Rio Mesa Boulevard Project

Draft Environmental Impact Report

SCH No. 2017101048

CEQA Lead Agency:

Madera County
Community and Economic Development Department
200 West 4th Street
Madera County, CA 93637

February 2021

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1 INTRODUCTION

1.1 Purpose of this Draft EIR

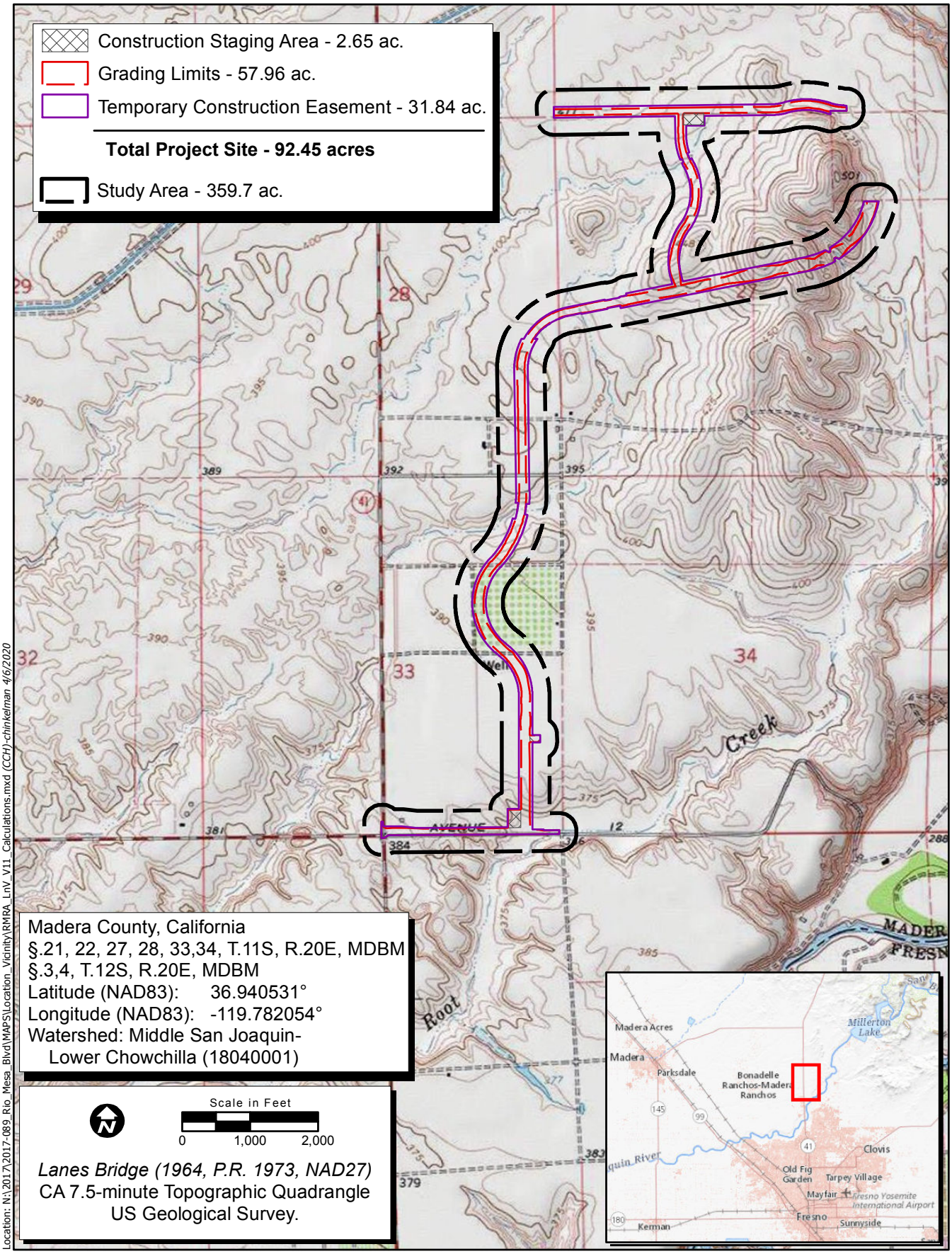
This draft environmental impact report (DEIR) evaluates the potential environmental effects of the proposed Rio Mesa Boulevard Project (Project). The County of Madera (County) is the Lead Agency responsible for preparation of this DEIR in accordance with the requirements of the California Environmental Quality Act (CEQA) (Public Resources Code (PRC) Section 21000-21177) and the State CEQA Guidelines (California Code of Regulations (CCR), Title 14, Division 6, Chapter 3, Sections 15000-15387) (CEQA Guidelines). This DEIR was prepared under the direction of the County Community and Economic Development Department. The DEIR is being circulated for a minimum of 45 days for review and comment by agencies and members of the public. Following the comment period, the County will consider and respond to comments and will prepare a final environmental impact report (FEIR) that will be considered for certification by the County prior to deciding whether to approve the Project.

1.2 Project Overview

The Project would construct an approximately 2.3-mile segment of new roadway (Rio Mesa Boulevard), widen an approximately 2,200-foot segment of Avenue 12, and install utilities within the Rio Mesa Boulevard right-of-way and within two linked utility line corridors in southeastern Madera County (see Figure 1-1). Construction of the Project would provide a new secondary arterial (four-lane undivided) roadway connection between the State Route (SR) 41/Avenue 12 intersection and the southern terminus of the approved internal road network within the Tesoro Viejo Master Planned Community[1] (Tesoro Viejo). The Project provides for development of Rio Mesa Boulevard similar to that identified in the Rio Mesa Boulevard Official Plan Line (OPL) previously adopted by the County. The. proposed alignment varies slightly from the OPL primarily to accommodate the possibility of future California Department of Transportation (Caltrans) construction of a grade-separated interchange to replace the existing SR 41/Avenue 12 intersection. Thus, the Project includes amending the OPL to conform to the currently proposed alignment, as discussed in more detail in Chapter 3, Project Description, of this DEIR.

The Project is located entirely within the area encompassed by the County-approved Rio Mesa Area Plan (RMAP) for unincorporated southeastern Madera County. The Project would be constructed in two phases. Phase 1 would construct a two-lane paved roadway and associated features and establish a graded easement that would accommodate future expansion of the roadway to four lanes.

[1] Tesoro Viejo development includes 5,200 residential units of high-, medium-, low-, and very low-density; and mixed-use, commercial (including highway service commercial), light industrial uses, open space and parks, schools, a sewage treatment and water treatment facility, and community park/Storm water retention basin.



Location: N:\2017\2017-089_Rio_Mesa_Blvd\MAPS\Location_Vicinity\RMRA_LnV_V11_Calculations.mxd (CCH)-chinkelman 4/6/2020

Map Date: 4/6/2020
Sources: ESRI, USGS, Morton and Pitalo

Figure 1-1. Project Location and Vicinity

2017-089 Rio Mesa Boulevard Project

ECORP Consulting, Inc.
ENVIRONMENTAL CONSULTANTS

Phase 1 improvements to Avenue 12 from the SR 41/Avenue 12 intersection to the Rio Mesa Boulevard/Avenue 12 intersection would include overlay of the existing two travel lanes with no shoulders to two 12-foot travel lanes with four-foot paved shoulders including a left-turn pocket to northbound Rio Mesa Boulevard and an acceleration taper lane on Avenue 12 for southbound Rio Mesa Boulevard traffic headed west on Avenue 12. All Phase 1 improvements to Avenue 12 would occur outside of the existing California Department of Transportation (Caltrans) SR 41 right-of-way.

Phase 1 of the Project would also install utility infrastructure between Avenue 12 and Avenue 14. This infrastructure would include water, recycled water and wastewater pipelines, natural gas pipelines, and storm drainage facilities. This infrastructure would serve future development adjacent to the Rio Mesa Boulevard alignment as envisioned in the approved RMAP. Curbs and streetlighting would also be constructed in select locations as part of Phase 1. While the installation of utility lines is included as part of Project Phase 1 improvements, it is anticipated that the installation of these lines, excepting storm drainage lines, would occur sometime after the completion of the Project Phase 1 roadway improvements. The timing of utility line placement would depend upon the pace of development of adjacent parcels and future demand for utility services generated by that development.

Infrastructure would be installed within the Rio Mesa Boulevard alignment and within two linked utility corridors that would be developed as a component of Phase 1 of the Project. The linked utility corridors would accommodate the placement of water, recycled water, natural gas, and sewer pipelines. Construction would require an approximately 30-foot wide area of temporary disturbance along the utility corridors, and a 10-foot-wide unpaved access road would remain within the corridors following construction.

Phase 2 of the Project would widen the Project segment of Rio Mesa Boulevard to four lanes and complete sidewalks, curbs and gutters, and street lighting along the entire length of the roadway. Phase 2 would also add two travel lanes to Avenue 12 between SR 41 and Rio Mesa Boulevard resulting in two 12-foot travel lanes in each direction, six-foot bike lanes in each direction, curbs and gutters on both sides, and a landscape strip and 6-foot sidewalk on the north side and would require relocation of traffic signals at the SR 41/Avenue 12 intersection and relocation of a pole associated with existing overhead utilities on the north side of Avenue 12.

1.3 Project Background

A discussion of Project background relevant to the development of the Project is included in Chapter 3, Project Description, of this DEIR, and a summary is provided here. The Madera County Board of Supervisors (Board) adopted the RMAP on March 21, 1995. The RMAP provides definition and guidelines for the development of an approximately 15,000-acre area of southeastern Madera County to facilitate preparation of developer-initiated specific plans, subdivision maps, and other entitlement requests. The RMAP serves as a policy document to provide the County with land use development decision-making guidance and to provide a planning framework for more detailed implementation plans and measures.

Pursuant to the planning principles and conceptual alignments contained in the RMAP, on September 22, 2015, the Board approved Resolution No. 2015-124 adopting an Official Plan Line for Rio Mesa Boulevard alignment between Avenue 12 and Avenue 14 "to establish the correct location of the right of way for

future development by adjacent property owners." Such adjacent development parcels include Tesoro Viejo, approved by the County in 2012. On September 13, 2016, the Board adopted Resolution No. 2016-269, which amended the language of Resolution 2015-124 to clarify that the Rio Mesa Boulevard OPL extends south of Avenue 12 to Children's Boulevard. The 2016 Resolution is included in Appendix I of this DEIR and are collectively referenced herein as the "OPL Resolutions".

Development within Tesoro Viejo is underway including the construction of an approved internal road network with a planned connection to Rio Mesa Boulevard at the northern end of the OPL alignment, as well as other adjacent parcels identified for development in the RMAP. Development of Rio Mesa Boulevard south of Avenue 12 is not a component of the proposed Project.

The OPL Resolutions specify road cross-section geometrics for the Rio Mesa Boulevard alignment consisting of four 12-foot travel lanes (two in each direction) and 6-foot bike lanes, three-foot curbs and gutters, 8-foot landscape boarders, six-foot sidewalks, and three-foot additional rights-of-way on each edge for a combined right-of-way width of 100 feet. The Project, as described in more detail in Chapter 3 of this DEIR, comports with these design parameters.

The OPL Resolutions also anticipate and identify utilities within the Rio Mesa Boulevard alignment, including natural gas distribution and joint trench utilities, water pipelines, recycled water pipelines, storm drains, sewer pipelines, natural gas pipelines, and above-ground electrical transmission lines. The Project includes installation of these utilities and, as contemplated by the RMAP, utility lines to be installed as part of the Project have been sized to serve the ultimate and intended land use intensities specified in the RMAP for parcels adjacent to the Project.

In March 2020, Caltrans certified the Final Environmental Impact Report/Environmental Assessment (EIR/EA) for the proposed Madera South 41 Expressway (SR 41 EIR/EA) (Caltrans 2020). The SR 41 EIR/EA addresses improvements along the segment of SR 41 west of the Project segment of Rio Mesa Boulevard. The SR 41 EIR/EA also identifies a new interchange connection at the SR 41/Avenue 12 intersection. At present, the timing for construction of the SR 41/Avenue 12 interchange has not been determined. As proposed, construction of the Rio Mesa Boulevard Project is not contingent on construction of the SR 41/Avenue 12 interchange.

1.4 Environmental Review Process

1.4.1 2017 Initial Study/Mitigated Negative Declaration

In October 2017, the County circulated for public review and comment a Draft Initial Study/Mitigated Negative Declaration (IS/MND) for the proposed construction of the Rio Mesa Boulevard Project. Appendix A of this DEIR provides a discussion of the applicability of the 2017 Draft IS/MND (Appendix A-1), the 2017 Draft IS/MND (Appendix A-2), and two comment letters received during the IS/MND public review period in 2017 (Appendix A-3). A summary of the two comment letters is provided below.

Caltrans submitted a comment letter (dated November 15, 2017) that stated the location of the proposed Rio Mesa Boulevard/Avenue 12 intersection did not provide sufficient separation from the Caltrans-

proposed SR 41/Avenue 12 interchange in accordance with Caltrans guidelines. The letter states the minimum acceptable separation between the interchange footprint and intersection was 0.25 mile.

A comment letter (dated November 20, 2017) was submitted by Remy, Moose and Manley, LLP (RMM) on behalf of the Rio Mesa Property Owners Group. The RMM letter stated concerns regarding the adequacy of the IS/MND in its assessment of issues including: Project consistency with County land use plans; Project effects on future growth; effects of the project on biological resources; Project impact on traffic and transportation; and Project impact on hydrology and water quality. The letter requested the County prepare an Environmental Impact Report (EIR) to address the specific issues raised in the letter.

1.4.2 2019 Notice of Preparation

Subsequent to circulation of the 2017 Draft IS/MND, the County determined that an EIR would be prepared for the Project. The County issued a Notice of Preparation (NOP) on October 23, 2019 to inform agencies and the general public that an EIR would be prepared for the Project and to invite comments on the scope and content of the document. (Appendix B of this DEIR contains the NOP (Appendix B-1), NOP distribution list (Appendix B-2), and comment letters submitted in response to the NOP (Appendix B-3).)

The NOP was submitted to the State Clearinghouse (SCH) and distributed directly to state agencies (including potential responsible and trustee agencies). The County also sent the NOP to other interested parties and organizations. The NOP was circulated for 30 days through November 22, 2019. During this period, the County received comment letters from the following public agencies: the California Department of Transportation (Caltrans), California Department of Toxic Substance Control (DTSC), the Native American Heritage Commission (NAHC), the U.S. Fish and Wildlife Service, and the U.S. Army Corps of Engineers.

Caltrans comment letter (dated November 19, 2019) noted that the location of the proposed RMB/Avenue 12 intersection as shown in the NOP would not provide enough separation between the future SR 41 northbound off/on ramps to the proposed Rio Mesa Boulevard. Caltrans recommended that the intersection of Avenue 12 and Rio Mesa Boulevard should be relocated at a minimum of 0.25 mile from the future interchange footprint. In response to the letter, the location of the Rio Mesa Boulevard/Avenue 12 intersection as shown in the NOP has been moved approximately 700 feet to the east for the proposed Project evaluated in this DEIR. The modified location provides 0.25-mile separation from the future SR 41/Avenue 12 interchange footprint to ensure adequate spacing between the future SR 41/Avenue 12 northbound offramp and onramp intersections as identified in the SR 41 EIR/EA.

DTSC comments on the NOP requested the EIR consider various potential impacts of Project site preparation and Project construction and operation related to the transport and use of hazardous wastes/substances. Comments received from NAHC provides specific protocols for conduction Tribal consultations for the EIR in accordance with AB 52 and SB 18. The NAHC letter also provided recommendations for conducting the EIR's cultural resources assessment.

USFWS comments on the NOP provided a list of federally listed species that have been documented on or near the proposed Project site and provided guidance for conducting the Project impact assessment for

those species. The letter also stated protections afforded listed species under Section 9 of the federal Endangered Species Act.

The comment letter from the USACE describes the USACE's jurisdiction under Section 404 of the Clean Water Act as it relates to the Project and recommends actions to be taken by the EIR preparer to assess potential Project impact on waters of the U.S. The letter suggests the EIR present alternatives to the Project that would avoid or lessen the potential impact on wetlands and other waters of the U.S.

Issues raised by each of the agencies described above have been considered by the County in preparing this DEIR.

1.4.3 Public Review of this DEIR

This DEIR will be circulated for public review and comment for a minimum period of 45 days; specific circulation dates will be provided in the Notice of Availability (NOA) to be issued with this DEIR. During the public comment period, written comments from the general public as well as organizations and agencies on the DEIR's accuracy and completeness may be submitted to the lead agency at the contact information below.

Jamie Bax, Deputy Director-Planning
Madera County Community and Economic Development
200 W. 4th Street, Suite 3100
Madera, California 93637
Email: jamie.bax@maderacounty.com

Responsible agencies that must consider the EIR when deciding whether to issue permits or other approvals for the project should provide the name of a contact person. Comments provided by email should include "Rio Mesa Boulevard Project DEIR Comments" in the subject line, and the name and mailing address of the commenter in the body of the email.

This DEIR is available for public review at the following location (additional locations and online availability will be provided in the NOA):

Madera County
Planning Department
200 West 4th Street, Suite 3100
Madera, California 93637

1.4.4 Final EIR

Following the DEIR review and comment period, the County will prepare a Final EIR (FEIR) that incorporates the DEIR by reference and includes all comments on the DEIR received during the DEIR review period, the County's responses to those comments, and any revisions to the DEIR made in response to comments and as otherwise determined necessary by the County.

Before considering Project approval, the County, as CEQA lead agency is required to certify that the EIR has been completed in compliance with CEQA, that the decision-making body has reviewed and

considered the information in the EIR, and that the EIR reflects the independent judgment of the lead agency.

1.5 Draft EIR Organization

This DEIR is organized as follows:

Chapter 1, "Introduction," provides an overview of the proposed Project facilities, location, background, environmental review process, and DEIR organization.

Chapter 2, "Executive Summary," summarizes the proposed Project, environmental impacts, and mitigation measures; summarizes the alternatives evaluation, identifies the CEQA environmentally superior alternative; and summarizes areas of controversy and issues to be resolved.

Chapter 3, "Project Description," describes the proposed Project in detail, including proposed facilities; construction activities and schedule of construction; impact avoidance and minimization measures included as an element of the Project; and long-term operations and maintenance. Required permits and approvals are also identified.

Chapter 4, "Environmental Setting, Impacts, and Mitigation Measures," evaluates the environmental impacts that could occur as a result of the construction and operation of the proposed Project. Chapter 4 is divided into nine subsections. Section 4.1 presents an overview of the approach used for the environmental impact analyses of each resource topic. Sections 4.2 through 4.10 each address potential Project effects on a specific environmental resource topic. Each of these subsections presents the environmental setting, regulatory setting, thresholds for determining significant impacts, and methods used to assess potential impacts. The anticipated changes to existing environmental conditions resulting from proposed project development are then evaluated for each resource and each impact is identified as, less than significant, less than significant with mitigation incorporated or significant and unavoidable. Each chapter 4 subsection also presents mitigation measures, if required, to avoid or reduce any significant or potentially significant impacts.

Each subsection of Chapter 4 analyzes the potential cumulative effects of the Project when considered in combination with the effects of other past, present, and reasonably foreseeable future projects.

Chapter 5, "Alternatives to the Proposed Project," provides an evaluation of potential alternatives to the proposed Project pursuant to §15126 of the CEQA Guidelines. The chapter lists and evaluates a reasonable range of Project alternatives that could potentially reduce impacts associated with the proposed Project while still achieving most of the basic Project objectives. This section also describes other alternatives that were considered for evaluation in the DEIR, but that did not meet CEQA criteria for further evaluation. As required by CEQA, the chapter also evaluates the "No Project Alternative" and identifies the "environmentally superior alternative."

Chapter 6, "Other CEQA Requirements," provides a discussion of Growth Inducing Impacts; Significant and Irreversible Effects; and Unavoidable Significant Effects.

Chapter 7, "List of Acronyms," identifies and defines the acronyms contained in the DEIR.

Chapter 8, "List of Preparers," identifies the lead agency contacts as well as the preparers of this DEIR.

Chapter 9, "References," lists the documents used and cited as sources in the DEIR by section.

Appendices: Included with the DEIR are appendices containing supplemental information and technical analyses relevant to the DEIR. A list of the DEIR appendices is provided in the Table of Contents of this DEIR.

2 EXECUTIVE SUMMARY

2.1 Introduction

This Draft Environmental Impact Report (DEIR) evaluates the potential environmental effects of the proposed construction and operation of the Rio Mesa Boulevard Project (Project) in Madera County, California. The County of Madera (County) is the Lead Agency responsible for preparation of this DEIR. This DEIR was prepared under the direction of the Madera County Community and Economic Development Department in accordance with the requirements of the CEQA (PRC Section 21000-21177) and the CEQA Guidelines.

This Executive Summary has been prepared in accordance with the CEQA Guidelines Section 15123(b), which states that an Environmental Impact Report (EIR) should contain a brief summary of the Proposed Project and its consequences, and should identify:

1. each significant effect with proposed mitigation measures and alternatives that would reduce or avoid that effect,
2. areas of public controversy known to the lead agency, including issues raised by the agencies and the public, and
3. issues to be resolved, including the choice among alternatives and how to mitigate the significant effects.

2.2 Project Summary

A detailed description of Project features, background, and construction activities and timing is included in Chapter 3 of this DEIR. The following provides the reader with a brief overview of the Project: its location, proposed facilities, approach to construction, and project objectives.

The Project would construct Rio Mesa Boulevard, an approximately 2.3-mile segment of new roadway, widen a 2,200-foot segment of existing roadway (Avenue 12), and install utilities within the Rio Mesa Boulevard right-of-way and within two linked utility line corridors in southeastern Madera County. Construction of the Project would provide a new secondary arterial (four-lane undivided) roadway connection between the SR 41/Avenue 12 intersection and the southern terminus of the approved internal road network within the Tesoro Viejo Master Planned Community (Tesoro Viejo). The Project provides for development of Rio Mesa Boulevard similar to that identified in the Rio Mesa Boulevard Official Plan Line (OPL) previously adopted by the County. The proposed alignment varies slightly from the OPL to accommodate the possibility of Caltrans constructing a grade-separated interchange to replace the existing SR 41/Avenue 12 intersection. Thus, the Project includes amending the OPL to conform to the currently proposed alignment.

The Project is located entirely within the area encompassed by the County-approved Rio Mesa Area Plan (RMAP) for unincorporated southeastern Madera County. The Project would be constructed in two phases. Phase 1 would construct a two-lane paved roadway and associated features and establish a graded easement that would accommodate future expansion of the roadway to four lanes. Phase 1

improvements to Avenue 12 from the SR 41/Avenue 12 intersection to the Rio Mesa Boulevard/Avenue 12 intersection would include overlay of the existing two travel lanes with no shoulders to two 12-foot travel lanes with four-foot paved shoulders including a left-turn pocket to northbound Rio Mesa Boulevard and an acceleration taper lane on Avenue 12 for southbound Rio Mesa Boulevard traffic headed west on Avenue 12. All Phase 1 improvements to Avenue 12 would occur outside of the existing Caltrans SR 41 right-of-way.

Phase 1 of the Project would also install utility infrastructure between Avenue 12 and Avenue 14. This infrastructure would include water, recycled water and wastewater pipelines, natural gas pipelines, and storm drainage facilities. This infrastructure would serve future development adjacent to the Rio Mesa Boulevard alignment as envisioned in the approved RMAP. Curbs and streetlighting would also be constructed in select locations as part of Phase 1. While the installation of utility lines is included as part of Phase 1 of the Project, the installation of these lines, excepting storm drainage lines, would occur sometime after the completion of the Project Phase 1 roadway improvements. The actual timing of utility line placement would depend upon the pace of development of adjacent parcels and future demand for utility services generated by that development.

Infrastructure would be installed within the Rio Mesa Boulevard alignment and within two linked utility corridors that would be developed during Phase 1 of the Project. The linked utility corridors would accommodate the placement of water, recycled water, natural gas, and sewer pipelines. Construction would require an approximately 30-foot-wide area of temporary disturbance along the utility corridors, and a 10-foot-wide unpaved access road would remain within the corridors following construction.

Phase 2 of the Project would widen the Project segment of Rio Mesa Boulevard to four lanes and complete sidewalks, curbs and gutters, and street lighting along the entire length of the roadway. Phase 2 would also add two travel lanes to Avenue 12 between SR 41 and Rio Mesa Boulevard resulting in two 12-foot travel lanes in each direction, six-foot bike lanes in each direction, curbs and gutters on both sides, and a landscape strip and six-foot sidewalk on the north side and would require relocation of traffic signals at the SR 41/Avenue 12 intersection and relocation of a pole associated with existing overhead utilities on the north side of Avenue 12.

2.3 Project Objectives

The County is pursuing construction of the Project to implement circulation objectives contemplated in the RMAP and the OPL. The Project is needed to accommodate approved development already under construction (Tesoro Viejo) and is designed to also provide transportation and utility infrastructure capacities for anticipated future development at the specified land use intensities that are set forth in the RMAP.

Specific objectives of the Project include the following:

1. Amend the Rio Mesa Boulevard OPL alignment to maintain consistency with the Circulation Concept of the RMAP and achieve the circulation and utilities intent of the OPL while accommodating current transportation planning and land development considerations.

2. Construct a new secondary arterial (four-lane undivided) roadway connection between Avenue 12 and the southern terminus of the approved internal roadways within Tesoro Viejo consistent with the intent of the Circulation Concept Plan of the RMAP and OPL;
3. Phase construction of Rio Mesa Boulevard so as to initially install a two-lane roadway to accommodate existing and projected near-term traffic that can later be widened to the full four-lane width when necessary to accommodate future demand;
4. Improve the existing and future circulation and safety along the segment of SR 41 between Avenue 12 and Avenue 15 by creating an arterial roadway to provide access for travel to and from parcels adjacent to the Project Site;
5. Implement design features to facilitate and encourage pedestrian and bicycle travel consistent with the adopted OPL design parameters;
6. Provide design measures to minimize the potential for California tiger salamander (*Ambystoma californiense* [CTS]) to enter the roadway and to create opportunities for CTS migration/movement under the roadway;
7. Install stormwater collection and conveyance facilities sufficient to manage stormwater runoff from the rights-of-way of the proposed Rio Mesa Boulevard and the Project segment of Avenue 12;
8. Install landscaping and lighting along the Project segments of Rio Mesa Boulevard and Avenue 12;
9. Install water lines, recycled water lines, sewer force main, gravity sewer lines, natural gas pipelines and dry utility conduits sufficient to accommodate future development consistent with the specified land use intensities on adjacent parcels identified in the RMAP and thus reduce the potential for future vehicle travel disruptions and environmental impacts that could otherwise occur with future installation/modification of utilities.

2.4 Project Alternatives

The CEQA Guidelines specify that an Environmental Impact Report must describe and evaluate a range of reasonable alternatives to the project, or to the location of the project, which would feasibly attain most of the basic project objectives (Guidelines §15126.6(a)). The alternatives addressed in this DEIR are described in detail in Chapter 5 and include the following alternatives:

- Alternative 1: No Project;
- Alternative 2: Alternate Alignment; and
- Alternative 3: Two-Lane Roadway.

2.4.1 Alternative 1: No Project.

The No Project Alternative considers impacts that would occur if environmental conditions existing at the time of publication of the Notice of Preparation (NOP) (October 2019) would continue without implementing the proposed Project. The No Project Alternative assumes that the land area affected by Project construction would remain in its existing state, while considering what would be reasonably

expected to occur in the foreseeable future if the Project were not approved. It is assumed that current plans and ongoing operation of existing available infrastructure, and community services would continue under the No Project Alternative. Under the No Project Alternative for this EIR specifically, Rio Mesa Boulevard would not be constructed, the proposed installation of utilities infrastructure would not occur, and portions of the RMAP Conceptual Circulation Plan and the Official Plan Line for Rio Mesa Boulevard would not be implemented.

2.4.2 Alternative 2: Alternate Alignment

Alternative 2 was developed to consider the potential environmental benefits of locating the Rio Mesa Boulevard alignment further east. Under Alternative 2 the Avenue 12/Rio Mesa Boulevard intersection would be located approximately 5,100 feet east of the proposed Project alignment. Under Alternative 2 the Avenue 12/Rio Mesa Boulevard intersection would be located approximately 5,100 feet east of the proposed Project alignment. The alternate alignment would approximately coincide with the "Flag Barn Way" alignment shown in Exhibit A of Board Resolution 2015-124 (see Appendix H of this DEIR).

Under Alternative 2, the proposed location of the Avenue 12/Rio Mesa Boulevard intersection for the Project would be moved approximately 5,100 feet to the east. As with the proposed Project, 2,200 feet of Avenue 12 extending east from SR 41 would be improved. Under Alternative 2, an additional 5,100 feet of Avenue 12 would be improved extending east from the location of the Project's Avenue 12/Rio Mesa Boulevard intersection. At that location, an alternate Avenue 12/Rio Mesa Boulevard intersection would be constructed under Alternative 2.

From the Alternative 2 Avenue 12/Rio Mesa Boulevard intersection, Rio Mesa Boulevard would extend north approximately 1.8 miles, ending at the same northern termination point as that of the proposed Project. Alternative 2 would achieve several of the basic Project objectives identified in Chapter 3 of this DEIR, including providing a connection between the SR 41/Avenue 12 intersection and the circulation system at the southern boundary of Tesoro Viejo.

As with the Project, Phase 2 of Alternative 2 would expand Avenue 12 and Rio Mesa Boulevard to four lanes and complete construction of sidewalks, curbs, gutters, and streetlights. Improvements to the SR 41/Avenue 12 and Avenue 12/Rio Mesa Boulevard intersections proposed for Phase 2 of the Project, would also be implemented in Phase 2 of Alternative 2.

