the proposed stormwater treatment system and incorporation of proper source-control measures cannot be ensured at this time. Thus, project operation could violate water quality standards or waste discharge requirements or otherwise degrade water quality, and a ***significant*** impact could occur. In order to address a potentially significant impact, Mitigation Measure 4.3-2 shall be required to ensure preparation of a final Stormwater Control Plan. With implementation of Mitigation Measure 4.3-2, the potential impact would be reduced to a less-than-significant level.

Mitigation Measure(s)

Implementation of the following mitigation measure would reduce the above potential impact to a *less-than-significant* level.

4.3-2 *Prior to approval of final project improvement plans, a final Stormwater Control Plan shall be submitted to the Director of Public Works and Utilities/City Engineer for review and approval. The final Stormwater Control Plan shall be in compliance with all applicable provisions of the National Pollutant Discharge Elimination System (NPDES) Phase II MS4 General Permit (NPDES General Permit No. CAS612008, Order No. R2-2022-0018) and shall meet the standards of the California Stormwater Quality Association (CASQA) Stormwater BMP Handbook for New Development and Redevelopment. Site design measures, source-control measures, hydromodification management, and Low Impact Development (LID) standards, as necessary, shall be incorporated into the design and shown on the improvement plans. The final plans shall include calculations demonstrating that the water quality BMPs are appropriately sized, using methodology in the CASQA Stormwater BMP Handbook for New Development and Redevelopment. The final plans shall also incorporate the proposed components for maintaining the stormwater-treatment facilities. The final plans shall be submitted to the City of Petaluma Public Works and Utilities Department for review and approval.*

4.3-3 Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river or through the addition of impervious surfaces, in a manner which would: substantially increase the rate or amount of surface runoff in a manner which would result in substantial erosion or siltation on- or off-site; substantially increase the rate or amount of surface runoff in a manner which would result in flooding on- or off-site; create or contribute runoff water which would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff; or impede or redirect flood flows. Based on the analysis below, the impact is *less than significant*.

Impervious surfaces that currently exist on-site include the existing residences at 270 and 280 Casa Grande Road, several associated outbuildings, and the driveway associated with the 280 Casa Grande Road residence. Development of the proposed project would result in a substantial increase in the on-site impervious surface area, which would be related to new roofs, driveways, and the proposed internal looped private street, all of which would total approximately 120,654 sf. As such, the proposed project would alter the existing drainage pattern of the site and could potentially result in the increase of stormwater runoff. The potential for the proposed project to result in substantial additional sources of polluted runoff, including erosion and siltation, is addressed under Impacts 4.3-1 and 4.3-2 above. Further discussion regarding erosion is provided in Section VII, Geology and Soils, of the Initial Study prepared for the proposed project (see Appendix A of this EIR).

As discussed previously, runoff from new impervious surfaces created by the proposed project would be captured by the proposed storm drain system before treated peak flows are discharged to the Creek. To assess whether development of the project would have any impact on the Creek, a drainage design analysis was conducted as part of the Stormwater Control Plan prepared for the proposed project. The proposed storm drain system has been designed to accept runoff from a minimum storm intensity of 0.2-inch per hour, consistent with BASMAA requirements. Stormwater runoff exceeding the two-year storm intensity of 0.5-inch per hour would be metered from the Basin Retention Areas to the Creek. The results of the drainage design analysis are presented in Table 4.3-1. As shown therein, the Basin Retention Areas within each DMA would exceed the required minimum facility area. Thus, the proposed Basin Retention Areas would be sized to adequately retain and treat all stormwater flows from the developed project site.

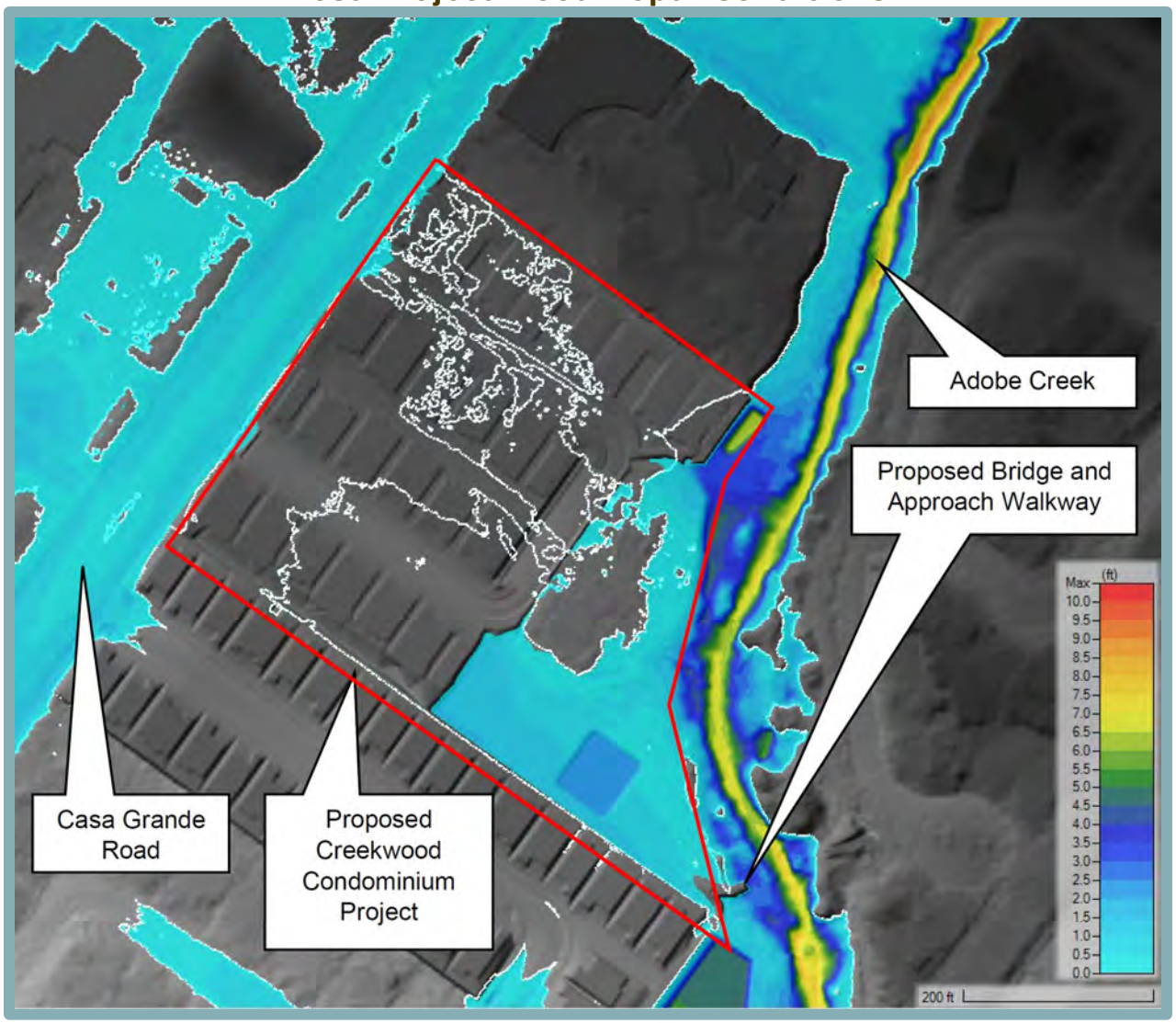
The Hydraulic Assessment evaluated changes under post-project conditions compared to existing conditions to determine potential impacts that could occur as a result of the proposed project related to on- and off-site flooding during and following a 100-year storm event. Under post-project conditions, the 100-year floodplain would not encroach upon the developable areas of the project site (see Figure 4.3-3). As shown in Figure 4.3-4, the Creek would experience water surface elevation changes of approximately +0.3 feet and -0.3 feet upstream and downstream of the proposed bridge connection, respectively, due to the bridge abutments constricting flow and creating a modest increase in water surface elevation upstream and subsequent attenuation of Creek flows immediately downstream of the bridge. During the 100-year storm event, the minor increases to water surface elevation attributable to the proposed project would not result in adverse effects to upstream or downstream properties, as all waters during the 100-year storm would be contained within the existing Creek channel boundaries. In addition, the post-project condition flood modeling accounted for proposed fill necessary for the elevated pads upon which the new residences would be constructed. Based on the height of the elevated fill, the proposed structure pads and new internal looped private street would not be inundated by the 100-year storm event under post-project conditions. Additionally, the floodplain along the western bank of the Creek (looking downstream) under post-project conditions would be generally coterminous with the existing conditions floodplain. Thus, the proposed project is not anticipated to result in on- or off-site flooding as a result to the proposed changes to the on-site drainage pattern.

Table 4.3-1
Drainage Design Analysis

Surface	DMA Area (sf)	Post-Project Surface	DMA Runoff Factor	DMA Area X Runoff Factor	Sizing Factor	Minimum Basin Retention Area (sf)	Proposed Basin Retention Area (sf)
DMA 1							
Roof	4,986	Roof	1.0	4,986	0.04	273.1	295
Landscape	2,436	Landscape	0.1	243.6			
Pavement	1,598	Hardscape	1.0	1,598			
Total				6,827.6			
DMA 2							
Roof	4,913	Roof	1.0	4,913	0.04	268.3	295
Landscape	2,693	Landscape	0.1	269.3			
Pavement	1,524	Hardscape	1.0	1,524			
Total				6,706.3			
DMA 3							
Roof	4,913	Roof	1.0	4,913	0.04	271.3	295
Landscape	2,637	Landscape	0.1	263.7			
Pavement	1,606	Hardscape	1.0	1,606			
Total				6,782.7			
DMA 4							
Roof	4,986	Roof	1.0	4,986	0.04	289.3	295
Landscape	2,836	Landscape	0.1	283.6			
Pavement	1,962	Hardscape	1.0	1,962			
Total				7,231.6			
DMA 5							
Roof	44,993	Roof	1.0	44,993	0.04	3,955.8	4,350
Landscape	60,392	Landscape	0.1	6,039.2			
Pavement	47,864	Hardscape	1.0	47,864			
Total				98,896.2			

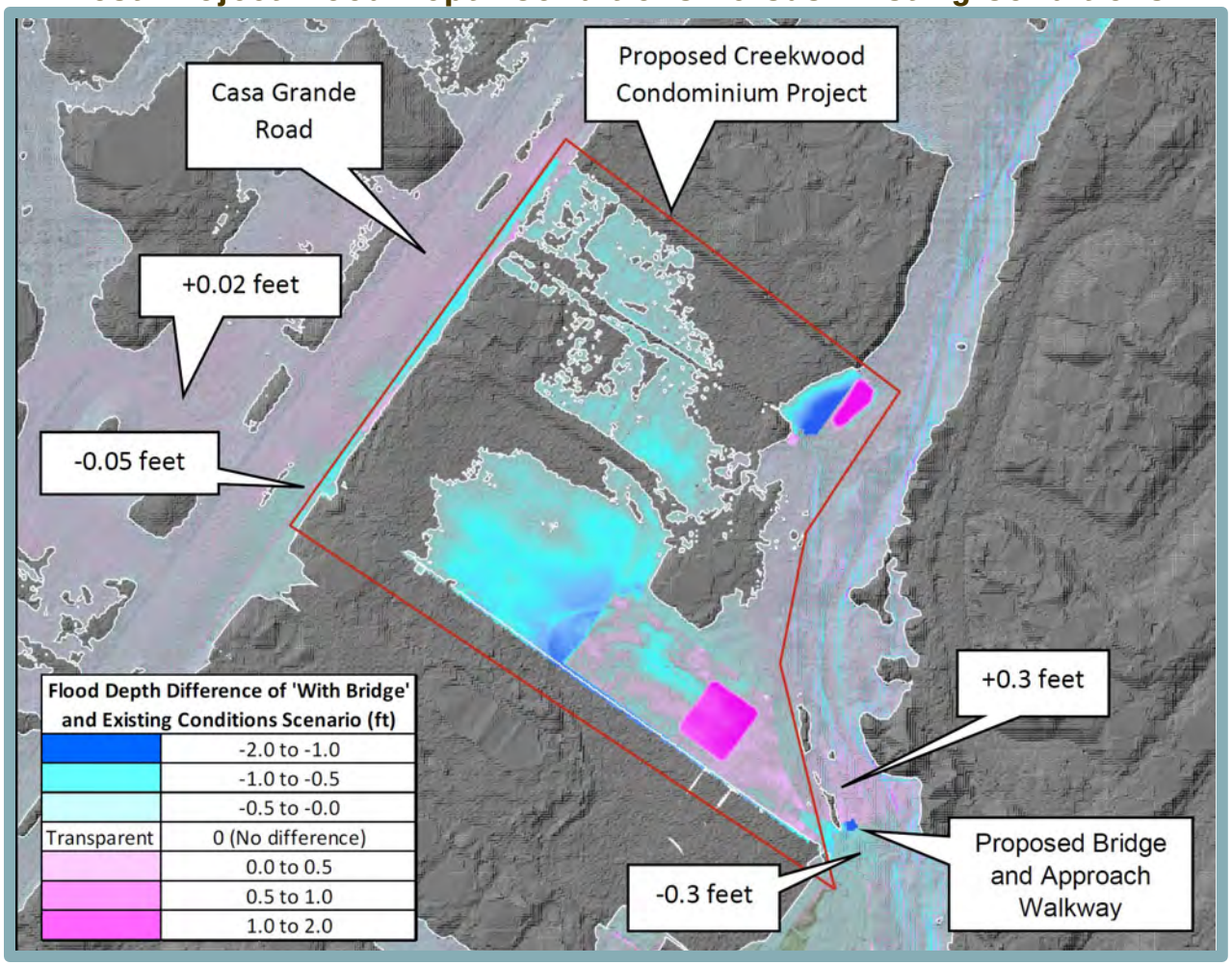
Source: Steven J. Lafranchi & Associates, Inc., 2023.

Figure 4.3-3
Post-Project Flood Depth Conditions



Source: WEST Consultants, Inc., 2023.

Figure 4.3-4
Post-Project Flood Depth Conditions Versus Existing Conditions



Note: The 100-year flood depth differences between post-project and existing conditions are shown above. Positive values (in pink) represent increases in depth. Negative values (in blue) represent decreases. The white line indicates the existing 100-year floodplain.

Source: WEST Consultants, Inc., 2023.

It should be noted that while the proposed project would result in new fill to elevate pads, FEMA FIRM 06097C1001G identifies the portions of the project site that would be developed with the proposed residences and internal roadway as being within Zone X and outside of a SFHA. Therefore, the proposed project would not require FEMA approval of a Conditional LOMR.

Based on the above, the proposed project would not substantially alter the existing drainage pattern of the site in a manner which would result in substantial erosion or siltation on- or off-site, substantially increase the rate or amount of surface runoff in a manner that would result in flooding on- or off-site, or create or contribute runoff water that would exceed the capacity of the proposed storm drain system or provide substantial additional sources of polluted runoff. Thus, a ***less-than-significant*** impact could occur.

Mitigation Measure(s)
None required.

4.3-4 In flood hazard, tsunami, or seiche zones, risk release of pollutants due to project inundation. Based on the analysis below, the impact is *less than significant*.

As discussed under Impact 4.3-3, the proposed Basin Retention Areas would be sized to adequately retain and treat all stormwater flows from the developed project site (see Table 4.3-1).

In addition, the Creek would experience water surface elevation changes of approximately +0.3 feet and -0.3 feet upstream and downstream of the proposed bridge connection, respectively, but the proposed structure pads and new internal looped private street would not be inundated by the 100-year storm event under post-project conditions (see Figure 4.3-3). The floodplain along the western bank of the Creek (looking downstream) under post-project conditions would also be generally coterminous with the existing conditions floodplain. Thus, the proposed project is not anticipated to result in the release of pollutants due to project inundation as a result of flooding.

In addition, a seiche is defined as a wave generated by rapid displacement of water within a reservoir or lake, due to an earthquake that triggers land movement within the water body or land sliding into or beneath the water body. The project site is not located near a water body that is susceptible to seiche hazard. In addition, due to the distance to the nearest coastline, the project site is not subject to tsunami hazards.

Based on the above, the proposed project would not alter the existing drainage pattern of the site in a manner that would impede or redirect flood flows, and a ***less-than-significant*** impact would occur.

Mitigation Measure(s)
None required.

Cumulative Impacts and Mitigation Measures

As defined in Section 15355 of the CEQA Guidelines, "cumulative impacts" refers to two or more individual effects which, when considered together, are considerable, compound, or increase other environmental impacts. The individual effects may be changes resulting from a single project or a number of separate projects. The cumulative impact from several projects is the change in the environment that results from the incremental impact of the project when added to other closely related past, present, and reasonably foreseeable probable future projects.

The cumulative setting for impacts related to hydrology and water quality encompasses the Petaluma River watershed. Additional detail regarding the cumulative project setting can be found in Chapter 5, Statutorily Required Sections, of this EIR.

4.3-5 Cumulative impacts related to the violation of water quality standards or waste discharge requirements, and impacts resulting from the alteration of existing drainage patterns. Based on the analysis below, the cumulative impact is *less than significant*.

Cumulative impacts related to stormwater quality, groundwater, and drainage patterns are discussed separately below.

Stormwater Quality

Construction activities have the potential to affect water quality and contribute to localized violations of water quality standards if stormwater runoff from construction activities enters receiving waters. Runoff from additional construction sites within the project area could carry sediment from erosion of graded or excavated surface materials, leaks or spills from equipment, or inadvertent releases of building products, which could result in water quality degradation if runoff containing such sediment or contaminants should enter receiving waters in sufficient quantities. Thus, construction activities associated with the proposed project, in combination with construction activities associated with other reasonably foreseeable projects in the Petaluma River watershed, could result in cumulative impacts related to water quality. However, all construction projects resulting in disturbance of one acre or more of land are required to comply with the most current NPDES Construction General Permit requirements. Conformance with the Construction General Permit would require preparation of SWPPPs for all such projects, and subsequent implementation of BMPs to prevent the discharge of pollutants. Considering the existing permitting requirements for construction activity in the project area, cumulative construction within the Petaluma River watershed would be heavily regulated and impacts related to the degradation of water quality would be minimized to the extent feasible.

Similar to the proposed project, cumulative development within the Petaluma River watershed would be subject to the City's NPDES Phase II MS4 general permit requirements, including implementation of source-control and treatment-control measures. Specifically, regulated projects are required to divide the project area into DMAs and implement and direct water to appropriately sized SDMs and Baseline Hydromodification Measures within each DMA. Source-control measures must be designed for pollutant-generating activities or sources consistent with recommendations from the CASQA Stormwater BMP Handbook for New Development

and Redevelopment, or equivalent manual, and must be shown on improvement plans.

Based on the conceptual stormwater design, during operations, the stormwater runoff would be properly treated prior to discharge from the site. Thus, urban pollutants entering and potentially polluting the local drainage system would not be expected to occur as a result of the project. Mitigation Measure 4.3-2 requires preparation of a final Stormwater Control Plan with submittal of the improvement plans for the City's review and approval to substantiate the preliminary report's Basin Retention Area sizing calculations. In addition, pursuant to the Phase II MS4 general permit requirements, a Post-Construction Stormwater Control Plan would be required for the proposed project. The project would be subject to NPDES Construction General Permit requirements, including implementation of BMPs and preparation of a site-specific SWPPP. Cumulative development projects within the project area would also be subject to Phase II MS4 stormwater requirements, as well as all City requirements related to stormwater treatment and control. Compliance with the foregoing regulations would ensure that impacts related to the alteration of drainage patterns and the discharge of pollutants are minimized to the extent feasible.

Drainage Patterns

Similar to the proposed project, cumulative development that could occur within the Petaluma River watershed would be subject to the applicable provisions of the City's NPDES Phase II MS4 general permit. Regulated projects are required to divide the project area into DMAs and implement and direct water to appropriately sized SDMs and Baseline Hydromodification Measures within each DMA. Source-control measures must be designed for pollutant-generating activities or sources consistent with recommendations from the CASQA Stormwater BMP Handbook for New Development and Redevelopment, or equivalent manual, and must be shown on the improvement plans. In addition, new storm drain infrastructure would be required to be designed consistent with applicable standards set forth by Sonoma Water, ensuring that new drainage features limit the potential for on- or off-site site flooding to occur. Overall, based on compliance with the foregoing regulations and the limited percentage that the project site and Labcon, Shainsky, and Carstansen sites represent within the 550-acre Creek watershed, cumulative development within the Petaluma River watershed would not substantially alter the existing drainage pattern of the area in a manner which would result in substantial adverse effects, and a less-than-significant impact would occur.

Flooding

Petaluma General Plan Policy 4-P-1 prohibits new development from occurring within 50 feet of any tributary of the Petaluma River. As such, cumulative development projects within the project area would be required to be appropriately located beyond a 50-foot setback from creeks within the Petaluma River watershed, which would serve to reduce the potential for flooding impacts to occur. In addition, pursuant to Petaluma IZO Section 6.050, new fill and construction, intensification of existing uses, substantial improvements, and other types of new development are prohibited in areas designated by FEMA as an SFHA without first obtaining a development permit.

Applications for development permits must include, among other things, the proposed elevation in relation to mean sea level of the lowest floor of all structures, proposed elevation in relation to mean sea level of any structure that would be floodproofed, and a description of the extent to which any watercourse would be altered or relocated as a result of the proposed development. Thus, cumulative development projects subject to Petaluma IZO Chapter 6 would be required to satisfactorily demonstrate to the City how floodproofing measures would be implemented into the project design to prevent flooding impacts associated with the 100-year floodplain from occurring.

With respect to the proposed project, as previously discussed, during the 100-year storm event, the minor increases to water surface elevation attributable to the proposed project would not result in adverse effects to upstream or downstream properties. Within the 550-acre Creek watershed, which is a subcomponent of the larger Petaluma River watershed, there are three other undeveloped properties (see Figure 4.3-5) identified by WEST Consultants, Inc. as having potential for future development: Labcon (six acres), Shainsky (two acres), and Carstansen (one acre). Labcon is a City-approved development site with construction pending in 2025. Combined with the 5.2-acre project site, the foregoing sites would represent approximately 0.5 percent of the overall Creek watershed; and the impervious surfaces associated with these three properties would not contribute substantial runoff to the surrounding watershed such that resultant water surface elevation increases would impact downstream and/or upstream properties.

Thus, the proposed project, in combination with cumulative development projects within the Petaluma River watershed, would result in a less-than-significant impact related to flooding.

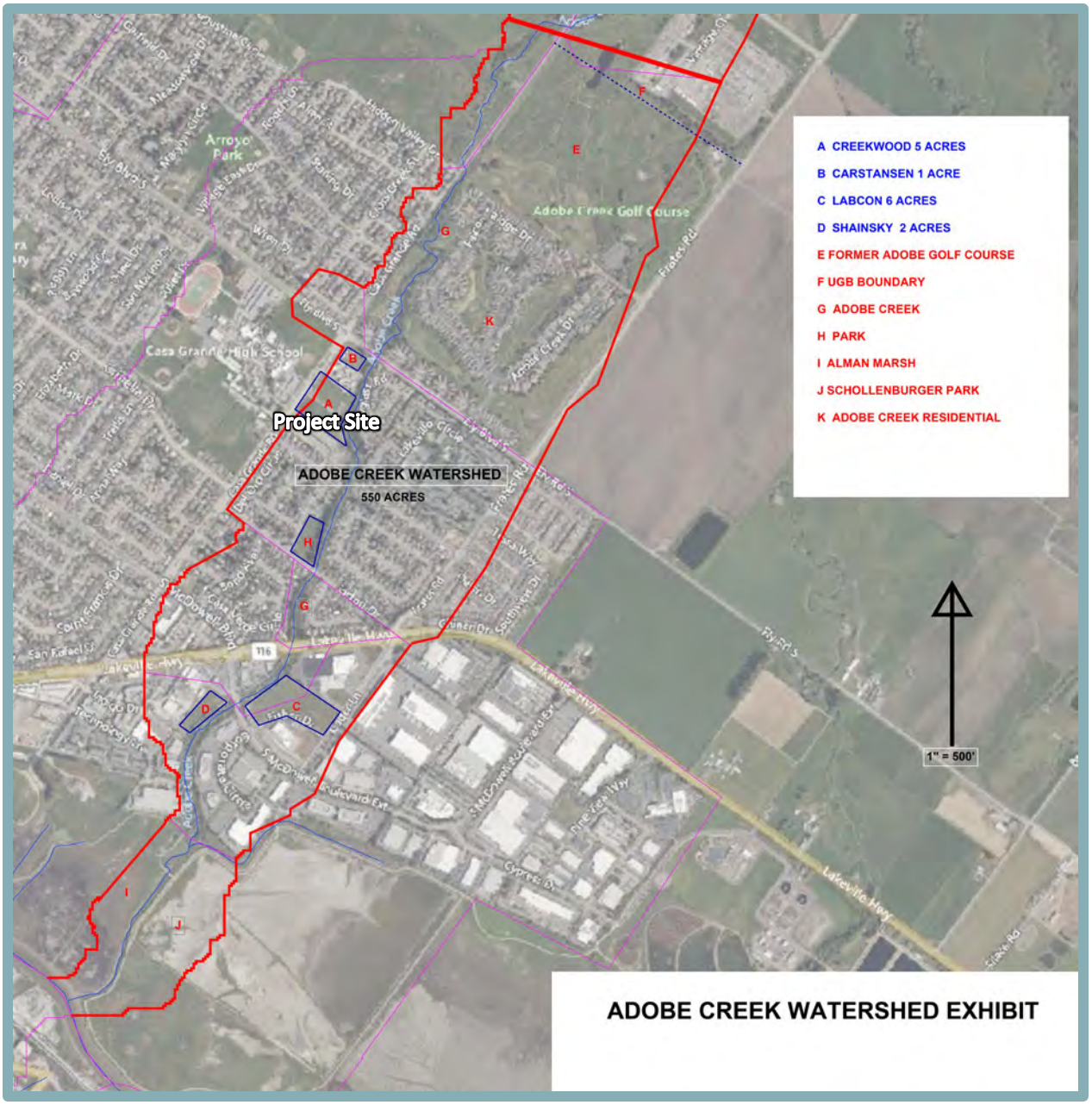
Conclusion

Based on the above, the potential cumulative impact associated with reasonably foreseeable future development, in conjunction with the proposed project, would be ***less than significant***.

Mitigation Measure(s)

None required.

Figure 4.3-5
Adobe Creek Watershed



4.4 Transportation

4.4 TRANSPORTATION

4.4.1 INTRODUCTION

The Transportation chapter of the EIR discusses the existing transportation and circulation facilities within the project vicinity, as well as applicable policies and guidelines used to evaluate operation of such facilities. Where development of the proposed project would conflict with applicable policies or guidelines, mitigation measures are identified. The information contained within this chapter is primarily based on the Focused Traffic Study prepared for the proposed project by W-Trans (see Appendix G of this EIR),[1]as well as the City of Petaluma General Plan,[2] the associated City of Petaluma General Plan EIR,[3] the Environmental Background Report for the City of Petaluma General Plan 2045 Update,[4] and the City's Vehicle Miles Traveled Implementation Guidelines.[5]

At the beginning of 2019, updated California Environmental Quality Act (CEQA) Guidelines went into effect. The new Guidelines require CEQA lead agencies such as the City of Petaluma to transition from using "level of service" (LOS) to "Vehicle Miles Traveled" (VMT) as the metric for assessing transportation impacts under CEQA (see Section 15064.3). The State's requirement to transition from LOS to VMT is aimed at promoting infill development, public health through active transportation, and a reduction in greenhouse gas (GHG) emissions. Pursuant to the Guidelines, any project that did not initiate CEQA public review prior to July 1, 2020 must use VMT rather than LOS as the metric to analyze transportation impacts. LOS will still be used by the City for purposes of determining consistency with general plan and community plan goals and policies but is no longer used for determining significant impacts under CEQA. Pursuant to CEQA Guidelines Section 15064.3, impact significance in this chapter is based upon VMT. Consistency with General Plan goals and policies related to transportation, including adopted LOS policies, will be considered by the decision-makers as part of the project review process.

4.4.2 EXISTING ENVIRONMENTAL SETTING

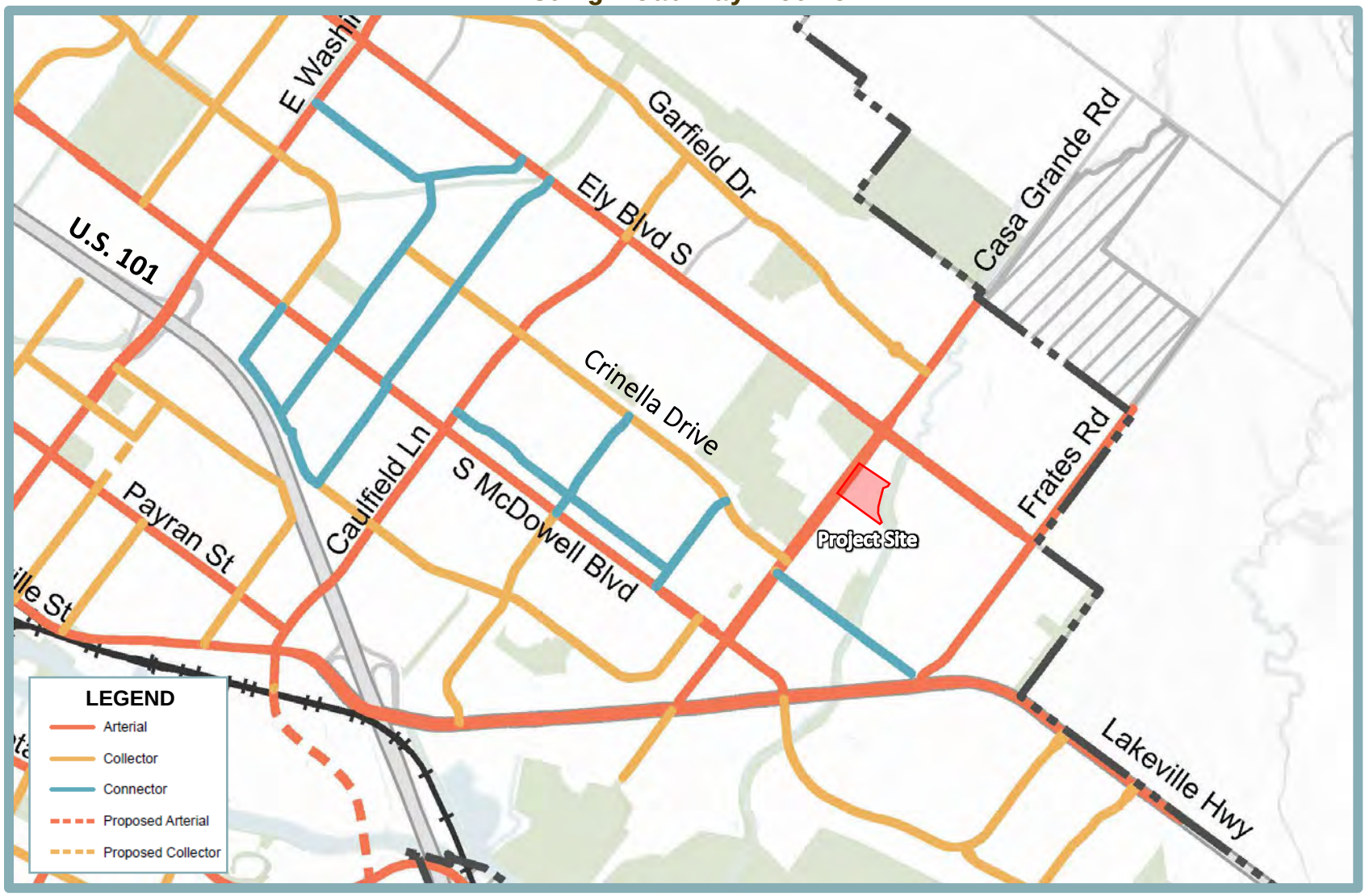
The section below describes the physical and operational characteristics of the existing transportation system within the study area, including the surrounding roadway network, transit, bicycle and pedestrian facilities.

Existing Roadways

The following sections provide a summary of the existing roadways within the project area, as depicted in Figure 4.4-1. The street network in the City of Petaluma does not consistently align with cardinal directions. Therefore, in City documents, roadways that run parallel to U.S. 101 are described as "north-south", and roadways that run perpendicular to U.S. 101 are described as "east-west".

1 W-Trans. *Focused Traffic Study for the Creekwood Residential Development.* May 22, 2024.
2 City of Petaluma. *City of Petaluma General Plan 2025.* Adopted May 19, 2008.
3 City of Petaluma. *City of Petaluma General Plan 2025 Environmental Impact Report.* February 2008.
4 City of Petaluma. *Environmental Background Report: Transportation*. September 2022.
5 City of Petaluma. *Senate Bill 743 Vehicle Miles Traveled Implementation Guidelines*. July 2021.

Figure 4.4-1
Existing Roadway Network



Source: Environmental Background Report for the City of Petaluma General Plan 2045 Update, 2022.

Casa Grande Road

Casa Grande Road, which is generally oriented east-west, is classified as a major arterial. Along the project site frontage, the road has two 12-foot travel lanes in each direction, with a two-way left-turn lane dividing the two directions, and a posted speed limit of 35 miles per hour (mph). According to the Environmental Background Report for the City's General Plan 2045 Update, the pavement quality along Casa Grande Road in the project vicinity is classified as very poor.

Ely Boulevard South

Ely Boulevard is a generally north-south arterial located north of the project site. Ely Boulevard intersects with Casa Grande Road north of the project site with a roundabout. The roadway has one travel lane in each direction, and a posted speed limit of 35 mph, which is reduced to 20 mph near the roundabout. According to the City's Environmental Background Report, the pavement quality along Ely Boulevard is classified as very good.

Crinella Drive

Crinella Drive is a north-south collector roadway that intersects with Casa Grande Road north of the project site. The roadway provides access to single-family residences, and has a posted speed limit of 25 mph. According to the City's Environmental Background Report, the pavement quality along Crinella Drive in the project vicinity is classified as very poor.