2.4.3 Alternative 3: Two-Lane Roadway

Under Alternative 3, future construction of Rio Mesa Boulevard would commence as described for Phase 1 of the proposed Project, however the proposed Project's future expansion of the roadway to four lanes would not occur. Under this alternative, the width of the Project's permanent footprint would be reduced by approximately 24 feet, from 100 to 76 feet wide. Alternative 3 would eliminate most construction activities envisioned for Phase 2 of the Project thus avoiding the need to mitigate for impacts associated with Phase 2 construction. Implementation of Alternative 3 would reduce the permanent introduction of impervious surfaces and other permanent alteration of lands within the Project right-of-way.

All utilities proposed for installation with the Phase 1 of the Project would be installed under Alternative 3 and the two linked utility corridors would also be created as described for the Project. Improvements

proposed for Phase 2 of the Project such as sidewalks, bike lanes, permanent landscape corridors, curbs, gutters, and street lights would be constructed concurrently with or immediately following the construction of Phase 1 improvements. Rio Mesa Boulevard/Avenue 12 and SR 41/Avenue 12 intersection improvements, and improvements to Avenue 12 proposed for Phase 2 of the Project would not be implemented under Alternative 3.

2.5 Areas of Controversy

CEQA requires the EIR to identify areas of controversy or public interest. In October 2019, prior to the preparation of this EIR, a NOP was prepared distributed for review and comment to Responsible and Trustee Agencies, the State Clearinghouse, and other interested parties for a 30-day scoping period. All comment letters received in response to the October 2019 NOP are included in Appendix B of this DEIR.

Based on information and comments received in response to the NOP, the following issues are of public interest:

- The proposed location of the Rio Mesa Boulevard/Avenue 12 intersection did not meet Caltrans minimum separation requirement of 1,300 feet from a proposed interchange at the SR 41/Avenue 12 intersection.
- Previous uses of the Project Site should be considered relative to possible use of hazardous materials.
- Project direct and indirect impacts on sensitive terrestrial and aquatic biological resources and wildlife movement corridors from Project construction and operation.
- Project impacts on significant cultural and tribal resources.
- Project direct and indirect effects on areas designated as Waters of the U.S.

2.6 Issues to be Resolved

CEQA requires an EIR to identify issues to be resolved. Issues to be resolved by the County as Lead Agency include the following:

- Whether the EIR adequately describes the environmental impacts of the Project
- Whether the recommended mitigation measures should be modified/adopted
- Which among the Project and alternatives should be selected for approval

2.7 Summary of Impacts and Mitigation Measures

Table 2-1 presents a summary of project-specific environmental impacts analyzed and identified in this DEIR, the mitigation measures proposed for those impacts (if required), and the level of significance with mitigation (i.e., "residual impact"). For each resource subject, the analysis in this DEIR concluded that the project would result in a less than considerable contribution to cumulative impacts.

The analysis in this DEIR concludes that although certain impacts are considered significant or potentially significant, in all instances, all such impacts could be avoided or reduced to less than significant with implementation of mitigation measures identified for each. No impact was identified that would remain significant with implementation of the mitigation measures identified in Chapter 4, and each of those mitigation measures is feasible. Therefore, the proposed Project would not result in any significant and unavoidable environmental effects.

Table 2-1. Impact and Mitigation Summary Table

Environmental Impacts	Mitigation Measures	Residual Impact (with Mitigation)
AIR QUALITY		
Impact 4.2-1: Emissions during Project construction could conflict with or obstruct compliance with the applicable air quality plans. Impact determination: *Less than significant with mitigation incorporated*.	**AIR-1:** In accordance with SJVAPCD Rule 9510, a detailed air impact assessment (AIA) shall be prepared detailing the specific construction requirement (i.e., equipment required, hours of use) and operational characteristics associated with the Project. Emissions of NOx from construction equipment greater than 50 horsepower used or associated with the development Project shall be reduced by 20 percent from unmitigated emissions and PM10 emissions shall be reduced by 45 percent. The Project shall demonstrate compliance with Rule 9510, including payment of all applicable fees, prior to the initiation of construction activities. Examples of measures that would reduce emissions attributable to the Project in compliance with Rule 9510 include, but are not limited to, the following: • During all construction activities, all diesel-fueled construction equipment including, but not limited to, rubber-tired dozers, graders, scrapers, excavators, asphalt paving equipment, cranes, and tractors shall be CARB Tier 4 Certified as set forth in Section 2423 of Title 13 of the California Code of Regulations, and Part 89 of Title 40 of the Code of Federal Regulations. • All construction equipment shall be maintained and properly tuned in accordance with manufacturers' specifications. Equipment maintenance records shall be prepared and retained for the duration of construction • Project construction shall comply with all applicable SJVAPCD rules and regulations. Copies of any applicable air quality permits and/or monitoring plans shall be provided to the County.	Less Than Significant (LTS)
Impact 4.2-2: Potential for criteria air pollutant emissions to exceed annual emissions significance thresholds. Impact determination: *Less than significant with mitigation incorporated*.	Implement Mitigation Measure **AIR-1.**	LTS
Impact 4.2-3: Exposure of sensitive receptors to substantial pollutant concentrations. Impact determination: *Less than significant*.	None required.	LTS
Impact 4.2-4: Odors would be generated during Project construction. Impact determination: *Less than significant*.	None required.	LTS

Table 2-1. Impact and Mitigation Summary Table

Environmental Impacts	Mitigation Measures	Residual Impact (with Mitigation)
BIOLOGICAL RESOURCES		
Impact 4.5-1: Project construction activities could adversely affect, either directly or through habitat modifications, species identified as a candidate, sensitive, or special-status wildlife species in local or regional plans, policies or regulations, or by the California Department of Fish and Wildlife or U.S. Fish and Wildlife Service. Impact Determination: *Less than significant*.	**BIO-1:** Preservation of Vernal Pool Fairy Shrimp and Midvalley Fairy Shrimp Habitat • Obtain take coverage from USFWS under Section 7 of FESA, and preserve vernal pool fairy shrimp habitat (e.g., vernal pools and seasonal wetlands) at an off-site mitigation property at a minimum ratio of 1.5:1 and as agreed upon through consultation with USFWS. **BIO-2:** Take Coverage for California Tiger Salamander (CTS) • Obtain take coverage for CTS from USFWS under Section 7 or Section 10 of FESA and obtain take coverage for CTS from CDFW under Section 2081 of the California Fish and Game Code. • Preserve in perpetuity suitable breeding habitat (e.g., vernal pools) at an off-site mitigation property at a minimum ratio of 1.5:1 and as agreed upon through consultation with USFWS and CDFW. • Preserve in perpetuity suitable upland habitat at an off-site mitigation property at a minimum ratio of 1:1 and as agreed upon through consultation with USFWS and CDFW. **BIO-3:** Special-Status Amphibian Avoidance • Prior to the start of ground disturbing activities on the Project Site, the Project proponent shall retain a qualified CTS and western spadefoot biologist (Biologist). • Prior to the start of ground disturbing activities on the Project Site, the Biologist shall conduct an education program to the workers onsite. The program shall consist of a presentation from the Biologist that includes a discussion of the biology and general behavior of CTS and western spadefoot, information about the distribution and habitat needs of these animals, sensitivity of these animals to human activities, and their status of legal protection. A pamphlet that summarizes this information shall be handed out to the workers. If new workers come to the Project Site, their direct supervisor will be responsible for providing them with the pamphlet. • Prior to the start of ground disturbing activities in areas considered potential habitat for CTS and western spadefoot, the Biologist shall	LTS

Table 2-1. Impact and Mitigation Summary Table

Environmental Impacts	Mitigation Measures	Residual Impact (with Mitigation)
	conduct a pre-construction survey. This survey shall be conducted at least two weeks prior to the start of ground disturbing activities. If a CTS is found, the Biologist shall allow the animal to leave on its own volition. If a western spadefoot is found, the Biologist may relocate the animal to a safe location offsite. • The Biologist shall train the on-site workers to check all equipment and the surrounding area every morning prior to starting construction for CTS and western spadefoot. If either are found the workers shall allow the animal to leave on its own volition and immediately contact the Biologist regarding the observation. • The Biologist shall submit all observations of western spadefoot and CTS to CDFW's California Natural Diversity Database (CNDDB) within 60 calendar days of the observation. *Special-Status Reptiles* **BIO-4:** Blainville's horned lizard Pre-construction Survey • Conduct a pre-construction Blainville's horned lizard no more than two weeks prior to ground disturbing activities. Any Blainville's horned lizard individuals discovered in the Project Site immediately prior to or during Project activities shall be allowed to move out of the work area of their own volition. If this is not feasible, they shall be captured by a qualified wildlife biologist and relocated out of harm's way to the nearest suitable habitat at least 100 feet from the Project work area where they were found. *Birds and MBTA Protected Birds (Including Raptors)* **BIO-5:** Special-Status Bird Surveys • Conduct a pre-construction nesting raptor and bird survey of the Project Site at least 14 days prior to the commencement of construction activities during the nesting season (February 1 – August 31). Surveys shall be conducted within 500 feet of the Project Site for raptors and 100 feet of the Project Site for nesting birds. If construction activities are confined to a portion of the Project Site (e.g., phasing), then that area and the applicable buffer distance shall be surveyed. • If active nests are found, a no-disturbance buffer around the nests shall be established. The buffer distance shall be established by a qualified	

Table 2-1. Impact and Mitigation Summary Table

Environmental Impacts	Mitigation Measures	Residual Impact (with Mitigation)
	biologist and is recommended to be a minimum 300 feet for raptors and 50 feet for non-raptor birds. The buffer shall be maintained until the fledglings are capable of flight and become independent of the nest tree, or the nest is deemed inactive; to be determined by a qualified biologist. Once the nest is no longer active, no further measures are necessary. Pre-construction nesting surveys are not required for construction activity outside the nesting season. **BIO-6:** Burrowing Owl. At least 30 days prior to starting ground disturbing activities within the Project Site, a qualified wildlife biologist shall survey for burrowing owl within the Project Site and a 500-foot radius of the Project Site, . If ground disturbing activities are confined to a portion of the Project Site (e.g., phasing), then that area and a 500-foot radius shall be surveyed. Surveys shall be conducted at appropriate times to maximize detection. If any active burrowing owl burrows are observed, these burrows shall be designated a sensitive area, protected, and monitored by a qualified biologist during construction activities. A minimum 500-foot avoidance buffer shall be established and maintained around each active owl burrow during the nesting season (February 1 through August 31). If any active burrowing owl burrows are observed outside of the nesting season, a minimum 150-foot no disturbance buffer shall be established around each burrow. Permittee can request buffer reductions in writing and provide a description of the activity that will occur in addition to alternate minimization measures and monitoring. • If avoidance of an occupied burrow is not feasible and the County or its construction contractor proposes to evict burrowing owls from burrows, the County shall submit to CDFW a Burrowing Owl Eviction Plan (Eviction Plan) at least 30 days prior to any activity requiring eviction of owls. The Eviction Plan shall include details regarding the eviction via one-way doors, including but not limited to the materials used and at least twice daily monitoring of subject burrows to ensure that owls are not trapped; timing of eviction only outside the nesting season; and details about any proposed use of artificial burrows, including but not limited to design, installation, and maintenance. *Special-Status Mammals* **BIO-7:** American Badger Surveys • Conduct a pre-construction American badger survey at least two weeks	

Table 2-1. Impact and Mitigation Summary Table

Environmental Impacts	Mitigation Measures	Residual Impact (with Mitigation)
	prior to ground disturbing activities. If American badgers are found, allow them to leave the Project area on their own volition. If American badgers do not leave, consultation with CDFW on potential eviction efforts shall be required prior to initiation of ground disturbing activities. **BIO-8:** San Joaquin Kit Fox Surveys • At least 30 days prior to the start of ground disturbing activities, a qualified wildlife biologist shall perform transect surveys of the Project Site and a 250-foot buffer, to identify potential dens and other kit fox sign. If sign of kit fox is detected, a qualified wildlife biologist shall be available on-site during all Project-related activities that could impact the species. If kit foxes are found on or within 250 feet of the Project Site, all activity shall cease until a qualified wildlife biologist confirms that the individual(s) has left of its own volition. If ground disturbing activities are confined to a portion of the Project Site (e.g., phasing), then that area and a 250-foot radius shall be surveyed. • If San Joaquin kit fox dens are found, they shall be avoided by appropriate distances (known den = 100 feet; pupping den = 500 feet). Absolutely no disturbance to known San Joaquin kit fox dens shall occur and no work shall occur within the above buffers without contacting CDFW and obtaining written authorization to do so. The County shall obtain an Incidental Take Permit for San Joaquin kit fox may if required for such activities.	
Impact 4.5-2: Operation and maintenance of the completed Project could adversely affect species identified as a candidate, sensitive, or special-status wildlife species. Impact Determination: *Less than significant with mitigation*.	**BIO-9:** Road Maintenance Protection Measures Amphibians Annual grassland vegetation immediately adjacent to the road shall be maintained (e.g., mowed) during the summer months only when special-status amphibians are underground and ground nesting birds are less likely to be present. Roadway maintenance shall be confined to the roadway where special-status wildlife are not be present. Culverts shall be periodically cleaned out of debris to ensure optimum function to facilitate CTS and western spadefoot below the roadway and to ensure that hydrologic connectivity is maintained. Cleaning operations shall consist of hand removing debris only. Cleaning operations shall be conducted during the summer months only when CTS and western spadefoot are underground.	LTS

Table 2-1. Impact and Mitigation Summary Table

Environmental Impacts	Mitigation Measures	Residual Impact (with Mitigation)
Impact 4.5-3: Project construction could adversely affect special-status plant species. Impact Determination: *Less than significant with mitigation*.	**BIO-10**: Succulent owl's clover and San Joaquin Valley Orcutt grass Establish avoidance zones around plants to clearly demarcate areas for avoidance. Avoidance measures and buffer distances may vary between species and the specific avoidance zone distance will be determined in coordination with appropriate resource agencies (CDFW and USFWS). If plants cannot be avoided, consultation with USFWS (under Sections 7 of the federal ESA) and/or take coverage from CDFW under Section 2081 of the California Fish and Game Code would be required.	LTS
Impact 4.5-4: The Project could affect riparian habitat or sensitive natural communities. Impact Determination: *Less than significant with mitigation incorporated*.	Implement Mitigation Measures **BIO-10** and **BIO-11**.	LTS
Impact 4.5-5: The Project would require construction and fill within waters of the U.S. and waters of the State. Impact Determination: *Less than significant with mitigation incorporated*.	**BIO-11:** Authorization to fill waters of the U.S. under the Section 404 and 401 of the federal CWA (Section 404 Permit and Section 401 Water Quality Certification) shall be obtained from USACE and RWQCB prior to discharging any dredged or fill materials into any waters of the U.S. Since the waters of the U.S. are also waters of the State, the 401 Water Quality Certification will authorize fill to waters of the State. Specific impact avoidance, minimization, and/or compensation measures shall be developed and implemented as part of the Section 404 Permit to ensure no-net-loss of wetland function and values. To facilitate such authorization, an application for a Section 404 Permit and an application for a 401 Water Quality Certification for the Project shall be prepared and submitted to USACE and RWQCB and will include direct, avoided, and preserved acreages to Waters of the U.S. Mitigation for impacts to Waters of the U.S. would consist of a minimum of a 1:1 replacement ratio for direct impacts; however final mitigation requirements shall be developed in consultation with USACE. These measures may include: • Purchase of mitigation credits at an Agency-approved mitigation bank; and/or • Permittee-responsible mitigation (e.g., preservation and creation) at an off-site mitigation property.	LTS

Table 2-1. Impact and Mitigation Summary Table

Environmental Impacts	Mitigation Measures	Residual Impact (with Mitigation)
Impact 4.5-6: The Project could affect wildlife movement and/or migration. Impact Determination: *Less than significant with mitigation*.	**BIO-12:** Construct Wildlife Crossings • Construct wildlife crossings at selected locations through the Project road alignment to facilitate wildlife movement for special-status amphibians and reptiles. The crossings will consist of culverts constructed beneath roadways, the number and locations of which shall be determined in coordination with CDFW and USFWS through the Section 7 or Section 10 and Section 2081 processes described under Mitigation Measure **BIO-2**.	LTS
Impact 4.5.7: The Project could conflict with local policies and ordinances associated with protection of biological resources. Impact Determination: *Less than significant with mitigation*.	Implement Mitigation Measures **BIO-1** through **BIO-12**.	LTS
Impact 4.5-8: The Project would not conflict with HCPs, NCCPs, or other conservation plans. Impact Determination: *Less than significant*.	None Required.	LTS
CULTURAL RESOURCES		
Impact 4.4-1: The Project could adversely affect the significance of a historical or archaeological resource pursuant Section 15064.5. Impact determination: *Less than significant with mitigation*.	**CUL-1:** If subsurface deposits having the potential to be cultural or human in origin are discovered during construction, all work must halt within a 100-foot radius of the discovery. A qualified professional archaeologist, meeting the Secretary of the Interior's Professional Qualification Standards for prehistoric and historic archaeology, shall be retained to evaluate the significance of the find, and shall have the authority to modify the no-work radius as appropriate, using professional judgment. The following notifications shall apply, depending on the nature of the find: • If the professional archaeologist determines that the find does not represent a cultural resource, then work may resume and no agency notifications are required. A record of the archaeologists determination shall be made in writing to the County. • If the professional archaeologist determines that the find does represent a cultural resource from any time period or cultural affiliation, then he or she shall immediately notify USACE and Madera County. The agencies shall consult on a finding of eligibility and implement appropriate treatment measures if the find is determined to be eligible for inclusion in the NRHP or CRHR. Work cannot resume within the no-work radius	LTS

Table 2-1. Impact and Mitigation Summary Table

Environmental Impacts	Mitigation Measures	Residual Impact (with Mitigation)
	until the lead agencies, through consultation as appropriate, determine that the site either: 1) is not eligible for the NRHP or CRHR; or 2) that the treatment measures have been completed to their satisfaction. • If the professional archaeologist determines that the find represents a potential Native American resource that does not include human remains, the professional archeologist and County shall notify the Dumna Wo-Wah tribe. The agencies shall consult with the tribes to assess the significance and eligibility of the find and shall implement appropriate treatment measures if the find is determined to be eligible for inclusion in the NRHP or CRHR. Work shall not resume within the no-work radius until the County determines, through consultation as appropriate, that the find either: 1) is not eligible for the NRHP or CRHR; or 2) that the treatment measures have been completed to their satisfaction.	
Impact 4.4-2: Project construction could affect significant archaeological resources. Impact determination: *Less than significant with mitigation*.	Implement Mitigation Measure **CUL-1.**	LTS
Impact 4.4-3: Potential for disturbance of human remains during Project construction. Impact determination: *Less than significant with mitigation*.	**CUL-2:** If human remains are discovered during Project construction activities, all ground-disturbing activity within 100 feet of the resources shall cease and the County Coroner shall be notified immediately, in accordance with Section 5097.98 of the California PRC and Section 7050.5 of California's Health and Safety Code. If the remains are determined by the County Coroner to be Native American, the Coroner shall notify NAHC and procedures under state law shall be followed. If necessary, the archaeologist may provide professional assistance to the Most Likely Descendant, including the excavation and removal of the human remains before resuming ground-disturbing activities within 100 feet of where the remains were discovered.	LTS
Impact 4.4-2: Project construction could affect undiscovered significant paleontological resources. Impact determination: *Less than significant with mitigation*.	**PA-1:** If paleontological or other geologically sensitive resources be identified during any phase of project development, the construction manager shall cease operation at the site of the discovery and immediately notify the Madera County Community Development Department. The	LTS

Table 2-1. Impact and Mitigation Summary Table

Environmental Impacts	Mitigation Measures	Residual Impact (with Mitigation)
	owner/applicant shall retain a qualified paleontologist to provide an evaluation of the find and to prescribe mitigation measures to reduce impacts to a less than significant level. In considering any suggested mitigation proposed by the consulting paleontologist, the Community Development Department shall determine whether avoidance is necessary and feasible in light of factors such as the nature of the find, project design, costs, land use assumptions, and other considerations. If avoidance is unnecessary or infeasible, other appropriate measures (e.g., data recovery) shall be instituted. Work may proceed on other parts of the project site while mitigation for paleontological resources is carried out.	
GREENHOUSE GAS		
Impact 4.5-1: Project construction would generate GHG emissions. Impact determination: *Less than significant*.	None required.	LTS
Impact 4.5-2: The Project would not conflict with any approved plan, policy, or regulation adopted for the purpose of reducing GHG emissions. Impact determination: *Less than significant*.	None required.	LTS
HYDROLOGY AND WATER QUALITY		
Impact 4.6-1: Project potential to interfere with groundwater recharge. Impact Determination: *Less than significant*.	None required.	LTS
Impact 4.6-2: The Project could adversely affect surface or groundwater water quality during construction and operation and/or result in increased erosion or siltation in stormwater runoff. Impact Determination: *Less than significant*.	None required.	LTS
Impact 4.6-3: The Project introduction of impervious surfaces would increase the rate of surface water runoff from the Project Site. Impact Determination: *Less than significant*.	None required.	LTS
Impact 4.6-4: Project consistency with the Madera Subbasin Groundwater Sustainability Plan. Impact Determination: *Less than significant*.	None required.	LTS

Table 2-1. Impact and Mitigation Summary Table

Environmental Impacts	Mitigation Measures	Residual Impact (with Mitigation)
NOISE		
Impact 4.7-1: Project construction and operation could generate noise levels in excess of standards. Impact determination: *Less than significant*.	None required.	LTS
Impact 4.7-2: Project construction and operation activities would generate groundborne vibration and vibration noise. Impact determination: *Less than significant*.	None required.	LTS
Impact 4.7-3 Public airport noise impact. Impact determination: *No impact*.	None required	LTS
TRAFFIC AND CIRCULATION		
Impact 4.8-1: The location, design, construction and operation of the Project could conflict with applicable regional plans addressing transportation-related projects in the Project Area. Impact Determination: *Less than significant*.	None required.	LTS
Impact 4.8-2: The Project would reduce VMT associated with existing and planned land uses by providing more direct access to SR 41. Impact Determination: *Less than significant*.	None required.	LTS
Impact 4.8-3: Project design would contain no hazards related geometric design and would avoid substantial conflicts with adjacent uses. Impact Determination: *Less than significant*.	None required.	LTS
Impact 4.8-4: Development of the proposed roadway would result in improved emergency access. Impact Determination: *Less than significant*.	None required.	LTS
TRIBAL CULTURAL RESOURCES		
Impact 4.9-1: The Project could adversely affect significant tribal cultural resources (TCRs) as determined by tribal consultation. Impact determination: *Less than significant*.	None required.	LTS
ENERGY CONSUMPTION AND CONSERVATION		
Impact 4.10-1: Potential for wasteful, inefficient, or unnecessary consumption of energy, and potential to conflict with a state or local renewable energy plan or energy efficiency plan. Impact determination: *Less than significant.*	None required.	LTS

3 PROJECT DESCRIPTION

3.1 Project Overview

The proposed Rio Mesa Boulevard Project (Project) would construct an approximately 2.3-mile segment of new roadway (Rio Mesa Boulevard), widen an approximately 2,200-foot segment of Avenue 12, and install utilities within the Rio Mesa Boulevard right-of-way and within two linked utility line corridors in southeastern Madera County. The Project segment of Rio Mesa Boulevard would provide a connection between the SR 41/Avenue 12 intersection in the south to the southernmost point of the internal road network within the Tesoro Viejo Master Planned Community (Tesoro Viejo) to the north. The Project utility installation would provide utility infrastructure between Avenue 12 and Avenue 14 and along an approximately one-mile segment of Avenue 14. The Project is within the County-approved Rio Mesa Area Plan (RMAP) (County of Madera 1995) and would implement transportation and utility connections consistent with land uses anticipated in the RMAP.

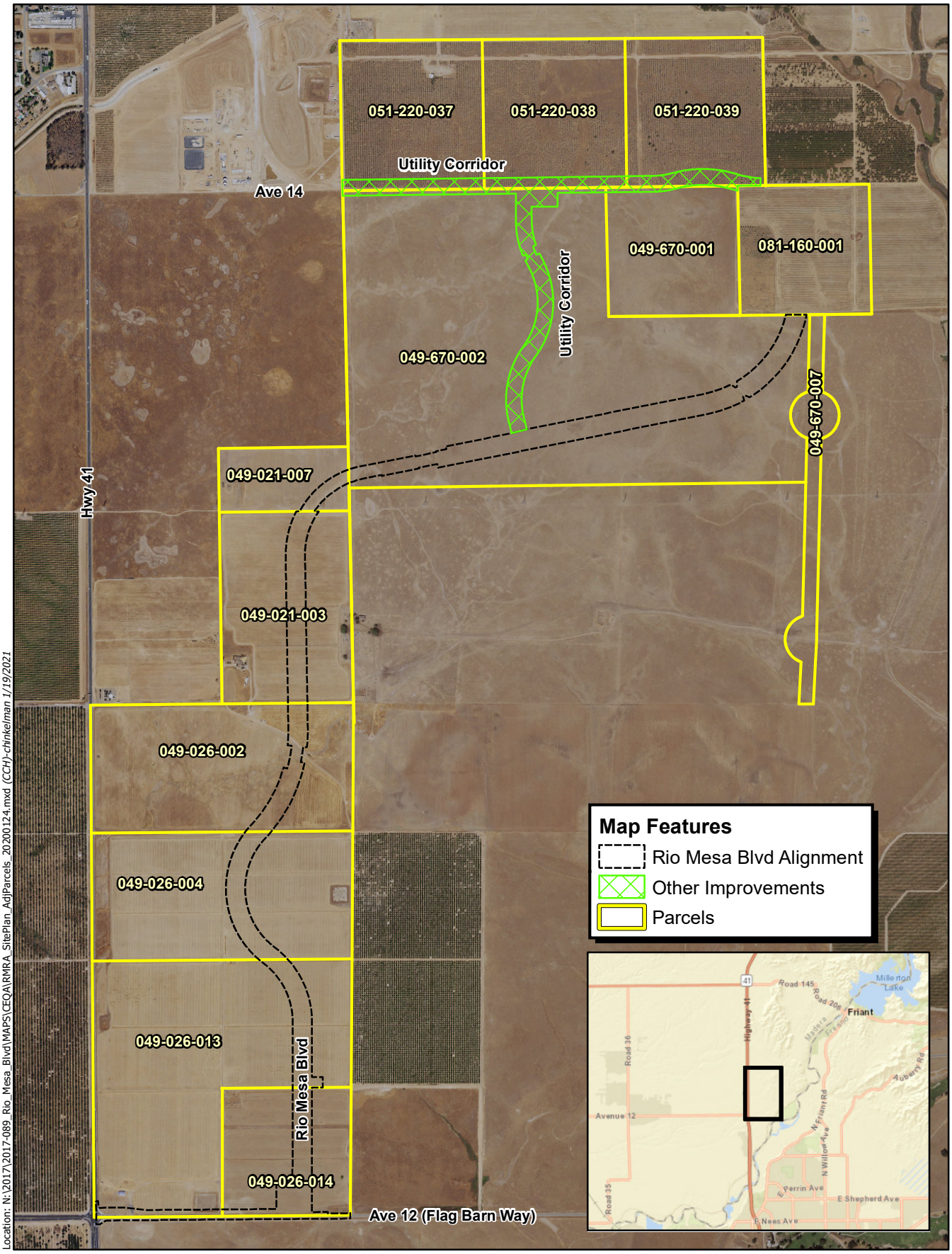
3.2 Project Location

The Project improvements, including temporary construction and staging areas, collectively comprise an area of approximately 92.45 acres in unincorporated Madera County between and along segments of Avenue 12 and Avenue 14 east of SR 41 (Project Site). The Project Site is located approximately 15 miles east of the City of Madera and approximately five miles north of the City of Fresno and is within Sections 27, 28, and 33, Township 11 South, and Range 20 East (Mount Diablo Base and Meridian) of the "Lanes Bridge, California" 7.5-minute quadrangle (U.S. Geological Survey [USGS] 1973). Project construction would occur in portions of 13 separate parcels (see Figure 3-1).

3.3 Project Vicinity Land Uses

The Project Site is within and primarily surrounded by inactive agricultural land. This area was once an active agricultural area; however, it has not been actively farmed or used as range land for many years and is now primarily unirrigated grassland. The general topography of the area is varied and composed of gently rolling terrain in the north and flat terrain in the south, where the land has been leveled for agriculture. The elevation of the Project Site ranges from approximately 380 feet to 480 feet above mean sea level (amsl). Land uses to the west of the Project Site include agricultural land and SR 41. Beyond Avenue 12 to the south of the Project Site is Arnold Ranch Airstrip and the San Joaquin River. To the southeast is the River Bend Golf Course and beyond is the San Joaquin River. To the northeast is the Sumner Hill residential subdivision and beyond that is the San Joaquin River. To the north is the approved Tesoro Viejo development and Avenue 14.

RMAP land use designations for parcels through which the Project Site crosses or that are in close proximity are: Low (LDR), Medium (MDR), and High (HDR) Density Residential land uses to the north, Light Industrial (LI), Very Low (VLR), Low (LDR), and Medium (MDR) Density Residential land uses to the east, Open Space (OS), Light Industrial (LI), and Highway Service Commercial (HSC) land uses to west, and Agricultural (A) and LDR land uses to the south.



Location: N:\2017\2017-089_Rio_Mesa_Blvd\MAPS\CEQA\RMRA_SitePlan_AdjParcels_20200124.mxd *(CCH)-chinkelman 1/19/2021*

Map Date: 1/19/2021
Photo Source: NAIP (2018)
Service Layer Credits: Copyright: ©2015 DeLorme

Scale in Feet
0 700 1,400

ECORP Consulting, Inc.
ENVIRONMENTAL CONSULTANTS

Figure 3-1. Affected Parcels Map

2017-089 Rio Mesa Boulevard Road Alignment

3.4 Project Background

3.4.1 Rio Mesa Area Plan and Official Plan Plans

On March 21, 1995, the Board adopted the RMAP, which provides definition and guidelines for the development of an approximately 15,000-acre area of southeastern Madera County to facilitate preparation of developer-initiated specific plans, subdivision maps, and other entitlement requests. The RMAP serves as a policy document to provide the County with land use development decision-making guidance and to provide a planning framework for more detailed implementation plans and measures. It includes the following planning decisions made by the County that are relevant to the Project:

- Specifies land use types and development intensities throughout the RMAP area, including for the parcels that are adjacent to the Project Site. (RMAP, Exhibit 5, "Land Use Plan.")
- Establishes "conceptual" backbone circulation and infrastructure plans to serve the designated land use types, with the acknowledgment that the mapped road alignments and related infrastructure (including water supply, reclaimed water and sewerage facilities) "should be considered diagrammatic and subject to some adjustment based on more detailed design studies." (RMAP, page 50.)
- Recognizes it is "probable" that the RMAP road network and infrastructure would be built in phases, including, for example, building two-lane roads that could later be expanded to four lanes as the need arises. (RMAP, page 50.)
- Recognizes that infrastructure intended to serve the RMAP area should be sized "to serve the maximum level of development" for the area contemplated by the RMAP, including oversizing the facilities to meet the ultimate and intended requirements of the applicable land use intensities specified in the RMAP. (RMAP, pages 61, 83-84.)
- Acknowledges that roads and infrastructure could be developed as and where needed to service "logical subareas" of the larger RMAP area. (RMAP, pages 82-85, "Infrastructure Phasing".)

Pursuant to these planning principles and conceptual alignments contained in the RMAP, on September 22, 2015, the Board adopted Resolution No. 2015-124 to adopt an Official Plan Line (OPL) for the Rio Mesa Boulevard alignment between Avenue 12 and Avenue 14 "to establish the correct location of the right of way for future development by adjacent property owners." (Board Resolution 2015-124) On September 13, 2016, the Board adopted Resolution No. 2016-269, which amended the language of Resolution 2015-124 to clarify that the Rio Mesa Boulevard OPL extends south of Avenue 12 to Children's Boulevard. The 2016 Resolution is included in Appendix I of this DEIR, and are collectively referenced herein as the "OPL Resolutions".

Development parcels adjacent to the Project segment of Rio Mesa Boulevard include Tesoro Viejo, approved by the County in 2012, which is now under construction and is developing an approved internal road network with a planned connection to Rio Mesa Boulevard at the northern end of the northern terminus of the Project segment of Rio Mesa Boulevard. Other parcels adjacent to the Project segment of Rio Mesa Boulevard identified for development in the RMAP are in various stages of development planning. These projects include the CMC Medical Center and Paseo Pacifico Specific Plan (shown on Figure 3-2). The County

is currently reviewing an application for the Paseo Pacifico project. An application for CMC has not been received by the County but is anticipated to be forthcoming. As shown in Figure 3-2, other parcels are located adjacent to the Project segment of Rio Mesa Boulevard that do not currently have proposed development plans but may be developed in the future in accordance with the RMAP.

In addition to road alignments, the OPL Resolutions specify road cross-section geometrics for the Rio Mesa Boulevard consisting of four 12-foot travel lanes (two in each direction) and six-foot bike lanes, three-foot curbs and gutters, eight-foot landscape boarders, six-foot sidewalks, and three-foot additional rights-of-way on each edge for a combined right-of-way width of 100 feet. The Project, as described in more detail in Section 3.7, below, comports with these design parameters.[1]

Additionally, OPL Resolutions identify preliminary locations of joint utilities within the Rio Mesa Boulevard alignment, including underground natural gas distribution and joint trench utilities, water pipelines, recycled water pipelines, storm drains, sewer pipelines, natural gas pipelines, and above-ground electrical transmission lines. As contemplated by the RMAP, utilities proposed to be installed as part of the Project have been sized to serve the ultimate and intended land use intensities specified in the RMAP.

Since the Project is planned to be constructed in advance of anticipated future development of the surrounding properties, the utility infrastructure proposed for the Project is sized to accommodate anticipated future needed capacity, as envisioned by the RMAP. Additionally, installation of the utility infrastructure as part of the Project, as opposed to waiting to install the infrastructure later during future development on adjacent parcels, would serve to avoid or reduce the need for future disturbance within the Project rights-of-way. This approach provides for more efficient construction and reduces the potential for subsequent environmental impacts and disruptions to vehicle travel.

3.4.2 Madera South 41 Expressway

In March 2020, Caltrans certified the Final Environmental Impact Report/Environmental Assessment (EIR/EA) for the proposed Madera South 41 Expressway (SR 41 EIR/EA) (Caltrans 2020). The SR 41 EIR/EA addresses improvements along the segment of SR 41 west of the Project segment of Rio Mesa Boulevard. The SR 41 EIR/EA also identifies a potential new interchange connection at the SR 41/Avenue 12 intersection. At present, the timing for construction of the SR 41/Avenue 12 interchange has not been determined. As proposed, construction of the Rio Mesa Boulevard Project is not contingent on construction of the SR 41/Avenue 12 interchange.

[1] The adopted OPL's cross-section of utility locations also includes a 25-foot public utilities easement on one side of the roadway partially overlapping with the landscape boarder, sidewalk, and right-of-way edging, resulting in a combined total Rio Mesa Boulevard design alignment width of 108 feet. However, construction of utilities within the public utilities easement is not part of the Project. No installation of infrastructure or future use of areas outside of 100-foot right-of-way identified for the Project are envisioned or are considered to be part of the proposed Project.

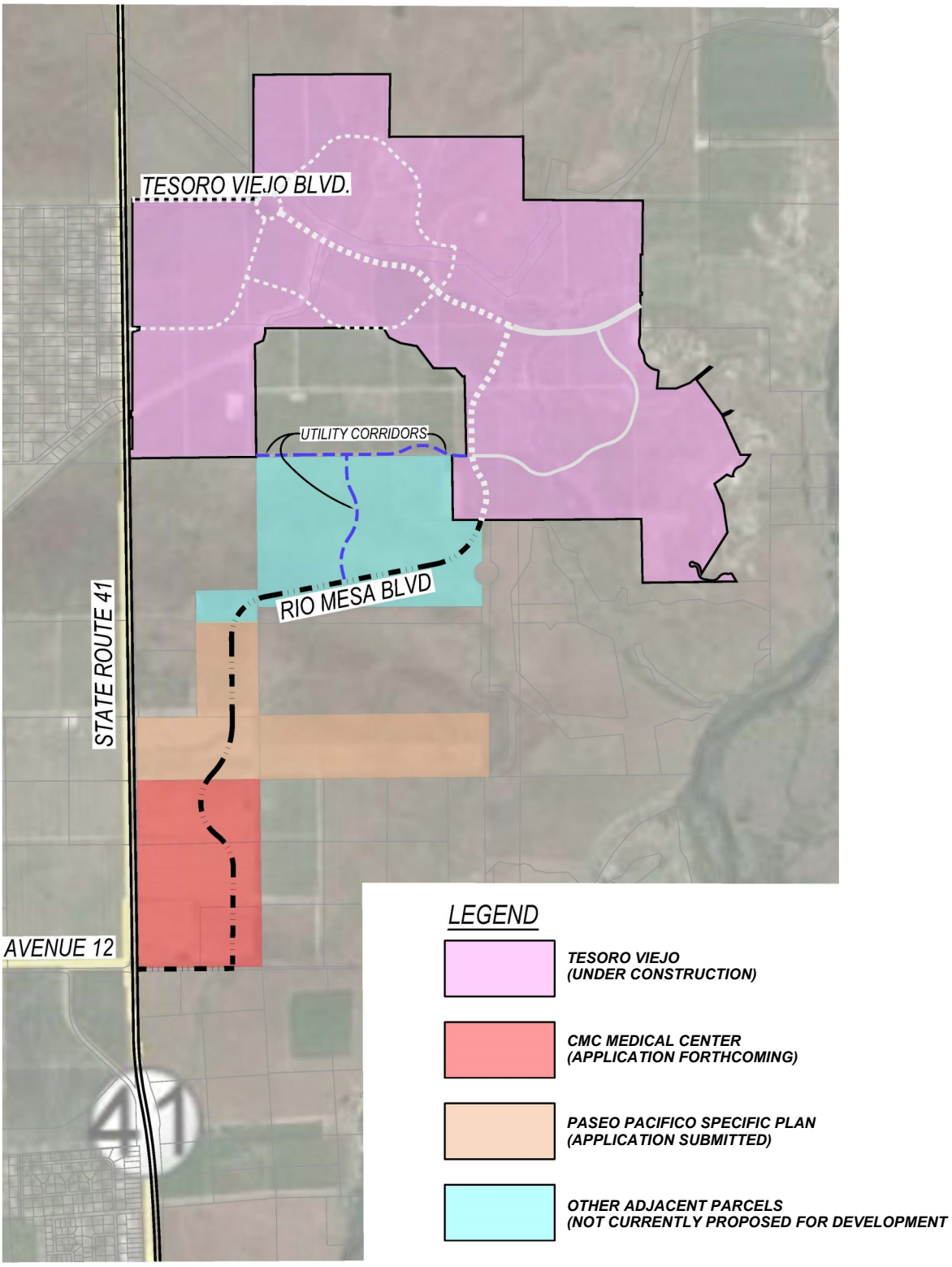


Figure 3-2. Adjacent Planned Development

2017-089 Rio Mesa Boulevard

3.4.3 Refinements to Proposed Alignment

As discussed in Chapter 1 of this DEIR, the County issued a Notice of Preparation (NOP) on October 22, 2019, to inform agencies and the general public that an EIR would be prepared for the proposed Project and to invite comments on the scope and content of the document. Subsequent to circulation of the NOP, the proposed alignment for Rio Mesa Boulevard and linked utility corridors have been modified.

Consistent with the OPL, the Rio Mesa Boulevard/Avenue 12 intersection identified in the NOP was located approximately 0.15 mile from SR 41. As previously noted, Caltrans identified the possibility of constructing a grade-separated interchange to replace the existing SR 41/Avenue 12 intersection as part of its Madera South 41 Expressway project.

Caltrans comment letter (dated November 19, 2019) noted that the location of the proposed Rio Mesa Boulevard/Avenue 12 intersection as shown in the NOP would not provide enough separation between the new intersection and any future SR 41 northbound off/on ramps. Caltrans recommended that the intersection of Avenue 12 and Rio Mesa Boulevard should be relocated at a minimum of 0.25 mile from the future interchange footprint. In response to the letter, the location of the Rio Mesa Boulevard/Avenue 12 intersection as shown in the NOP has been moved approximately 700 feet to the east as part of the proposed Project evaluated in this DEIR. The modified location provides 0.25-mile separation to ensure adequate spacing between the future SR 41/Avenue 12 northbound offramp and onramp interchange footprint identified in the SR 41 EIR/EA and the Project's proposed new Rio Mesa Boulevard/Avenue 12 intersection.

Despite the relocation of the proposed Rio Mesa Boulevard/Avenue 12 intersection and the realignment of the OPL immediately north of the intersection made necessary by the relocation, the proposed Rio Mesa Boulevard alignment further north of the intersection reconnects with the OPL in an effort to minimize any impact on ongoing planning efforts based on the original OPL. Although the adjusted alignment of the proposed Project varies in its specific location to that of the OPL, the Project alignment provides for serving the same purpose and utility as that of the OPL. In approving the proposed Project, the County would also amend the previously adopted OPL to conform to the Project alignment, as discussed further in Section 3.6.

3.5 Project Objectives

The County is pursuing construction of the Project to implement circulation objectives contemplated in the RMAP and the OPL. The Project is needed to accommodate approved development already under construction (Tesoro Viejo) and is designed to also provide transportation and utility infrastructure capacities for anticipated future development at the specified land use intensities that are set forth in the RMAP.

Specific objectives of the Project include the following:

1. Amend the Rio Mesa Boulevard OPL alignment to maintain consistency with the Circulation Concept of the RMAP and achieve the circulation and utilities intent of the OPL while accommodating current transportation planning and land development considerations;
2. Construct a new secondary arterial (four-lane undivided) roadway connection between Avenue 12 and the southern terminus of the approved internal roadways within Tesoro Viejo consistent with the intent of the Circulation Concept Plan of the RMAP and OPL;

3. Phase construction of Rio Mesa Boulevard so as to initially install a two-lane roadway to accommodate existing and projected near-term traffic that can later be widened to the full four-lane width when necessary to accommodate future demand;
4. Improve the existing and future circulation and safety along the segment of SR 41 between Avenue 12 and Avenue 15 by creating an arterial roadway to provide access for travel to and from parcels adjacent to the Project Site;
5. Implement design features to facilitate and encourage pedestrian and bicycle travel consistent with the adopted OPL design parameters;
6. Provide design measures to minimize the potential for California tiger salamander (*Ambystoma californiense* [CTS]) to enter the roadway and to create opportunities for CTS migration/movement under the roadway;
7. Install stormwater collection and conveyance facilities sufficient to manage stormwater runoff from the rights-of-way of the proposed Rio Mesa Boulevard and the Project segment of Avenue 12;
8. Install landscaping and lighting along the Project segments of Rio Mesa Boulevard and Avenue 12;
9. Install water lines, recycled water lines, sewer force main, gravity sewer lines, natural gas pipelines and dry utility conduits sufficient to accommodate future development consistent with the specified land use intensities on adjacent parcels identified in the RMAP and thus reduce the potential for future vehicle travel disruptions and environmental impacts that could otherwise occur with future installation/modification of utilities.

3.6 Project Amendment to OPL

The Project would amend the existing OPL previously adopted by the Board in Resolutions 2015-124 and 2016-269 to accommodate current transportation plan and land development considerations. Figure 3-3, "Existing and Proposed OPL," illustrates the Rio Mesa Boulevard OPL alignment north of Avenue 12 as adopted Board Resolution 2016-269 and shows the modified OPL alignment proposed for the Project.

The proposed Project would amend the OPL to account for the proposed relocation of the Rio Mesa Boulevard/Avenue 12 intersection to approximately 700 feet east of the OPL location and the relocation of the roadway alignment north of the intersection to the point where it intersects with the existing OPL alignment. This adjustment to the OPL is necessary to achieve intersection spacing requested by Caltrans as discussed above in Section 3.4.3. In addition to amending the existing OPL to accommodate the adjusted Rio Mesa Boulevard/Avenue 12 intersection location, the Project would also amend the OPL to provide minor alignment adjustments in two other locations, as discussed below.

As shown on Figure 3-3, the northeastern portion of the Project alignment of Rio Mesa Boulevard varies slightly from the existing OPL alignment. This alteration was made by the Project design engineer in response to site topographical considerations.

Additionally, the existing OPL identifies a roadway connection between Rio Mesa Boulevard and the Avenue 14 alignment but does not identify a specific design or uses of that roadway connection. As described above, the Project would construct the linked utilities corridors extending north of Rio Mesa Boulevard and extending east/west along the Avenue 14 alignment. The Project alignment of the linked utility corridor between Rio Mesa Boulevard and Avenue 14 varies slightly from the existing OPL, providing a more direct

connection to the Avenue 14 alignment and minimizing potential biological resources impacts as compared to the OPL alignment. The Project would construct a non-public gravel access road along the utilities corridor.

To accommodate these adjustments, the Project would require County approval of an amendment to the OPL to align the OPL consistent with the currently proposed alignment.

3.7 Project Construction Details

The Project would be constructed in two phases. The following describes the Project components to be constructed during each phase. The remainder of this section then discusses the pre-construction and construction activities associated with each phase.

Phase 1 would construct a two-lane roadway along the proposed Rio Mesa Boulevard right-of-way and associated features including a stop control at the Rio Mesa Boulevard/Avenue 12 intersection, four-foot-wide shoulders, fire hydrants, streetlights (up to approximately 35 feet tall) at select locations, CTS impact avoidance features and curbs and gutters associated with those features, roadway signage and striping. In addition, wet and dry utilities would be installed within the Rio Mesa Boulevard right-of-way during Phase 1. Wet utilities (i.e., water, recycled water and sewer lines) would also be installed within the two linked utility line corridors during Phase 1.

Phase 1 construction elements include:

- right-of-way surveys and staking;
- stormwater best management practices (BMPs) installation;
- construction staging areas preparation;
- vegetation removal and grading;
- utilities installation:
- linked utility corridors construction;
- CTS movement corridor crossings;
- road base preparation and surfacing;
- landscape corridor preparation and lighting:
- restoration of temporary disturbance areas; and
- intersection control installation.

Phase 2 would construct two additional travel lanes on Rio Mesa Boulevard and two paved six-foot-wide bike lanes along Rio Mesa Boulevard. Phase 2 would also complete the installation of curbs, gutters, and sidewalks along the Project segment of Rio Mesa Boulevard.

During Phase 2 construction, two travel lanes would be added to the segment of Avenue 12 between the Rio Mesa Boulevard/Avenue 12 intersection and SR 41. Phase 2 would also modify stop controls at the Rio Mesa Boulevard/Avenue 12 intersection and would install traffic signal modifications at the SR 41/Avenue 12

intersection to allow for two east bound travel lanes, one left turn, one left-through and one right turn lane. Upon completion of Phase 2, the Project would provide approximately 12,150 linear feet of four-lane roadway between the Rio Mesa Boulevard/Avenue 12 intersection and the southernmost portion of Tesoro Viejo and approximately 2,200 linear feet of four-lane roadway on Avenue 12 between SR 41 and Rio Mesa Boulevard.

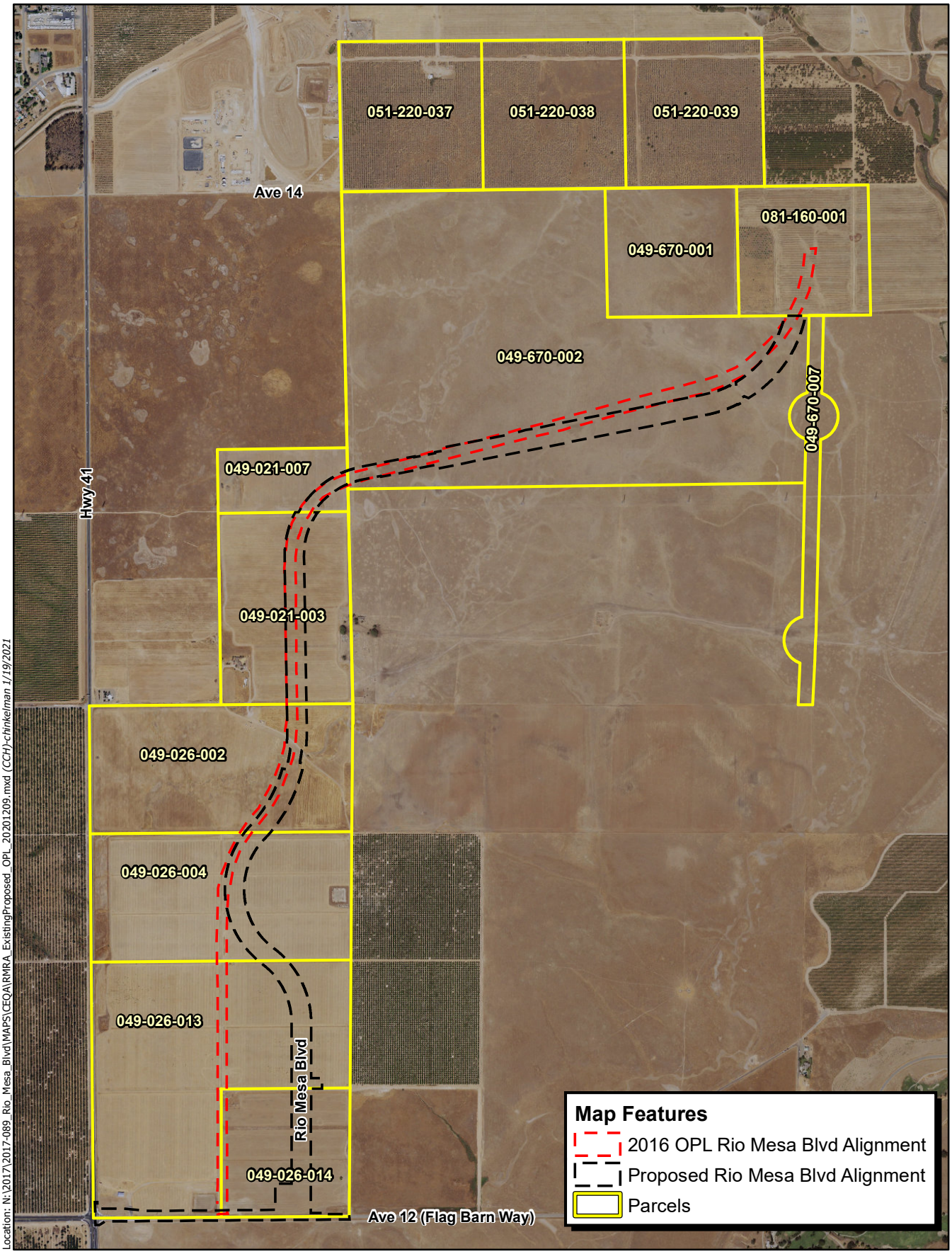
Phase 2 construction elements include:

- road base preparation and surfacing;
- traffic controls and signage; and
- sidewalks, curbs and gutters, and landscaping.

Figure 3-4 (Construction Site and Staging Areas) identifies the location of proposed construction staging areas and construction grading limits. Areas within the Project "Grading Limits" shown in Figure 3-4 would be subject to grading activities during both Phase 1 and Phase 2 of Project construction. Areas identified within the "Temporary Construction Easement" outside of the grading limits are areas that would not be graded but could be subject to disturbance by equipment or personnel during construction. The temporary construction easement area extends approximately two feet beyond the grading limits in environmentally sensitive areas (i.e., areas identified as Waters of the U.S. and potential habitat for CTS) and approximately 50 feet beyond the grading limits along most portions of the proposed Rio Mesa Boulevard right-of-way to allow for construction activities at the periphery of the Project grading.

3.7.1 Phase 1 Construction

As noted above, Phase 1 would include construction of two 12-foot-wide asphalt concrete travel lanes with four-foot-wide asphalt concrete shoulders, fire hydrants, streetlights at select locations, CTS impact avoidance features and curbs associated with those features, roadway signage and striping. Figures 3-5 through 3-8, *Typical Roadway Sections,* provide cross-sections of Project elements to be installed within the various Project segments in Phases 1 and 2. The construction activities associated with each of the Project's Phase 1 elements is described in detail below. During construction, public vehicle access to new roadways would be blocked off utilizing temporary construction barricades at the north and south terminal ends of Rio Mesa Boulevard and the east and west ends of the linked utility corridor along Avenue 14. Public vehicle movement through existing roadway areas would be controlled utilizing control measures consistent with the California Manual on Uniform Traffic Control Devices (CA MUTCD). After construction, areas of temporary disturbance would be revegetated using indigenous grasses applied via hydroseeding.



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Map Date: 1/19/2021
Photo Source: NAIP (2018)
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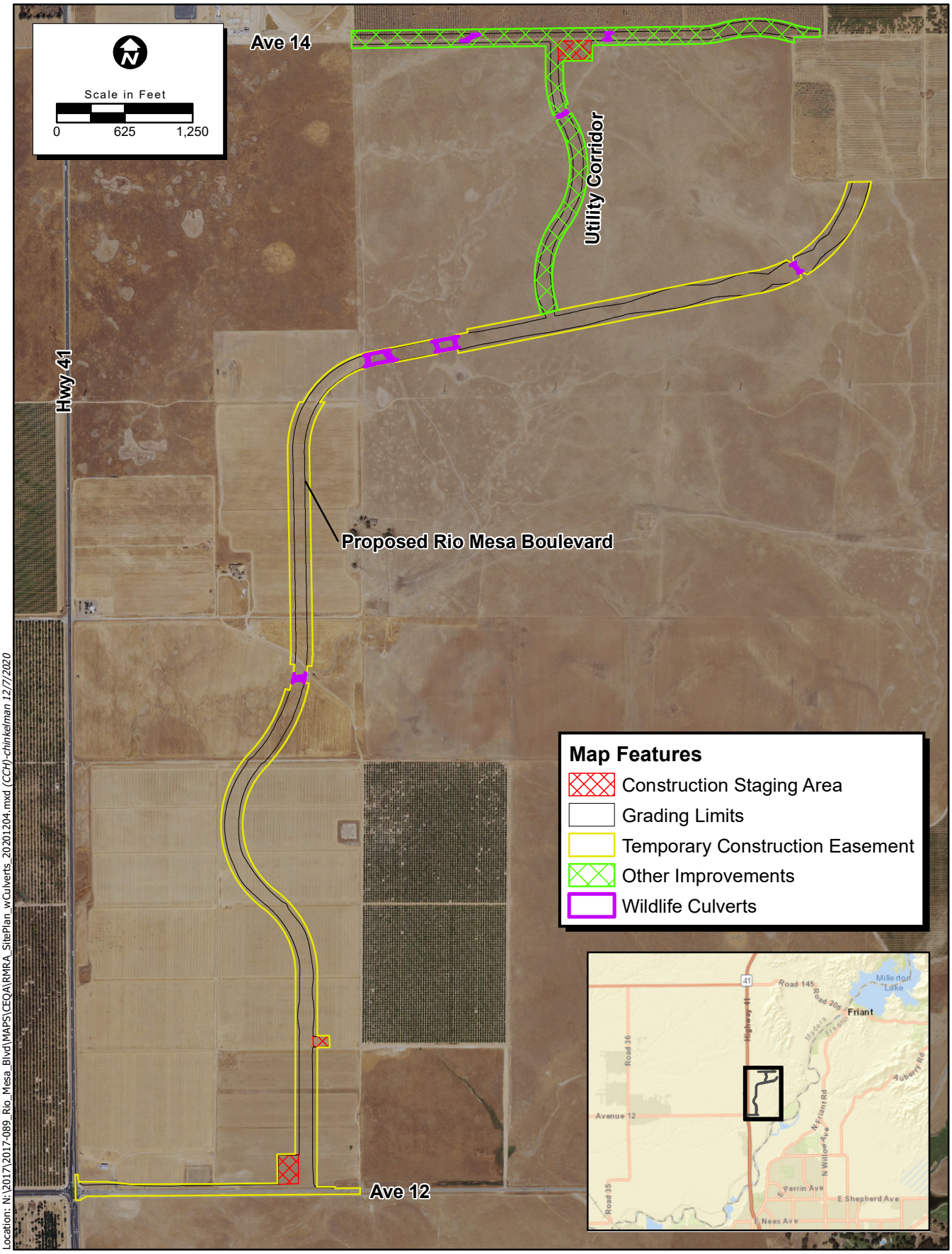
Scale in Feet
0 700 1,400

Figure 3-3.
Proposed Rio Mesa Boulevard Alignment

2017-089 Rio Mesa Boulevard Road Alignment



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Map Date: 12/7/2020
Photo Source: NAIP (2018)
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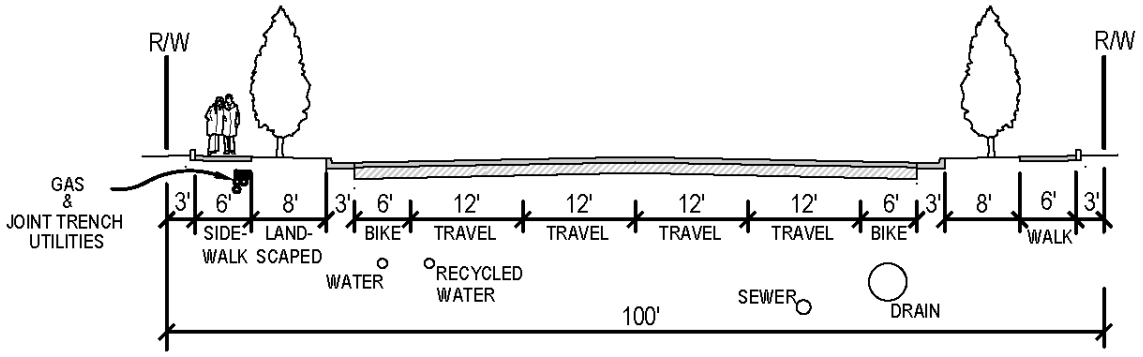
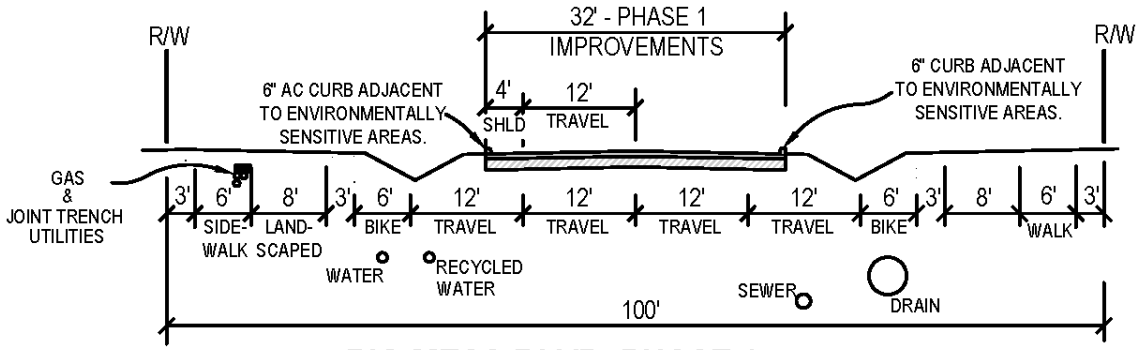
Figure 3-4.
Construction Site and Staging Areas
2017-089 Rio Mesa Boulevard Road Alignment