State Route 116

State Route (SR) 116, also called Lakeville Highway, is a major east west/connector providing access to U.S. 101 within the City of Petaluma. The route extends from SR 1 on the Pacific coast, through Petaluma, and splits into SR 121 in Big Bend.[6] In the project vicinity, SR 116 has two travel lanes in each direction, and a posted speed limit of 40 mph. According to the City's Environmental Background Report, the pavement quality along SR 116 in the project vicinity is classified as very poor.

U.S. 101

U.S. 101 is under the jurisdiction of Caltrans and the primary route between San Francisco and Marin and Sonoma Counties, providing regional access to the City of Petaluma. Access to Petaluma from U.S. 101 is provided by interchanges at SR 116, East Washington Street, and Petaluma Boulevard. In the project vicinity, U.S. 101 is a six-lane freeway that bifurcates the City.[7] In northwestern Petaluma, U.S. 101 has four lanes.

Pedestrian, Bicycle and Transit Facilities

The sections below describe the existing pedestrian, bicycle and transit facilities located within the vicinity of the project site.

Sidewalks and Paths

Continuous sidewalks exist along both sides of Casa Grande Road fronting the project. Marked crosswalks are available across Casa Grande Road at the intersection with Crinella Drive, south of the project site, and at the Ely Boulevard roundabout, north of the project site. In addition, paved

6 City of Petaluma. *Environmental Background Report: Transportation* [pg 13]. September 2022.
7 *Ibid.*

sidewalks exist along both sides of Ely Boulevard. Significant gaps in sidewalk continuity do not exist in the project vicinity.[8]

The Casa Grande Subdivision, located immediately south of the project site at 240 and 250 Casa Grande Road, was approved by the City of Petaluma in 2020. Off-site improvements have been constructed as part of the Casa Grande Subdivision, including a new pedestrian crossing on Casa Grande Road, near Casa Grande High School, with a raised median providing a pedestrian refuge and rapid rectangular flashing beacon warning lights, in addition to radar speed feedback signs.

Bicycle Facilities and Trails

Bicycle paths, bike lanes, bike routes, and separated bikeways are typical examples of bicycle transportation facilities, which are defined by the California Department of Transportation (Caltrans), as follows:

- **Bike paths (Class I)** – Paved trails that are separated from roadways. Such trails are also shared with pedestrians.
- **Bike lanes (Class II)** – Lanes on roadways designated for use by bicycles through striping, pavement legends, and signs.
- **Bike routes (Class III)** – Roadways designated for bicycle use by signs only; may or may not include additional pavement width for cyclists.
- **Separated Bikeway (Class IV)** – Separated bikeways, also referred to as cycle tracks or protected bikeways, are bikeways for the exclusive use of bicycles which are physically separated from vehicle traffic. Separated bikeways were adopted by Caltrans in 2015. Types of separation may include, but are not limited to, grade separation, flexible posts, physical barriers, or on-street parking.

Existing and planned bicycle facilities throughout the City, as of the 2008, are presented in Figure 4.4-2. Class II bicycle lanes currently exist in both directions along Casa Grande Road between South Ely Boulevard and South McDowell Boulevard. In addition, according to the Sonoma County Transportation Authority's (SCTA) Countywide Bicycle and Pedestrian Master Plan, the existing bicycle lanes on Casa Grande Road are planned to be extended northward from Ely Boulevard South to Adobe Road. In addition, a multi-use trail exists adjacent to the site along the opposite side of Adobe Creek (Creek) between Ely Boulevard and SR 116. Portions of the trail are paved, though a segment between Spyglass Road and Sartori Drive is an unpaved, informal path.

Transit System

Petaluma Transit provides fixed route bus service in Petaluma (see Figure 4.4-3). Route 33 provides service to destinations throughout the east side of the City and includes stops near the project site on Casa Grande Road, between Sartori Drive and Crinella Drive. Route 33 provides service to the Eastside Transit Center where riders can connect to other routes, as well as major destinations including shopping centers, the Petaluma Senior Center, and Santa Rosa Junior College. Route 33 operates seven days a week with one-hour headways from 7:00 AM to 8:00 PM on weekdays, 8:00 AM to 8:00 PM on Saturdays, and 9:00 AM to 5:00 PM on Sundays. Two bicycles can be carried on Petaluma Transit buses. Bike rack space is a first come first served basis. Additional bicycles are allowed on Petaluma Transit buses at the discretion of the driver.

[8] City of Petaluma. *Draft City of Petaluma Active Transportation Plan – Sidewalk Gap Inventory.* Available at: https://cityofpetaluma.org/active-transportation-plan/. Accessed January 2023.

Figure 4.4-2
Existing Bicycle Facilities

Source: Environmental Background Report for the City of Petaluma General Plan 2045 Update, 2022.

Figure 4.4-3
Existing Transit Facilities

Source: Environmental Background Report for the City of Petaluma General Plan 2045 Update, 2022.

Route 302 (as well as Routes 301, 303, 311, 312, and 501) provide only limited AM and afternoon school trip service for schools in the City limits during the school year. A bus stop for Route 302 is located to the north of the project site along Casa Grande Road.

Dial-a-ride, also known as paratransit or door-to-door service, is available for those who are unable to independently use the transit system due to a physical or mental disability. Petaluma Paratransit is designed to serve the needs of individuals with disabilities and includes all areas within 0.75-mile from an active Petaluma Transit route.

As part of the approved Casa Grande Subdivision project, two new bus shelters have been constructed at the Petaluma Transit bus stops on Casa Grande Road near the project site.

Vehicle Miles Traveled

Pursuant to CEQA Guidelines Section 15064.3, VMT is the primary metric used to identify transportation impacts under CEQA. VMT is a metric that accounts for the number of vehicle trips generated and the length or distance of those trips. VMT does not directly measure traffic operations; instead, VMT is a measure of transportation network use and efficiency, especially when expressed as a function of population (i.e., VMT per capita). VMT tends to increase as land use density decreases and travel becomes more reliant on the use of single-passenger vehicles.

According to W-Trans, and based on the SCTA's Sonoma County travel demand forecast model (SCTM19), the existing VMT setting in transportation analysis zone (TAZ) 341, in which the project site is located, is 19 VMT per capita. The Citywide home-based VMT per capita is reported as 17.8.

4.4.3 REGULATORY CONTEXT

Existing transportation policies, laws, and regulations that would apply to the proposed project are summarized below and provide a context for the impact discussion related to the project's consistency with the applicable regulatory conditions. Federal plans, policies, regulations, or laws related to transportation and circulation are not directly applicable to the proposed project. Rather, the analysis presented herein focuses on State and local regulations, which govern the regulatory environment related to transportation and circulation at the project level.

State Regulations

The following are the regulations pertinent to the proposed project at the State level, organized chronologically.

Senate Bill 743

In 2013, Senate Bill (SB) 743 was passed to amend Sections 65088.1 and 65088.4 of the Government Code, amend Sections 21181, 21183, 21186, 21187, 21189.1, and 21189.3 of the Public Resources Code (PRC), to add Section 21155.4 to the PRC, to add Chapter 2.7 (commencing with Section 21099) to Division 13 of the PRC, to add and repeal Section 21168.6.6 of the PRC, and to repeal and add Section 21185 of the PRC, relating to environmental quality. In response to SB 743, the Office of Planning and Research (OPR) has updated the CEQA Guidelines to include new transportation-related evaluation metrics. In December 2018, the California Natural Resources Agency certified and adopted the CEQA Guidelines update package along with an updated Technical Advisory related to Evaluating Transportation Impacts in CEQA. Full compliance with the Guidelines became effective July 2020. As a result of SB 743, and Section 15064.3 of the CEQA Guidelines, as discussed in further detail below, local jurisdictions

may no longer rely on vehicle LOS and similar measures related to delay as the basis for determining the significance of transportation impacts under CEQA, and instead a VMT metric should be evaluated.

Technical Advisory on Evaluating Transportation Impacts in CEQA

In December of 2018, OPR published the Technical Advisory on Evaluation Transportation Impacts in CEQA (Technical Advisory), which is a guidance document to provide advice and recommendations regarding assessment of VMT, thresholds of significance, and mitigation measures. The Technical Advisory is intended to be a resource for the public to use at their discretion, and OPR does not enforce any part of the recommendations contained therein. The Technical Advisory includes recommendations regarding methodology, screening thresholds, and recommended thresholds per land use type.

Vehicle Miles Traveled-Focused Transportation Impact Study Guide

In May of 2020, Caltrans adopted the Vehicle Miles Traveled-Focused Transportation Impact Study Guide (TISG) to provide direction to lead agencies regarding compliance with SB 743. The TISG replaces the Caltrans' 2002 Guide for the Preparation of Traffic Impact Studies and is for use with local land use projects, not for transportation projects on the State Highway System. The objectives of the TISG are to provide:[9]

a) Guidance in determining when a lead agency for a land use project or plan should analyze possible impacts to the State Highway System, including its users.
b) An update to the Guide for the Preparation of Traffic Impact Studies (Caltrans, 2002) that is consistent with SB 743 and the CEQA Guidelines adopted on December 28, 2018.
c) Guidance for Caltrans land use review that supports state land use goals, state planning priorities, and GHG emission reduction goals.
d) Statewide consistency in identifying land use projects' possible transportation impacts to the State Highway System, and to identify potential non-capacity increasing mitigation measures.
e) Recommendations for early coordination during the planning phase of a land use project to reduce the time, cost, and/or frequency of preparing a Transportation Impact Study or other indicated analysis.

Caltrans has jurisdiction over State highways. Therefore, Caltrans controls all construction, modification, and maintenance of State highways, and any improvements to such roadways require Caltrans approval.

Local Regulations

Local rules and regulations applicable to the proposed project are discussed below.

City of Petaluma General Plan

The following goals and policies from the Petaluma General Plan are applicable to the proposed project:

Goal 5-G-1 To improve Petaluma's mobility system to increase efficiency for all modes of travel.

[9] California Department of Transportation. *Vehicle Miles Traveled-Focused Transportation Impact Study Guide*. May 20, 2020.

Policy 5-P-1 Develop an interconnected mobility system that allows travel on multiple routes by multiple modes.

A. Develop a network that categorizes streets according to function and type, considering the surrounding land use context.
B. Develop a network for off-street paths and routes according to function and type, considering the intensity of use and purpose.
C. Review and update the City's Street Design Standards to be consistent with street function and typology.
D. Explore the redesign of existing streets to potentially reduce the width and/or number of travel lanes, improve the multimodal function of intersections and street segments, and introduce amenities such as wider sidewalks, special paving treatments, bus priority treatments, landscaped medians, and street trees within parking lanes.
E. Evaluate the feasibility of road diets on streets with projected excess capacity at buildout (see Section 5.3 [of the General Plan]).

Policy 5-P-2 Ensure the identified mobility system is provided in a timely manner to meet the needs of the community by updating the City's transportation impact fee program to insure that necessary citywide improvements are funded.

A. Transportation impact fees will be determined based on each project's fair share of the aggregate costs of roadway improvements identified within the Mobility Element and EIR.
B. The fee program is intended to ensure that new developments pay its proportionate share of traffic infrastructure improvements to mitigate direct traffic impacts from new development.
C. Some portion(s) of the identified mobility system improvements will be constructed as part of project related frontage improvements.
D. Allocation of mitigation funds shall be designated to the capital improvement project for which it was exacted.
E. Transportation impact fees will be routinely updated to reflect project timing and costs.

Policy 5-P-4 New development and/or major expansion or change of use may require construction of off-site mobility improvements to complete appropriate links in the network necessary for connecting the proposed development with existing neighborhoods and land uses.

Policy 5-P-5 Consider impacts on overall mobility and travel by multiple travel modes when evaluating transportation impacts.

Policy 5-P-6 Ensure new streets are connected into the existing street system and encourage a grid-based network of streets.

Policy 5-P-7 Where aesthetic, safety, and emergency access can be addressed, allow narrower streets in residential development to create a pedestrian scaled street environment.

Policy 5-P-8 The priority of mobility is the movement of people within the community including the preservation of quality of life and community character.

A. Develop formal transportation impact analysis guidelines that consider multi-modal impacts of new developments.
B. Develop and adopt multi-modal level of service (LOS) standards that examine all modes and vary the standards by facility type to imply a preference to selected modes based upon the context (including street type and location).
C. LOS analysis data shall utilize the peak hour (60 minutes) rather than the peak period (15 minutes) for determining intersection LOS.

Goal 5-G-2 Promote the safe movement of people and goods through Petaluma's streets.

Policy 5-P-9 Ensure safety improvements are undertaken in response to the changing travel environment.

A. Establish a program to annually collect and evaluate traffic collision data at the top collision locations for automobiles, bicycles, and pedestrians in Petaluma, and design countermeasures where needed.
B. Explore the development of a citywide Intelligent Transportation Systems (ITS) plan to maximize the efficiency of the transportation system through advanced technologies, such as adaptive signal controls, real-time transit information, and real-time parking availability.
C. Designate official truck routes to ensure truck traffic minimizes its impact on residential neighborhoods and avoids mixed use and main streets, where possible, and enforce truck parking restrictions.

Goal 5-G-4 Use transportation demand management (TDM) tools on a citywide basis to encourage and create incentives for the use of alternate travel modes.

Goal 5-G-5 Create and maintain a safe, comprehensive, and integrated bicycle and pedestrian system throughout Petaluma that encourages bicycling and walking and is accessible to all.

Policy 5-P-15 Implement the bikeway system as outlined in the Bicycle and Pedestrian Plan, and expand and improve the bikeway system wherever the opportunity arises.

A. Fund and implement the Bicycle Plan and complete gaps in the bikeway network through new development, redevelopment and the Capital Improvements Program.
B. Develop and update guidelines and standards for the design of bicycle facilities.
C. Design and maintain bikeways at or above local, state, and federal standards in order to maximize safety for bicyclists (e.g. width).
D. Develop and implement a uniform bicycle signage program to enhance safety and ease of travel for all who use the city transportation network.
E. Identify loop detectors along bikeways with stencils where (a) the outline of the loop is not identifiable on the surface of the roadway, or (b) where it is unclear which of the identifiable loops will activate the signal.
F. Preserve the Highway 101 pedestrian/bicycle over-crossing south of East Washington Street interchange.
G. Continue to outfit local transit busses with bike racks; and encourage regional transit providers to provide bike racks as well.

Policy 5-P-16 If Class II bike lanes are not possible on streets designated as such on the Bicycle Facilities Map, those streets shall become enhanced Class III bike routes using such markings as edge striping, shared lane markings, and signs.

Policy 5-P-17 The City shall discourage using sidewalks as designated bicycle routes.

Policy 5-P-18 The City shall require Class II bike lanes on all new arterial and collector streets.

Policy 5-P-19 All new and redesigned streets shall be bicycle and pedestrian friendly in design.

Policy 5-P-20 Ensure that new development provides connections to and does not interfere with existing and proposed bicycle facilities.

Policy 5-P-22 Preserve and enhance pedestrian connectivity in existing neighborhoods and require a well connected pedestrian network linking new and existing developments to adjacent land uses.

A. Improve the pedestrian experience through streetscape enhancements, focusing improvements where there is the greatest need, and by orienting development toward the street.
B. Improve street crossings and complete gaps in the sidewalk system through development review and capital improvement projects.

C. Allocate funds and/or identify funding sources (including the potential formation of assessment districts) for pedestrian and streetscape improvements in existing neighborhoods.
D. Create a pedestrian priority program emphasizing pedestrian circulation needs and safe street crossings.
E. Conduct an inventory of key pedestrian facilities and routes to identify missing or deficient links, pedestrian crossings or intersections, and focusing initially on pedestrian priority areas.
F. Establish a prioritization and funding mechanism for completing gaps in the sidewalk system, identifying locations for improving street crossings, and installing curb ramps to meet ADA specifications.
G. Improve the integration of pedestrian projects into the Capital Improvement Program and consider opportunities to construct pedestrian improvements concurrently with other roadway improvements.
H. Develop guidelines and standards for the design of pedestrian facilities and establish pedestrian-friendly residential and commercial design guidelines.
I. Review and update the City's street design standards to address pedestrian-friendly street designs such as maximum lane widths, maximum curb radii, detached sidewalks, dual left turn lanes at intersections, pedestrian refuge islands, and curb ramp standards.
J. Collaborate with the Santa Rosa Junior College to identify measures that enhance pedestrian circulation to and within the Petaluma Campus.
K. Establish a Pedestrian Safety Program that provides pedestrian educational materials and a regularly updated pedestrian safety report.
L. Conduct regular maintenance of pedestrian related facilities.

Policy 5-P-23 Require the provision of pedestrian site access for all new development.

Policy 5-P-24 Give priority to the pedestrian network and streetscape amenities near schools, transit, shopping, and mixed use corridors emphasized in the General Plan.

Policy 5-P-25 Establish a network of multi-use trails to facilitate safe and direct off-street bicycle and pedestrian travel. At the minimum, Class I standards shall be applied unless otherwise specified.

A. Review the status of ownership and use of railroad rights-of-way, creek maintenance rights-of-way, dedicated public or utility easements in favor of the city, and other public lands and seek to include new bicycle and pedestrian routes by working with all appropriate agencies.

B. Fully implement the non-motorized components of the Petaluma River Access and Enhancement Plan.
C. Support the implementation of a continuous SMART bicycle/pedestrian path along the NWPRR corridor and integrate it with the citywide bicycle network.
D. Study, seek funding for, construct and maintain a "Petaluma Ring Trail," a connected system of multi-use trails in the Urban Separator, or otherwise approximately parallel with (if not immediately adjacent to) the Urban Growth Boundary. The Petaluma Ring Trail shall form a continuous, unbroken path around the city.
E. Build new river (upstream of navigable waters) and creek crossings for bicycles and pedestrians to provide greater connectivity and more efficient cross-town routes.

Policy 5-P-26 Require all new development and those requiring new city entitlements with "frontage" along creeks and the river to permit through travel adjacent to creeks and the river with access points from parallel corridors spaced at minimum intervals of 500–1,000 feet.

Policy 5-P-27 Locate connections to Class I facilities from parallel routes along the parcel line of adjoining properties to provide separation from parking lots and buildings; design connections as Class I facilities.

Policy 5-P-28 Allow bicyclists and pedestrians use of all emergency access routes required of existing and new developments.

A. Design new emergency access routes to accommodate bicycle and pedestrian use.

Policy 5-P-30 Require all new development abutting any public trail to provide access to the trail.

Petaluma Bicycle and Pedestrian Master Plan

The Petaluma Bicycle and Pedestrian Master Plan (BPMP), adopted in 2008, identifies goals, policies, and programs related to bicycle and pedestrian mobility; documents the existing Citywide conditions for bicycle, pedestrian, and multi-use trail facilities; and proposes new facilities, specific improvements, and programmatic recommendations to support the goals established in the BPMP.

It is noted that the City of Petaluma is in the process of updating the BPMP in parallel with the City's General Plan Update.

Petaluma Vehicle Miles Traveled Implementation Guidelines

In July 2021, the City of Petaluma adopted the Senate Bill 743 Vehicle Miles Traveled Implementation Guidelines, which established methods for calculating VMT, VMT thresholds,

screening criteria, and mitigation options.[10] The guidelines recommend use of the SCTA VMT model for VMT analyses, and offer screening opportunities for projects that attract fewer than 110 vehicle trips per day, are located in low-VMT areas, are located within 0.5-mile of an existing major transit stop, or include 100 percent affordable housing. For residential projects, such as the proposed project, a project would result in a significant impact and require mitigation if project total home-based VMT per resident exceeds 16.8 percent below the citywide average.

Consideration by the Association of Bay Area Governments (ABAG) has also been given to developing screening criteria for infill projects. For example, a memorandum was prepared for ABAG by Fehr and Peers to address common challenges heard during the Metropolitan Transportation Commission's (MTC) VMT Policy Adoption Technical Assistance (SB 743) program by helping lead agencies with limited high-quality transit service or low-VMT areas determine an appropriate VMT analysis approach for infill housing sites. For the memo, the minimum density threshold of 15 dwelling units per acre is used when referring to qualifying infill housing; although, lead agencies have the authority to determine a locally appropriate definition of infill housing, including the threshold for the proximity to amenities and services and the density levels that would qualify.[11]

Sonoma County Transportation Authority

The SCTA is the Congestion Management Agency for Sonoma County. SCTA produces long range documents and assists local jurisdictions in local specific plans, including Priority Development Area plans for transit-oriented and walkable communities. SCTA also maintains a Countywide Bicycle and Pedestrian Master Plan. In addition, the SCTA developed and maintains the countywide travel model used to estimate future year traffic volumes and calculate VMT in a manner consistent with SB 743 throughout the County.

Plan Bay Area 2050

The Plan Bay Area 2050 is the 30-year Bay Area regional growth plan adopted by the Metropolitan Transportation Commission (MTC) and ABAG. The plan includes a total of 35 strategies targeting improved housing, transportation, and equity. The Plan Bay Area 2050 serves as the Bay Area's Regional Transportation Plan (RTP), as required by federal regulations, and the Sustainable Communities Strategy (SCS), as required by State statute.

4.4.4 IMPACTS AND MITIGATION MEASURES

This section describes the standards of significance and methodology utilized to analyze and determine the proposed project's potential impacts related to transportation and circulation.

Standards of Significance

Consistent with Appendix G of the CEQA Guidelines, the proposed project would be considered to result in a significant adverse impact on the environment in relation to transportation and circulation if the project would result in any of the following:

- Conflict with a program, plan, ordinance, or policy, addressing the circulation system, including transit, roadway, bicycle, and pedestrian facilities;
- Conflict or be inconsistent with CEQA Guidelines Section 15064.3, subdivision (b);

[10] City of Petaluma. *Senate Bill 743 Vehicle Miles Traveled Implementation Guidelines*. July 2021.
[11] Fehr and Peers. *SB 743 Policy Adoption Technical Assistance Program: Establishing an Infill and Affordable Housing Screen*.

- Substantially increase hazards to vehicle safety due to a geometric design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment); or
- Result in inadequate emergency access.

Vehicle Miles Traveled Standard of Significance

As noted above, per the City of Petaluma's Vehicle Miles Traveled Implementation Guidelines, a residential project would result in a significant impact and require mitigation if project total home-based VMT per resident exceeds 16.8 percent below the citywide average. The current citywide home-based VMT per capita, as reported by the SCTM19 travel demand model, is 17.8 for the City of Petaluma, which translates to a significance threshold of 14.8 VMT per capita.

Method of Analysis

The analysis methodology provided in the Focused Traffic Study (see Appendix G of this EIR) prepared for the proposed project by W-Trans is discussed below.

Project Trip Generation

The trip generation for the proposed project was calculated using trip generation rates published in the 11th Edition Trip Generation Manual prepared by the Institute of Transportation Engineers. The applicable land use for the proposed single-family units and the residence to be demolished is category 210 (Single Family Detached Housing), and the applicable rate for the proposed townhome units is category 215 (Single Family Dwellings [Attached]). Application of the foregoing trip generation rates yields a net total of 494 daily trips with 36 trips expected in the AM peak hour and 46 trips generated during the PM peak hour. Table 4.4-1 identifies the trip generation for the proposed project.

Table 4.4-1
Project Trip Generation

		Trip Generation									
		Daily		AM Peak Hour				PM Peak Hour			
Land Use	Units	Rate	Trips	Rate	Trips	In	Out	Rate	Trips	In	Out
Single Family (Detached)	35	9.43	330	0.70	25	6	19	0.94	33	21	12
Single Family (Attached)	24	7.20	173	0.48	12	3	9	0.57	14	8	6
Homes to be Demolished	-1	9.43	-9	0.70	-1	0	-1	0.94	-1	-1	0
Total		**--**	**494**	**--**	**36**	**9**	**27**	**--**	**46**	**28**	**18**

Source: W-Trans, 2022.

Project Vehicle Miles Traveled

As part of the Focused Traffic Study, W-Trans estimated per capita VMT associated with the proposed project using the SCTA's SCTM19 travel demand model. The model divides the County into over 800 TAZs and incorporates land use, demographic, socioeconomic, and transportation network data to estimate travel across different areas inside and outside of Sonoma County.[12]

[12] Sonoma County Transportation Authority. *Sonoma County Travel Model Update Validation Report*. December 2019.

The project site is located within TAZ 341 of the SCTM19 model, which has a baseline VMT per capita of 19.0 miles. In order to meet the applicable threshold of significance of 14.8 VMT per capita, a 22.0 percent reduction in VMT per capita would be required. To determine project-specific VMT, W-Trans applied adjustments to account for the project density, provision of on-site inclusionary housing, and improvements to pedestrian circulation through implementation of the bridge connection. When considering the "raw" percent reduction in VMT associated with each of the aforementioned adjustments separately based on the California Air Pollution Control Officers Association (CAPCOA) guidance and adding those raw percentages together, the proposed project would result in a total percent reduction in VMT per capita of 16.1. The raw percent reduction associated with each project feature adjustment is detailed below. However, according to methodology within the CAPCOA guidance, the total percent reduction was reduced to 15.7 percent to reflect the diminishing effects of multiple VMT reduction measures, which correlates to a VMT per capita of 16.0.

Density Adjustment

The project's VMT per capita was first adjusted to account for residential density using methodology contained in the CAPCOA's Handbook for Analyzing Greenhouse Gas Emission Reductions, Assessing Climate Vulnerabilities, and Advancing Health and Equity (Handbook). For the purposes of this methodology, the density of the project site is calculated by dividing the proposed 59 units by the 4.07-acre developable site size, which excludes streets, open space, and undevelopable land. The resulting 14.5 units per acre density was determined to correspond to a 13.1 percent reduction in per capita VMT.

Inclusionary Housing Adjustment

The VMT generated per resident at a residential development is also influenced by the quantity of on-site inclusionary housing. The methodology included in the CAPCOA Handbook was used to determine the VMT reductions associated with provision of on-site affordable housing. The proposed project would include five low-income units, which was determined to result in a 2.4 percent reduction in the project's per-capita VMT.

Adobe Creek Pedestrian-Bicycle Bridge Adjustment

Improving pedestrian connectivity both on- and off-site has been shown to reduce the amount of VMT generated per person. The proposed project would include construction of a new pedestrian/bicycle bridge over the Creek, connecting to the Creek path on the south side of the Creek. A pathway connection would also be constructed between the project's public street and the new bridge. Based on the methodology included in the CAPCOA Handbook, the reduction to the project's per capita VMT that would be attributable to the proposed Creek bridge is 0.6 percent.

Project-Specific Impacts and Mitigation Measures

The proposed project impacts on the transportation system are evaluated in this section based on the thresholds of significance and methodology described above. Each impact is followed by recommended mitigation to reduce the identified impacts, if needed. In the case of traffic operations, specifically intersection and roadway level of service, such an analysis is not required pursuant to CEQA Guidelines Section 15064.3(a) because congestion and intersection operations no longer constitute a transportation impact under CEQA.

4.4-1 Conflict with a program, plan, ordinance, or policy, except LOS, addressing the circulation system during construction activities. Based on the analysis below and with implementation of mitigation, the impact is *less than significant*.

Construction activities associated with the proposed project would require use of construction equipment, including bulldozers and other heavy machinery, as well as building materials delivery, and construction worker commutes. The transport of heavy construction equipment to the site, haul truck trips, and construction worker commutes could affect the local roadway network. Additionally, Casa Grande High School is located adjacent to the project site, across Casa Grande Road. Substantial motor vehicle, pedestrian, bicycle, and school bus traffic is expected in the project vicinity during school start and end times. The addition of construction equipment and heavy truck traffic in an area with concentrated pedestrian and bicycle traffic could result in safety concerns.

Any truck traffic to the site would follow designated truck routes, and project construction would likely stage any large vehicles (i.e., earth-moving equipment, cranes, etc.) on the site prior to beginning site work and remove such vehicles at project completion. Deliveries of building material (lumber, concrete, asphalt, etc.) would also normally occur outside of the traditional business commute time periods. However, the proposed project is anticipated to require approximately 19 months to complete construction activities, and detailed information related to the construction schedule during site development or a construction management plan is not currently available. In addition, given the allowable construction hours established for the purposes of noise control (Petaluma IZO Section 21.040), construction workers could arrive during the morning peak hour and leave during the evening peak hours of the traditional business commute time periods. Furthermore, while the City does not have a plan, policy, or ordinance related to traffic during school arrival/departure hours, departing construction traffic has the potential to occur within similar time periods when students are leaving Casa Grande High School. As a result, construction activities could include disruptions to the transportation network near the project site, including related to school traffic.

Without proper planning of construction activities, construction traffic could interfere with existing roadway operations during the construction phase, which could result in a risk to public safety. Therefore, project traffic related to construction activities could result in a ***significant*** impact. In order to address the potentially significant impact, Mitigation Measure 4.4-1 shall be required, which necessitates preparation and implementation of a construction management plan to control for traffic during project construction. With implementation of Mitigation Measure 4.4-1, the potential impact would be reduced to a less-than-significant level.

Mitigation Measure(s)

Implementation of the following mitigation measure would reduce the above potential impact to a *less-than-significant* level.

4.4-1 *Prior to issuance of grading and building permits, a construction management plan shall be prepared by the applicant for review and approval by the City of Petaluma Public Works and Utilities Department. The plan shall include, but not necessarily be limited to, the following items:*

a. *Comprehensive traffic control measures, including scheduling of major truck trips and deliveries to avoid peak traffic hours, including school peak times, detour signs if required, lane closure procedures if required, sidewalk closure procedures if required, cones for drivers, and designated construction access routes.*
b. *Evaluation of the need to provide flaggers or temporary traffic control at key intersections along the truck route(s).*
c. *Notification procedures for adjacent property owners, Casa Grande High School, and public safety personnel regarding schedules when major deliveries, detours, and lane closures would occur.*
d. *Location of construction staging areas for materials, equipment, and vehicles if there is insufficient staging area within the work zone of the proposed project.*
e. *Identification of truck routes for movement of construction vehicles that would minimize impacts on vehicular and pedestrian traffic, circulation and safety; provision for monitoring surface streets used for truck movement so that any damage and debris attributable to the proposed project's construction trucks can be identified and corrected by the proposed project applicant.*
f. *A process for responding to and tracking complaints pertaining to construction activity, including identification of an on-site complaint manager.*
g. *Documentation of road pavement conditions for all routes that would be used by construction vehicles both before and after proposed project construction. Roads found to have been damaged by construction vehicles shall be repaired to the level at which they existed prior to construction of the proposed project.*

4.4-2 Conflict with a program, plan, ordinance, or policy, except LOS, addressing the circulation system, including transit, roadway bicycle, and pedestrian facilities, during operations. Based on the analysis below, the impact is *less than significant*.

The following discussion evaluates whether the proposed project would result in impacts to existing or planned pedestrian facilities, bicycle facilities, or transit facilities and services within the project area.

Pedestrian and Bicycle System

The proposed project would introduce pedestrians and bicyclists who elect to walk between the project site and nearby destinations, including Casa Grande High School. As presented in Table 1 of the Petaluma BPMP, 3.5 percent of commuters in the City either bicycle or walk to work (0.9 percent bicycle and 2.6 percent walk).[13] If four percent of the project's daily trips are conservatively assumed to be made on foot or bicycle, then approximately 20 additional daily pedestrians/cyclists might be added to the area circulation system.

Continuous sidewalks currently exist along both sides of Casa Grande Road fronting the project. In addition, as presented in Figure 4.4-2, a Class II bike lane currently exists along Casa Grande Road, and a planned Class I bike lane extends along the Creek. As part of the proposed project, four-foot-wide sidewalks would be provided along private portions of the internal roadway. The portion of the street that fronts the Remainder area would not include a sidewalk. Additionally, five-foot-wide sidewalks would be constructed within the project site, along a dedicated public pedestrian easement, to connect the public sidewalk along Casa Grande Road to the proposed off-site public multi-use pathway and bridge connection over the Creek (see Figure 3-4 in the Project Description chapter of this EIR). The multi-use pathway would be 10 feet in width and installed along the project site's eastern boundary, west of the Creek, with a connection east of the Creek tying into the existing/planned multi-use pathway as identified in the City's Bike and Pedestrian Master Plan. The pedestrian bridge would connect the proposed multi-use pathway along the west side of the Creek to the existing/planned path along Spyglass Road on the east side of the Creek. The bridge would be 90 feet in length, eight feet in width, and composed of steel framing, as well as wood decking for the walking surface. Safety rails standing a minimum of 4.5 feet in height would line each side of the bridge. Based on the above, the proposed project would include several pedestrian and bicycle improvements that would facilitate multi-modal travel in the project vicinity. Additionally, implementation of the project would not inhibit construction of any of the planned improvements identified in Figure 4.4-2.

The project could also result in school-age residents who may wish to walk or bike to Casa Grande High School. As part of the Casa Grande Subdivision to the south, a new pedestrian crossing has been installed on Casa Grande Road, near Casa Grande High School, with a raised median providing a pedestrian refuge and rapid rectangular flashing beacon warning lights, in addition to radar speed feedback signs. The crossing is immediately west of the Casa Grande High School campus and the project site. The foregoing improvement was recommended as part of the Safe Routes to School program engineering evaluation completed for the campus and, accordingly, would provide safe pedestrian/cyclist access between the project site and high school and between the project site and existing transit stops. Additionally, the proposed project would include mounting hardware for a minimum of two bicycles in the garages of each proposed unit, which would satisfy the City's requirement for on-site bicycle parking.

Overall, the proposed project would not physically disrupt an existing pedestrian or bicycle facility nor interfere with the implementation of a planned pedestrian or bicycle facility. Therefore, impacts from the project due to a conflict with pedestrian and bicycle facilities would be less than significant.

[13] City of Petaluma. *City of Petaluma Bicycle and Pedestrian Plan* [pg. 25]. May 2008.

Transit System

Petaluma Transit currently provides transit service in the project area, as presented in Figure 4.4-3, and would be available to serve residents of the proposed project. The nearest transit stop to the project site serves both Routes 311 and 312, and is located on the north side of Casa Grande Road, approximately 350 feet from the project site boundary.