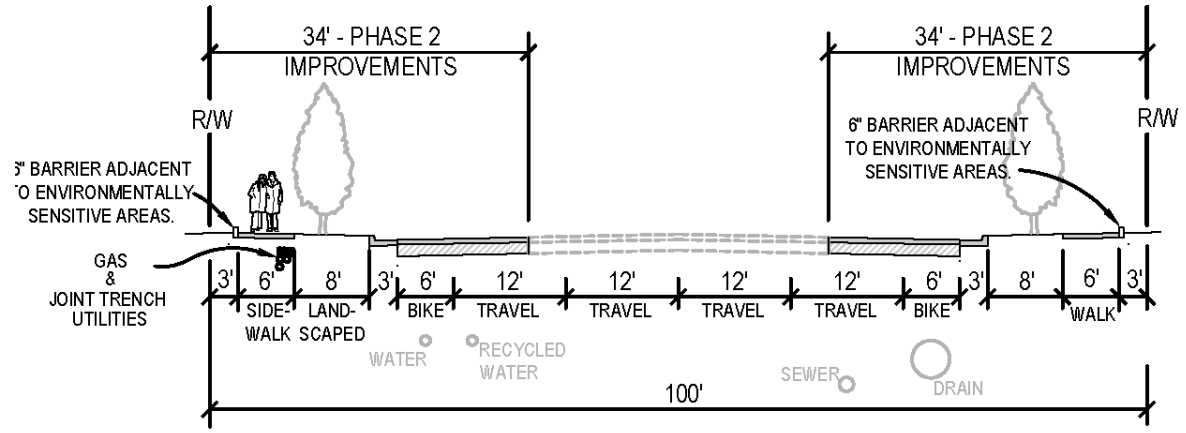
RIO MESA BLVD. - ULTIMATE IMPROVEMENTS

4-LANE - 100' R/W
AVENUE 12 TO TESORO VIEJO BOUNDARY



RIO MESA BLVD.-PHASE 1

4-LANE - 100' R/W
AVENUE 12 TO TESORO VIEJO BOUNDARY



RIO MESA BLVD.-PHASE 2

4-LANE - 100' R/W
AVENUE 12 TO TESORO VIEJO BOUNDARY

Source: Morton & Pitalo Civil Engineering

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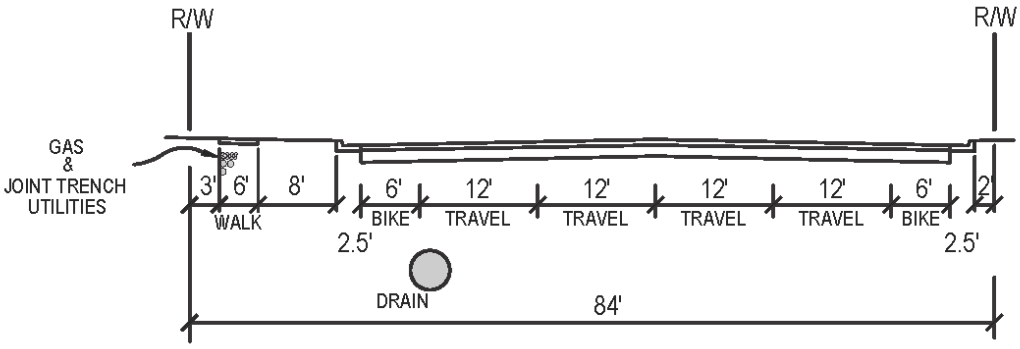
Figure 3-5. Typical Roadway Sections: Rio Mesa Boulevard Phases 1 and 2

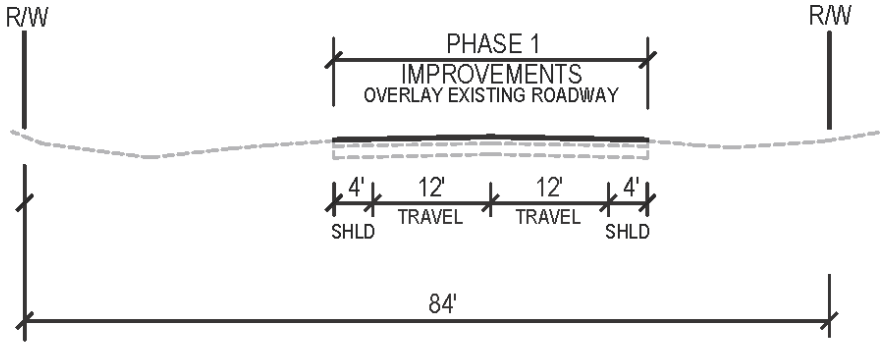
2017-089 Rio Mesa Boulevard Project



AVENUE 12 - ULTIMATE IMPROVEMENTS

4-LANE - 84' R/W

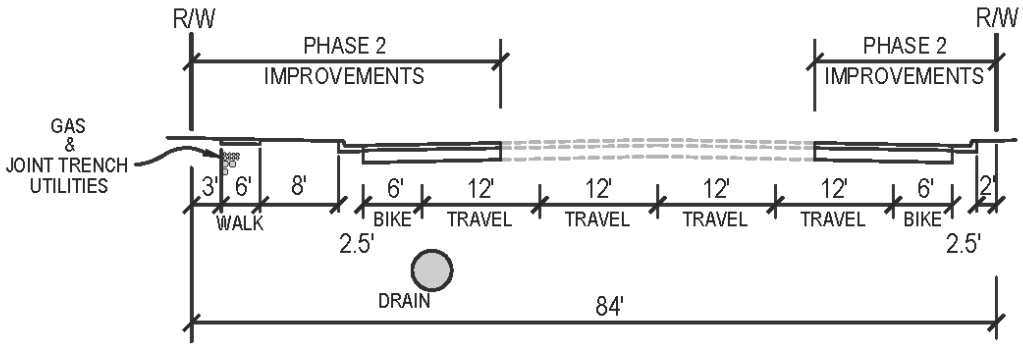
SR-41 TO RIO MESA BLVD



AVENUE 12 - PHASE 1

4-LANE - 84' R/W

SR-41 TO RIO MESA BLVD



AVENUE 12 - PHASE 2

4-LANE - 84' R/W

SR-41 TO RIO MESA BLVD

Source: Morton & Pitalo Civil Engineering

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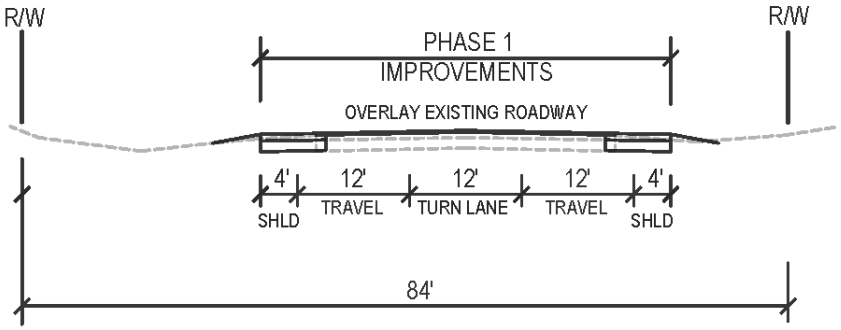
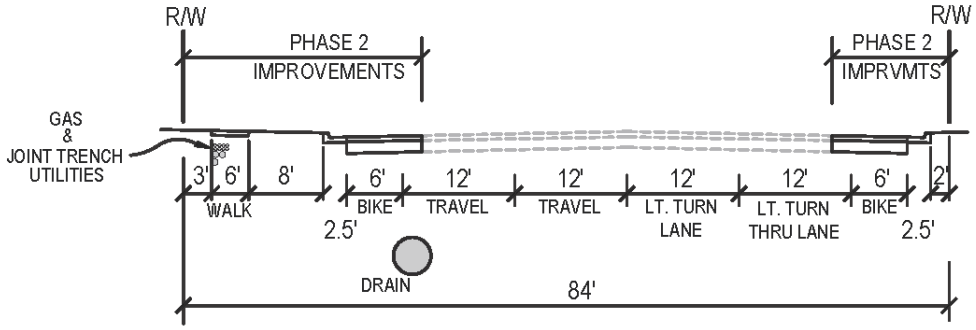
Figure 3-6. Typical Roadway Sections: Avenue 12 Phases 1 and 2

2017-089 Rio Mesa Boulevard Project



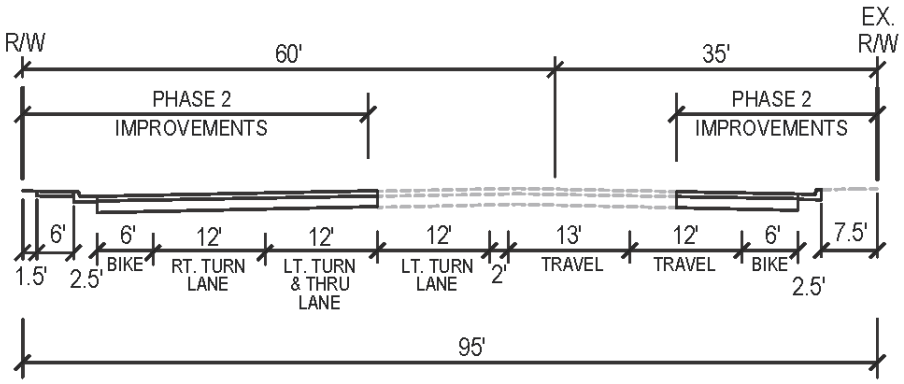
AVENUE 12 INTERSECTION - PHASE 1

RIO MESA / AVENUE 12 INTERSECTION IMPROVEMENTS
SR-41 TO RIO MESA BLVD



AVENUE 12 INTERSECTION - PHASE 2

RIO MESA / AVENUE 12 INTERSECTION IMPROVEMENTS
SR-41 TO RIO MESA BLVD



INTX - AVENUE 12 & SR41 - PHASE 2

4-LANE - 84' R/W
SR-41 TO RIO MESA BLVD

Source: Morton & Pitalo Civil Engineering

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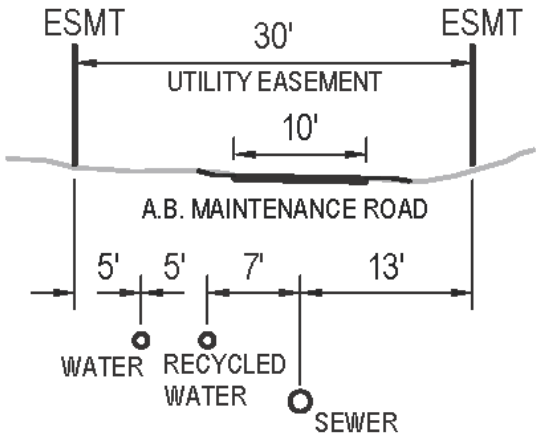
Figure 3-7. Typical Roadway Sections: Avenue 12 Intersection Improvements



UTILITY CORRIDOR

UTILITIES

AVENUE 14 AND NORTH-SOUTH CONNECTOR

Source: Morton & Pitalo Civil Engineering

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Figure 3-8. Typical Roadway Sections: Utility Corridor

2017-089 Rio Mesa Boulevard Project

The estimated duration of Phase 1 roadway construction is approximately one year. Installation of utility lines (i.e., potable water, wastewater, and natural gas lines), however, would occur sometime after completion of the Phase 1 Rio Mesa Boulevard two-lane roadway construction. The timing of utility line installation would depend on when demand for those utilities is generated by future development adjacent to the Project segment of Rio Mesa Boulevard, such as the CMC and Paseo Pacifico Specific Plan. Installation of the proposed utility lines would commence only when project demand warrants it. This could occur as early as within one year of the Rio Mesa Boulevard construction, or it could be several years later, depending on the timing of future development requiring utility services.

3.7.1.1 Right-of-Way Surveys and Staking

Properties within which the proposed Rio Mesa Boulevard right-of-way is located are currently privately owned, with the exception of one parcel for which right-of-way is owned by the County. Prior to the start of Project construction activities, the rights-of-way will be surveyed, delineated and staked.

3.7.1.2 Stormwater BMPs Installation

Phase 1 construction would disturb approximately 92.45 acres and be subject to the requirements of National Pollution Discharge Elimination System (NPDES) through the statewide General Permit for Stormwater Discharges Associated with Land Disturbance and Construction Activities (Order 2009-0009-DWQ, as amended by 2010-0014-DWQ and 2012-0006-DWQ, or as otherwise amended prior to Project construction). A Stormwater Pollution Prevention Plan (SWPPP) would be prepared for Project construction activities and would identify stormwater BMPs to prevent construction pollutants and products from violating water quality standards or waste discharge requirements. Prior to the start of Phase 1 ground-disturbing activities, BMPs to retain, detain, filter and/or convey stormwater runoff would be installed as described in the SWPPP. It is anticipated that silt fencing consisting of filter fabric supported with wooden stakes spaced approximately six feet apart would be used for sediment control along the edges of all temporary disturbance areas.

3.7.1.3 Construction Staging Area Preparation

To enable construction of Phase 1 facilities, three construction staging areas would be established totaling approximately 3 acres. The locations of the three sites are shown on Figure 3-4 and include areas located at northwest corner of the Rio Mesa Boulevard/Avenue 12 intersection, along the eastern boundary of the Rio Mesa Boulevard right-of-way north of the Rio Mesa Boulevard /Avenue 12 intersection and the at the southeast corner of Avenue 14 and the utility line corridor access roads. Staging area preparation would include vegetation removal and may require minor grading and fill. Construction staging areas would be used for equipment and material storage and construction worker parking. At the completion of Phase 1 construction, the staging areas would be revegetated to provide soil stabilization in accordance with BMPs.

3.7.1.4 Vegetation Removal and Grading

In preparation for the construction of the Phase 1 roadway, related features, and the two linked utility corridors, approximately 71.9 acres would be graded. The grading boundary limits are shown in Figure 3-4. Approximately 580,000 cubic yards (cy) of material would be used to create the final grade in advance of road base placement and utilities installation. Cut and fill material would be collected from within the defined grading limits of the Project Site or from existing stockpiles adjacent to the water storage pond in

Tesoro Viejo. if needed. Areas on which two additional lanes of Rio Mesa Boulevard and Avenue 12 would be constructed during Phase 2 would be graded during Phase 1 and BMPs installed in these areas would be maintained through the start of Phase 2 construction activities. Areas that are hydroseeded during Phase 1 would be maintained through weed abatement and would not require irrigation. No work during Phase 1 would occur within the existing Caltrans SR 41 right-of-way.

3.7.1.5 Utilities Installation

The Project would also install mainline utility pipes and conduits within the Project alignment for water, sewer, recycled water, other utilities, and drainage, sized for future use by adjacent parcels anticipated to be developed in conformance with the land use intensities specified in the RMAP. Utilities installation (both wet and dry) would be installed using industry standard open cut trenching and backfilling techniques. Pipes would be installed either by hand or by machinery. Pipeline materials would be temporarily stored either near trenches or within designated staging areas.

Proposed utility installations include the following (all lengths are approximate):

- 22,000 Linear feet (LF) of potable water lines ranging in size from four to 16 inches in diameter.
- 22,000 LF 8-inch recycled water line.
- 13,200 LF 8-inch sewer force main.
- 17,000 LF 8- to 10-inch gravity sewer lines.
- Stormwater drainage collection and conveyance facilities will be located within the Rio Mesa Boulevard right-of-way and will consist of pipelines, box culverts, manholes, drain inlets, head walls, flared end sections, and riprap. A storm drain system will be installed in Avenue 12 in addition to graded roadside swales.
- Conduits ranging in size from 6- to 1.5-inch, gas piping ranging in size from 8- to 2-inch, and associated facilities, for dry utilities (e.g., electric, telephone, cable, fiber, and natural gas) that will be installed under the proposed sidewalks in a joint trench anticipated to be approximately 13,500 LF.

Potable water mains to be installed during Phase 1 would vary in size from as large as 16 inches in diameter to as small as four inches in diameter with the majority of the pipeline being 12 inches in diameter. The water mains would be placed in the linked utility corridors in the northern portion of the Project and southward along the Rio Mesa Boulevard roadway right-of-way to terminate near the northern boundary of Assessor's Parcel Number (APN) 049-026-004 identified on Figure 3-1.

The average depth of utilities would be six feet, with the exception of the gravity sewer lines which would be approximately 8 to 25 feet deep. Utility lines would be placed in the proposed Rio Mesa Boulevard right-of-way and linked utility corridors.

Existing above-ground electrical transmission lines transect the proposed Rio Mesa Boulevard right-of-way within APN 049-021-007 (shown on Figure 3-1) and would not be modified or otherwise affected during construction of the proposed Project. Safety provisions including warning signage for activities near the transmission line would be implemented during construction.

3.7.1.6 Linked Utility Line Corridors Construction

As shown in Figure 3-4, the Project would construct two utility line corridors connecting the Rio Mesa Boulevard alignment with the Avenue 14 alignment and within the Avenue 14 alignment. Utilities within these corridors would be installed after the construction of the Phase 1 two-lane Rio Mesa Boulevard roadway. As noted above, development of the linked utility line corridors and the installation of utility lines (i.e., potable water, wastewater, and natural gas lines) would be initiated only when the demand for those utilities associated with future development warrants it. This could occur as early as within one year of the Rio Mesa Boulevard construction, or could be several years later, depending on the timing of future development requiring utility services.

To create the linked corridors, a 30-foot-wide easement would be cleared along the proposed corridor alignments. Figure 3-8 illustrates a typical cross section for the utility corridors. Within the utility corridors, water, recycled water, and sewer pipelines would be placed in trenches ranging in depth from approximately three to 25 feet below existing ground level. Following pipe installation, trenches would be backfilled, and the easement would be graded for maintenance road surfacing. A 10-foot-wide maintenance access road would be completed with an aggregate base surface. Graded areas adjacent to the access roads would be hydroseeded. These areas would be maintained by weed abatement and would not require irrigation. The utility line corridor access roads would be publicly held and maintained.

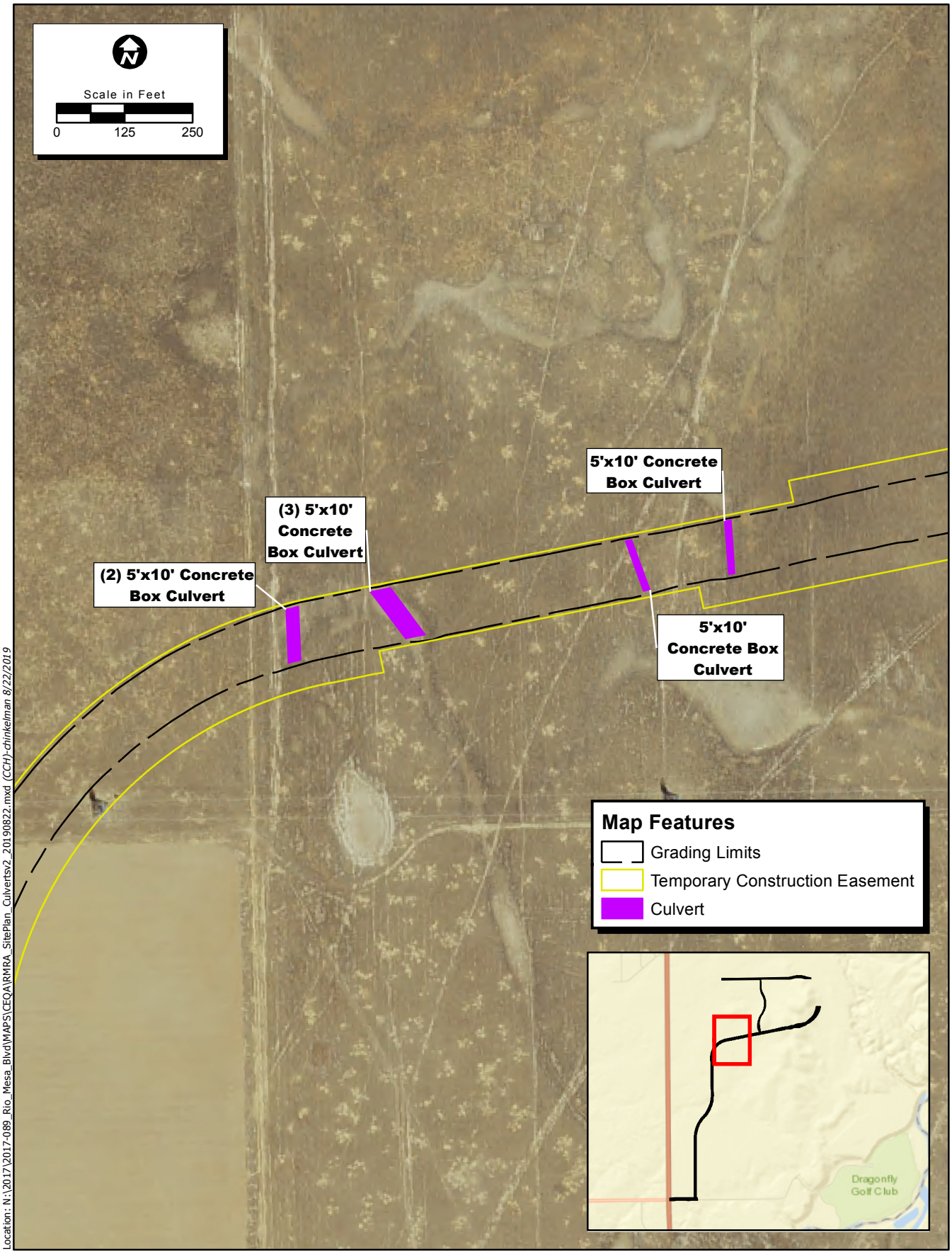
3.7.1.7 California Tiger Salamander Movement Corridor Crossings

Within areas that are known as CTS migration corridors, the roadway design includes a 6-inch raised concrete curb (at the back of the proposed sidewalk location) to keep the CTS from accessing the roadway and a series of box culverts approximately 5 feet tall and 10 feet wide to allow CTS and other wildlife to safely pass under the roadway and maintain their existing dispersal patterns. Figure 3-9 illustrates the proposed locations of box culverts designed for CTS movement. Areas outside of CTS curbing and Phase 1 roadway improvements would consist of graded areas with drainage swales and interim landscaping. These areas would be maintained by the County until incorporated into Phase 2.

3.7.1.8 Road Base Preparation and Surfacing

Upon completion of final grading of the Phase 1 roadway, approximately 100,000 tons of road base material (i.e., crushed rock) would be placed along the Rio Mesa Boulevard and Avenue 12 rights-of-way and compacted. After placement of road base material, the Phase 1 roadway section would be paved with asphaltic concrete. Paving of the Phase 1 two-lane roadway and related features (including Rio Mesa Boulevard construction and improvements to Avenue 12) would require approximately 29,800 tons of asphalt. Road base material and asphalt would be obtained and delivered to the site from permitted area sources.

Phase 1 would also include improvements to Avenue 12 between SR 41 and Rio Mesa Boulevard. The existing segment of Avenue 12 consists of two 12-foot travel lanes with no paved shoulders. The Project would overlay and widen this segment to two 12-foot travel lanes with four-foot paved shoulders. Phase 1 improvements would also install a left turn lane from eastbound Avenue 12 to northbound Rio Mesa Boulevard and a westbound acceleration taper lane on Avenue 12 from Rio Mesa Boulevard. All Phase 1 improvements on Avenue 12 would be outside of the existing Caltrans SR 41 right-of-way.



Location: N:\2017\2017-089_Rio_Mesa_Blvd\MAPS\CEQA\RMRA_SitePlan_Culvertsv2_20190822.mxd (CCH)-chinkelman 8/22/2019

Map Date: 8/22/2019
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Figure 3-9. CTS Culvert Locations

2017-089 Rio Mesa Boulevard Project

3.7.1.9 Landscape Corridor Preparation

At the end of Phase 1 construction, disturbed areas, including landscape corridors and unpaved portions of the right-of-way, would be cleared of any remaining construction materials, and hydroseeded. Areas that are hydroseeded during Phase 1 will be maintained by weed abatement and would not require irrigation. Maintenance would be done by the County.

3.7.1.10 Lighting

During Phase 1, street lighting would be installed along the project segment of Rio Mesa Boulevard within the future landscape portion of the right-of-way. Lights would be placed at select locations along the alignment and at intersections. All lighting would be shielded. Electricity supply for the lighting system would be provided in electrical distribution lines within the underground conduit system installed in Phase 1 with surface connection points located at various locations within the right-of-way perimeter areas.

3.7.1.11 Restoration of Temporary Disturbance Areas

Temporary disturbance areas created during Phase 1 construction activities would be vegetated using native grasses applied via hydroseeding following construction.

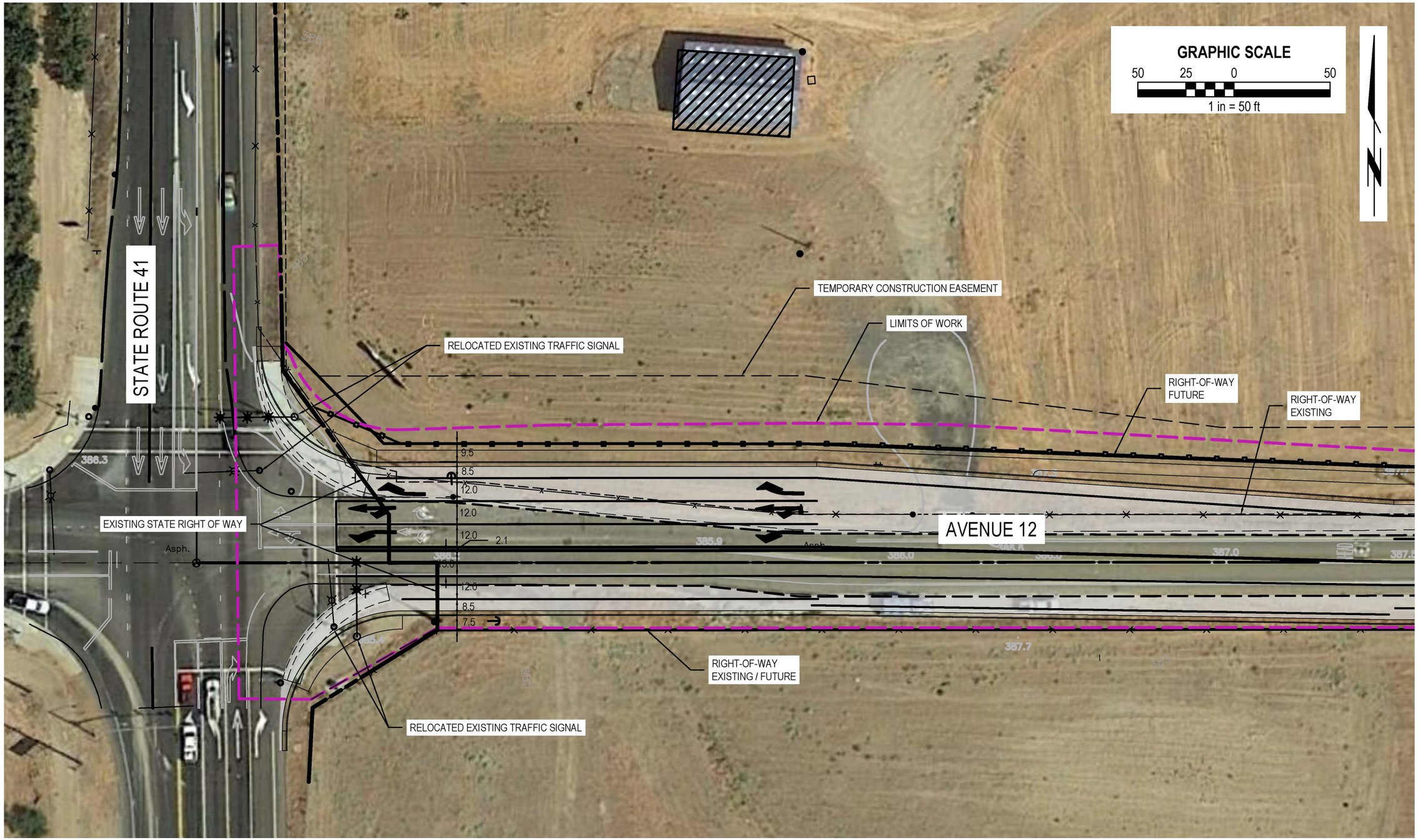
3.7.1.12 Intersection Controls

Intersection controls would be installed at the Rio Mesa Boulevard/Avenue 12 intersection consisting of stop signs and striping to provide all-way stop controls at the intersection. No modifications to the SR 41/Avenue 12 intersection signals are proposed as part of Phase 1.

3.7.2 Phase 2 Construction

Phase 2 of the Project would widen the two-lane Rio Mesa Boulevard roadway constructed under Phase 1 to four twelve-foot undivided travel lanes, along with corresponding lane adjustments to the existing roadway and bike lanes, and would install additional curbs and gutters, sidewalks, dry utilities, remaining streetlights, and landscaping along the Rio Mesa Boulevard right-of-way shown in Figure 3-1, above.

Phase 2 would also add two additional travel lanes to Avenue 12 between the SR 41/Avenue 12 and Rio Mesa Boulevard/Avenue 12 intersections, resulting in four 12-foot travel lanes (two in each direction), six-foot bike lanes in each direction, curbs and gutters on both sides, and a landscape strip and 6-foot sidewalk on the north side, and would require relocation of existing overhead utilities on the north side. Typical cross sections of Rio Mesa Boulevard and Avenue 12 Phase 2 components are illustrated on Figures 3-5 and 3-6. While most of this work will occur within the Rio Mesa Boulevard and Avenue 12 rights-of-way, Phase 2 improvements at the SR 41/Avenue 12 intersection within the existing Caltrans right-of-way would be made for road base preparation and surfacing, striping, road shoulders improvements, curbs and gutters, sidewalks and handicap ramps, and relocation of existing traffic signals, as shown on Figure 3-10. The estimated duration of Phase 2 construction is nine months.