The Casa Grande Subdivision has recently completed bus stop improvements, including a new transit shelter, at the existing bus stop on Casa Grande Road, which further supports the transit facilities accessible to the proposed project. According to W-Trans, the existing transit service is acceptable to accommodate project-generated transit trips. Overall, the proposed project would not adversely affect transit service and facilities and impacts would be less than significant.

Conclusion

Based on the above, the proposed project would not conflict with adopted policies, plans, or programs supporting alternative transportation (i.e., bus turnouts, bicycle lanes, bicycle racks, public transit, pedestrian facilities, etc.). Thus, the project would result in a ***less-than-significant*** impact to pedestrian, bicycle, and transit facilities.

Mitigation Measure(s)

None required.

4.4-3 Result in VMT which exceeds an applicable threshold of significance, except as provided in CEQA Guidelines Section 15064.3, subdivision (b). Based on the analysis below, the impact is *significant and unavoidable*.

Table 4.4-2 summarizes the results of the VMT analysis prepared for the proposed project. The methodology used to determine the project-specific VMT, including the VMT reductions associated with project density and the provision of inclusionary housing and the bridge connection over the Creek, are discussed in detail in the Method of Analysis section of this chapter.

As discussed previously, residential projects that generate VMT per capita at 16.8 percent less than the Citywide average VMT may be considered to have a less-than-significant VMT impact. Therefore, the VMT threshold applied to the proposed project is 16.8 percent less than 17.8, or 14.8 VMT per capita.

Table 4.4-2
Citywide VMT Analysis Summary

VMT Metric	Baseline VMT	Threshold of Significance	Project VMT	Significant?
Residential VMT per Capita	17.8	14.8	16.0	**YES**

Source: W-Trans, 2022.

As shown in the table, according to the Focused Traffic Study prepared for the proposed project, the VMT per capita for the proposed project would be 16.0, which is based on the 15.7 percent reduction in VMT per capita afforded to the project because of the project's density, inclusion of affordable housing, and pedestrian circulation improvements (as adjusted through CAPCOA guidance). However, the project's 16.0 VMT per capita exceeds the applicable threshold of significance of 14.8 VMT per capita.

It should be noted that upon completion, the proposed bridge connection over the Creek and path connections provided by the proposed project would establish a new connection between Casa Grande High School and the neighborhoods to the southeast, substantially shortening the walking and biking distances to the high school for many students. The connection would also make use of the enhanced pedestrian crossing on Casa Grande Road, which was recently completed as part of the Casa Grande Subdivision. In addition to improving non-auto access to the high school, the new bridge and pathways would improve non-auto linkages among neighborhoods. As a result, the project's effective VMT per capita would be slightly reduced to 15.8 through the areawide VMT benefits associated with the proposed project's construction of the bridge connection over the Creek, which would be directly credited to the project.

However, given that the per-capita VMT associated with the proposed project would not achieve the applicable VMT reduction goal, the proposed project could conflict or be inconsistent with CEQA Guidelines section 15064.3, subdivision (b), and a ***significant*** impact could occur.

Notwithstanding the above conclusion, it is important to note that ABAG/MTC has prepared a technical assistance memo related to VMT, and among its recommendations is establishing an Infill Housing Screen, whereby qualifying projects having at least 15 dwelling units per acre, could be considered to have a less-than-significant VMT impact due to its environmental benefits. On this point, OPR's Technical Advisory cites the court case Covina Residents for Responsible Development v. City of Covina:[14]

> "As one appellate court recently explained: "During the last 10 years, the Legislature has charted a course of long-term sustainability based on denser infill development, reduced reliance on individual vehicles and improved mass transit, all with the goal of reducing greenhouse gas emissions. Section 21099 is part of that strategy . . . ." (*Covina Residents for Responsible Development v. City of Covina* (2018) 21 Cal.App.5th 712, 729.)"

While the City of Petaluma has not adopted such a screening criterion, and the project density (14.5 du/ac) is slightly below the recommended minimum (15 du/ac), it is reasonable to infer that development of 59 dwelling units on the Creekwood infill site would result in environmental benefits as compared to developing these units in another, non-infill location in the City.

[14] Association of Bay Area Governments, Metropolitan Transportation Commission. *SB 743 Policy Adoption Technical Assistance Program, Establishing an Infill and Affordable Housing Screen*. April 2024.

Mitigation Measure(s)

The CAPCOA Handbook for Analyzing Greenhouse Gas Emission Reductions, Assessing Climate Vulnerabilities, and Advancing Health and Equity (CAPCOA 2021) presents the latest state guidance for quantifying VMT reductions. The proposed project would need to reduce project-generated VMT by approximately 6.8 percent under existing-plus-project conditions to reduce the project's VMT impact to a less-than-significant level.

As described previously, the proposed project already implements several CAPCOA strategies through its design. These include Density (T-1), Inclusionary Housing (T-4), and Pedestrian Network Improvements (T-18). Additional CAPCOA strategies were considered given that they are appropriate for residential land use, but were determined to be infeasible or provide minimal benefit in terms of VMT reduction.[15] These strategies are as follows:

- T-25 Increase Transit Service Frequency
- T-22-B Implement Electric Bikeshare Program;
- T-9 Implement Subsidized or Discounted Transit Program; and
- T-46 Improve Transit Access, Safety, and Comfort.

While additional feasible strategies (beyond the proposed density and multi-use bridge connection) for reducing project-generated VMT do not exist, the proposed density and bridge connection are proven, effective measures at reducing VMT for people living, working, and visiting areas of Petaluma with higher density and mixes of uses within a convenient walk, bike, or transit trip, due to the location and characteristics of the proposed project and project site. Therefore, the proposed project could help the City and State meet GHG goals by contributing to measures consistent with VMT-reduction strategies elsewhere in the City. VMT-reduction concepts can also include VMT impact fees, a VMT mitigation exchange, and a VMT mitigation bank. As part of the City of Petaluma's General Plan Update, the City is developing a mitigation program that would address the transportation system impacts of discretionary projects, including those for which feasible mitigation measure for VMT impacts is not available.

Due to the relatively recent shift in CEQA Guidelines to evaluating transportation impacts through VMT, the above-listed VMT-reduction concepts (e.g., VMT mitigation exchange, mitigation bank) require further consideration to resolve uncertainties and/or fill in information gaps, such as outside agency approval requirements, the timing necessary to implement such measures, the lack of design or plans in place, and the lack of a citywide administration plan to oversee the collection of VMT fees and the implementation and monitoring of VMT reductions. Therefore, the potential impact would remain *significant and unavoidable*.

[15] As an example, TDM measure T-25 (Increase Transit Service Frequency) would require providing funding for expanding transit service frequency along Casa Grande Road. Route 33 along Casa Grande Road currently operates seven days a week with one-hour headways from 7:00 AM to 8:00 PM on weekdays, 8:00 AM to 8:00 PM on Saturdays, and 9:00 AM to 5:00 PM on Sundays. However, the City of Petaluma does not have plans to increase transit frequency to the project site.

4.4-4 Substantially increase hazards to vehicle safety due to a geometric design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment), or result in inadequate emergency access. Based on the analysis below, the impact is *less than significant*.

The proposed project would not include any new sharp curves or dangerous intersections and would not be located in the vicinity of any such roadway features. In addition, the design of the on-site driveway loop would not involve any features that would increase traffic hazards at the site. The internal roadway and any frontage improvements would be designed consistent with applicable City standards, including those set forth in Title 11, Vehicle and Traffic, of the Municipal Code, which will be confirmed during improvement plan review. Furthermore, the proposed project would not introduce incompatible uses, such as farm equipment or heavy-duty truck traffic, to area roadways during operations. Potential impacts related to project construction traffic are discussed under Impact 4.4-1, above.

As part of the Focused Traffic Study prepared for the project, sight distances along Casa Grande Road from the proposed driveways were evaluated based on the sight distance criteria established in the Caltrans' Highway Design Manual, 6th Edition. Based on a design speed of 35 mph along Casa Grande Road, the minimum stopping sight distance required is 250 feet. Field measurements indicate that sight distance along Casa Grande Road is adequate in both directions, with over 300 feet to the north and approximately 500 feet to the south. It is noted that vegetation in the center median along Casa Grande Road directly north of the proposed driveway slightly hinders sight lines. However, the landscaping does not completely block vision of oncoming traffic and drivers can see between each shrub as they travel toward the proposed roadway. In addition, a 488-square-foot portion of the property, designated as Parcel A on the Vesting Tentative Parcel Map, along the Casa Grande Road frontage, would be dedicated to the City of Petaluma for street right-of-way, which could accommodate future roadway improvements. Overall, sight distance based on the posted speed limit is adequate in both directions at the driveway locations on Casa Grande Road, and a hazard to vehicle safety would not occur.

Several factors determine whether a project has sufficient access for emergency vehicles, including the following:

1. Number of access points (both public and emergency access only);
2. Width of access points; and
3. Width of internal roadways.

The project site would have two primary vehicle access points from Casa Grande Road, and the driveways would be at least 20 feet wide. The foregoing roadway widths would be able to adequately accommodate emergency vehicles. Because the proposed project would have two access points, and both access points and the internal roadway would be sufficient width to accommodate emergency vehicles, the proposed project would not result in inadequate emergency access.

Conclusion

Based on the above, the proposed project would not substantially increase hazards to vehicle safety due to a geometric design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment) or result in inadequate emergency access, and a ***less-than-significant*** impact would occur.

Mitigation Measure(s)

None required.

Cumulative Impacts and Mitigation Measures

For further detail related to the cumulative setting of the proposed project, refer to Chapter 5, Statutorily Required Sections, of this EIR.

It should be noted that increased traffic volumes on local roadway facilities under cumulative conditions would not substantially alter performance related to bicycle facilities, pedestrian facilities, transit facilities and services, and emergency vehicle access. Rather, impacts to such facilities under Cumulative Plus Project conditions would be similar to those discussed above under Impacts 4.4-2, 4.4-4, and 4.4-5. In addition, construction activities associated with the project would be complete prior to the cumulative analysis year. Therefore, such topics are not discussed further in the cumulative analysis presented herein.

Similarly, the VMT impact analysis included under Impact 4.4-3 would also apply to Cumulative Plus Project conditions. The VMT significance threshold compares project-generated VMT per resident to that of existing local and regional development. The VMT comparison is useful because the comparison provides information regarding how the project aligns with long-term environmental goals related to VMT established based on existing development levels. Use of VMT significance thresholds based on existing development levels is recommended in OPR's Technical Advisory. The Technical Advisory indicates that VMT efficiency metrics, such as VMT per resident, may not be appropriate for CEQA cumulative analysis because they employ a denominator. Instead, the Technical Advisory recommends that an impact finding from an efficiency-based project-specific VMT analysis (i.e., Existing Plus Project conditions) would imply an identical impact finding for a cumulative VMT analysis.[16] An example provided by OPR explains that a project that falls below an efficiency-based threshold that is aligned with long-term environmental goals and relevant plans would have no cumulative impact distinct from the project impact. Furthermore, as noted in the City's VMT Implementation Guidelines, a cumulative scenario VMT analysis is not required for all projects, but may be required at the City's discretion.[17] In the case of the proposed project, the City has determined that a separate cumulative analysis of VMT is not required in this section as the conclusion would remain identical to that presented under Impact 4.4-3. Therefore, the proposed project would result in a ***cumulatively considerable*** and ***significant and unavoidable*** impact.

[16] Governor's Office of Planning and Research. *Technical Advisory on Evaluating Transportation Impacts in CEQA* [pg. 6]. December 2018.

[17] City of Petaluma. *Senate Bill 743 Vehicle Miles Traveled Implementation Guidelines* [pg. 5]. July 2021.

5. Statutorily Required Sections

5. STATUTORILY REQUIRED SECTIONS

5.1 INTRODUCTION

The Statutorily Required Sections chapter of the Draft EIR includes discussions regarding those topics that are required to be included in an EIR, pursuant to CEQA Guidelines, Section 15126.2. The chapter includes a discussion of the proposed project's potential to result in growth-inducing impacts; the cumulative setting analyzed in this EIR; significant irreversible environmental changes; and significant and unavoidable impacts caused by the proposed project.

5.2 GROWTH-INDUCING IMPACTS

State CEQA Guidelines Section 15126.2(e) requires an EIR to evaluate the potential growth-inducing impacts of a proposed project. Specifically, an EIR must discuss the ways in which a proposed project could foster economic or population growth, or the construction of additional housing, either directly or indirectly, in the surrounding environment. Growth can be induced in a number of ways, including the elimination of obstacles to growth, or by encouraging and/or facilitating other activities that could induce growth. Examples of projects likely to have growth-inducing impacts include extensions or expansions of infrastructure systems beyond what is needed to serve project-specific demand, and development of new residential subdivisions or office complexes in areas that are currently only sparsely developed or are undeveloped.

The CEQA Guidelines are clear that while an analysis of growth-inducing effects is required, it should not be assumed that impacts due to induced growth are necessarily significant or adverse. This analysis examines the following potential growth-inducing impacts related to implementation of the proposed project and assesses whether these effects are significant and adverse (see CEQA Guidelines Section 15126.2[e]):

1. Foster population and economic growth and construction of housing.
2. Eliminate obstacles to population growth.
3. Affect service levels, facility capacity, or infrastructure demand.
4. Encourage or facilitate other activities that could significantly affect the environment.

Foster Population and Economic Growth and Construction of Housing

As discussed throughout this EIR and the accompanying Initial Study, development of the project site with 59 multi-family residential units would increase the available housing within the Petaluma area and would consequently be expected to increase population in the area. Using the average of 2.65 persons per household estimate for the City population included in the City's Housing Element, the project could generate a maximum of 156 new residents (2.65 persons per household x 59 dwelling units = 156.3 new residents). Pursuant to the City's General Plan, the Medium Density Residential designation provides for a variety of dwelling types, including single-family and multifamily housing, and allows for a density ranging from 8.1 to 18.0 dwelling units per acre (du/ac). Under the existing land use designation for the site, the 5.2-acre site could be developed with a theoretical maximum of 94 dwelling units, resulting in a population of approximately 254 new residents. Thus, the proposed project would result in 98 fewer residents

than currently anticipated for the site based on maximum residential density of the existing General Plan land use designation.

The new residential population would likely patronize local businesses and services in the area, fostering economic growth. However, population growth resulting from the proposed project would be within the City of Petaluma and Association of Bay Area Governments (ABAG) growth estimates for the project area. In addition, the project site is identified for residential development within the City's Housing Element; as such, the population growth associated with the proposed project has been anticipated by the City and would contribute towards meeting the Regional Housing Needs Allocation (RHNA).

While construction of the proposed project would result in increased construction employment opportunities, which could potentially result in increased permanent population and demand for housing in the vicinity of the project site, employment patterns of construction workers is such that construction workers would not likely, to any significant degree, relocate their households as a result of the construction-related employment opportunities associated with the proposed project. Although the proposed project would provide short-term employment opportunities, which would likely be filled from the local employee base, with the possible exception of a few household and landscape maintenance jobs, permanent jobs would not be created by the proposed project. Therefore, the project would not result in long-term employment growth in the area.

Appendix G of CEQA Guidelines has been recently amended to clarify that unplanned population growth would be considered a potentially significant impact. However, growth that is planned, and the environmental effects of which have been analyzed in connection with a land use plan or a regional plan, should not by itself be considered an impact. The proposed project would result in population growth of the City of Petaluma; however, because development of the multi-family residences would be consistent with the current General Plan land use designation for the site and has been anticipated in the City's Housing Element, such growth would be within the buildout projections for the City. A discussion of physical impacts associated with growth are addressed throughout the EIR. Thus, while the project would foster population and economic growth, such growth would be similar to what has been anticipated for the project region, and a less-than-significant impact related to population and economic growth would occur.

Eliminate Obstacles to Population Growth

The elimination of either physical or regulatory obstacles to growth is considered to be a growth-inducing effect. A physical obstacle to growth typically involves the lack of public service infrastructure. The extension of public service infrastructure, including roadways, water mains, and sewer lines, into areas that are not currently provided with these services, would be expected to support new development. Similarly, the elimination or change to a regulatory obstacle, including existing growth and development policies, could result in new growth.

As discussed in Section XIX, Utilities and Public Services, of the Initial Study, the proposed project would include utility improvements to water, storm drainage, and sewer infrastructure, which would be adequately sized to meet demands from the proposed development. In addition, the project would be provided water service by the City of Petaluma through new connections to the existing water main in Casa Grande Road. Consistent with Petaluma Municipal Code (PMC) Section 15.08.120 and the City of Petaluma Water System Design Guidelines, which require main extensions to be at a minimum diameter of eight inches, a new eight-inch water line would be extended into the project site within the right-of-way (ROW) of the new internal private street. The

proposed dwelling units would connect to the new eight-inch water line through new water laterals. The City's existing water main infrastructure is anticipated to be sufficiently sized to accommodate the increased demand from the proposed project, and the project would not require the construction of new or expanded water conveyance infrastructure beyond the improvements noted above necessary to serve the proposed project. Water conveyance infrastructure needed for the proposed project would be financed by the project applicant. Consequently, the construction of on-site water infrastructure would not be anticipated to result in elimination of obstacles to population growth.

The project would be provided sanitary sewer conveyance service by the City of Petaluma through new connections to the existing sewer main in Casa Grande Road. Consistent with the City of Petaluma Sewer System Design and Construction Guidelines, a new eight-inch sewer line would be extended into the project site within the ROW of the new internal private street. The proposed dwelling units would connect to the new eight-inch sewer line through new sanitary sewer laterals. As discussed in the Initial Study, based on the available capacity remaining at the City's treatment facility, the City's wastewater infrastructure and treatment facility are anticipated to be sufficient to accommodate the increased demand that would be generated by the project. As such, the proposed project would not result in the expansion of the City's wastewater treatment infrastructure. Therefore, the proposed infrastructure improvements would not allow for or encourage growth where such growth was not previously planned.

The proposed project would include the development of an off-site public multi-use pathway with a bridge connection over Adobe Creek (Creek) that would connect to the proposed multi-use pathway along the west side of the Creek, as well as the existing path along Spyglass Road, on the east side of the Creek. The proposed multi-use pathway and bridge would improve pedestrian and bicyclist connectivity to the project stie, serving residents of the proposed project and existing residents in the vicinity of the project site. Such improvements would not be anticipated to eliminate obstacles to population growth.

Although implementation of the aforementioned improvements may be considered to eliminate obstacles to growth on-site, such improvements are essential to support the proposed project, and the improvements would not eliminate obstacles to growth in a manner that would encourage previously unplanned growth.

Based on the above information, the proposed project would not eliminate a physical or regulatory obstacle that would, as a result, create a growth-inducing effect.

Affect Service Levels, Facility Capacity, or Infrastructure Demand

Increases in population that would occur as a result of a proposed project may tax existing community service facilities, requiring construction of new facilities that could cause significant environmental impacts. As discussed in Section XV, Public Services, of the Initial Study prepared for the proposed project, increased demands for public services, including fire and police protection services, attributable to the proposed project would not necessitate the construction of new or expanded facilities that could cause significant environmental impacts. The project would be required to comply with General Plan policies and pay development fees that support emergency police and fire services. The proposed project would also be required to pay applicable fees to the City's school districts. In addition, as discussed in Section XIX, Utilities and Service Systems, of the Initial Study prepared for the proposed project, it is anticipated that wastewater generated by the proposed project could be accommodated by existing wastewater

treatment facilities and infrastructure at the Ellis Creek Water Recycling Facility, and adequate transmission capacity exists for the project's sanitary sewer flows. Existing water supply infrastructure also exists to accommodate the domestic and fire flow demands associated with the proposed project.

The Redwood Landfill and Recycling Center, which would serve the proposed project, has adequate capacity to manage the solid waste generated as result of the project. Furthermore, as discussed in Chapter 4.3, Hydrology and Water Quality, of this EIR, a Stormwater Control Plan has been prepared for the proposed project demonstrating that runoff from new impervious surfaces created by the proposed project would be captured by the proposed storm drain system before treated peak flows are discharged to the Creek and would not create or contribute runoff water that would exceed the capacity of the City's stormwater drainage systems. In addition, as discussed above, population growth associated with the proposed project would be below what was anticipated for buildout of the site in the General Plan EIR. Therefore, the proposed project would not increase population such that service levels, facility capacity, or infrastructure demand would require construction of new facilities that could cause significant environmental impacts.

Encourage or Facilitate other Activities That Could Significantly Affect the Environment

This EIR provides a comprehensive assessment of the potential for environmental impacts associated with implementation of the proposed project. Please refer to Chapters 4.1 through 4.4 of this EIR and the Initial Study (see Appendix A of this EIR), which comprehensively address the potential for impacts from development on the project site. As discussed throughout this EIR, the Initial Study, and in further detail below, while the majority of environmental impacts associated with the proposed project would be less than significant or could be reduced to a less-than-significant level with implementation of mitigation, the proposed project would result in significant and unavoidable impacts related to greenhouse gas (GHG) emissions and transportation (i.e., vehicle miles traveled).

5.3 CUMULATIVE IMPACTS

CEQA Guidelines, Section 15130 requires that an EIR discuss the cumulative and long-term effects of the proposed project that would adversely affect the environment. "Cumulative impacts" are defined as "two or more individual effects which, when considered together, are considerable or which compound or increase other environmental impacts" (CEQA Guidelines, Section 15355). "[I]ndividual effects may be changes resulting from a single project or a number of separate projects" (CEQA Guidelines, Section 15355, subd. [a]). "The cumulative impact from several projects is the change in the environment which results from the incremental impact of the project when added to other closely related past, present, and reasonably foreseeable probable future projects. Cumulative impacts can result from individually minor but collectively significant projects taking place over a period of time" (CEQA Guidelines, Section 15355, subd. [b]).

The need for cumulative impact assessment reflects the fact that, although a project may cause an "individually limited" or "individually minor" incremental impact that, by itself, is not significant, the increment may be "cumulatively considerable," and, thus, significant, when viewed together with environmental changes anticipated from past, present, and probable future projects (CEQA Guidelines Section 15064, subd. [h(1)], Section 15065, subd. [c], and Section 15355, subd. [b]). Accordingly, particular impacts may be less than significant on a project-specific basis but significant on a cumulative basis if their small incremental contribution, viewed against the larger backdrop, is cumulatively considerable. However, it should be noted that CEQA Guidelines

Section 15064, subdivision (h)(5) states, "[…]the mere existence of significant cumulative impacts caused by other projects alone shall not constitute substantial evidence that the proposed project's incremental effects are cumulatively considerable." Therefore, even where cumulative impacts are significant, any level of incremental contribution is not necessarily deemed cumulatively considerable.

Section 15130(b) of CEQA Guidelines indicates that the level of detail of the cumulative analysis need not be as great as for the project impact analyses, but that analysis should reflect the severity of the impacts and their likelihood of occurrence, and that the analysis should be focused, practical, and reasonable. To be adequate, a discussion of cumulative effects must include the following elements:

(1) Either (a) a list of past, present and probable future projects, including, if necessary, those outside the agency's control, or (b) a summary of projections contained in an adopted general plan or related planning document, or in a prior certified EIR, which described or evaluated regional or area-wide conditions contributing to the cumulative impact, provide that such documents are reference and made available for public inspection at a specified location;

(2) A summary of the individual projects' environmental effects, with specific reference to additional information and stating where such information is available; and

(3) A reasonable analysis of all of the relevant projects' cumulative impacts, with an examination of reasonable, feasible options for mitigating or avoiding the project's contribution to such effects (Section 15130[b]).

For some projects, the only feasible mitigation measures will involve the adoption of ordinances or regulations, rather than the imposition of conditions on a project-by-project basis (Section 15130[c]). Section 15130(a)(3) states that an EIR may determine that a project's contribution to a significant cumulative impact will be rendered less than cumulatively considerable, and thus not significant, if a project is required to implement or fund the project's fair share of a mitigation measure or measures designed to alleviate the cumulative impact.

A discussion of cumulative impacts is provided within each of the technical chapters of this EIR pursuant to CEQA Guidelines Section 15130.

Cumulative Setting

The lead agency should define the relevant geographic area of inquiry for each impact category (id., Section 15130, subd. [b][3]), and should then identify the universe of "past, present, and probable future projects producing related or cumulative impacts" relevant to the various categories, either through the preparation of a "list" of such projects or through the use of "a summary of projections contained in an adopted general plan or related planning document, or in a prior environmental document which has been adopted or certified, which described or evaluated regional or area wide conditions contributing to the cumulative impact" (id., subd. [b][1]).

The cumulative analysis in the Biological Resources and Transportation chapters of this EIR is based upon a summary of projections contained in the City of Petaluma General Plan. Limited situations exist where geographic setting differs between project chapter analysis within a particular region. Examples include hydrology, for which the cumulative geographic setting is generally limited to the Petaluma River watershed, which encompasses the southern portion of Sonoma County and northern portion of Marin County. Global climate change is, by nature, a

cumulative impact. GHG emissions contribute, on a cumulative basis, to the significant adverse environmental impacts of global climate change (e.g., sea level rise, impacts to water supply and water quality, public health impacts, impacts to ecosystems, impacts to agriculture, and other environmental impacts). A single project could not generate enough GHG emissions to contribute noticeably to a change in the global average temperature. However, the combination of GHG emissions from a project in combination with other past, present, and future projects could contribute substantially to the world-wide phenomenon of global climate change and the associated environmental impacts. Although the geographical context for global climate change is the Earth, for analysis purposes under CEQA, and due to the regulatory context pertaining to GHG emissions and global climate change applicable to the proposed project, the geographical context for global climate change in this EIR is limited to the State of California.

A cumulative analysis for each environmental topic analyzed in this EIR is provided in the relevant technical chapter, wherein it is also noted that the General Plan EIR anticipated development of the project site above the density of the proposed project.

5.4 SIGNIFICANT IRREVERSIBLE ENVIRONMENTAL CHANGES

As established in CEQA Guidelines Section 15126.2(d), this EIR is required to include consideration of significant irreversible environmental changes that would be caused by the proposed project, should the project be implemented. An impact would be determined to be a significant and irreversible change in the environment if:

- Buildout of the project area could involve a large commitment of nonrenewable resources;
- The primary and secondary impacts of development could generally commit future generations to similar uses (e.g., a highway provides access to a previously remote area);
- Development of the proposed project could involve uses in which irreversible damage could result from any potential environmental accidents associated with the project; or
- The phasing and eventual development of the project could result in an unjustified consumption of resources (e.g., the wasteful use of energy).

The proposed project would likely result in, or contribute to, the following significant irreversible environmental changes:

- Conversion of predominantly vacant land to a fully built-out residential community, thus precluding alternative land uses in the future;
- Irreversible consumption of goods and services, such as fire, police, and school services, associated with the future population; and
- Irreversible consumption of energy and natural resources, such as water and electricity, associated with the future residents.

5.5 SIGNIFICANT AND UNAVOIDABLE IMPACTS

According to CEQA Guidelines, an EIR must include a description of those impacts identified as significant and unavoidable should the proposed action be implemented (CEQA Guidelines Section 15126.2[c]). Such impacts would be considered unavoidable when the determination is made that either mitigation is not feasible or only partial mitigation is feasible such that the impact is not reduced to a level that is less than significant. This section identifies significant impacts that could not be eliminated or reduced to a less-than-significant level by mitigations imposed by the City. The final determination of the significance of impacts and the feasibility of mitigation

measures would be made by the City as part of the City's certification action. The significant and unavoidable impacts of the proposed project are summarized below.

Generate GHG emissions, either directly or indirectly, that may have a significant impact on the environment, or conflict with an applicable plan, policy, or regulation adopted for the purpose of reducing the emissions of GHGs. (Impact 4.2-1)

The applicable Bay Area Air Quality Management District (BAAQMD) thresholds of significance for GHG emissions are qualitative. The proposed project would be consistent with the majority of the BAAQMD's Buildings and Transportation criteria. However, because the proposed project would result in a significant and unavoidable impact related to vehicle miles traveled (VMT), the proposed project would be inconsistent with BAAQMD's Transportation criterion a. Even with the implementation of Mitigation Measure 4.2-1, the project would not comply with BAAQMD's Transportation criterion a. Consequently, the project's incremental contribution to the cumulatively significant effects of GHG emissions and global climate change would remain cumulatively considerable and significant and unavoidable.

Result in VMT which exceeds an applicable threshold of significance, except as provided in CEQA Guidelines Section 15064.3, subdivision (b). (Impact 4.4-3)

Implementation of the proposed project would generate VMT greater than the applicable threshold. Pursuant to the City of Petaluma's Vehicle Miles Traveled Implementation Guidelines, a residential project would result in a significant impact and require mitigation if project total home-based VMT per resident exceeds 16.8 percent below the citywide average. The current citywide home-based VMT per capita is 17.8 for the City of Petaluma, which translates to a significance threshold of 14.8 VMT per capita. Additional feasible strategies beyond the proposed density and multi-use bridge connection for reducing project-generated VMT to a less-than-significant level do not exist. Therefore, a significant and unavoidable impact would occur.

6. Alternatives Analysis

6. ALTERNATIVES ANALYSIS

6.1 INTRODUCTION

The Alternatives Analysis chapter of the EIR includes consideration and discussion of a range of reasonable alternatives to the proposed project, as required pursuant to CEQA Guidelines Section 15126.6. Generally, the chapter includes discussions of the following: the purpose of an alternatives analysis; alternatives considered but dismissed; a reasonable range of project alternatives and their associated impacts in comparison to the proposed project's impacts; and the environmentally superior alternative.

6.2 PURPOSE OF ALTERNATIVES

The primary intent of the alternatives evaluation in an EIR, as stated in Section 15126.6(a) of the CEQA Guidelines, is to "[…] describe a range of reasonable alternatives to the project, or to the location of the project, which would feasibly attain most of the basic objectives of the project but would avoid or substantially lessen any of the significant effects of the project, and evaluate the comparative merits of the alternatives." In the context of CEQA Guidelines Section 21061.1, "feasible" is defined as:

> ...capable of being accomplished in a successful manner within a reasonable period of time, taking into account economic, environmental, legal, social and technological factors.

Section 15126.6(f) of CEQA Guidelines states, "The range of alternatives required in an EIR is governed by a "rule of reason" that requires the EIR to set forth only those alternatives necessary to permit a reasoned choice." Section 15126.6(f) of CEQA Guidelines further states:

> The alternatives shall be limited to ones that would avoid or substantially lessen any of the significant effects of the project. Of those alternatives, the EIR need examine in detail only the ones that the lead agency determined could feasibly attain most of the basic objectives of the project.

In addition, an EIR is not required to analyze alternatives when the effects of the alternative "cannot be reasonably ascertained and whose implementation is remote and speculative."

The CEQA Guidelines provide the following guidance for discussing alternatives to a proposed project:

- An EIR shall describe a range of reasonable alternatives to the project, or to the location of the project, which would feasibly attain most of the basic objectives of the project, but would avoid or substantially lessen any of the significant effects of the project, and evaluate the comparative merits of the alternatives (CEQA Guidelines Section 15126.6[a]).
- Because an EIR must identify ways to mitigate or avoid the significant effects that a project may have on the environment (Public Resources Code Section 21002.1), the discussion of alternatives shall focus on alternatives to the project or its location which are capable of avoiding or substantially lessening any significant effects of the project, even if these

alternatives would impede to some degree the attainment of the project objectives, or would be more costly (CEQA Guidelines Section 15126.6[b]).

- The EIR should briefly describe the rationale for selecting the alternatives to be discussed. The EIR should also identify any alternatives that were considered by the lead agency but were rejected as infeasible during the scoping process and briefly explain the reasons underlying the lead agency's determination […] Among the factors that may be used to eliminate alternatives from detailed consideration in an EIR are: (i) failure to meet most of the basic project objectives, (ii) infeasibility, or (iii) inability to avoid significant environmental impacts (CEQA Guidelines Section 15126.6[c]).
- The EIR shall include sufficient information about each alternative to allow meaningful evaluation, analysis, and comparison with the proposed project. A matrix displaying the major characteristics and significant environmental effects of each alternative may be used to summarize the comparison (CEQA Guidelines Section 15126.6[d]).
- If an alternative would cause one or more significant effects in addition to those that would be caused by the project as proposed, the significant effects of the alternative shall be discussed, but in less detail than the significant effects of the project as proposed (CEQA Guidelines Section 15126.6[d]).
- The specific alternative of "no project" shall also be evaluated along with its impact. The purpose of describing and analyzing a no project alternative is to allow decision-makers to compare the impacts of approving the proposed project with the impacts of not approving the proposed project. The no project alternative analysis is not the baseline for determining whether the proposed project's environmental impacts may be significant, unless it is identical to the existing environmental setting analysis which does establish that baseline (CEQA Guidelines Section 15126.6[e][1]).
- If the environmentally superior alternative is the "no project" alternative, the EIR shall also identify an environmentally superior alternative among the other alternatives (CEQA Guidelines Section 15126.6[e][2]).

Project Objectives

Based on the above, reasonable alternatives to the project must be capable of feasibly attaining most of the basic objectives of the project. The proposed project is being pursued with the following objectives:

1. Promote and maximize new and diverse for-sale housing opportunities within the City limits and urban growth boundary through using an existing residentially zoned property;
2. Develop a high-quality residential project within the eastern City limits that is compatible with existing residential subdivisions to the east and south of the project site, Casa Grande High School to the west of the site, and the Petaluma Ecumenical Properties Senior Housing to the north of the site;
3. Develop for-sale inclusionary housing that provides site location and model types in an equitable manner;
4. Construct a public multi-use pathway through the project site and along the westerly side of Adobe Creek that connects to the Casa Grande Subdivision public pathway to the south and allows for future extension to the north of the site;
5. Install a bridge connection over Adobe Creek that connects the proposed public multi-use pathway with the residential neighborhoods to the east of the project site, allowing for pedestrian access from the easterly residential neighborhoods to Casa Grande High School and the Casa Grande Road transit locations to the west of the project site;

6. Provide public access and maintenance access to a landlocked and isolated site; and
7. Preserve Adobe Creek in its natural state.