Source: Morton & Pitalo 2020

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Figure 3-10. SR 41/Avenue 12 Phase 2 Intersection Improvements

2017-089 Rio Mesa Boulevard Road Alignment

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3.7.2.1 Road Base Preparation and Surfacing

Phase 2 would require approximately 21.8 acres of clearing and grading and approximately 52,800 cubic yards of earthmoving to establish a final grade for the Phase 2 roadway. All fill material would be produced onsite, resulting from cut activities. Approximately 56,400 tons of road base would be placed during Phase 2 in preparation for surfacing. Paving for Phase 2 would require approximately 16,800 tons of asphaltic concrete. Road base material and asphalt would be obtained and delivered to the site from permitted area sources.

3.7.2.2 Traffic Controls and Signage

Stop controls at the Rio Mesa Boulevard/Avenue 12 intersection installed during Phase 1 of the Project would be relocated during Phase 2 to accommodate Phase 2 Avenue 12 and Rio Mesa Boulevard improvements. The existing traffic signal system at SR 41/Avenue 12 intersection would also be modified as part of Phase 2 of the Project in coordination with Caltrans. This modification would occur on the east side of SR 41 to accommodate two east bound travel lanes, one left turn, one left-through, and one right turn lane for west bound traffic.

3.7.2.3 Sidewalks, Curbs and Gutters, and Landscaping

During Phase 2 construction, six-foot-wide concrete sidewalks would be constructed parallel to the Rio Mesa Boulevard roadway right-of-way along with additional curbs and gutters (see Figure 3-5). As noted above, Phase 2 road frontage improvements along Avenue 12 would include curbs and gutters on both sides, a landscape strip and 6-foot sidewalk on the north side, relocation of a pole associated with existing overhead utilities on the north side, and modifications to the existing signal system at SR 41 and stop control at the Rio Mesa Boulevard/Avenue 12 intersection. An estimated 4,000 tons of concrete would be required for Phase 2 sidewalk/curb/gutter construction.

Landscaping would be installed along the Rio Mesa Boulevard right-of-way in Phase 2 within the corridors established in Phase 1 and as shown on Figure 3-5. Landscaping would consist of trees, shrubs and ground cover that are indigenous to the area and would be located within planter strips alongside the roadways and on slope banks. Irrigation water would be from recycled water sources from the Tesoro Viejo waste water treatment plant and would be delivered via a recycled water system located within the utility line corridors and roadway right-of-way and delivered to the planting areas via an irrigation system which will utilize drip irrigation. Tertiary-treated recycled water would comply with Title 22, Chapter 4 of the California Administrative Code. Irrigation times will be during nighttime hours. The Average Daily Demand (ADD) for the recycled irrigation water is anticipated to be approximately 30,000 gallons per day (gpd) during irrigation season or 25 acre-feet per year. Signage advising of areas utilizing recycled water would be posted at intervals of 500 feet or less.

3.7.3 Construction Timing and Phasing

A detailed description of the sequence of construction activities is included in Appendix C of this DEIR and shows the sequence of activities to be carried out during Phase 1 and Phase 2 construction, the equipment to be used, and the estimated duration of each activity. The preliminary Project construction sequence shown for individual roadway and utility line corridor segments and by individual types of construction activities.

Construction of Phase 1 of the Project is expected to start in June 2021 and take approximately one year to complete. However, the installation of some or all utilities within the Rio Mesa Boulevard right-of-way and the linked utility corridors may occur later than the roadway construction by up to one to two years. In general, the sequence for the construction of Phase 1 of the proposed Project is:

1. clearing,
2. grade preparation,
3. rough excavation (grading),
4. wet utility (sewer, storm drain, water and recycled water) installation (starting with the deepest utility first and progressing to the shallowest),
5. dry utility installation (electric, natural gas, cable, telephone, and fiber), followed by street lights, followed by subgrade preparation (lime treated subgrade),
6. placement of aggregate base,
7. placement of concrete curbs (where applicable), and
8. placement of asphalt, striping and signage.

Appendix C separately shows the Phase 1 construction sequence if the installation of utilities occurs later than the roadway construction activities. With the exception of the proposed sewer and storm drainage lines, utilities would be located to the side of proposed paved areas for Rio Mesa Boulevard and access road base within the linked utility corridors and, thus paved roadway or access roads would be unaffected by installation of utilities after the Phase 1 road construction is complete. The placement of the sewer line beneath the access roadway within the linked utility corridor would be done before completing the roadway.

Phase 2 construction would be initiated when traffic volumes on Rio Mesa Boulevard approach 16,000 vehicles per day. As discussed in Section 4.8, Transportation, of this DEIR, the Phase 1 two-lane Rio Mesa Boulevard would accommodate 15,900 average daily trips (ADT) while achieving the Madera County General Plan level of service (LOS) D standard. Thus, the Phase 2 widening of Rio Mesa Boulevard to four lanes would be initiated when the daily volume approaches that volume. Assuming a uniform growth rate from Year 2022 to Year 2042 suggests that this traffic volume level would be reached in approximately 18 years, but the actual traffic volume and timing of Phase 2 improvements will be dependent on the pace and location of future development.

The duration of Phase 2 construction is estimated to be approximately 9 months. The sequence of specific activities associated with Phase 2 construction is listed in Appendix C of this DEIR.

3.8 Regulatory Requirements, Permits, and Approvals

Table 1, *Local, State and Federal Regulatory Requirements, Permits, Approvals, and Consultations,* summarizes the anticipated regulatory approvals required for the Project from federal, state, and local agencies.

Table 3-1. Local, State and Federal Regulatory Requirements, Permits, Approvals, and Consultations

Organization or Issue	Approval, Permit or Consultation
Madera County (County)	• Certification of the EIR and adoption of Mitigation Monitoring and Reporting Plan. • Approval of OPL amendment. • Approval to undertake the proposed Project.

Table 3-1. Local, State and Federal Regulatory Requirements, Permits, Approvals, and Consultations

Organization or Issue	Approval, Permit or Consultation
	• Issuance of encroachment permit for roadway improvements. • Review and approval of street improvement and grading plans.
Regional Water Quality Control Board (RWQCB)	401 Water Quality Certification (required in connection with Army Corps' Section 404 authorization) and/or Waste Discharge Requirements for Waters of the State.
California Department of Fish and Wildlife (CDFW)	Incidental Take Permit (endangered and threatened species).
State Water Resources Control Board (SWRCB)	General Permit Order 2009-0009-DWQ, Storm Water Pollution Prevention Plan, and Best Management Practices
U.S. Army Corps of Engineers (USACE)	Section 404 Nationwide permit 14 (Linear Transportation projects) for fill of Waters of the U.S.
U.S. Fish and Wildlife Service (USFWS)	Biological Opinion (endangered and threatened species)
California Department of Transportation (Caltrans)	Encroachment permit (Phase 2 improvements to SR 41/Avenue 12 intersection)
San Joaquin Valley Air Pollution Control District (SJVAPCD)	Dust Control Plan

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4 ENVIRONMENTAL SETTING, IMPACTS AND MITIGATION

4.1 Overview of the Environmental Analysis

4.1.1 Introduction

Chapter 4 of this DEIR describes the environmental resources with the potential to be directly and/or indirectly affected by the Rio Mesa Boulevard Project and the extent and significance of those effects. This chapter also considers the Project's contribution to the cumulative impact on affected resources due to past, present and reasonably foreseeable future projects, as required by CEQA. The environmental analysis contained in Sections 4.2 through 4.9 addresses the following resource subject areas:

- 4.2 Air Quality
- 4.3 Biological Resources
- 4.4 Cultural and Paleontological Resources
- 4.5 Greenhouse Gas Emissions
- 4.6 Hydrology and Water Quality
- 4.7 Noise
- 4.8 Transportation
- 4.9 Tribal Cultural Resources
- 4.10 Energy

Each of these resource subject sections contains the following sections:

- Environmental Setting section that provides a discussion of the existing conditions of the Project Site and Project area as relevant to the resource subject;
- Regulatory Setting section that discusses federal, state, and local regulations, plans, and standards of potential relevance to the resources subject;
- Methodology and Assumptions section that defines the methods and assumptions used for the impact evaluations and identifies the criteria and thresholds used for assessing the significance of Project impacts;
- Environmental Impacts and Mitigation Measures section that contains discussion of individual impacts associated with the resource subject and, when impacts are identified as significant or potentially significant, identifies mitigation measures to avoid or reduce the severity of impacts; and

- Cumulative Impacts section which considers the potential for Project impacts to contribute the impacts of other past, present, and reasonably foreseeable impacts in a manner that could result in cumulatively considerable impacts.

4.1.2 Issues Not Included for Further Review in this DEIR

In addition to the resource subjects listed in Section 4.1.1, above, the County considered other resource subject areas in determining the potential of the Project to result in significant effects. CEQA Guidelines Section 15060(d) enable the lead agency to focus the EIR on the issue areas on which the Project could have significant effect, but the lead agency must provide a brief explanation of the reasons for determining that other effects would not be significant or potentially significant.

Specifically, CEQA contemplates using an initial study to identify a project's insignificant and potentially significant effects, and then focusing the project EIR analysis on the areas where potentially significant effects have been identified. "Effects dismissed in an Initial Study as clearly insignificant and unlikely to occur need not be discussed further in the EIR unless the Lead Agency subsequently receives information inconsistent with the finding in the Initial Study. A copy of the Initial Study may be attached to the EIR to provide the basis for limiting the impacts discussed." (CEQA Guidelines, § 15143.) "An EIR shall contain a statement briefly indicating the reasons that various possible significant effects of a project were determined not to be significant and were therefore not discussed in detail in the EIR. Such a statement may be contained in an attached copy of an Initial Study" [CEQA Guidelines § 15128. See also: Pub. Res. Code §§ 21002.1(e), 21100(c); CEQA Guidelines, §§ 15006(d), 15063(c)(3)].

The discussion below describes the resource subjects that were previously analyzed in an Initial Study/Mitigated Negative Declaration and have been considered in determining the issues for evaluation in this DEIR and summarizes the reasons for their elimination from further consideration. As discussed in Chapter 1, the County prepared and circulated a draft Initial Study / Mitigated Negative Declaration (IS/MND) for the proposed Rio Mesa Boulevard Project in October of 2017. Although the County subsequently determined that an EIR would be prepared for the Project, certain information in the 2017 IS/MND is relevant for consideration in this discussion. Review of the use and applicability of the 2017 IS/MND is included in Appendix A-1 of this DEIR and the 2017 IS/MND is included in Appendix A-2.

For each of the issues listed below in Section 4.1.2.1, the 2017 IS/MND found the Project to have no impact or a less-than-significant impact. Mitigation measures to reduce the level of impact were not recommended nor required to avoid potentially significant impacts in each of these issue areas.

4.1.2.1 Issues Eliminated from Further Consideration

Aesthetics

The Project would construct a new roadway across undeveloped land and would require a temporary water supply during construction for dust suppression and long-term water supply for the maintenance of landscaping after completion of Phase 2. Streetlighting installed as part of the Project will also require an electrical connection. The Project would not create wastewater or require other utility services as a part of construction or operations. The Project includes installation of utilities and the environmental effects of

the utilities component of the Project is evaluated in this DEIR. The Project would not generate solid waste in its construction or operation that would exceed state or local standards or exceed local solid waste capacity. The Project would comply with all solid waste disposal requirements.

Agriculture and Forestry Resources

No forest land or forestry resources are located in the Project area. The Project is also not located on designated Prime Farmland, Unique Farmland, or Farmland of Statewide Importance (DOC 2017) nor is the Project located on lands subject to a Williamson Act contract. The Project would not result in the conversion of Farmland to non-agricultural use in a manner not previously considered and approved in the County's adopted of the RMAP.

Geology and Soils

The nearest active fault to the Project is the Melones fault, which is about 35 miles north of the Project. There are no faults in an Alquist-Priolo Earthquake Fault Zone in the vicinity of the Project, and the Project would not have the potential to expose people to substantial adverse effects associated with seismic activity, liquefaction, or expansive soils. The Project would not directly or indirectly destroy a unique geological feature.

Best Management Practices (BMPs) for controlling stormwater runoff and minimizing erosion and sedimentation would be identified in a Storm Water Pollution Prevention Plan (SWPPP) that would be prepared for the Project and implemented during construction. Implementation of BMPs would minimize the potential for erosion loss of topsoil during construction avoiding the potential for significant impacts associated with erosion and sedimentation (additional discussion of BMP and erosion/sediment controls is provided in Section 4.6, Hydrology and Water Quality, of this DEIR.

The shrink-swell potential of soils within the Project Site is moderate-high; however, Project design provides for stormwater runoff management such that surface water would be prevented from collecting on or adjacent to pavement, thereby discouraging soil saturation along the roadway and minimizing the potential for damage associated with soil contraction and expansion.

Hazards and Hazardous Materials

Project construction would involve the use of hazardous materials, such as diesel fuel. The transport, storage, use, and disposal of such materials would be done in compliance with local, state, and federal regulation and in compliance with fuels and materials Best Management Practices to be established in the construction SWPPP that would be prepared for the Project and implemented during construction. Potential risks associated with the handling of fuels and other potentially hazardous materials during construction would be sufficiently addressed through such compliance and management and would not pose a substantial risk of exposure or significant environmental effects.

Land Use and Planning

Project consistency with goals and policies contained within applicable land use plans including, but not limited to the Madera County General Plan and Rio Mesa Area Plan, are addressed in Chapter 3, Project

Description, of this DEIR and within the regulatory setting and environmental impact discussions for each of the resource issues evaluated in Chapter 4 as appropriate.

Mineral Resources

The Project site is not within a designated mineral resource zone and would not have the potential to result in the loss of availability of valuable mineral resources.

Population and Housing

The Project would not displace existing housing or residents and would not create the potential need for replacement housing; therefore, the Project would not have the potential to result in environmental effects associated with development of replacement housing. The Project does not include the construction of any new housing.

The Project also would not induce unplanned growth. The construction of Rio Mesa Boulevard was envisioned as part of the Rio Mesa Area Plan (RMAP) to serve future planned housing and employment development within the plan area. As discussed in Chapter 3 of this DEIR, the future alignment (or OPL) of Rio Mesa Boulevard was approved by the County in 2016. The Project includes a minor modification to the OPL and includes a proposed amendment to the OPL. This modification adjusts the alignment of the roadway slightly but does not alter the purpose of the roadway envisioned in the RMAP.

Public Services

The Project would not result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, need for new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times or other performance objectives for fire or police protection, schools, parks, or other public services or facilities in a manner that would require the development of additional public facilities.

Recreation

The Project would not increase the use of existing neighborhood and regional parks or other recreational facilities such that substantial physical deterioration of the facility would occur or be accelerated. The Project also does not include recreational facilities or require the construction or expansion of recreational facilities which might have an adverse physical effect on the environment.

Utilities and Service Systems

The Project would construct a new roadway across undeveloped land and would not require a water supply, create wastewater, or require utility services as a part of construction or operations. The Project includes installation of utilities and the environmental effects of the utilities component of the Project is evaluated in this DEIR. The Project would not generate solid waste in its construction or operation that would exceed state or local standards or exceed local solid waste capacity. The Project would comply with all solid waste disposal requirements.

Discussion of stormwater runoff and management associated with the Project is provided in Section 4.6, Hydrology and Water Quality, of this DEIR.

Wildfire

Since circulation of the 2017 IS/MND, Appendix G of the CEQA Guidelines was amended to include Wildfire as part of the Initial Study Environmental Checklist. The amended checklist lists four impact categories to be considered in determining whether a proposed project would have a significant impact associated with wildfire. The CEQA Guidelines checklist regarding wildfire asks the following:

> *If located in or near state responsibility areas or lands classified as very high fire hazard severity zones, would the project:*
>
> *a) Substantially impair an adopted emergency response plan or emergency evacuation plan?*
> *b) Due to slope, prevailing winds, and other factors, exacerbate wildfire risks, and thereby expose project occupants to, pollutant concentrations from a wildfire or the uncontrolled spread of a wildfire?*
> *c) Require the installation or maintenance of associated infrastructure (such as roads, fuel breaks, emergency water sources, power lines or other utilities) that may exacerbate fire risk or that may result in temporary or ongoing impacts to the environment?*

d) Expose people or structures to significant risks, including downslope or downstream flooding or landslides, as a result of runoff, post-fire slope instability, or drainage changes? The California Department of Forestry and Fire Protection (CAL FIRE) provides fire protection services for privately-owned wildlands as well as emergency services in 36 of the State's 58 counties via contracts with local governments (CAL FIRE 2020a). CAL FIRE has established State Responsibility Areas (SRAs) or "lands exclusive of cities and federal lands regardless of ownership, classified by the State Board of Forestry as areas in which the primary financial responsibility for preventing and suppressing fires is that of the State. These are lands covered wholly or in part by timber, brush, undergrowth, or grass, whether of commercial value or not, which protect the soil from erosion, retard runoff of water or accelerated percolation, and lands used principally for range or forage purpose" (CAL FIRE 2020a).

CAL FIRE has also established Fire Hazard Severity Zones (FHSZs) in SRAs which are mapped areas that designate zones (based on factors such as fuel, slope, and fire weather) with varying degrees of fire hazard (i.e., moderate, high, and very high). FHSZ maps evaluate wildfire hazards, which are physical conditions that create a likelihood that an area will burn over a 30- to 50-year period (CAL FIRE 2020b). Moderate, high, and very high FHSZs are found in areas where the State has financial responsibility for fire protection and prevention (SRA). In addition, Very High FHSZs have been established in Local Responsibility Areas (LRAs).

The Project Site is not within an SRA (CAL FIRE 2020b). In addition, there are no LRA FHSZs immediately adjacent to the Project Stie. Lands to north, east, and south of the site are described as moderate FHSZ in the LRA applicable to the Project Site. The Project Site and land adjacent to and west of the site are not zoned as a FHSZ. There are no SRA or LRA very high FHSZs within or near the Project Site. As such, the

Project's effect on wildfire risk is considered less than significant in keeping with Appendix G of the CEQA Guidelines and not addressed further in this DEIR.

The Rio Mesa Area Plan identifies wildfire hazards at higher elevations and steeper portions of the RMAP area, due to a combination of flammable natural vegetation, limited accessibility to steeper terrain and climatic conditions. These conditions generally occur in the northern and northeastern portions of the RMAP area, and not areas within which the Project Site is located.

4.1.3 CEQA Methods for the Environmental Analysis

4.1.3.1 Environmental Baseline

Pursuant to CEQA Guidelines (Section 15125(a)), the environmental setting used to determine the impacts associated with the Project normally is based on the environmental conditions that existed in the project area at the time the Notice of Preparation was published. However, CEQA Guidelines Section 15125(a) also provides that where existing conditions change or fluctuate over time, a lead agency may define existing conditions by referencing historic conditions, conditions expected when a project becomes operational, or projected future conditions beyond the date of initial project operations, if doing so would meet CEQA's objective of giving the public and decisionmakers the most accurate and understandable picture practically possible of the project's likely near-term and long-term impacts.

For purposes of this EIR, the County recognizes the importance of fully and adequately defining resource conditions that existed at the time of NOP circulation for this EIR. This provides the basis for the determination of impact of the proposed Project, i.e., the changes to those conditions brought about by Project construction and operation either directly or indirectly. However, it is also important to consider the Project's context as related to the Rio Mesa Area Plan (RMAP) and planned and anticipated development with the Project area and RMAP planning area. Although the Project would be constructed within an area not currently developed for urban use, development of the Project Site and areas surrounding the Project Site have been evaluated and approved for the future development of urban uses such as residential, commercial and industrial development and the infrastructure to support those uses.

As previously noted, a 2017 IS/MND was prepared before this DEIR's NOP in 2019. Because the IS/MND used an environmental baseline that preceded the 2019 NOP, the attached 2017 IS/MND analysis and attendant environmental baseline for resources topics not analyzed in this DEIR were reviewed to confirm that no changes to the environmental baseline in the Study Area occurred between publication of the 2017 IS/MND and circulation of the DEIR's NOP in 2019, thereby confirming that the no impact and less-than-significant impact conclusions reached for the topics listed in Section 4.1.2.1 remain valid and consistent with the environmental baseline used in this DEIR. This analysis is included in Appendix A-1 of this DEIR.

4.1.3.2 Impacts and Mitigation Measures

This DEIR analyzes the potential direct, indirect, and cumulative environmental impacts of the proposed Project. The determination of whether an impact is considered significant is based on significance criteria and thresholds. An adverse impact that exceeds the significance threshold is considered significant, and

an impact that does not exceed or cross the threshold is considered less than significant. The CEQA significance criteria used in this DEIR are based on CEQA's mandatory findings of significance (as summarized in State CEQA Guidelines Section 15065); the checklist presented in Appendix G of the State CEQA Guidelines (Guidelines) in effect when the Draft EIR was prepared; and where appropriate, factual or scientific data and regulatory standards of federal, state, and local agencies. For CEQA purposes, impacts in this DEIR are classified as:

- No impact;
- Less than significant;
- Less than significant with mitigation incorporated; or
- Significant and unavoidable.

Where feasible, mitigation measures are recommended for all significant and potentially significant impacts.

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4.2 Air Quality

This section presents an evaluation of potential air quality effects of the construction and operation of the Project. This section describes the existing regional and local environmental conditions related to air quality and lists regulatory requirements for the protection of air resources that are applicable to the Project. An overview of the methods used herein to assess potential Project impacts is provided, as are impact significance thresholds. The potential impacts of the Project on air quality are assessed relative to those thresholds. Where necessary to address a significant or potentially significant impact, mitigation measures to reduce such impacts are identified.

4.2.1 Environmental Setting

Ambient air quality is commonly characterized by climate conditions, the meteorological influences on air quality, and the quantity and type of pollutants released. The air basin is subject to a combination of topographical and climatic factors that increase the potential for high levels of regional and local air pollutants. These factors are discussed below, along with the current regulatory structure that applies to the San Joaquin Valley Air Basin (SJVAB), which encompasses the Project, pursuant to the regulatory authority of the San Joaquin Valley Air Pollution Control District (SJVAPCD).

4.2.1.1 San Joaquin Valley Air Basin

The Project site is located in Madera County, in the Central Valley of California. The County lies in a region identified as the SJVAB. The SJVAB occupies the southern 2/3 of the Central Valley and includes eight counties. The land area within the SJVAB is mostly flat, less than 1,000 feet in elevation, and is surrounded on three sides by the Sierra Nevada, Tehachapi, and Coast Range mountains. This bowl-shaped feature forms a natural barrier to the dispersion (spreading over an area) of air pollutants. As a result, the SJVAB is highly susceptible to pollutant accumulation over time (SJVAPCD 2002).

4.2.1.2 Climate and Meteorology

The climate in the SJVAB is strongly influenced by the bordering mountain ranges discussed above. The mountains create a partial rain shadow over the valley and block the free circulation of air, trapping stable air in the valley for extended periods. The climate is semi-arid and is characterized by long, hot, dry summers and cool, wet, and foggy winters. Based on historical data obtained from the meteorological station located in Madera, California, ambient temperatures range from an average minimum of 36°F in December to an average maximum of 96˚F in July. The 58-year average annual precipitation from 1948 through 2005 is approximately 14.93 inches per year at the Friant Government Camp climate monitoring station (WRCC 2018) which is located approximately 4 miles northeast of the Project Site and representative of the Project area. About 88 percent of the annual precipitation occurs from November through April. Annual precipitation is variable and over a 58-year period of record, annual precipitation varied from a low of 8.03 inches (1989) to a high of 28.28 inches (1983). The average winter low temperature in the vicinity of the Project is 37.2°F and average summer high temperature is 93.9°F. Average annual precipitation is approximately 12.23 inches.

4.2.1.3 Criteria Air Pollutants

Criteria air pollutants are defined as air pollutants for which the federal and state governments have established air quality standards for outdoor or ambient concentrations to protect public health with a determined margin of safety. Ozone (O_3), course particulate matter (PM_{10}), and fine particulate matter ($PM_{2.5}$) are generally considered to be regional pollutants because they or their precursors affect air quality on a regional scale. Pollutants such as carbon monoxide (CO), nitrogen dioxide (NO_2), and sulfur dioxide (SO_2) are considered to be local pollutants because they tend to accumulate in the air locally. PM_{10} and $PM_{2.5}$ is also considered a local pollutant. Health effects commonly associated with criteria pollutants are summarized in Table 4.2-1. *Criteria Air Pollutants- Summary of Common Sources and Effects*.

Table 4.2-1. Criteria Air Pollutants- Summary of Common Sources and Effects

Pollutant	Major Manmade Sources	Human Health & Welfare Effects
CO	An odorless, colorless gas formed when carbon in fuel is not burned completely; a component of motor vehicle exhaust.	Reduces the ability of blood to deliver oxygen to vital tissues, effecting the cardiovascular and nervous system. Impairs vision, causes dizziness, and can lead to unconsciousness or death.
NO_2	A reddish-brown gas formed during fuel combustion for motor vehicles, energy utilities and industrial sources.	Respiratory irritant; aggravates lung and heart problems. Precursor to ozone and acid rain. Causes brown discoloration of the atmosphere.
O_3	Formed by a chemical reaction between reactive organic gases and nitrogen oxides (NOx) in the presence of sunlight. Common sources of these precursor pollutants include motor vehicle exhaust, industrial emissions, solvents, paints and landfills.	Irritates and causes inflammation of the mucous membranes and lung airways; causes wheezing, coughing and pain when inhaling deeply; decreases lung capacity; aggravates lung and heart problems. Damages plants; reduces crop yield.
PM_{10} & $PM_{2.5}$	Power plants, steel mills, chemical plants, unpaved roads and parking lots, wood-burning stoves and fireplaces, automobiles and others.	Increased respiratory symptoms, such as irritation of the airways, coughing, or difficulty breathing; aggravated asthma; development of chronic bronchitis; irregular heartbeat; nonfatal heart attacks; and premature death in people with heart or lung disease. Impairs visibility (haze).
SO_2	A colorless, nonflammable gas formed when fuel containing sulfur is burned. Examples are refineries, cement manufacturing, and locomotives.	Respiratory irritant. Aggravates lung and heart problems. Can damage crops and natural vegetation. Impairs visibility.

Source: California Air Pollution Control Officers Association (CAPCOA 2013)

4.2.1.4 Toxic Air Contaminants

In addition to the criteria pollutants discussed above, toxic air contaminants (TACs) are another group of pollutants of concern. TACs are considered either carcinogenic or noncarcinogenic based on the nature of the health effects associated with exposure to the pollutant. For regulatory purposes, carcinogenic TACs are assumed to have no safe threshold below which health impacts would not occur, and cancer risk is expressed as excess cancer cases per one million exposed individuals. Noncarcinogenic TACs differ in that there is generally assumed to be a safe level of exposure below which no negative health impact is believed to occur. These levels are determined on a pollutant-by-pollutant basis.

There are many different types of TACs, with varying degrees of toxicity. Sources of TACs include industrial processes such as petroleum refining and chrome plating operations, commercial operations such as gasoline stations and dry cleaners, and motor vehicle exhaust. Public exposure to TACs can result from emissions from normal operations, as well as from accidental releases of hazardous materials during upset conditions. The health effects of TACs include cancer, birth defects, neurological damage, and death.

4.2.1.5 Ambient Air Quality

O_3, PM_{10}, and $PM_{2.5}$ are the criteria pollutants most potently affecting the Project region. Ambient air quality at the Project Site can be inferred from ambient air quality measurements conducted at nearby air quality monitoring stations. The CARB maintains more than 60 monitoring stations throughout California. The Fresno – Skypark air quality monitoring station (7252 North Blythe Avenue, Fresno, CA 93722) located approximately eight miles southwest of the Project Site monitors ambient concentrations of O_3. The Madera City air quality monitoring station (28261 Avenue 14, Madera, CA 93638) located approximately 14 miles northwest of the Project Site monitors ambient concentrations of PM_{10} and $PM_{2.5}$. Ambient emission concentrations will vary due to localized variations in emission sources and climate and are considered sufficiently representative of ambient concentrations in the Project area for the purposes of this CEQA review.

Table 4.2-2, *Summary of Ambient Air Quality Data,* summarizes the published data concerning O_3 from the Fresno – Skypark monitoring station and $PM_{2.5}$, and PM_{10} from the Madera City monitoring station since 2016 for each year that the monitoring data is provided.

Table 4.2-2. Summary of Ambient Air Quality Data

Pollutant Standards	2016	2017	2018
O_3			
Max 1-hour concentration (ppm)	0108	0.128	0.100
Max 8-hour concentration (ppm) (state/federal)	0.089 / 0.089	0.107 / 0.106	0.087 / 0.087
Number of days above state 1-hour standard	6	6	4
Number of days above state/federal 8-hour standard	45 / 43	46 / 44	30 / 27
PM_{10}			
Max 24-hour concentration (µg/m3) (state/federal)	* / 122.7	* / 149.5	* / *
Number of days above state/federal standard	* / 0	* / 0	* / *
$PM_{2.5}$			
Max 24-hour concentration (µg/m3) (state/federal)	47.7 / 47.7	70.6 / 70.6	81.7 / 80.0
Number of days above federal standard	9.0	16.7	23.9

Source: CARB 2019
$\mu g/m^3$ = micrograms per cubic meter; ppm = parts per million
* = Insufficient data available

The U.S. Environmental Protection Agency (USEPA) and CARB designate air basins or portions of air basins and counties as being in "attainment" or "nonattainment" for each of the criteria pollutants. Areas that do not meet the standards are classified as nonattainment areas. To be considered in "Attainment" with the National Ambient Air Quality Standards (NAAQS) (other than O_3, PM_{10}, $PM_{2.5}$, and those based on annual averages or arithmetic mean) are not to be exceeded more than once per year. The NAAQS for O_3, PM_{10}, and $PM_{2.5}$ are based on statistical calculations over one- to three-year periods, depending on the pollutant. To be considered in "Attainment" with the California Ambient Air Quality Standards (CAAQS) are not to be exceeded during a three-year period. The attainment status for the Madera County portion of the SJVAB is included in Table 4.2-3. *Federal and State Ambient Air Quality Attainment Status for Madera County*.