Impacts Identified in the EIR

In addition to attaining the majority of project objectives, reasonable alternatives to the project must be capable of reducing the magnitude of, or avoiding, identified significant environmental impacts of the proposed project. The significance level of impacts identified in the EIR are presented below.

Less Than Significant or No Impact

As discussed in each respective section of this EIR, the proposed project would result in a less-than-significant impact related to the following topics associated with the resource area indicated, and mitigation would not be required:

- ***Biological Resources.*** The EIR determined that impacts related to interference with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impediment of the use of native wildlife nursery sites, would be less than significant. All cumulative impacts were determined to be less than significant.

- **Hydrology and Water Quality.** The EIR determined that a less-than-significant impact would occur related to substantially altering the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river or through the addition of impervious surfaces, in a manner which would: substantially increase the rate or amount of surface runoff in a manner which would result in substantial erosion or siltation on or off site; substantially increase the rate or amount of surface runoff in a manner which would result in flooding on- or off-site; create or contribute runoff water which would exceed the capacity or existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff; or impede or redirect flood flows. The EIR also determined that all cumulative impacts would be less than significant.

- ***Transportation.*** The EIR determined that a less-than-significant impact would occur related to a conflict with a program, plan, ordinance or policy addressing transit, bicycle, and pedestrian facilities during operations, as well as the project substantially increasing hazards to vehicle safety due to inadequate emergency access, hazardous design features, and incompatible uses. In addition, the EIR determined that a less-than-significant impact would occur related to a substantial increase to vehicle safety due to a geometric design feature or incompatible uses resulting in inadequate emergency access.

In addition, the Initial Study prepared for the proposed project during the scoping period (see Appendix A of this EIR) includes a detailed environmental checklist addressing a range of technical environmental issues. For each technical environmental issue, the Initial Study identifies the level of impact for the proposed project. The Initial Study identifies the environmental effects as either “no impact,” “less than significant,” “less than significant with mitigation incorporated,” or “potentially significant.” Impacts identified for the proposed project in the Initial Study as “no impact” or “less than significant” are listed below, and summarized further in Chapter 4.0, Introduction to the Analysis, of this EIR.

- Aesthetics (All questions);
- Agriculture and Forestry Resources (All questions);
- Air Quality (All questions);
- Biological Resources (Question f);
- Cultural Resources (Questions a and c);
- Energy (All questions);
- Geology and Soils (Questions ai through aiv, b and c, and e and f);
- Hazards and Hazardous Materials (Questions a and c through g);
- Hydrology and Water Quality (Questions b and e)
- Land Use and Planning (All questions);
- Mineral Resources (All questions);
- Noise (Questions b and c);
- Population and Housing (All questions);
- Public Services (All questions);
- Recreation (All questions);
- Utilities and Service Systems (All questions); and
- Wildfire (All questions).

As stated above, reasonable alternatives to the project must be capable of reducing the magnitude of, or avoiding identified significant environmental impacts of the proposed project. Because the proposed project would not result in significant impacts related to the resource areas listed above, a detailed comparison of potential impacts associated with the aforementioned environmental issue areas as a result of project alternatives and the proposed project is not provided in this chapter. Rather, this chapter focuses on those resource areas and specific impacts listed below that have been identified for the proposed project in this EIR as requiring mitigation to reduce significant impacts to less than significant or that have been found to remain significant and unavoidable.

Less Than Significant with Mitigation

Environmental impacts (including cumulative impacts) of the proposed project that have been identified in the EIR and the Initial Study as requiring mitigation measures to ensure that the level of significance is ultimately less than significant include the following:

- ***Biological Resources.*** The EIR determined that impacts related to having a substantial adverse effect, either directly or through habitat modifications, on a plant species identified as a candidate, sensitive, or special-status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Wildlife (CDFW) or U.S. Fish and Wildlife Service (USFWS) would result in a substantial impact. However, the EIR requires mitigation in order to ensure that the aforementioned impact is reduced to a less-than-significant level. The EIR determined that the proposed project would have a substantial adverse effect, either directly or through habitat modifications, on special-status wildlife species and special-status plants, specifically, western bumble bee, anadromous fish, foothill yellow-legged frog, California red-legged frog, northwestern pond turtle, pallid bat, Swainson's hawk, and other nesting birds and raptors. However, the EIR requires mitigation in order to ensure that the aforementioned impacts are reduced to a less-than-significant level. Additionally, the EIR determined that the proposed project, specifically the proposed bridge connection over the Creek, would have a substantial impact on riparian habitats. However, the EIR requires mitigation in order to ensure that the

aforementioned impact is reduced to a less-than-significant level. The EIR determined that without compliance with the Clean Water Act (CWA) and California Fish and Game Code, the proposed project would have a substantial impact on State or federally protected wetlands, but with implementation of the mitigation measures required in the EIR the aforementioned impact would be reduced to less than significant. Lastly, the EIR determined that the proposed project could conflict with a local policy or ordinance protecting biological resources, such as a tree preservation policy or ordinance. However, the mitigation measures provided in the EIR would ensure that the aforementioned impact would be reduced to a less-than-significant level.

- ***Hydrology and Water Quality.*** The EIR determined that implementation of the project could have a significant impact due to violating a water quality standard or waste discharge requirements or otherwise substantially degrading surface or ground water quality during construction and operations. However, the EIR requires mitigation to ensure that the aforementioned impacts are reduced to a less-than-significant level.

- ***Transportation.*** The EIR determined that implementation of the proposed project could result in a significant impact related to conflicting with a program, plan, ordinance, or policy, except LOS, addressing the circulation system during construction activities. However, the EIR requires mitigation in order to ensure that the aforementioned impact is reduced to a less-than-significant level.

As discussed above, the Initial Study prepared for the proposed project during the scoping period (see Appendix A of this EIR) includes a detailed environmental checklist addressing a range of technical environmental issues. Impacts identified for the proposed project in the Initial Study as "less than significant with mitigation incorporated" are listed below, and summarized further in Chapter 4.0, Introduction to the Analysis, of this EIR.

- Cultural Resources (Question b);
- Geology and Soils (Question d);
- Hazards and Hazardous Materials (Question b);
- Noise (Question a); and
- Tribal Cultural Resources (All questions).

Significant and Unavoidable

The EIR has determined that the following project impacts would remain significant and unavoidable, even after implementation of the feasible mitigation measures set forth in this EIR:

- ***Greenhouse Gas (GHG) Emissions.*** The EIR determined that the project could generate GHG emissions, either directly or indirectly, that may have a significant impact on the environment, or conflict with an applicable plan, policy, or regulation adopted for the purpose of reducing the emissions of GHGs. The EIR determined that implementation of Mitigation Measure 4.2-1 would ensure project consistency with the Bay Area Air Quality Management District's (BAAQMD's) Transportation criterion d. However, as discussed below, because feasible mitigation measures do not exist to reduce project-related per capita Vehicle Miles Traveled (VMT) to a less-than-significant level, the proposed project would not comply with the BAAQMD's Transportation criterion c. Consequently, the project's incremental contribution to the cumulative significant effects of greenhouse gas

emissions and global climate change was determined to remain cumulatively considerable and significant and unavoidable.

- ***Transportation.*** The EIR determined that per-capita VMT associated with the proposed project would not achieve the applicable VMT reduction goal. Thus, the proposed project could conflict or be inconsistent with CEQA Guidelines section 15064.3, subdivision (b), and the impact was determined to remain significant and unavoidable. The EIR determined that the cumulative VMT impact would be cumulatively considerable and significant and unavoidable.

The alternatives discussed herein have been chosen based on feasibility to meet most of the project objectives, as well as the ability to reduce one or more significant project impacts identified within this EIR. Thus, as is appropriate pursuant to CEQA, the following evaluation of alternatives focuses on those resource topics regarding which the proposed project would have a significant impact, according to the EIR analysis. As shown above, the EIR (including Initial Study) identified significant project impacts for nine CEQA topical categories. These nine categories are the subject of the comparative alternatives analysis that follows, unless otherwise noted. All other project impacts were deemed less than significant, and thus, do not require discussion in the alternatives analysis below.

6.3 SELECTION OF ALTERNATIVES

The requirement that an EIR evaluate alternatives to the proposed project or alternatives to the location of the proposed project is a broad one; the primary intent of the alternatives analysis is to disclose other ways that the objectives of the project could be attained, while reducing the magnitude of, or avoiding, one or more of the significant environmental impacts of the proposed project. Alternatives that are included and evaluated in the EIR must be feasible alternatives. However, the CEQA Guidelines require the EIR to "set forth only those alternatives necessary to permit a reasoned choice." As stated in Section 15126.6(a), an EIR need not consider every conceivable alternative to a project. Rather it must consider a reasonable range of potentially feasible alternatives that will foster informed decision making and public participation. The CEQA Guidelines provide a definition for "a range of reasonable alternatives" and thus limit the number and type of alternatives that may need to be evaluated in a given EIR. According to the CEQA Guidelines Section 15126.6(f):

> The alternatives shall be limited to ones that would avoid or substantially lessen any of the significant effects of the project. Of those alternatives, the EIR need examine in detail only the ones that the lead agency determined could feasibly attain most of the basic objectives of the project.

First and foremost, alternatives in an EIR must be feasible. In the context of CEQA Guidelines Section 21061.1, "feasible" is defined as:

> ...capable of being accomplished in a successful manner within a reasonable period of time, taking into account economic, environmental, legal, social and technological factors.

Finally, an EIR is not required to analyze alternatives when the effects of the alternative "cannot be reasonably ascertained and whose implementation is remote and speculative."

Alternatives Considered But Dismissed From Further Analysis

Consistent with CEQA, primary consideration was given to alternatives that could reduce one or more significant project impacts, while still meeting most of the basic project objectives.

As stated in Guidelines Section 15126.6(c), among the factors that may be used to eliminate alternatives from detailed consideration in an EIR are:

(i) failure to meet most of the basic project objectives,
(ii) infeasibility, or
(iii) inability to avoid significant environmental impacts.

Regarding item (ii), infeasibility, among the factors that may be taken into account when addressing the feasibility of alternatives are site suitability, economic viability, availability of infrastructure, general plan consistency, other plans or regulatory limitations, jurisdictional boundaries (projects with a regionally significant impact should consider the regional context), and whether the proponent can reasonably acquire, control or otherwise have access to the alternative site (or the site is already owned by the proponent). None of these factors establish a fixed limit on the scope of reasonable alternatives.

The following alternatives were considered but dismissed from detailed analysis in this EIR. The reason(s) for dismissal, within the context of the three above-outlined permissible reasons, are provided below.

Off-Site Alternative

In *Citizens of Goleta Valley v. Board of Supervisors* (1988) 197 Cal.App.3d 1167, the California Supreme Court indicated that a particular situation should be examined to determine whether the availability of other feasible sites must be considered in an EIR because "what is reasonable in one case may be unreasonable in another." Moreover, the court held that:

> "[R]econsderation of local and regional land use policies in the context of development application is the antithesis if the comprehensive, long-range planning mandated by state law; preparation of an EIR for a proposed development should ordinarily not provide occasion for reexamination of those policies."

Such reasoning was further held by the California Supreme Court in *Mira Mar Mobile Community v. City of Oceanside* (2004) 119 Cal.App.4th 477, as the court determined that an EIR for a residential development consistent with planning policies of an adopted redevelopment plan did not need to examine alternative sites for the project. Relying on *Citizens of Goleta Valley v. Board of Supervisors* (1988) 197 Cal.App.3d 1167, the court held that a development proposal that implements existing planning policies should not prompt reconsideration of those policies.[1]

The City of Petaluma General Plan designates the project site as Medium Density Residential, and the site is zoned Residential 4 (R4). Pursuant to the City's General Plan, the Medium Density Residential designation provides for a variety of dwelling types, including single-family and multifamily housing, and allows for a density ranging from 8.1 to 18.0 dwelling units per acre (du/ac). Single-family and multifamily residences are both permitted uses within the R4 zone. As such, the proposed project is consistent with the City's existing land use and zoning designations

[1] Stephen L. Kostka and Michael H. Zischke. *Practice Under the California Environmental Quality Act, Second Edition (Continuing Education of the Bar: California), Section 15.25.* March 2022.

of the project site, and a review of alternatives sites for the proposed project is not necessary. Therefore, the Off-Site Alternative is dismissed from detailed evaluation.

Reduced Density Alternative

Pursuant to the City's General Plan, the Medium Density Residential designation allows for a density ranging from 8.1 to 18.0 du/ac. The Reduced Density Alternative would consist of buildout of the project site with a density of 8.1 du/ac, which would result in the development of 42 dwelling units on-site. Given that the proposed project is anticipated to include the development of 59 dwelling units, the Reduced Density Alternative would result in a reduction in 17 dwelling units as compared to the proposed project.

The CEQA Guidelines state that the primary intent of an alternative is to reduce one or more of the significant environmental impacts of the proposed project. The Reduced Density Alternative would result in an equal disturbance area as the proposed project, and, therefore, the severity of impacts associated with biological resources, cultural and tribal cultural resources, geology and soils, hydrology and water quality, and construction noise are not expected to substantially differ from the proposed project. In addition, because the Alternative would result in the development of the same land uses as the proposed project, albeit at a lower density, impacts related to hazards and hazardous materials are anticipated to be similar. Transportation impacts associated with VMT, as well as impacts associated with mobile-sourced GHG emissions, would remain significant and unavoidable under the Reduced Density Alternative, as per capita VMT is not anticipated to be reduced through a reduction in density, but rather, would be increased.[2]

Additionally, according to the City of Petaluma General Plan Housing Element, the current Regional Housing Needs Allocation (RHNA) has identified the need for an additional 1,910 housing units within the City. While the Reduced Density Alternative would provide housing units within the City, development would occur at a lower density than the proposed project, which would hinder the City's ability to achieve the housing goals identified in the City's General Plan Housing Element.

Based on the above, the Alternative would not be considered an alternative capable of reducing one or more of the significant environmental impacts of the proposed project. As a result, the Reduced Density Alternative is dismissed from detailed evaluation.

Alternatives Considered in this EIR

Three alternatives to the proposed project were developed based on City staff input and the technical analysis performed for the proposed project. The following three alternatives are considered potentially feasible alternatives to the project and are evaluated in further detail in this section:

- No Project (No Build) Alternative;
- No Bridge Alternative; and
- Affordable Housing Alternative.

[2] As discussed in the CAPCOA Handbook for Analyzing Greenhouse Gas Emission Reductions, Assessing Climate Vulnerabilities, and Advancing Health and Equity (CAPCOA 2021), which presents the latest state guidance for quantifying VMT reductions, increasing residential density has been shown to affect the distance people travel and provide greater options for the mode of travel they choose.

Each of the project alternatives is described in detail below, with a corresponding analysis of each Alternative's impacts in comparison to the proposed project. As discussed above, reasonable alternatives to the project must be capable of reducing the magnitude of, or avoiding, identified significant environmental impacts of the proposed project. Therefore, this chapter focuses on the resource areas and specific impacts listed above that have been identified in this EIR and Initial Study for the proposed project as requiring mitigation to reduce significant impacts to less than significant, or have been found to remain significant and unavoidable. While an effort has been made to include quantitative data for certain analytical topics, where possible, qualitative comparisons of the various alternatives to the project are primarily provided. Such an approach to the analysis is appropriate as evidenced by CEQA Guidelines Section 15126.6[d], which states that the significant effects of the alternative shall be discussed, but in less detail than the significant effects of the project as proposed.

The analysis evaluates impacts that would occur with the alternatives relative to the significant impacts identified for the proposed project. When comparing the potential impacts resulting from implementation of the foregoing alternatives, the following terminology is used:

- "Fewer" = Less than Proposed Project;
- "Similar" = Similar to Proposed Project;
- "Greater" = Greater than Proposed Project; and
- "None" = No Impact.

When the term "fewer" is used, the reader should not necessarily equate this to elimination of significant impacts identified for the proposed project. For example, in many cases, an alternative would reduce the relative intensity of a significant impact identified for the proposed project, but the impact would still be expected to remain significant under the alternative, thereby requiring mitigation. In other cases, the use of the term "fewer" may mean the actual elimination of an impact identified for the proposed project altogether. Similarly, use of the term "greater" does not necessarily imply that an alternative would require additional mitigation beyond what has been required for the proposed project. To the extent possible, this analysis will distinguish between the two implications of the comparative words "fewer" and "greater".

Please see Table 6-1 at the end of the chapter for a comparison of the environmental impacts resulting from the considered alternatives and the proposed project.

No Project (No Build) Alternative

CEQA requires the evaluation of the comparative impacts of the "No Project" alternative (CEQA Guidelines Section 15126.6[e]). Analysis of the no project alternative shall:

> "… discuss […] existing conditions […] as well as what would be reasonably expected to occur in the foreseeable future if the project were not approved, based on current plans and consistent with available infrastructure and community services." (*Id.*, subd. [e][2]) "If the project is other than a land use or regulatory plan, for example a development project on identifiable property, the 'no project' alternative is the circumstance under which the project does not proceed. Here the discussion would compare the environmental effects of the property remaining in the property's existing state versus environmental effects that would occur if the project were approved. If disapproval of the project under consideration would result in predictable actions by others, such as the proposal of some other project, this 'no project' consequence should be discussed. In certain instances, the no project alternative means 'no build,' wherein the existing environmental setting is maintained.