Table 4.2-3 Federal and State Ambient Air Quality Attainment Status for Madera County

Pollutant	Federal	State
O_3	Nonattainment	Nonattainment
PM_{10}	Attainment	Nonattainment
$PM_{2.5}$	Nonattainment	Nonattainment
CO	Unclassified/Attainment	Unclassified
NO_2	Unclassified/Attainment	Attainment
SO_2	Unclassified/Attainment	Attainment

Source: CARB 2018

The determination of whether an area meets the state and federal standards is based on air quality monitoring data. Some areas are unclassified, which means there is insufficient monitoring data for determining attainment or nonattainment. Unclassified areas are typically treated as being in attainment. Because the attainment/nonattainment designation is pollutant specific, an area may be classified as nonattainment for one pollutant and attainment for another. Similarly, because the state and federal standards differ, an area could be classified as attainment for the federal standards of a pollutant and as nonattainment for the state standards of the same pollutant. The region is designated as a nonattainment area for the federal O_3 and $PM_{2.5}$ standards and nonattainment for state O_3, $PM_{2.5}$ and PM_{10} standards (CARB 2018).

4.2.2 Regulatory Setting.

4.2.2.1 Federal

Clean Air Act

The Clean Air Act (CAA) of 1970 and the CAA Amendments of 1971 required the USEPA to establish the NAAQS, with states retaining the option to adopt more stringent standards or to include other specific pollutants. On April 2, 2007, the U.S. Supreme Court found that carbon dioxide (CO_2) is an air pollutant covered by the CAA; however, no NAAQS have been established for CO_2.

These standards are the levels of air quality considered safe, with an adequate margin of safety, to protect the public health and welfare. They are designed to protect those "sensitive receptors" most susceptible to further respiratory distress such as asthmatics, the elderly, very young children, people already weakened by other disease or illness, and persons engaged in strenuous work or exercise. Healthy adults can tolerate occasional exposure to air pollutant concentrations considerably above these minimum standards before adverse effects are observed.

The USEPA has classified air basins (or portions thereof) as being in attainment, nonattainment, or unclassified for each criteria air pollutant, based on whether the NAAQS have been achieved. If an area is designated unclassified, it is because inadequate air quality data were available as a basis for a nonattainment or attainment designation. Table 4.2-3, above, lists the federal attainment status of the SJVAB for the criteria pollutants.

4.2.2.2 State

California Clean Air Act

The California CAA (CCAA) allows the state to adopt ambient air quality standards and other regulations if they are at least as stringent as federal standards. CARB, a part of the California Environmental Protection Agency, is responsible for the coordination and administration of both federal and state air pollution control programs within California, including setting the CAAQS. CARB also conducts research, compiles emission inventories, develops suggested control measures, and provides oversight of local programs. CARB establishes emissions standards for motor vehicles sold in California, consumer products (such as hairspray, aerosol paints, and barbecue lighter fluid), and various types of commercial equipment. It also sets fuel specifications to further reduce vehicular emissions. CARB also has primary responsibility for the development of California's State Implementation Plan (SIP), for which it works closely with the federal government and the local air districts.

California State Implementation Plan (SIP)

The federal CAA (and its subsequent amendments) requires each state to prepare an air quality control plan referred to as the SIP. The SIP is a living document that is periodically modified to reflect the latest emissions inventories, plans, and rules and regulations of air basins as reported by the agencies with jurisdiction over them. The CAA Amendments dictate that states containing areas violating the NAAQS revise their SIPs to include extra control measures to reduce air pollution. The SIP includes strategies and control measures to attain the NAAQS by deadlines established by the CAA. The USEPA has the responsibility to review all SIPs to determine if they conform to the requirements of the CAA.

State law makes CARB the lead agency for all purposes related to the SIP. Local air districts and other agencies prepare SIP elements and submit them to CARB for review and approval. CARB then forwards SIP revisions to the USEPA for approval and publication in the Federal Register.

The SJVAPCD is the agency primarily responsible for ensuring that national and state ambient air quality standards are not exceeded and that air quality conditions are maintained in the SJVAB. To achieve attainment with the NAAQS and CAAQS and maintain air quality, the SJVAPCD has completed the

following air quality attainment plans and reports, which together constitute the SIP for the portion of the SJVAB encompassing the Project:

- **2004 Extreme Ozone Attainment Demonstration Plan and 2013 Plan for the Revoked 1-Hour Ozone Standard.** The SJVAPCD initially adopted this plan in 2004 to address USEPA's 1-hour ozone standard. Although the USEPA approved the SJVAPCD's 2004 plan in 2010, the USEPA withdrew this approval as a result of a court ruling in November 2012. The SJVAPCD adopted a new plan for the USEPA's revoked 1-hour ozone standard in September 2013(SJVAPCD 2013).
- **2016 Plan for the 2008 8-Hour Ozone Standard.** The Ozone Plan, approved in 2016, contains a comprehensive list of regulatory and incentive-based measures to reduce emissions and particulate matter with the goal of addressing the USEPA's standards. The plan calls for new and more stringent rules and regulations for stationary sources, new and more stringent tail-pipe emission standards for mobile sources, emission standards for locomotives, local regulations, and voluntary measures to reduce and/or mitigate mobile source emissions, incentive-based measures, and alternative compliance programs(SJVAPCD 2016a).
- **2007 Ozone Plan**. The Ozone Plan, approved in 2007, contains a comprehensive list of regulatory and incentive-based measures to reduce emissions and particulate matter with the goal of addressing the USEPA's standards. The 2007 Ozone Plan calls for a 75 percent reduction of ozone-forming NO_x emissions (SJVAPCD 2007a). These NO_x reductions are preferred and essential to meeting the new 8-hour ozone and $PM_{2.5}$ standards. The plan calls for new and more stringent rules and regulations for stationary sources, new and more stringent tail-pipe emission standards for mobile sources, emission standards for locomotives, local regulations, and voluntary measures to reduce and/or mitigate mobile source emissions, incentive-based measures, and alternative compliance programs.
- **2009 Reasonably Available Control Technology Demonstration for Ozone State Implementation Plan**. The SJVAPCD adopted the Reasonably Available Control Technology (RACT) Demonstration for Ozone State Implementation Plan in 2009. The Clean Air Act requires RACT for certain sources in all nonattainment areas. The SJVAPCD is required to ensure the USEPA's Control Techniques Guidance (CTG) is being implemented through SJVAPCD regulations. The 42 CTGs were developed to control major sources of emissions (SJVAPCD 2009).
- **2007 PM_{10} Maintenance Plan and Request for Redesignation**. In 2007, the SJVAPCD adopted the 2007 PM_{10} Attainment Plan to ensure the continued attainment of the USEPA's PM_{10} standard. Since the USEPA determined that the air basin had attained the federal PM^{10} standards on October 30, 2006, the SJVAB is designated as a federal attainment area (SJVAPCD 2007b).
- **2016 Moderate Area Plan for the 2012 $PM_{2.5}$ Standard**. In 2016, the SJVAPCD adopted the 2016 $PM_{2.5}$ Plan to address the USEPA's 24-hour standards. The plan utilizes the best available information to develop a strategy to demonstrate attainment of the federal standard for $PM_{2.5}$. A number of local strategies are included in the plan, including regulations to address stationary sources, use of a risk-based approach to prioritize measures to expedite attainment standards,

incentive measures, technology advances, policy efforts to shape new legislation, and public outreach (SJVAPCD 2016b).

Tanner Air Toxics Act & Air Toxics "Hot Spot" Information and Assessment Act

CARB's Statewide comprehensive air toxics program was established in 1983 with Assembly Bill (AB) 1807, the Toxic Air Contaminant Identification and Control Act (Tanner Air Toxics Act of 1983). AB 1807 created California's program to reduce exposure to air toxics and sets forth a formal procedure for CARB to designate substances as TACs. Once a TAC is identified, CARB adopts an airborne toxics control measure (ATCM) for sources that emit designated TACs. If there is a safe threshold for a substance at which there is no toxic effect, the control measure must reduce exposure to below that threshold. If there is no safe threshold, the measure must incorporate toxics best available control technology to minimize emissions.

CARB also administers the state's mobile source emissions control program and oversees air quality programs established by state statute, such as AB 2588, the Air Toxics "Hot Spots" Information and Assessment Act of 1987. Under AB 2588, TAC emissions from individual facilities are quantified and prioritized by the air quality management district or air pollution control district. High priority facilities are required to perform a health risk assessment (HRA) and, if specific thresholds are exceeded, required to communicate the results to the public in the form of notices and public meetings. In September 1992, the "Hot Spots" Act was amended by Senate Bill (SB) 1731, which required facilities that pose a significant health risk to the community to reduce their risk through a risk management plan.

Diesel Risk Reduction Plan

The identification of DPM as a TAC in 1998 led CARB to adopt the Risk Reduction Plan to Reduce Particulate Matter Emissions from Diesel-Fueled Engines and Vehicles (Risk Reduction Plan) in October 2000. The Risk Reduction Plan's goals include an 85 percent reduction in DPM by 2020 from the 2000 baseline (CARB 2000). The Risk Reduction Plan includes regulations to establish cleaner new diesel engines, cleaner in-use diesel engines (retrofits), and cleaner diesel fuel.

Truck and Bus Reducing Emissions from Excising Diesel Vehicles

In 2008, CARB approved the Truck and Bus Regulation to significantly reduce PM and NO_X emissions from existing diesel vehicles operating in California. The regulation requires diesel trucks and buses that operate in California to be upgraded to reduce emissions. Heavier trucks had to be retrofitted with PM filters beginning January 1, 2012, and older trucks had to be replaced by January 1, 2015. By January1, 2023, nearly all trucks and buses will need to have 2010-model-year engines or equivalent.

The regulation applies to nearly all privately and federally owned diesel fueled trucks and buses and to privately and publicly owned school buses with a gross vehicle weight rating greater than 14,000 pounds. Small fleets with three or fewer diesel trucks can delay compliance for heavier trucks by reporting and there are a number of extensions for low-mileage construction trucks, early PM filter retrofits, adding cleaner vehicles, and other situations. Privately and publicly owned school buses have different requirements.

4.2.2.3 Local

San Joaquin Valley Air Pollution Control District

The local air quality agency governing the SJVAB is the SJVAPCD, which is charged with the responsibility of implementing air quality programs, ensuring that national and state ambient air quality standards are not exceeded and that air quality conditions are maintained in the SJVAB. To achieve national and state ambient air quality standards and maintain air quality, the air district has completed several air quality attainment plans and reports, which together constitute the SIP. The SJVAPCD is responsible to implement those elements of the SIP that are applicable to the SJVAB.

The SJVAPCD has also adopted various rules and regulations for the control of stationary and area sources of emissions. SJVAPCD regulations of potential applicability to the Project are summarized as follows:

- **Regulation IV (Visible Emissions), Rule 4101, Nuisance**. The purpose of this rule is to protect the health and safety of the public from source operations that emit or may emit air contaminants or other materials. It prohibits emissions of air contaminants or other materials "which cause injury, detriment, nuisance, or annoyance to any considerable number of persons or to the public."
- **Regulation IV (Visible Emissions), Rule 4601, Architectural Coatings.** The rule limits volatile organic compound (VOC) emissions from architectural coatings and specifies practices for proper storage, cleanup, and labeling requirements. Rule 4601 applies to "any person who supplies, sells, offers for sale, applies, or solicits the application of any architectural coating, or who manufactures, blends or repackages any architectural coating for use within the District." Materials covered by the rule include adhesives, architectural coatings, paints, varnishes, sealers, stains, concrete curing compounds, concrete/masonry sealers, and waterproofing sealers.
- **Regulation IV (Visible Emissions), Rule 4641, Cutback, Slow Curve and Emulsified Asphalt, Paving and Maintenance Operations.** The purpose of this rule is to limit VOC emissions by restricting the application and manufacturing of certain types of asphalt and maintenance operations and applies to the use of these materials. Specifically, certain types of asphalt cannot be used for penetrating prime coat, dust palliative, or other paving: rapid cure and medium cure cutback asphalt, slow cure asphalt that contains more than 0.5 percent of organic compound which evaporates at 500˚F or lower, and emulsified asphalt containing VOC in excess of 3 percent which evaporates at 500˚F or lower.
- **Regulation VIII (Fugitive PM_{10} Prohibitions), Rules 8021–8071, Fugitive PM_{10} Prohibitions.** The purpose of these rules is to limit airborne particulate emissions associated with construction, demolition, excavation, extraction, and other earthmoving activities, as well as with open disturbed land and emissions associated with paved and unpaved roads. Accordingly, these rules include specific measures to be employed to prevent and reduce fugitive dust emissions from anthropogenic sources.

- **Regulation IX (Mobile and Indirect Sources), Rule 9510, Indirect Source Review**. This rule is the result of state requirements outlined in California Health and Safety Code Section 40604 and the SIP. The air district's SIP commitments were originally contained in the SJVAPCD's 2003 PM_{10} Plan and Extreme Ozone Attainment Demonstration Plans, which presented the SJVAPCD's strategy to reduce PM_{10} and NO_x in order to reach the ambient air pollution standards on schedule, which had been 2010. The plans quantify the reduction from current SJVAPCD rules and proposed rules, as well as state and federal regulations, and then model future emissions to determine whether the SJVAPCD may reach attainment for applicable pollutants. As discussed below, this rule is applicable to the Project because Project construction activities will generate more than two tons of NOx.

These rules will reduce emissions of NO_x and PM_{10} from new development projects that attract or generate motor vehicle trips. In general, new development contributes to the air pollution problem in the SJVAB by increasing the number of vehicles and vehicle miles traveled. Although newer, cleaner technology is reducing per-vehicle pollution, the emissions increase from new development partially offsets emission reductions gained from technology advances. Indirect Source Review applies to larger development projects that have not yet gained discretionary approval. A discretionary permit is a permit from a public agency, which requires some amount of deliberation by that agency, including the potential to require modifications or conditions on the project. In accordance with this rule, developers of larger residential, commercial, and industrial projects are required to reduce smog-forming NO_x and PM_{10} emissions from their projects' baselines as follows (SJVAPCD 2005):

- 20 percent of construction NO_x exhaust
- 45 percent of construction PM_{10} exhaust
- 33 percent of operational NO_x over 10 years
- 50 percent of operational PM_{10} over 10 years

These reductions are intended to be achieved through incorporation of on-site reduction measures. If, after implementation of on-site emissions reduction measures project emissions still exceed the minimum baseline reduction, the Indirect Source Review requires a project applicant to pay an off-site fee to the SJVAPCD, which is then used to fund clean-air projects within the air basin.

The SJVAPCD has adopted Air Quality Thresholds of Significance for Criteria Pollutants (SJVAPCD 2015) that identify the level at which a project's annual criteria pollutant emissions would be considered significant, as presented in Table 4.2-4.

Table 4.2-4. SJVAPCD Criteria Pollutant Annual Emission Thresholds

Pollutant/Precursor	Construction Emissions (tons per year)	Operational Emissions (tons per year)
CO	100	100
NOx	10	10
ROG	10	10
SOx	27	27
PM10	15	15
PM2.5	15	15

Source: SJVAPCD, 2015.

Madera County General Plan Air Quality Element

The 2010 *Air Quality Element* of the Madera County General Plan contains goals, policies, and implementation programs that address air quality issues within the County. The following Air Quality Element policies are identified as being applicable for consideration in CEQA review of the Project:

Policy C1.1.1: Assess and mitigate project air quality impacts using analysis methods and significance thresholds recommended by the SJVAPCD and require that projects do not exceed established SJVAPCD thresholds.

Policy F2.1.2: Require all access roads, driveways and parking areas serving new commercial and industrial development are constructed with materials that minimize particulate emissions and are appropriate to the scale and intensity of use.

4.2.3 Environmental Impacts and Mitigation Measures

4.2.3.1 Significance Criteria

For the purposes of this evaluation, the Project would result in a significant impact to air quality if it would do any of the following:

1) Conflict with or obstruct implementation of any applicable air quality plan and/or exceed the criteria pollutant annual emissions thresholds presented in Table 4.2-4;

2) Result in a cumulatively considerable net increase of any criteria pollutant for which the Project region is nonattainment under an applicable federal or state ambient air quality standard;

3) Expose sensitive receptors to substantial pollutant concentrations; or

4) Result in other emissions (such as those leading to odors) adversely affecting a substantial number of people).

4.2.3.2 Methodology

Air quality emissions-related impacts were assessed in accordance with methodologies recommended by the CARB and the SJVAPCD in its 2015 adopted Guidelines "Guidance for Assessing and Mitigating Air Quality Impacts," consistent with CEQA Guidelines Sections 15064(b)(2) and 15064.7. Project Impacts Analysis

Impact 4.2-1 Emissions during Project construction could conflict with or obstruct compliance with the applicable air quality plans. Impact determination: *Less than significant with mitigation*.

Threshold:	*Conflict with or obstruct implementation of any applicable air quality plan or emit criteria pollutants in excess of SJVAPCD significance thresholds.*

The following discussion describes Project consistency with statewide and regional air quality plans that apply to construction activities associated with the Project. These plans include the statewide SIP and SJVAPCD-prepared plans listed above in Section 4.2.2.3, above, that are specific to the SJVAB.

As part of its enforcement responsibilities, the USEPA requires each state with nonattainment areas to prepare and submit a SIP that demonstrates the means to attain the federal standards. The SIP must integrate federal, state, and local plan components and regulations to identify specific measures to reduce pollution in nonattainment areas, using a combination of performance standards and market-based programs. Similarly, under state law, the CCAA requires an air quality attainment plan to be prepared for areas designated as nonattainment with regard to the federal and state ambient air quality standards. Air quality attainment plans outline emissions limits and control measures to achieve and maintain these standards by the earliest practical date.

Therefore, SJVAPCD prepared the following applicable air quality plans: the 2004 Extreme Ozone Attainment Demonstration Plan and 2013 Plan for the Revoked 1-Hour Ozone Standard, 2007 Ozone Plan, 2009 Reasonably Available Control Technology Demonstration for Ozone State Implementation Plan, 2016 Plan for the 2008 8-Hour Ozone Standard, 2016 Moderate Area Plan for the 2012 PM2.5 Standard, and 2007 PM10 Maintenance Plan and Request for Redesignation. These plans collectively address the air basin's nonattainment status with the federal and state ozone standards as well as particulate matter by establishing a program of rules and regulations directed at reducing air pollutant emissions and achieving state (California) and national air quality standards. Pollutant control strategies are based on the latest scientific and technical information and planning assumptions, updated emission inventory methodologies for various source categories, and the latest population growth projections and associated vehicle miles traveled projections for the region. SJVAPCD's latest population growth forecasts were defined in consultation with local governments and with reference to local general plans.

The Project is proposing the construction of a roadway segment to accommodate planned and approved development within the County. It would not increase the number of people living or working in County. and thus, would not conflict with the growth forecasts in the applicable plans. Furthermore, as shown in Table 4.2-5 below, Project construction would not generate emissions that would exceed SJVAPCD significance thresholds and therefore would not result in an increase in the frequency or severity of

existing air quality violations or cause or contribute to new air quality violations. The Project would be required to adhere to all applicable SJVAPCD rules and regulations. Implementation of Mitigation Measure AIR-1, described below under Impact 4.2-2, would reduce construction-generated emissions below what is required in SJVAPCD Rule 9510.

Table 4.2-5. Unmitigated Construction-Related Criteria Pollutant Emissions (Maximum Tons per Year)

Construction Activities	ROG	NO_X	CO	SO_2	PM_{10}	$PM_{2.5}$
2021 Construction Phase 1						
Avenue 14	0.10	0.86	0.67	0.00	0.10	0.06
Rio Mesa Boulevard	0.56	5.43	4.18	0.01	0.44	0.31
North-South Utility Corridor	0.04	0.45	0.31	0.00	0.05	0.03
2021 Total Construction	**0.70**	**6.74**	**5.16**	**0.01**	**0.59**	**0.40**
SJVAPCD Potentially Significant ImpactSignificance Threshold	10	10	100	27	15	15
Exceed SJVAPCD Threshold?	**No**	**No**	**No**	**No**	**No**	**No**
2022 Construction 2022 Phase 1						
North-South Utility Corridor	0.06	0.49	0.40	0.00	0.02	0.01
Avenue 12	0.24	0.90	0.70	0.00	0.11	0.06
2022 Total Construction	**0.30**	**1.39**	**1.1**	**0.00**	**0.13**	**0.07**
SJVAPCD Significance Potentially Significant Impact Threshold	10	10	100	27	15	15
Exceed SJVAPCD Threshold?	**No**	**No**	**No**	**No**	**No**	**No**
2023 Construction 2023 Phase 2						
Rio Mesa Boulevard	0.41	2.32	2.19	0.00	0.27	0.16
Avenue 12	0.32	1.94	1.50	0.00	0.22	0.11
2023 Total Construction	**0.73**	**4.26**	**3.69**	**0.00**	**0.49**	**0.27**
SJVAPCD Significance Potentially Significant Impact Threshold	10	10	100	27	15	15
Exceed SJVAPCD Threshold?	**No**	**No**	**No**	**No**	**No**	**No**

Source: Source: CalEEMod version 2016.3.2. See Appendix D of this DEIR for emission model outputs.

A Project is consistent with regional air quality planning efforts in part if it is consistent with the population, housing, and employment assumptions that were used in the development of the SJVAPCD air quality plans. Within unincorporated Madera County, which encompasses the Project Site, the Madera County General Plan is the primary source of data forming the basis for SJVAPCD projections of air pollutant emissions. The County's General Plan population, housing, and employment forecasts were used by SJVAPCD to develop its air quality attainment plans and reports.

For the above reasons, the Project would not conflict with or obstruct implementation of any applicable air quality plan and a ***less than significant impact with mitigation***.

4.2.3.3 Mitigation Measure

See Mitigation Measure AIR-1 following Impact 4.2-2, below.

Impact 4.2-2 Potential for criteria air pollutant emissions to exceed annual emissions significance thresholds. Impact determination: Less than significant with mitigation incorporated.

Threshold:	*Exceedance of SJVAQMD criteria pollutant annual emission thresholds.* *Result in a cumulatively considerable net increase of any criteria pollutant for which the Project region is nonattainment under an applicable federal or state ambient air quality standard.*

Short-term Construction

Construction-generated emissions are temporary and short-term but have the potential to represent a significant air quality impact. Three basic sources of short-term emissions will be generated through construction of the Project: operation of the construction vehicles (i.e., excavators, trenchers, dump trucks), the creation of fugitive dust during clearing and grading, and the use of asphalt or other oil-based substances during paving activities. Construction activities such as excavation and grading operations, construction vehicle traffic, and wind blowing over exposed soils would generate exhaust emissions and fugitive PM emissions that affect local air quality at various times during construction. Effects would be variable depending on the weather, soil conditions, the amount of activity taking place, and the nature of dust control efforts. The dry climate of the area during the summer months creates a high potential for dust generation. Construction activities would be subject to SJVAPCD Regulation VIII, which specifies the following measures to be implemented during construction in order to control fugitive dust:

- Apply water to unpaved surfaces and areas.
- Use nontoxic chemical or organic dust suppressants on unpaved roads and traffic areas.
- Limit or reduce vehicle speed on unpaved roads and traffic areas to a maximum 15 miles per hour.
- Maintain areas in a stabilized condition by restricting vehicle access.
- Install wind barriers.
- During high winds, cease outdoor activities that disturb the soil.
- Keep bulk materials sufficiently wet when handling.
- Store and handle materials in a three-sided structure.
- When storing bulk materials, apply water to the surface or cover the storage pile with a tarp.
- Don't overload haul trucks. Overloaded trucks are likely to spill bulk materials.
- Cover haul trucks with a tarp or other suitable cover. Or, wet the top of the load enough to limit visible dust emissions.
- Clean the interior of cargo compartments on emptied haul trucks prior to leaving a site.
- Prevent trackout by installing a trackout control device.

- Clean up trackout at least once a day. If along a busy road or highway, clean up trackout immediately.
- Monitor dust-generating activities and implement appropriate measures for maximum dust control.

Construction-generated emissions associated with the Project were calculated using the CARB-approved CalEEMod computer program, which is designed to model emissions for land use development projects, based on typical construction requirements. CalEEMod modeling results are included in Appendix D of this DEIR. Assumptions concerning the types of equipment to be used for Project construction and the duration of that use were made based on information presented in Appendix C (Project Construction Sequencing Description) of this DEIR.

Construction of Phase 1 was modeled beginning in June of 2021 and is predicted to last approximately one year. Thus, for comparison to the annual emissions significance thresholds, all Phase 1 emissions are assumed to occur within a 1-year period. Construction of Phase 2 of the Proposed Project would be initiated at a time when future traffic conditions indicate that the expansion of Rio Mesa Boulevard from two lanes to four is warranted, which is identified as traffic volumes of 16,000 vehicles daily. Construction of Phase 2 was modeled beginning in January of 2023 and is predicted to last approximately 9 months. If construction starts at a later date than anticipated, it can be expected that Project emissions would be less than those predicted in this analysis because CalEEMod incorporates lower emission factors associated with construction equipment in future years due to improved emissions controls and fleet modernization through turnover. Thus, considering Phase 2 implementation by the end of the year 2023 provides a conservative (i.e., worst-case) estimate of resultant air pollutant emissions.

The SJVAPCD's (2015) Guidance for Assessing and Mitigation Air Quality Impacts identifies significance thresholds for ROG, CO, and NO_X, SO_2, PM_{10}, and $PM_{2.5}$. Predicted annual construction-generated emissions for the Project are summarized in Table 4.2-4, above. Construction-generated emissions are short-term and of temporary duration, lasting only as long as construction activities occur, but would be considered a significant air quality impact if the volume of pollutants generated exceeds the SJVAPCD's thresholds of significance.

Notes: Emission reduction/credits for construction emissions are applied based on the required implementation of SJVAPCD Regulation VIII. The specific Regulation VIII measures applied in CalEEMod include the following: water exposed surfaces three times daily and limit speeds on unpaved roads to 15 miles per hour.

As shown in Table 4.2-6, construction-generated emissions would not exceed SJVAPCD significance thresholds. In addition to the SJVAPCD criteria air pollutant thresholds, SJVAPCD Rule 9510, Indirect Source Review, aims to fulfill the District's emission reduction commitments in the PM_{10} and Ozone Attainment Plans. This rule applies to the following construction projects within the jurisdiction of the SJVAPCD:

- 50 residential units
- 2,000 square feet of commercial space
- 25,000 square feet of light industrial space

- 100,000 square feet of heavy industrial space
- 20,000 square feet of medical office space
- 39,000 square feet of general office space
- 9,000 square feet of educational space
- 10,000 square feet of government space
- 20,000 square feet of recreational space; or
- 9,000 square feet of space not identified above.

This rule also applies to any transportation or transit project where construction exhaust emissions equal or exceed two tons of NO_x or two tons of PM_{10}.

Table 4.2-6. Construction Related NO_x and PM_{10} Emissions- Without and With Mitigation

Construction	NO_x Emiassions without Mitigation (tons per year)	NO_x Emissions with Mitigation (tons per year)	Percent Reduction
Phase 1			
Construction 2021	6.74	5.06	28
Construction 2022	1.39	0.99	33
Phase 2			
Construction 2023	4.26	3.41	22
Construction	**PM_{10} Baseline**	**PM_{10} Mitigated**	**Percent Reduction**
Phase 1			
Construction 2021	0.59	0.35	51
Construction 2022	0.13	0.07	60
Phase 2			
Construction 2023	0.49	0.26	61

Source: CalEEMod version 2016.3.2. See Appendix D of this DEIR for emission model outputs.

The Project does not include the construction of a permanent building, however, it is a transportation project and construction exhaust emissions are calcuated to exceed two tons of NO_x. Therefore, the Project is required to comply with Rule 9510. In accordance with Rule 9510, a detailed AIA must be prepared for the Project and submitted to the SJVAPCD, which demonstrates reduction of NO_x emissions from the Project's baseline by 20 percent and PM_{10} emissions from the Project's baseline by 45 percent.

Mitigation Measure **AIR-1**, presented below, requires preparation of a detailed air impact assessment (AIA) and implementation of NOx and PM10 emission reduction measures. The AIA will have to demonstrate an adequate reduction of emmissions from baseline to the satisfaction of SJVAPCD. In advance of preparing the AIA and in support of this DEIR, the effectiveness of measures likely to be

required by SJVAPCD were evaluated. The results of this evaluation are shown in Table 4.2-6 *Construction Related NOx and PM_{10} Emissions- Without and With Mitigation*. This demonstrates that the Project can achieve the necessary reduction values. Specifically, the sample measures used in the evaluation would reduce NOx emissions by at least 28 percent and total PM10 emissions by up to 61 percent, which is beyond the reduction needed to achieve the SJVAPCD Rule 9510 target. The specific measures to be implemented by the Project, however, will ultimately be decided by the County with concurrance from SJVAPCD. With implementation of Mitigation Measure AIR-1, the Project impact associated with construction emissions would be *less than significant with mitigation*.

As previously stated, construction-generated emissions would not exceed SJVAPCD significance thresholds. However, the proposed Project is a transportation project and construction exhaust emissions exceed two tons of NOx, instigating the implementation of Rule 9510 and the requirement to reduce NOx emissions from the Project's unmitigated baseline by 20 percent and PM10 emissions from the Project unmitigated baseline by 45 percent. As shown in Table 4.2-6, Mitigation Measure **AIR-1** would result in a greater than 20 percent reduction of NOx emissions from the unmitigated baseline and a greater than 45 percent reduction of PM10 emissions from the unmitigated baseline for all construction activities.