> However, where failure to proceed with the project would not result in preservation of existing environmental conditions, the analysis should identify the practical result of the project's non-approval and not create and analyze a set of artificial assumptions that would be required to preserve the existing physical environment." (*Id.*, subd. [e][3][B]).

A No Project (No Build) Alternative assumes that the project site would remain in its current condition and would not be developed. As described in this EIR, the 280 Casa Grande Road (Assessor's Parcel Number [APN] 017-040-016) parcel contains an existing residence and undeveloped land covered in grasses. The 270 Casa Grande Road (APN 017-040-051) parcel contains an existing residence, several associated outbuildings, a landscaped backyard, and a small orchard in the northeast corner of the project site, within a depressed area, near Adobe Creek (Creek), which forms the eastern boundary of the project site. The remaining portions of the 270 Casa Grande Road parcel are generally characterized by grasses that are routinely mowed or grazed to reduce fire hazards. Grazing of both parcels is conducted by several sheep owned and cared for by the current 270 Casa Grande Road property owner. Because development of the site would not occur, land disturbance, and any associated physical environmental impacts related to such land disturbance, would not occur, and the No Project (No Build) Alternative would have no impact, as described below. However, the No Project (No Build) Alternative would not meet any of the project objectives.

Biological Resources

Under the No Project (No Build) Alternative, construction activities, including ground disturbance, would not occur on the project site. As such, the Alternative would not have the potential to impact special-status plants or special-status species such as western bumble bee, steelhead, foothill yellow-legged frog, California red-legged frog, northwestern pond turtle, pallid bat, Swainson's hawk, and other nesting birds and raptors. In addition, the No Project (No Build) Alternative would not result in a substantial adverse effect on riparian habitat and/or other sensitive natural communities or have a substantial adverse effect on federal or State protected aquatic resources. The Alternative would not include removal of trees and, thus, would not conflict with local policies and/or ordinances that protect biological resources, such as a tree preservation policy or ordinance. As such, none of the mitigation measures related to biological resources required for the proposed project would be required under the Alternative. Overall, the impacts identified for the proposed project related to Biological Resources would not occur under the No Project (No Build) Alternative.

Greenhouse Gas Emissions

The No Project (No Build) Alternative would not generate GHG emissions and, thus, the significant GHG emissions impact identified for the proposed project would not occur. Therefore, impacts related to GHG emissions would not occur under the No Project (No Build) Alternative.

Hydrology and Water Quality

The No Project (No Build) Alternative would not include any ground disturbance or otherwise alter existing site conditions and, thus, would not have the potential to violate any water quality standards or waste discharge requirements or otherwise substantially degrade surface water or ground water quality during construction and/or operation. Overall, impacts related to Hydrology and Water Quality would not occur under the No Project (No Build) Alternative.

Transportation

Because the No Project (No Build) Alternative would not introduce new homes and associated vehicle trips within the project site, the Alternative would not result in an increase in VMT within the project area, and would not conflict or be inconsistent with CEQA Guidelines Section 15064.3, subdivision (b). In addition, the Alternative would not conflict with a program, plan, ordinance, or policy addressing the circulation system during construction activities. Overall, impacts identified for the proposed project related to transportation would not occur under the No Project (No Built) Alternative.

Other Environmental Issue Areas

The other CEQA topics in which the proposed project could have significant impacts, as identified in the Initial Study (cultural resources, geology, hazards, noise, and tribal cultural resources), would not be impacted as a result of this alternative, and are not discussed further.

No Bridge Alternative

The No Bridge Alternative would include demolition of the on-site residence at 280 Casa Grande Road, retention of the existing residence at 270 Casa Grande Road, development of 59 dwelling units, construction of various on-site road and utility improvements, landscaping, and a new off-site public multi-use pathway along the west side of the Creek. However, the bridge connection over the Creek for the public multi-use pathway would not be developed under the No Bridge Alternative.

Given that the majority of on- and off-site improvements required under the No Bridge Alternative would still be developed, the Alternative would still require a Vesting Tentative Parcel Map, Site Plan and Architectural Review, and a Tree Removal Permit. In addition, because the No Bridge Alternative would generally result in similar development of the proposed project, Objectives #1 through #3, #6, and #7 would be fully met. However, because the bridge connection would not be developed Objective #4 would only be partially met, and Objective #5 would not be met.

Biological Resources

Buildout of the No Bridge Alternative would avoid disturbance of the Creek, as well as potential habitats for wildlife species, including steelhead, foothill yellow-legged frog, California red-legged frog, and northwestern pond turtle, to the maximum extent feasible, by limiting disturbance within the Creeks channel. Because impacts to the Creek would be avoided, Mitigation Measures 4.1-3(a), 4.1-3(b), 4.1-3(c), 4.1-4(a) through 4.1-4(g), 4.1-7(a), 4.1-7(b), 4.1-8(a), 4.1-8(b), and 4.1-8(c) would not be required under the No Bridge Alternative.

Additionally, given that the bridge connection over the Creek for the public multi-use pathway would not be developed under the No Bridge Alternative, the Alternative would not require the removal of 24 trees that are designated as protected by Petaluma Implementing Zoning Ordinance (IZO) Section 17.040, or the pruning of three additional protected trees located in proximity to the off-site bridge. The outfall structures would still be needed with buildout of the No Bride Alternative, and as a result, two protected trees located in proximity to the outfall structures would require pruning. However, because the 24 trees proposed for removal under the proposed project would not be removed under the No Bridge Alternative, Mitigation Measure 4.1-10 would not be required, and the No Bridge Alternative would avoid impacts related to conflicts with a local policy or ordinance protecting biological resources, such as a tree preservation policy or ordinance.

Based on the above, buildout of the No Bridge Alternative would result in fewer impacts related to biological resources as compared to the proposed project.

Greenhouse Gas Emissions

Given that the No Bridge Alternative would include a similar overall area of disturbance compared to the proposed project, the Alternative would result in similar impacts related to construction generated GHG emissions.

However, given that development of the No Bridge Alternative would involve development of the same land uses as compared to the proposed project, implementation of Mitigation Measure 4.2-1 would still be required to ensure project consistency with BAAQMD's Transportation criterion d. However, as discussed in Chapter 4.4, improving the pedestrian connectivity has been shown to reduce the amount of VMT generated per person. Based on the methodology included in the California Air Pollution Control Officer's Association (CAPCOA) Handbook, the reduction to the project's per capita VMT that would be attributable to the proposed Creek bridge is approximately 0.6 percent. As such, removal of the bridge as part of project design would increase VMT associated with the proposed project, which, in turn, would result in a negligible increase in operational GHG emissions. Therefore, given the increase in VMT, the Alternative would still not comply with BAAQMD Transportation criterion a.

Overall, impacts related to Greenhouse Gas Emissions would be slightly greater under the No Bridge Alternative as compared to the proposed project, and the significant and unavoidable impact identified for the proposed project would remain.

Hydrology and Water Quality

The No Bridge Alternative would generally result in similar development as compared to the proposed project. The total disturbance area associated with the No Bridge Alternative would be slightly reduced as compared to the proposed project, and the approximately 90 cubic yards (CY) of net fill necessary under the proposed project for the abutment fill slopes would not be required. Thus, the No Bridge Alternative would slightly reduce the potential to violate water quality standards or waste discharge requirements or otherwise degrade surface or groundwater quality during construction as compared to the proposed project. Nonetheless, because the Alternative would still require preparation of a SWPPP, grading plan, and a final Stormwater Control Plan, Mitigation Measures 4.3-1(a), 4.3-1(b), and 4.3-2 would still be required. Overall, impacts related to violating any water quality standards or waste discharge requirements or otherwise degrading surface or groundwater quality during construction and operations would be fewer under the No Bridge Alternative as compared to the proposed project.

It should also be noted that as discussed in the Hydraulic Assessment prepared for the proposed project by WEST Consultants, Inc. (see Appendix E of this EIR),[3] the 100-year flood depth differences associated with the proposed project and the No Bridge Alternative are generally similar. However, while the proposed project would result in Creek water surface elevation changes of approximately +0.3 feet and -0.3 feet upstream and downstream, respectively, of the bridge connection, under the No Bridge Alternative the Creek would experience water surface elevation changes of approximately +/-0.1 feet. Thus, both development scenarios, with and without the bridge, would result in minimal water surface elevation changes.

[3] WEST Consultants, Inc. *Creekwood Condominium Project Hydraulic Assessment*. September 2023.

Transportation

The No Bridge Alternative would generally result in similar development as compared to the proposed project. As such, construction traffic could still interfere with existing roadway operations during the construction phase, and Mitigation Measure 4.4-1 would still be required. With regard to VMT-related impacts, as discussed in Chapter 4.4, improving the pedestrian connectivity has been shown to reduce the amount of VMT generated per person. Based on the methodology included in the CAPCOA Handbook, the reduction to the project's per capita VMT that would be attributable to the proposed Creek bridge is approximately 0.6 percent. As such, removal of the bridge as part of project design would insubstantially increase VMT associated with the proposed project, and the significant and unavoidable impact would remain. Therefore, the No Bridge Alternative would result in slightly greater impacts to transportation as compared to the proposed project.

Other Environmental Issue Areas

Development of the No Bridge Alternative would involve a smaller disturbance footprint, as the bridge abutments on the Creek banks would not be included. However, given that the No Bridge Alternative would still result in the development of the same land uses as compared to the proposed project, impacts associated with the other CEQA topics in which the proposed project could have significant impacts, as identified in the Initial Study (cultural resources, geology, hazards, noise, and tribal cultural resources), would be anticipated to be similar in scale under the No Bridge Alternative, and are therefore not discussed further.

Affordable Housing Alternative

Under the Affordable Housing Alternative, the 59 residential units proposed to be developed on-site would be offered as affordable housing. All other on- and off-site improvements proposed as part of the project, including demolition of the on-site residence at 280 Casa Grande Road, retention of the existing residence at 270 Casa Grande Road, construction of various on-site road and utility improvements, landscaping, and a new off-site public multi-use pathway, with a bridge connection over the Creek, would remain the same.

Given that all on- and off-site improvements required under the Affordable Housing Alternative would be the same as the proposed project, the Alternative would still require a Vesting Tentative Parcel Map, Site Plan and Architectural Review, and a Tree Removal Permit. In addition, because the Affordable Housing Alternative would generally result in similar development of the proposed project, all project objectives would be met.

Biological Resources

Given that all on- and off-site improvements required under the Affordable Housing Alternative would be the same as the proposed project, the Affordable Housing Alternative would result in similar impacts related to biological resources as compared to the proposed project, and Mitigation Measures 4.3-2 through 4.3-10 would still be required.

Greenhouse Gas Emissions

Given that all on- and off-site improvements required under the Affordable Housing Alternative would be the same as the proposed project, implementation of Mitigation Measure 4.2-1, which would require three EV capable parking spaces be installed prior to the approval of project improvement plans, would still be required to ensure project consistency with BAAQMD's Transportation criterion d. However, according to the Governor's Office of Planning and Research (OPR), adding affordable housing to an area generally improves the jobs-housing match, in turn

shortening commutes and reducing VMT because low-wage workers in particular are more likely to choose a residential location close to their workplace if one is available. Additionally, even in areas where the existing jobs-housing match is closer to optimal, affordable housing is still shown to generate less VMT than market-rate housing. Because under the Affordable Housing Alternative, the 59 residential units proposed to be developed on-site would be offered as affordable housing, the screening guidance provided by OPR would apply, and therefore, the Alternative would have a less-than-significant impact on VMT.[31] Accordingly, given that VMT associated with the Alternative would be less than significant, the Alternative would comply with BAAQMD Transportation criterion a.

Overall, because the Affordable Housing Alternative would involve reduced VMT, the Alternative would result in fewer impacts related to GHG emissions as compared to the proposed project, and the significant and unavoidable impact that would occur under the proposed project would be eliminated.

Hydrology and Water Quality

Given that all on- and off-site improvements required under the Affordable Housing Alternative would be the same as the proposed project, the Affordable Housing Alternative would result in similar impacts related to hydrology and water quality as compared to the proposed project, and Mitigation Measures 4.3-1(a) through 4.3-2 would still be required.

Transportation

Similar to the proposed project, the Affordable Housing Alternative would add construction vehicle traffic to area roadways, thereby potentially conflicting with existing traffic patterns. As such, Mitigation Measure 4.4-1 would still be required. With regard to impacts related to VMT, and as stated above, according to OPR, adding affordable housing to an area generally improves the jobs-housing match, in turn shortening commutes and reducing VMT because low-wage workers in particular are more likely to choose a residential location close to their workplace if one is available. Additionally, even in areas where the existing jobs-housing match is closer to optimal, affordable housing is still shown to generate less VMT than market-rate housing. Because under the Affordable Housing Alternative, the 59 residential units proposed to be developed on-site would be offered as affordable housing, the screening guidance by OPR would apply, and, therefore, the Alternative would have a less-than-significant impact on VMT.

Overall, because the Affordable Housing Alternative would result in a reduction in VMT, the Alternative would result in fewer impacts related to transportation as compared to the proposed project, and the significant and unavoidable impact would be eliminated.

Other Environmental Issue Areas

Given that development of the Affordable Housing Alternative would involve the same disturbance footprint and development of similar land uses as compared to the proposed project, impacts associated with the other CEQA topics in which the proposed project could have significant impacts, as identified in the Initial Study (cultural resources, geology, hazards, noise, and tribal cultural resources), are anticipated to be similar in scale under the Affordable Housing Alternative, and are therefore not discussed further.

[31] Governor's Office of Planning and Research. *Technical Advisory on Evaluating Transportation Impacts in CEQA*. December 2018.

6.4 ENVIRONMENTALLY SUPERIOR ALTERNATIVE

An EIR is required to identify the environmentally superior alternative from among the range of reasonable alternatives that are evaluated. The environmentally superior alternative is generally the alternative that would be expected to generate the least amount of significant impacts. Identification of the environmentally superior alternative is an informational procedure and the alternative selected may not be the alternative that best meets the goals or needs of the City. Section 15126(e)(2) of the CEQA Guidelines requires that an environmentally superior alternative be designated and states, "If the environmentally superior alternative is the 'no project' alternative, the EIR shall also identify an environmentally superior alternative among the other alternatives." In this case, the No Project (No Build) Alternative would be considered the environmentally superior alternative, because the project site is assumed to remain in its current condition under the alternative. Consequently, impacts resulting from the proposed project would not occur under the Alternative, as shown in Table 6-1.

The No Project (No Build) Alternative would not meet any of the project objectives. The No Bridge Alternative would meet most project objectives. As previously noted, the No Bridge Alternative would fully meet Objectives #1 through #3, #6, and #7. However, because the bridge connection would not be developed Objective #4 would only be partially met, and Objective #5 would not be met. The Affordable Housing Alternative would meet all objectives.

As discussed throughout this chapter and shown in Table 6-1, the No Bridge Alternative could result in greater impacts than the proposed project related to GHG emissions and transportation; fewer impacts related to biological resources and hydrology and water quality, and similar impacts to the proposed project for cultural resources, geology and soils, hazard and hazardous materials, noise, and tribal cultural resources. The Affordable Housing Alternative would result in fewer impacts related to GHG emissions and transportation, and similar impacts to the proposed project for biological resources, cultural resources, geology and soils, hazards and hazardous materials, hydrology and water quality, noise, and tribal cultural resources. Furthermore, the project's two significant and unavoidable impacts would be eliminated with buildout of the Affordable Housing Alternative.

Based on the above, the Affordable Housing Alternative would be considered the environmentally superior alternative to the proposed project.

Table 6-1
Comparison of Environmental Impacts for Project Alternatives

Resource Area	Proposed Project	No Project (No Build) Alternative	No Bridge Alternative	Affordable Housing Alternative
Biological Resources	Less-Than-Significant with Mitigation	None	Fewer	Similar
Cultural Resources	Less-Than-Significant with Mitigation	None	Similar	Similar
Geology and Soil	Less-Than-Significant with Mitigation	None	Similar	Similar
Greenhouse Gas Emissions	Significant and Unavoidable	None	Greater	Fewer*
Hazards and Hazardous Material	Less-Than-Significant with Mitigation	None	Similar	Similar
Hydrology and Water Quality	Less-Than-Significant with Mitigation	None	Fewer	Similar
Noise	Less-Than-Significant with Mitigation	None	Similar	Similar
Transportation	Significant and Unavoidable	None	Greater	Fewer*
Tribal Cultural Resources	Less-Than-Significant with Mitigation	None	Similar	Similar
	Total Fewer:	**9**	**2**	**2**
	Total Similar:	**0**	**5**	**7**
	Total Greater:	**0**	**2**	**0**

Note: No Impact = "None;" Less than Proposed Project = "Fewer;" Greater than the Proposed Project = "Greater," Similar to Proposed Project = "Similar," and significant and unavoidable impact eliminated = *.

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