Long-Term Operations

The Project would accommodate existing and predicted traffic demands and uphold Madera County's goals to reduce traffic congestion, improve safety on roadways, and provide better access to regional transportation routes. The Project is part of the RMAP (Circulation Concept Plan) which has been planned and approved since 1995. The Rio Mesa Area Plan was envisioned in the 1994 Madera County General Plan Update for phased urban development over the next 10 to 20 years, though much development has yet to occur. Within the Rio Mesa Area Plan are three approved large-scale residential development projects and the Project has been designed to direct access to Avenue 12 for these approved developments as well as provide greater direct access to other areas in the vicinity already under construction.

As discussed in detail in Section 4.8 (Transportation) of this DEIR, Section 15064.3 of the CEQA Guidelines and in the 2018 Advisory, construction of roadway projects can induce an increase in VMT when those projects are intended to reduce congestion on roadways that are currently congested or expected to become congested over time. As discussed in Chapter 3 of this DEIR, the proposed Project is intended to improve direct access from the SR-41/Avenue 12 intersection to Tesoro Viejo, to provide access to parcels adjacent to the proposed road alignment as envisioned in the RMAP. Proposed development adjacent to the alignment, including two proposed projects (the Community Medical Center and Paseo Pacifico Specific Plan) will be subject to County approval and CEQA review including a quantitative assessment of potential air quality impacts and potential VMT generation and mitigation, as appropriate under CEQA.

Since the Project is designed to accommodate additional traffic volumes previously analyzed in other plans discussed above and would not directly generate new, unplanned traffic or increase vehicular trips, the long-term operation of the Project would not contribute criteria air pollutant emissions to the cumulative condition that could be associated with additional VMT. As such, the Project's impact associated with long-term air pollutant emissions is considered ***less than significant***.

4.2.3.4 Mitigation Measure

AIR-1: In accordance with SJVAPCD Rule 9510, a detailed air impact assessment (AIA) shall be prepared detailing the specific construction requirement (i.e., equipment required, hours of use) and operational characteristics associated with the Project. Emissions of NO_X from construction equipment greater than 50 horsepower used or associated with the development Project shall be reduced by 20 percent from unmitigated emissions and PM_{10} emissions shall be reduced by 45 percent. The Project shall demonstrate compliance with Rule 9510, including payment of all applicable fees, prior to the initiation of construction activities. Examples of measures that would reduce emissions attributable to the Project in compliance with Rule 9510 include, but are not limited to, the following:

- During all construction activities, all diesel-fueled construction equipment including, but not limited to, rubber-tired dozers, graders, scrapers, excavators, asphalt paving equipment, cranes, and tractors shall be CARB Tier 4 Certified as set forth in Section 2423 of Title 13 of the California Code of Regulations, and Part 89 of Title 40 of the Code of Federal Regulations.
- All construction equipment shall be maintained and properly tuned in accordance with manufacturers' specifications. Equipment maintenance records shall be prepared and retained for the duration of construction.
- Project construction shall comply with all applicable SJVAPCD rules and regulations. Copies of any applicable air quality permits and/or monitoring plans shall be provided to the County.

Impact 4.2-3: Exposure of sensitive receptors to substantial pollutant concentrations. Impact determination: *Less than significant*.

Threshold:	*Expose sensitive receptors to substantial pollutant concentrations.*

Sensitive receptors are defined as facilities or land uses that include members of the population that are particularly sensitive to the effects of air pollutants, such as children, the elderly, and people with illnesses. Examples of these sensitive receptors are residences, schools, hospitals, and daycare centers. CARB has identified the following groups of individuals as the most likely to be affected by air pollution: the elderly over 65, children under 14, athletes, and persons with cardiovascular and chronic respiratory diseases such as asthma, emphysema, and bronchitis. The nearest sensitive receptor to the Project site is a rural residence located approximately 500 feet distant from the proposed Rio Mesa Boulevard alignment at the nearest.

Short-Term Construction

Criteria Pollutant Emissions

Construction-related activities would result in temporary, short-term Project-generated emissions of DPM, ROG, NOx, CO, and PM_{10} from the exhaust of off-road, heavy-duty diesel equipment for the clearing,

grading preparation, rough excavation, construction, paving and other miscellaneous activities. However, as discussed under Impact 4.2-2 above, the Project would not exceed the SJVAPCD emission thresholds. The portion of the SJVAB which encompasses the Project area is already designated as a nonattainment area for the federal O_3 and $PM_{2.5}$ standards and nonattainment for state O_3, $PM_{2.5}$ and PM_{10} (CARB 2018).

The health effects associated with O_3 are generally associated with reduced lung function. Because the Project would not involve construction activities that would result in O_3 precursor emissions (ROG or NO_x) in excess of the SJVAPCD thresholds, the Project is not anticipated to substantially contribute to regional O_3 concentrations and the associated health impacts.

CO tends to be a localized impact associated with congested intersections. In terms of adverse health effects, CO competes with oxygen, often replacing it in the blood, reducing the blood's ability to transport oxygen to vital organs. The results of excess CO exposure can include dizziness, fatigue, and impairment of central nervous system functions. The Project would not involve construction activities that would result in CO emissions in excess of the SJVAPCD thresholds. Thus, the Project's CO emissions would not contribute to the health effects associated with this pollutant.

Particulate matter (PM_{10} and $PM_{2.5}$) contains microscopic solids or liquid droplets that are so small that they can get deep into the lungs and cause serious health problems. Particulate matter exposure has been linked to a variety of problems, including premature death in people with heart or lung disease, nonfatal heart attacks, irregular heartbeat, aggravated asthma, decreased lung function, and increased respiratory symptoms such as irritation of the airways, coughing, or difficulty breathing. For construction activity, DPM is the primary TAC of concern. Particulate exhaust emissions from diesel-fueled engines (i.e., DPM) were identified as a TAC by the CARB in 1998. The potential cancer risk from the inhalation of DPM, as discussed below, outweighs the potential for all other health impacts (i.e., non-cancer chronic risk, short-term acute risk) and health impacts from other TACs. Based on the emission modeling conducted, the maximum onsite construction-related daily emissions of exhaust $PM_{2.5}$, considered a surrogate for DPM, would be of 0.40 tons per year during 2021 construction (Phase 1), 0.07 tons per year in 2022 (Phase 1), and 0.27 tons per year during 2023 construction (Phase 2). $PM_{2.5}$ exhaust is considered a surrogate for DPM because more than 90 percent of DPM is less than 1 micron in diameter and therefore is a subset of particulate matter under 2.5 microns in diameter (i.e., $PM_{2.5}$). Most $PM_{2.5}$ derives from combustion, such as use of gasoline and diesel fuels by motor vehicles. As with O_3 and NO_x, the Project would not generate emissions of PM_{10} or $PM_{2.5}$ that would exceed the SJVAPCD's thresholds. Additionally, the Project would be required to comply with SJVAPCD Regulation VIII described above, which limits the amount of fugitive dust generated during construction.

Asbestos

Another potential air quality issue associated with construction-related activities is the airborne entrainment of asbestos due to the disturbance of naturally occurring asbestos-containing soils. The Project is not located within an area designated by the State of California as likely to contain naturally occurring asbestos (Department of Conservation [DOC] 2000). As a result, construction-related activities would not be anticipated to result in increased exposure of sensitive land uses to asbestos and a less than significant impact would occur.

Valley Fever (Coccidioidomycosis)

Coccidioidomycosis (CM), often referred to as San Joaquin Valley Fever or Valley Fever, is one of the most studied and oldest known fungal infections. Valley Fever most commonly affects people who live in hot dry areas with alkaline soil and varies with the season. This disease, which affects both humans and animals, is caused by inhalation of arthroconidia (spores) of the fungus *Coccidioides immitis* (CI). CI spores are found in the top few inches of soil and the existence of the fungus in most soil areas is temporary. The cocci fungus lives as a saprophyte in dry, alkaline soil. When weather and moisture conditions are favorable, the fungus "blooms" and forms many tiny spores that lie dormant in the soil until they are stirred up by wind, vehicles, excavation, or other ground-moving activities and become airborne. Agricultural workers, construction workers, and other people who work outdoors and who are exposed to wind and dust are more likely to contract Valley Fever. Children and adults whose hobbies or sports activities expose them to wind and dust are also more likely to contract Valley Fever. After the fungal spores have settled in the lungs, they change into a multicellular structure called a spherule. Fungal growth in the lungs occurs as the spherule grows and bursts, releasing endospores, which then develop into more spherules.

Valley fever (CM) is found in California, including Madera County. In about 50 to 75 percent of people, valley fever causes either no symptoms or mild symptoms and those infected never seek medical care; when symptoms are more pronounced, they usually present as lung problems (cough, shortness of breath, sputum production, fever, and chest pains). The disease can progress to chronic or progressive lung disease and may even become disseminated to the skin, lining tissue of the brain (meninges), skeleton, and other body areas.

Madera County is considered a highly endemic area for valley fever. When soil containing this fungus is disturbed by ground-disturbing activities such as digging or grading, by vehicles raising dust, or by the wind, the fungal spores get into the air. When people breathe the spores into their lungs, they may get valley fever. Fungal spores are small particles that can grow and reproduce in the body. The highest infection period for valley fever occurs during the driest months in California, between June and November. Infection from valley fever during ground-disturbing activities can be partially mitigated through the control of Project-generated dust. As noted, Project-generated dust would be controlled by adhering to SJVAPCD dust-reducing measures (Regulation VIII), which includes the preparation of a SJVAPCD-approved dust control plan describing all fugitive dust control measures that are to be implemented before, during, and after any dust-generating activity.

With conformance with SJVAPCD Regulation VIII, dust from the construction of the Project would not add significantly to the existing exposure level of people to this fungus, including construction workers and the impact would be less than significant.

In summary, the Project would not result in a potentially significant contribution to localized substantial pollutant concentrations of affecting sensitive receptors in or near the Project Site. As such, the impact would be ***less than significant***.

Project Operations

Operation of the Project would not result in the development of any substantial sources of substantial pollutant emissions. There are no stationary sources associated with the implementation of the Project. Heavy-duty trucks, a substantial source of DPM emissions, may pass through the area using the proposed roadway but are not expected to spend long periods queuing and idling on the roadway once construction is complete. Therefore, the Project would not produce substantial pollutant concentrations for sensitive receptors on or near the Project site. This impact due to Project operation, therefore, is ***less than significant***.

Impact 4.2-4 Odors would be generated during Project construction. Impact determination: Less than significant.

Threshold:	*Result in other emissions (such as those leading to odors) adversely affecting a substantial number of people.*

During construction, the Project presents the potential for generation of objectionable odors in the form of diesel exhaust and fumes from freshly placed asphalt in the immediate vicinity of the site. However, these emissions would be short-term only during periods of asphalt application and odors would rapidly dissipate. Odors associated with paving would be localized and generally confined to within or near the construction area, and would not be expected to substantially affect nearby receptors and would not have the potential to adversvely affecta substantial number of people. Therefore, the impact is considered ***less than significant***.

4.2.4 Cumulative Setting, Impacts, and Mitigation Measures

4.2.4.1 Cumulative Setting

Regional growth in population, vehicle use, and industrial activity could inhibit efforts to improve regional air quality and attain the ambient air quality standards. Thus, the setting for this cumulative analysis consists of the SJVAB and associated growth and development anticipated in the air basin.

4.2.4.2 Cumulative Impacts

As discussed above under Impact 4.2-2, the SJVAPCD's recommended approach to assessing cumulative impacts is based, in part, on the projected increases in emissions attributable to the Project, as well as the Project's consistency with the air district's air quality attainment plans discussed in Section 4.2.2.3, above. Thus, for the purposes of analysis in this EIR, the County considers the impact of the Project to be less than cumulatively considerable if Project emissions would not exceed quantified criteria pollutant emissions thresholds of significance and if the Project would not conflict with the SJVAPCD's air quality plans. As identified above, the Project would not conflict with applicable SJVAPCD air quality plans nor would the Project emissions exceed quantified emissions thresholds. Therefore, the Project's contribution to cumulative air quality impacts is ***less than considerable***.

4.3 Biological Resources

This section presents an evaluation of potential biological resources impacts associated with the Project. Information on biological resources is based on the *Biological Resources Assessment Rio Mesa Boulevard Project* (BRA) (ECORP 2020a), which is included as Appendix E to this DEIR and the *Aquatic Resources Delineation Rio Mesa Boulevard* (ECORP 2020b) included as Appendix F. The biological resources evaluation Study Area consists of a 92.45-acre area comprised of the Project's grading limits, a temporary construction easement, construction staging areas, and a 250-foot buffer surrounding these areas as shown in Figure 1-1, summing to 359.7 acres ("Study Area"). The 250-foot buffer was included to evaluate indirect impacts on biological resources; however, the direct impact analysis is based on the physical disturbance footprint of the Project. The biological resources considered in this assessment include special-status plants, amphibians, reptiles, fish, and mammals, migratory and special-status birds, critical habitat, wildlife corridors, and the aquatic and riparian habitats of the Study Area.

This section assesses whether construction and operation of the Project would result in significant impacts on biological resources. This section includes a description of the existing environmental conditions, regulatory setting, an overview of the methods used for assessing impact, impact significance thresholds, and the impacts associated with constructing and operating the Project. Where significant impacts are identified, feasible and effective mitigation measures are presented to reduce those impacts to levels considered less than significant.

ECORP Biologists Ariel Miller, Carly White, Clay DeLong, and Emily Mecke conducted the site reconnaissance visits on March 15, and April 18, 19, and 20, 2017. In addition, during the special-status plant surveys in 2019 and 2020 the Study Area was evaluated for any changes from the 2017 site visits. The Study Area was systematically surveyed on foot using a Trimble GPS unit with sub-meter accuracy, topographic maps, and aerial imagery to ensure total site coverage. Special attention was given to identifying those portions of the Study Area with the potential to support special-status species and sensitive habitats. During the field survey, biological communities occurring onsite were characterized and the following biological resource information was collected:

- Potential Wetlands and other Waters of the U.S.;
- Plant and animal species directly observed;
- Animal evidence (e.g., scat, tracks);
- Existing active raptor nest locations;
- Burrows and any other special habitat features; and
- Representative Study Area photographs (Attachment B of Appendix E).

In addition, soil types were identified using the NRCS Web Soil Survey (NRCS 2017a).

Guideline-level special-status plant surveys (early and late season) were conducted by ECORP biologists Ariel Miller, Casey Peters, Clay DeLong, and Emily Mecke for the majority of the Study Area in accordance

with guidelines promulgated by USFWS (USFWS 2000), CDFW (CDFG 2009), and CNPS (CNPS 2019) on April 18, 19, and 20, 2017 and June 21, 22, and 23, 2017 (ECORP 2020c). Additional special-status plant surveys were conducted by Emily Mecke and Clay DeLong on April 16, 17, and 18, 2019; by Emily Mecke and Todd Wood on May 6, 2019; and on March 11, 2020 by ECORP biologists Krissy Walker-Berry and Hannah Stone. Only a small area in the southern portion of the Study Area has not been surveyed for early or late season special-status plants. The grading limits of the Project avoid this portion of the Study Area.

4.3.1 Environmental Setting

4.3.1.1 Site Characteristics and Land Use

The Project Site is located east of SR 41 between Avenue 12 and Avenue 14. The Project Site and surrounding area is characterized by agricultural annual crops and annual grassland with a few rural residential homes. The northern portion of the Study Area is composed of gently rolling terrain and the southern portion is generally flat terrain, where historical agricultural activities have leveled the land. Elevation ranges from approximately 380 to 470 feet above mean sea level. An electrical transmission line and transmission towers passes east-west through the center of the Study Area. The nearest natural body of water is the San Joaquin River, which lies approximately 1.3 miles to the east at its nearest point.

4.3.1.2 Vegetation Communities and Land Cover Types

Four vegetation communities and land cover types were identified within the Study Area. These include annual grassland, orchard, agriculture, and ruderal (Figure 4.3-1. *Land Cover and Vegetation Types*). These vegetation communities and land cover types are described below.

Annual Grassland

The northern portion of the Study Area is characterized by nonnative annual grassland. These areas were primarily dominated by soft chess (*Bromus hordeaceous*) with other dominates including Mediterranean barley (*Hordeum marinum*), foxtail barely (*Hordeum murinum*), and broadleaf filaree (*Erodium botrys*).

Former Orchard

In 2017, the northern boundary of the Study Area abutted an orchard. That orchard has since been removed and the area is now annually disked by the landowner.

Agricultural

Several areas in the northern and southern portions of the Study Area are characterized by agricultural fields. The agricultural fields are either disked or in active production. The disked agricultural fields are dominated by nonnative annual grasses and forbs including cultivated oat (*Avena sativa*), ripgut brome, soft chess, wild oat (*Avena fatua*), Italian ryegrass (*Festuca perennis*), fescue brome (*Festuca bromoides*), winter vetch (*Vicia villosa*), and yellow wild radish (*Raphanus raphanistrum*). The agricultural fields in active production were planted with cultivated oat with winter vetch and yellow wild radish also present within the fields.

Figure 4.3-1. Land Cover and Vegetation Types

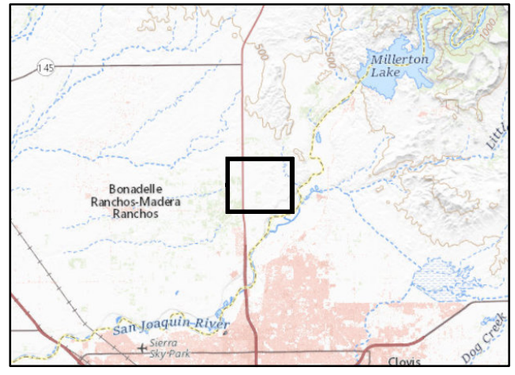
Map Features

Study Area

Land Cover Types

- Agricultural
- Annual Grassland
- Former Orchard
- Road
- Ruderal

Service Layer Credits: USGS Topo



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2017-089 Rio Mesa Boulevard Road Alignment

Scale in Feet
0 600 1,200

Photo Source: ESRI, USDA, USGS

Map Date: 12/9/2020

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Ruderal

Ruderal areas throughout the Study Area are characterized by existing dirt roads or other disturbed areas. Ruderal areas are dominated by nonnative grasses and forbs consisting of ripgut brome, foxtail barley, rat-tailed vulpia (*Festuca myuros*), purple wild radish (*Raphanus sativus*), and pineapple weed (*Matricaria discoidea*).

4.3.1.3 Potential Waters of the U.S. and Waters of the State

A total of 7.548 acres of potential Waters of the U.S. and Waters of the State were mapped within the Study Area during the aquatic resources delineation. From here on after potential Waters of the U.S. and Waters of the State will be referred to as "Waters". Waters mapped within the Study Area include vernal pools, seasonal wetlands, seasonal wetland swales, detention basins, and ditch. Some or all of these areas are considered potential Waters of the U.S. and Waters of the state (Table 4.3-1. *Potential Waters of the U.S./State within the Study Area* and Figure 4.3-2. *Aquatic Resources Delineation*).

Table 4.3-1. Potential Waters of the U.S./State within the Study Area

Type	Acres[1]
Wetlands	
Vernal Pools	3.467
Seasonal Wetland	0.671
Seasonal Wetland Swale	2.961
Other Waters	
Detention Basin	0.420
Ditch	0.028
Total	**7.548**

[1]Acreages represent a calculated estimation and are subject to modification following the USACE verification process.

Vernal Pools

In general, vernal pools are topographic basins underlain with an impermeable or semi-permeable hardpan or duripan layer. Direct rainfall and surface runoff inundate the pools during the wet season. The pools remain inundated and/or the soil maintains saturation through spring and are dry by late spring until the following wet season. Several vernal pools were mapped within the northern and central portions of the Study Area. In general, four main variations in plant composition of vernal pools were observed.

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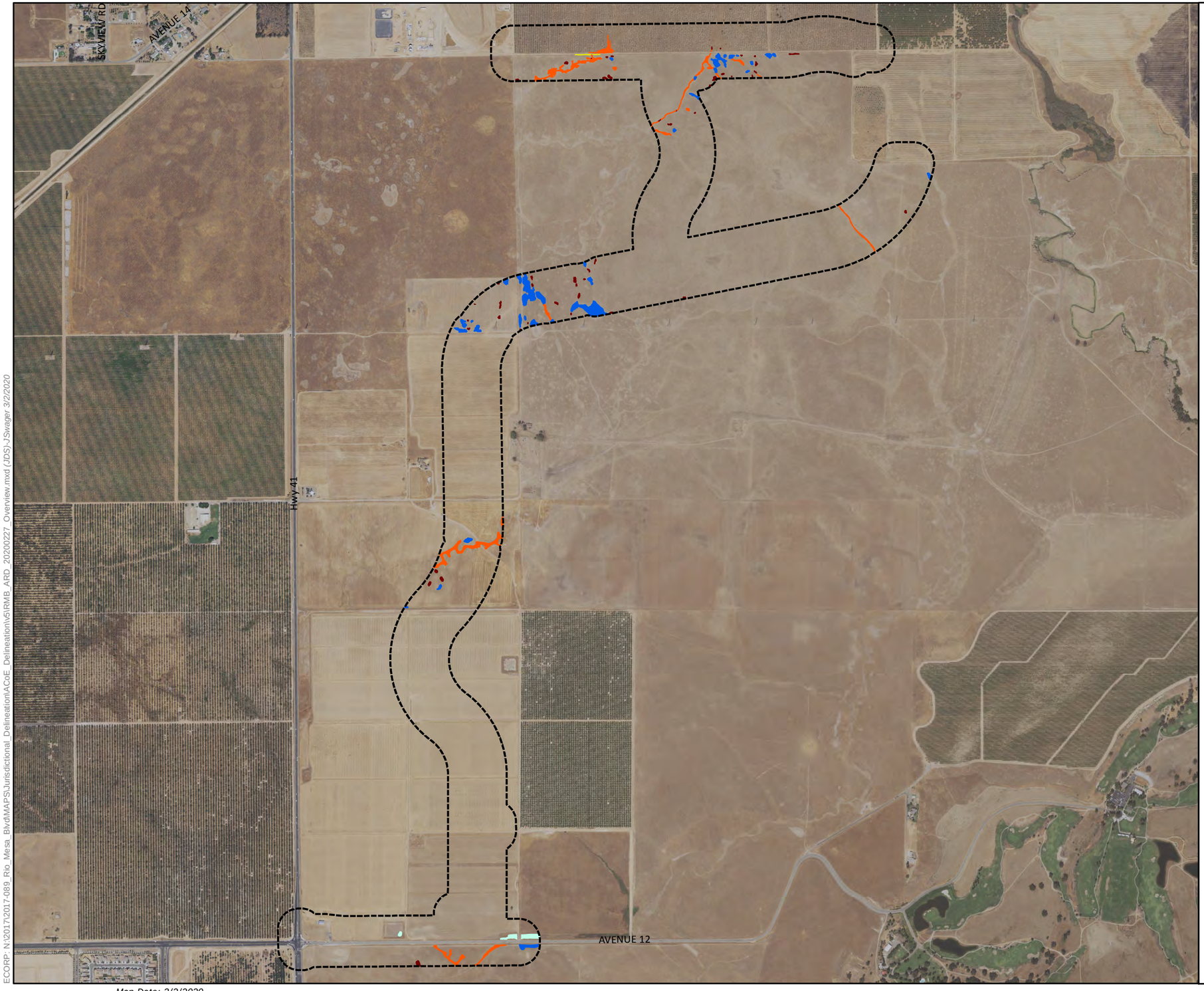


Map Features

- Study Area - 359.7 ac.

Aquatic Resources Delineation - 7.548 ac. [1] *

Wetlands - 7.099 ac.

- Vernal Pool - 3.467 ac.
- Seasonal Wetland - 0.671 ac.
- Seasonal Wetland Swale - 2.961 ac.

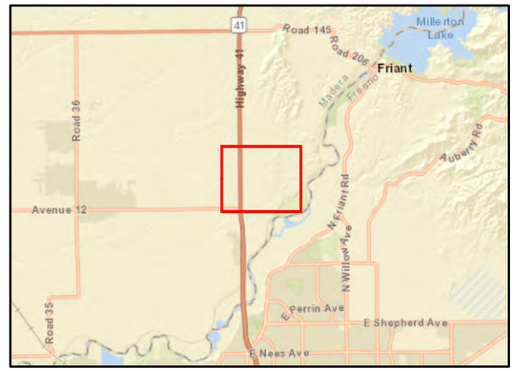
Other Waters - 0.449 ac.

- Detention Basin - 0.420 ac.
- Ditch - 0.028 ac.

Photo Source: NAIP (2018)
Boundary Source: Morton and Pitalo
Delineator(s): Caly DeLong, Emily Mecke, Ariel Miller
Coordinate System: NAD 1983 StatePlane California III FIPS 0403 Feet

[1] Subject to U.S. Army Corps of Engineers verification. This exhibit depicts information and data produced in accord with the wetland delineation methods described in the 1987 Corps of Engineers Wetland Delineation Manual and the Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Arid West Region Version 2.0 as well as the Updated Map and Drawing Standards for the South Pacific Division Regulatory Program as amended on February 10, 2016, and conforms to Sacramento District specifications. However, feature boundaries have not been legally surveyed and may be subject to minor adjustments if more accurate locations are required.

** The acreage value for each feature has been rounded to the nearest 1/1000 decimal. Summation of these values may not equal the total potential Waters of the U.S. acreage reported.*



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Map Date: 3/2/2020

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Scale in Feet
0 1,000

Figure 4.3-2. Aquatic Resources Delineation

2017-089 Rio Mesa Boulevard

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The first type of vernal pool was dominated by creeping spikerush (*Eleocharis macrostachya*), slender popcorn-flower (*Plagiobothrys stipitatus*), and dwarf woolly-heads (*Psilocarphus brevissimus*) with Mediterranean barley dominant on the fringe of vernal pools. The second type of vernal pool was dominated by slender popcorn-flower, Solano downingia (*Downingia ornatissima*), and hyssop loosestrife (*Lythrum hyssopifolia*). The third type of vernal pool was dominated by creeping spikerush, slender popcorn-flower, water pygmy-weed (*Crassula aquatica*), and larger water-starwort (*Callitriche heterophylla*). The fourth type consisted of a few vernal pools that were primarily dominated by least spikerush (*Eleocharis acicularis* var. *acicularis*) with other dominants including slender popcorn-flower and dwarf woolly-heads.

Seasonal Wetland

Seasonal wetlands are ephemerally wet due to the accumulation of surface runoff and rainwater within low-lying areas. Inundation periods tend to be relatively short and seasonal wetlands are commonly dominated by nonnative annual, and sometimes perennial, hydrophytic species. There were several seasonal wetlands mapped throughout the Study Area. Seasonal wetlands were primarily dominated by Mediterranean barley and hyssop loosestrife with toad rush (*Juncus bufonius*).

Seasonal Wetland Swale

Seasonal wetland swales are linear wetland features that do not exhibit an ordinary high water mark (OHWM). These are typically inundated for short periods during and immediately after rain events, but usually maintain soil saturation for longer periods during the wet season. Several seasonal wetland swales were mapped throughout the Study Area. Seasonal wetland swales were primarily dominated by Mediterranean barely with other dominants including slender popcorn-flower, dwarf woolly-heads, button-celery (*Eryngium castrense*), and annual bluegrass (*Poa annua*).

Ditch

Ditches are linear features constructed to convey stormwater and/or irrigation water. Two ditches are present alongside the northern dirt road (Avenue 14) within the Study Area. These ditches are relatively shallow and display an OHWM. These ditches were primarily dominated by curly dock (*Rumex crispus*) and annual rabbit-foot grass (*Polypogon monspeliensis*).

Detention Basin

Detention basins are depressional and generally isolated features which can be perennial or ephemeral. Three detention basins are present in the southern portion of the Study Area. The detention basins were primarily dominated by Mediterranean barley (*Hordeum marinum*) and button-celery (*Eryngium castrense*).

4.3.1.4 Soils

According to the Soil Survey Geographic (SSURGO) Database for Madera County, California (NRCS 2017a), eight soil units, or types, have been mapped within the Study Area (Figure 4.3-3. *Natural Resources Conservation Service Soil Types*):

- AsA – Alamo clay, 0 to 1 percent slope;
- RaA – Ramona sandy loam, 0 to 3 percent slopes
- RaB – Ramona sandy loam, 3 to 8 percent slopes
- RdC – Redding gravelly loam, 3 to 15 percent slopes
- RgC – Redding-Raynor complex, 3 to 15 percent slopes
- SaA – San Joaquin sandy loam, 0 to 3 percent slopes, MLRA 17
- WrB – Whitney and Rocklin sandy loams, 3 to 8 percent slopes
- WrC – Whitney and Rocklin sandy loams, 8 to 15 percent slopes

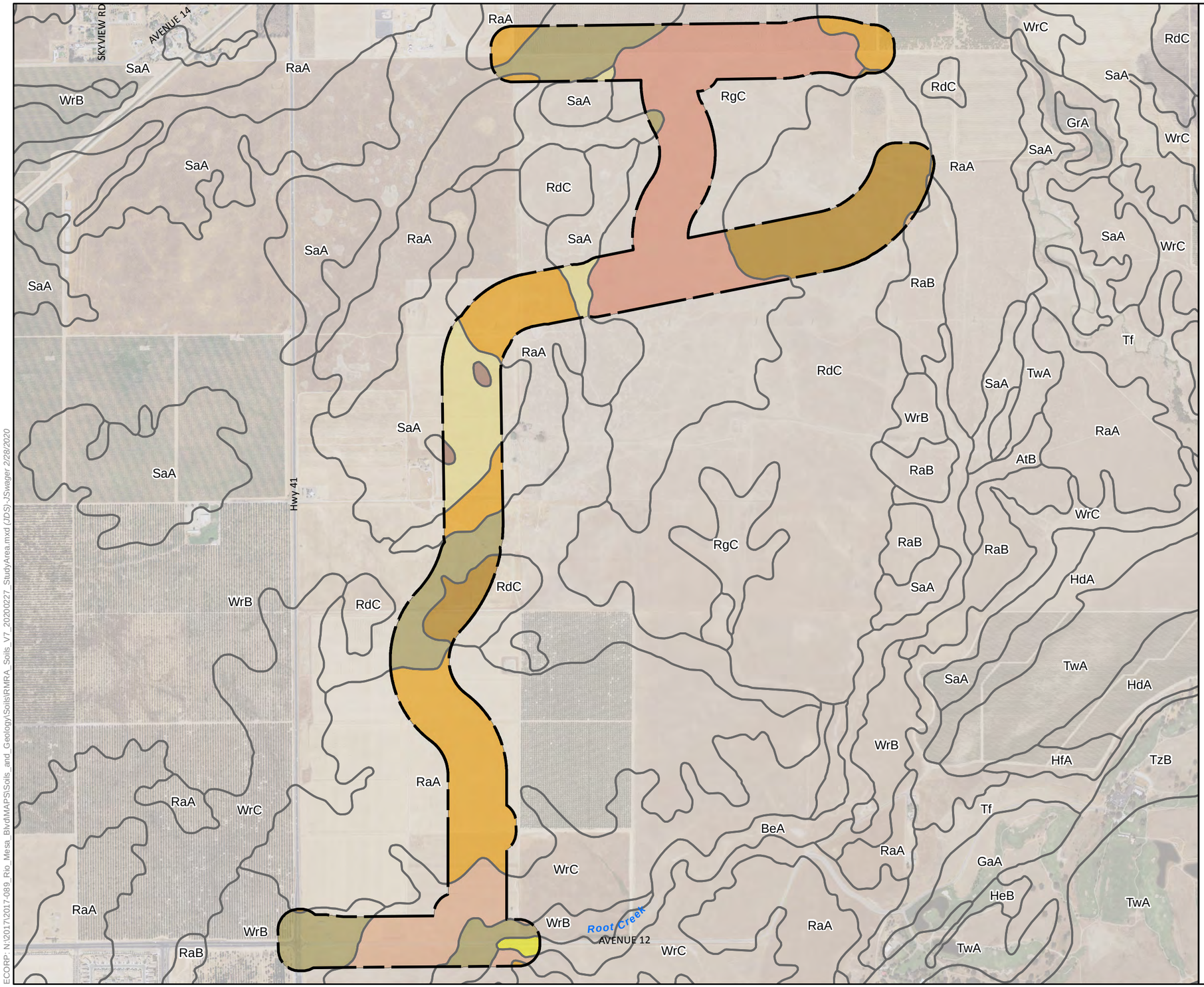
Alamo clay, 0 to 1 percent slopes (AsA) is partially composed of Alamo, which are considered hydric when occurring in fan remnants. Ramona sandy loam, 0 to 3 percent slopes (RaA) and Romina sandy loam, 3 to 8 percent slopes (RaB) contain unnamed components, which are considered hydric when occurring in depressions. Whitney and Rocklin sandy loams, 3 to 8 percent slopes (WrB) and Whitney and Rocklin sandy loams, 8 to 15 percent slopes (WrC) contain unnamed and ponded components, which are considered hydric when occurring in depressions. None of the remaining soil types contain hydric components (NRCS 2017b).

4.3.1.5 Wildlife

Habitats within the Study Area support a variety of common wildlife species such as red-tailed hawk (*Buteo jamaicensis*) and California ground squirrel (*Spermophilus beecheyi*), among others. A detailed list of wildlife species observed in the Study Area is attached to the BRA (see Appendix E of this DEIR).

4.3.1.6 Special-Status Plant and Wildlife Species

A list of all special-status plant and wildlife species identified in the literature search of the BRA as potentially occurring within the Study Area is provided in Table 4.3-2. This table includes the listing status for each species, a brief habitat description, and a determination of the potential for the species to occur in or near the Study Area. Following the table is a brief description of each species with potential to occur. Several species and sensitive habitat types identified in the database and literature searches are not included in Table 4.3-2 because the species have been formally delisted or are only tracked by the California Natural Diversity Database (CNDDB) and possess no special status, or because the identified sensitive habitats are not located within the Study Area. Those species are not discussed further in this section, but a list of such species is included in Appendix E to this DEIR.



Map Features

Study Area - 359.7 ac.

NRCS Soil Types in Study Area

Series Number - Series Name

- AsA - Alamo clay, 0 to 1 percent slopes
- BeA - Bear Creek loam, 0 to 3 percent slopes
- RaA - Ramona sandy loam, 0 to 3 percent slopes
- RaB - Ramona sandy loam, 3 to 8 percent slopes
- RdC - Redding gravelly loam, 0 to 15 percent slopes, dry, MLRA 17
- RgC - Redding-Raynor complex, 3 to 15 percent slopes
- SaA - San Joaquin sandy loam, 0 to 3 percent slopes, MLRA 17
- WrB - Whitney and Rocklin sandy loams, 3 to 8 percent slopes
- WrC - Whitney and Rocklin sandy loams, 8 to 15 percent slopes

Natural Resources Conservation Service (NRCS) Soil Survey Geographic (SSURGO) Database for Madera County, CA

Sources: ESRI, NRCS, USGS, NAIP (2018), Morton and Pitalo

ECORP: N:\2017\2017-089_Rio_Mesa_Blvd\MAPS\Soils_and_Geology\Soils\RMRA_Soils_V7_20200227_StudyArea.mxd (JDS) JSwager 2/28/2020

Map Date: 2/28/2020

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Scale in Feet
0 1,000

Figure 4.3-3. Natural Resources Conservation Service Soil Types

2017-089 Rio Mesa Boulevard

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Based on species occurrence information from the literature review and observations in the field, the potential for each of these species to occur within the Study Area was assessed based on the following criteria:

- Present – Species was observed during the site visit or is known to occur within the Study Area based on documented occurrences within the CNDDB or other literature.
- Potential to Occur – Habitat (including soils and elevation requirements) for the species occurs within the Study Area.
- Low Potential to Occur – Marginal or limited amounts of habitat occur, and/or the species is not known to occur within the vicinity of the Study Area based on CNDDB records and other available documentation.
- Absent – No suitable habitat (including soils and elevation requirements) and/or the species is not known to occur within the vicinity of the Study Area based on CNDDB records and other documentation.

Table 4.3-2. Potentially Occurring Special-Status Species

Common Name (Scientific Name)	Status1			Habitat Description	Survey Period	Potential to Occur Onsite
	FESA	CESA/ NPPA	Other			
Plants						
Brassy bryum (Bryum chryseum)	-	-	4.3	Chaparral (openings), cismontane woodland, and valley and foothill grassland (164‘- 1,969’).	N/A	Potential to occur. Not observed during special-status plant surveys completed by ECORP in 2017, 2019 and 2020.
Hoover’s calycadenia *(Calycadenia hooveri)*	-	-	1B.3	Rocky soils in cismontane woodland and valley and foothill grassland (213’ - 984‘).	July - September	Low potential to occur. Not observed during special-status plant surveys completed by ECORP in 2017, 2019 or 2020.
Succulent owl’s clover (Castilleja campestris ssp. succulenta)	FT, CH	CE	1B.2	Vernal pools that are often acidic. (164’ - 2,461’).	April - May	Present. Identified during special-status plant surveys completed by ECORP in 2017 and 2019.

Table 4.3-2. Potentially Occurring Special-Status Species

Common Name (Scientific Name)	Status1			Habitat Description	Survey Period	Potential to Occur Onsite
	FESA	CESA/ NPPA	Other			
California jewelflower (Caulanthus californicus)	FE	CE	1B.1	Sandy soils in chenopod scrub, pinyon and juniper woodland, and valley and foothill grassland (200' - 3,281').	February - May	Low potential to occur. Not observed during special-status plant surveys completed by ECORP in 2017, 2019 and 2020.
Ewan's larkspur (Delphinium hansenii ssp. ewanianum)	-	-	4.2	Rocky soils in cismontane woodland and valley and foothill grassland (196' - 1,969').	March - May	Low potential to occur. Not observed during special-status plant surveys completed by ECORP in 2017, 2019 and 2020.
Dwarf downingia (Downingia pusilla)	-	-	2B.2	Mesic areas in valley and foothill grassland, and vernal pools. Species appears to have an affinity for slight disturbance (i.e., scraped depressions, ditches, etc.) (Baldwin et al. 2012, CDFW 2017a) (3' - 1,460').	March - May	Potential to occur. Not observed during special-status plant surveys completed by ECORP in 2017, 2019 and 2020.
Spiny-sepaled button-celery *(Eryngium spinosepalum)*	-	-	1B.2	Vernal pools within valley and foothill grassland (262' - 3,199').	April - June	Potential to occur. Not observed during special-status plant surveys completed by ECORP in 2017, 2019 and 2020.
California satintail *(Imperata brevifolia)*	-	-	2B.1	Mesic areas in chaparral, coastal scrub, Mojavean desert scrub, meadows and seeps (often alkali), and riparian scrub (0' - 3,986').	September - May	Absent. No suitable habitat present onsite.
Munz's tidy-tips (Layla munzii)	-	-	1B.2	Alkaline clay soils in chenopod scrub and valley and foothill grasslands (492'–2,297').	March–April	Absent. No suitable habitat present onsite.
Madera leptosiphon (Leptosiphon serrulatus)	-	-	1B.2	Cismontane woodland and lower montane coniferous forest (984' - 4,265').	April - May	Absent. No suitable habitat present onsite.

Table 4.3-2. Potentially Occurring Special-Status Species

Common Name (Scientific Name)	Status1			Habitat Description	Survey Period	Potential to Occur Onsite
	FESA	CESA/ NPPA	Other			
Orange lupine (Lupinus citrinus var. citrinus)	-	-	1B.2	Granitic soils in chaparral, cismontane woodland, and lower montane coniferous forest (1,246' - 5,577').	April - July	Absent. No suitable habitat present onsite.
Shining navarretia (Navarretia nigelliformis ssp. radians)	-	-	1B.2	Vernal pools within cismontane woodland and valley or foothill grassland (249' - 3,281').	April - July	Potential to occur. Not observed during special-status plant surveys completed by ECORP in 2017, 2019 and 2020.
San Joaquin Valley orcutt grass *(Orcuttia inaequalis)*	FT, CH	CE	1B.1	Vernal pools (33' - 2,477').	April - September	Present. Identified during special-status plant surveys completed by ECORP in 2017 and 2019.
Hairy orcutt grass *(Orcuttia pilosa)*	FE, CH	CE	1B.1	Vernal pools (151' - 656').	May - September	Potential to occur. Not observed during special-status plant surveys completed by ECORP in 2017, 2019 and 2020.
Hartweg's golden sunburst *(Pseudobahia bahiifolia)*	FE	CE	1B.1	Clay, often acidic soils in cismontane woodland, valley and foothill grasslands (49' - 492').	March - April	Potential to occur. Not observed during special-status plant surveys completed by ECORP in 2017, 2019 and 2020.
Sanford's arrowhead (Sagittaria sanfordii)	-	-	1B.2	Shallow marshes and freshwater swamps (0' - 2,133').	May - November	Absent. No suitable habitat present onsite.
Caper-fruited tropidocarpum *(Tropidocarpum capparideum)*	-	-	1B.1	Alkaline hills in valley and foothill grassland (3' – 1,493').	March - April	Absent. No suitable habitat present onsite.

Table 4.3-2. Potentially Occurring Special-Status Species

Common Name (Scientific Name)	Status1			Habitat Description	Survey Period	Potential to Occur Onsite
	FESA	CESA/ NPPA	Other			
Greene's tuctoria *(Tuctoria greenei)*	FE	CR	1B.1	Vernal pools (98' - 3,510').	May - December	Potential to occur. Not observed during special-status plant surveys completed by ECORP in 2017, 2019 and 2020.
Invertebrates						
Conservancy fairy shrimp (*Branchinecta conservatio)*	FE	-	-	Vernal pools/wetlands.	November-April	Absent. This species has a highly restricted range and is not known to occur within 10 miles of the Study Area.
Midvalley fairy shrimp (Branchinecta mesovallensis)	-	-	-	Vernal pools/wetlands.	November - April	Potential to occur.
Valley elderberry longhorn beetle (*Desmocerus californicus dimorphus*)	FT	-	-	Elderberry shrubs.	Any season	Absent. No suitable habitat (elderberry shrubs) present onsite and outside the known range of the species.
Vernal pool fairy shrimp (*Branchinecta lynchi*)	FT	-	-	Vernal pools/wetlands	November-April	Present. There is a CNDDB-documented occurrence of this species within the Study Area. Suitable habitat for this species occurs within the Study Area.
Fish						
Delta smelt (Hypomesus transpacificus)	FT	CE	-	Water bodies connected to the Sacramento-San Joaquin delta.	N/A	Absent. No suitable habitat present onsite.

Table 4.3-2. Potentially Occurring Special-Status Species

Common Name (Scientific Name)	Status1			Habitat Description	Survey Period	Potential to Occur Onsite
	FESA	CESA/ NPPA	Other			
Hardhead (Mylopharodon conocephalus)	-	-	SSC	Relatively undisturbed streams at low to mid elevations in the Sacramento-San Joaquin and Russian River drainages. In the San Joaquin River, scattered populations found in tributary streams, but only rarely in the valley reaches of the San Joaquin River.	N/A	Absent. No suitable habitat present onsite.
Amphibians						
California tiger salamander (Central California DPS) (*Ambystoma californiense*)	FT, CH	CT	SSC	Vernal pools, wetlands (breeding) and adjacent grassland or oak woodland; needs underground refuge (e.g., ground squirrel and/or gopher burrows). Largely terrestrial as adults.	March-May	Potential to occur.
Foothill yellow-legged frog (Rana boylii)	-	CE	SSC	Foothill yellow-legged frogs can be active all year in warmer locations but may become inactive or hibernate in colder climates. At lower elevations, foothill yellow-legged frogs likely spend most of the year in or near streams. Adult frogs, primarily males, will gather along main-stem rivers during spring to breed.	May - October	Absent. No suitable habitat present onsite and out of the range for this species.
California red-legged frog (*Rana draytonii*)	FT	-	SSC	Lowlands or foothills at waters with dense shrubby or emergent riparian vegetation. Adults must have aestivation habitat to endure summer dry down.	May 1-November 1	Absent. The Study Area is outside of the range for this species.
Western spadefoot (*Spea hammondii*)	-	-	SSC	California endemic species of vernal pools, swales, wetlands and adjacent grasslands throughout the Central Valley.	March-May	Present. Observed onsite during site visit in 2017.

Table 4.3-2. Potentially Occurring Special-Status Species

Common Name (Scientific Name)	Status1			Habitat Description	Survey Period	Potential to Occur Onsite
	FESA	CESA/ NPPA	Other			
Reptiles						
Blainville's (Coast) horned lizard (Phrynosoma blainvillii formerly Phrynosoma coronatum frontale)	-	-	SSC	Formerly a wide-spread horned lizard found in a wide variety of habitats, often in lower elevation areas with sandy washes and scattered low bushes. Also occurs in Sierra Nevada foothills. Needs open areas for basking, but with bushes and shaded areas for cover. A dietary specialist on native ants.	April - October	Low potential to occur.
Blunt-nosed leopard lizard *(Gambelia sila)*	FE	CE	FP	Occurs in sparsely vegetated alkali scrub habitats in the southern San Joaquin Valley. Uses mammal burrows, shrubs and other structures for shade.	April - July	Absent. The Study Area is outside the range for this species.
California glossy snake (Arizona elegans occidentalis)			SSC	Coastal dunes, alluvial creek beds, other loose, sandy habitat.	February - March	Absent. The Study Area is outside of the range for this species.
Northern legless lizard (Anniella pulchra)	-	-	SSC	The most widespread of California's *Anniella* species. Occurs in sandy or loose soils under sparse vegetation from Antioch south coastally to Ventura. Bush lupine is often an indicator plant, and two melanistic populations are known.	Generally spring, but depends on location and conditions	Absent. No suitable habitat onsite.
Northwestern pond turtle (*Actinemys marmorata*)	-	-	SSC	Requires basking sites and upland habitats up to 0.5 km from water for egg laying. Uses ponds, streams, detention basins, and irrigation ditches.	April – October	Absent. No suitable habitat present onsite.
Giant garter snake (*Thamnophis gigas*)	FT	CT		Freshwater ditches, sloughs, and marshes in the Central Valley. Almost extirpated from the southern parts of its range.	April - October	Absent. No suitable habitat present onsite.

Table 4.3-2. Potentially Occurring Special-Status Species

Common Name (Scientific Name)	Status1			Habitat Description	Survey Period	Potential to Occur Onsite
	FESA	CESA/ NPPA	Other			
Birds						
Clark's grebe (Aechmophorus clarkii)	-	-	BCC	Winters on salt or brackish bays, estuaries, sheltered sea coasts, freshwater lakes, and rivers. Breeds on freshwater to brackish marshes, lakes, reservoirs and ponds, with a preference for large stretches of open water fringed with emergent vegetation.	June-August (breeding)	Absent. No suitable habitat present onsite.
Saltmarsh common yellowthroat (*Geothlypis trichas sinuosa*)	-	-	BCC, SSC	Breeds in salt marshes of San Francisco Bay; winters San Francisco south along coast to San Diego County.	March-July	Absent. Outside of the known range for this species.
Lawrence's goldfinch (Carduelis lawrencei)	-	-	BCC	Breeds in Sierra Nevada and inner Coast Range foothills surrounding the Central Valley and the southern Coast Range to Santa Barbara County east through southern California to the Mojave Desert and Colorado Desert into the Peninsular Range. Nests in arid and open woodlands with chaparral or other brushy areas, tall annual weed fields, and a water source (e.g. small stream, pond, lake), and to a lesser extent riparian woodland, coastal scrub, evergreen forests, pinyon-juniper woodland, planted conifers, and ranches or rural residences near weedy fields and water.	March-September	Absent. No suitable habitat present onsite.
Short-billed dowitcher (Limnodromus griseus)	-	-	BCC	Nests in Canada, southern Alaska; winters in coastal California south to South America; wintering habitat includes coastal mudflats and brackish lagoons	Wintering/migrant period: late-August-May	Absent. No suitable habitat present onsite.

Table 4.3-2. Potentially Occurring Special-Status Species

Common Name (Scientific Name)	Status1			Habitat Description	Survey Period	Potential to Occur Onsite
	FESA	CESA/ NPPA	Other			
Song sparrow "Modesto" (Melospiza melodia heermanni)	-	-	BCC, SSC	Resident in central and southwest California, including Central Valley; nests in marsh, scrub habitat.	April-June	Absent. No suitable habitat present onsite.
San Clemente spotted towhee (*Pipilo maculatus clementae*)	-	-	BCC, SSC	Resident on Santa Catalina and Santa Rosa Islands; extirpated on San Clemente Island, California. Breeds in dense, broadleaf shrubby brush, thickets, and tangles in chaparral, oak woodland, island woodland, and Bishop pine forest.	Year round resident; breeding season is April-July	Absent. Outside of the known range for this species.
California thrasher (Toxostoma redivivum)	-	-	BCC	Resident and endemic to coastal and Sierra Nevada-Cascade foothill areas of California. Nests are usually well hidden in dense shrubs, including scrub oak, California lilac, and chamise.	February-July	Absent. No suitable habitat present onsite.
Wrentit (Chamaea fasciata)	-	-	BCC	Coastal sage scrub, northern coastal scrub, chaparral, dense understory of riparian woodlands, riparian scrub, coyote brush and blackberry thickets, and dense thickets in suburban parks and gardens.	March-August	Absent. No suitable habitat present onsite.

Table 4.3-2. Potentially Occurring Special-Status Species

Common Name (Scientific Name)	Status1			Habitat Description	Survey Period	Potential to Occur Onsite
	FESA	CESA/ NPPA	Other			
Western yellow-billed cuckoo (Coccyzus americanus occidentalis)	FT	CE	BCC	Breeds in California, Arizona, Utah, Colorado, and Wyoming. In California, they nest along the upper Sacramento River and the South Fork Kern River from Isabella Reservoir to Canebrake Ecological Reserve. Other known nesting locations include Feather River (Butte, Yuba, Sutter counties), Prado Flood Control Basin (San Bernadine and Riverside County), Amargosa River and Owens Valley (Inyo County), Santa Clara River (Los Angeles County), Mojave River and Colorado River (San Bernardino County). Nests in riparian woodland. Winters in South America.	June 15-August 15	Absent. No suitable habitat present onsite.
Costa's hummingbird (*Calypte costae*)	-	-	BCC	In California, breeds in coastal scrub and chaparral communities from Santa Barbara County south into Baja California; from Mexico north into Mojave desert scrub of Eastern Sierra Nevada.	February-June	Absent. No suitable habitat present onsite and outside the known range for this species.
Rufous hummingbird (nesting) *(Selasphorus rufus)*	-	-	BCC	Breeds in extreme northwestern California north into British Columbia and Alaska. Winters in coastal Southern California south into Mexico. Nesting habitat includes secondary succession communities and openings, mature forests, parks and residential areas.	April-July	Absent. No suitable habitat present onsite and outside the known range for this species.

Table 4.3-2. Potentially Occurring Special-Status Species

Common Name (Scientific Name)	Status1			Habitat Description	Survey Period	Potential to Occur Onsite
	FESA	CESA/ NPPA	Other			
Long-billed curlew (wintering) (*Numenius americanus*)	-	-	BCC, WL	Breeds east of the Cascades in Washington, Oregon, northeastern California (Siskiyou, Modoc, Lassen counties), east-central California (Inyo County), through Great Basin region into Great Plains. Winters in California, Texas, and Louisiana. Wintering habitat includes tidal mudflats and estuaries, wet pastures, sandy beaches, salt marsh, managed wetlands, evaporation ponds, sewage ponds, and grasslands.	September-March (wintering)	Potential to winter onsite.
Bald eagle (nesting and wintering) (*Haliaeetus leucocephalus)*	De-listed	CE	CFP, BCC	Typically nests in forested areas near large bodies of water in the northern half of California; nest in trees and rarely on cliffs; wintering habitat includes forest and woodland communities near water bodies (e.g. rivers, lakes), wetlands, flooded agricultural fields, open grasslands	February – September (nesting); October-March (wintering)	Absent. No suitable habitat present onsite.
Swainson's hawk (nesting) *(Buteo swainsoni)*	-	CT	BCC	Nesting occurs in trees in agricultural, riparian, oak woodland, scrub, and urban landscapes. Forages over grassland, agricultural lands, particularly during disking/harvesting, irrigated pastures	March-August	Potential to occur (nest) onsite. Observed flying overhead during site visits in 2017.

Table 4.3-2. Potentially Occurring Special-Status Species

Common Name (Scientific Name)	Status1			Habitat Description	Survey Period	Potential to Occur Onsite
	FESA	CESA/ NPPA	Other			
Golden eagle (nesting and wintering) (*Aquila chrysaetos*)	-	-	BCC, FP	Nesting habitat includes mountainous canyon land, rimrock terrain of open desert and grasslands, riparian, oak woodland/savannah, and chaparral. Nesting occurs on cliff ledges, river banks, trees, and human-made structures (e.g. windmills, platforms, and transmission towers). Breeding occurs throughout California, except the immediate coast, Central Valley floor, Salton Sea region, and the Colorado River region, where they can be found during Winter.	Nest (February-August); winter CV (October-February)	Potential to occur (nest) onsite. Observed flying overhead during site visits in 2017.
Burrowing owl (burrow sites) *(Athene cunicularia)*	-	-	BCC, SSC	Breeds in burrows or burrow surrogates in open, treeless, areas within grassland, steppe, and desert biomes. Often with other burrowing mammals (e.g. prairie dogs, California ground squirrels). May also use human-made habitat such as agricultural fields, golf courses, cemeteries, roadside, airports, vacant urban lots, and fairgrounds.	February-August	Potential to occur (nest) onsite.
Lewis' woodpecker (nesting) (*Melanerpes lewis*)	-	-	BCC	In California, breeds in Siskiyou and Modoc counties, Warmer Mountains, inner coast ranges from Tehama to San Luis Obispo counties, San Bernardino Mountains, and Big Pine Mountain (Inyo County); nesting habitat includes open ponderosa pine forest, open riparian woodland, logged/burned forest, and oak woodlands. Does not breed on the west side of Sierran crest (Beedy and Pandalfino 2013).	April-September (breeding); September-March (winter in Central Valley).	Absent. No suitable habitat present onsite.

Table 4.3-2. Potentially Occurring Special-Status Species

Common Name (Scientific Name)	Status1			Habitat Description	Survey Period	Potential to Occur Onsite
	FESA	CESA/ NPPA	Other			
Nuttall's woodpecker *Picoides nuttallii*	-	-	BCC	Resident from northern California south to Baja California. Nests in tree cavities in oak woodlands and riparian woodlands.	April-July	Absent. No suitable habitat present onsite.
Least Bell's vireo (nesting) (*Vireo bellii pusillus*)	FE	CE	BCC	In California, breeding range includes Ventura, Los Angeles, Riverside, Orange, San Diego, and San Bernardino counties, and rarely Stanislaus and Santa Clara counties. Nesting habitat includes dense, low shrubby vegetation in riparian areas, brushy fields, young second-growth woodland, scrub oak, coastal chaparral and mesquite brushland. Winters in southern Baja California Sur.	April 1-July 31	Absent. No suitable habitat present onsite.
Oak titmouse (Baeolophus inornatus)	-	-	BCC	Nests in tree cavities within dry oak or oak-pine woodland and riparian; where oaks are absent, they nest in juniper woodland, open forests (gray, Jeffrey, Coulter, pinyon pines and Joshua tree)	March-July	Absent. No suitable habitat present onsite.
Tricolored blackbird (nesting colony) (*Agelaius tricolor*)	-	CT	BCC, SSC	Breeds locally west of Cascade-Sierra Nevada and southeastern deserts from Humboldt and Shasta counties south to San Bernardino, Riverside and San Diego counties. Central California, Sierra Nevada foothills and Central Valley, Siskiyou, Modoc and Lassen counties. Nests colonially in freshwater marsh, blackberry bramble, milk thistle, triticale fields, weedy (mustard, mallow) fields, giant cane, safflower, stinging nettles, tamarisk, riparian scrublands and forests, fiddleneck and fava bean fields.	March-August	Potential to forage onsite. Observed within vicinity of Study Area during site visit in 2017.

Table 4.3-2. Potentially Occurring Special-Status Species

Common Name (Scientific Name)	Status1			Habitat Description	Survey Period	Potential to Occur Onsite
	FESA	CESA/ NPPA	Other			
Mammals						
American badger (*Taxidea taxus*)	-	-	SSC	Drier open stages of most shrub, forest, and herbaceous habitats with friable soils.	Any season	Potential to occur.
Fresno kangaroo rat (Dipodomys nitratoides exilis)	FE	CE	-	Alkali desert scrub.	Any season	Absent. No suitable habitat present onsite.
Pallid bat (Antrozous pallidus)	-	-	SSC	Crevices in rocky outcrops and cliffs, caves, mines, trees (e.g., basal hollows of redwoods, cavities of oaks, exfoliating pine and oak bark, deciduous trees in riparian areas, and fruit trees in orchards). Also roosts in various human structures such as bridges, barns, porches, bat boxes, and human-occupied as well as vacant buildings (Western Bat Working Group [WBWG] 2017).	April-September	Potential to occur.
San Joaquin kit fox (Vulpes macrotis mutica)	FE	CT	-	Grasslands, sagebrush scrub.	April 15 - July 15, September 1 - December 1	Low potential to occur.
Spotted bat (Euderma maculatum)	-	-	SSC	Roost in cracks, crevices, and caves, usually high in fractured rock cliffs. Found in desert, sub-alpine meadows, desert-scrub, pinyon-juniper woodland, ponderosa pine, mixed conifer forest, canyon bottoms, rims of cliffs, riparian areas, fields, and open pastures (WBWG 2017).	April-September	Low potential to occur.
Western mastiff bat (Eumops perotis californicus)	-	-	SSC	Primarily a cliff-dwelling species, found in similar crevices in large boulders and buildings (WBWG 2017).	April-September	Absent. No suitable habitat present onsite.

Table 4.3-2. Potentially Occurring Special-Status Species

Common Name (Scientific Name)	Status1			Habitat Description	Survey Period	Potential to Occur Onsite
	FESA	CESA/ NPPA	Other			

Status Codes1:

FESA	Federal Endangered Species Act
CESA	California Endangered Species Act
FE	ESA listed, Endangered.
FT	ESA listed, Threatened.
Delisted	Formally Delisted (delisted species are monitored for 5 years).
FP	CDFW Fully Protected
WL	CDFW Watch List
CE	CESA or Native Plant Protection Act (NPPA) listed, Endangered.
CT	CESA or NPPA listed, Threatened.
CR	CESA or NPPA listed, Rare.
CC	Candidate for CESA listing as Threatened or Endangered
CFP	California Fish and Game Code Fully Protected Species (§ 3511-birds, § 4700-mammals, § 5050-reptiles/amphibians).
CH	Critical habitat for the species is mapped within the Study Area.
SSC	CDFW Species of Special Concern
BCC	USFWS Bird of Conservation Concern
1B	CRPR /Rare or Endangered in California and elsewhere.
2B	CRPR /Rare or Endangered in California, more common elsewhere.
4	CRPR /Plants of Limited Distribution - A Watch List.
0.1	Threat Rank/Seriously threatened in California (over 80% of occurrences threatened / high degree and immediacy of threat)
0.2	Threat Rank/Moderately threatened in California (20-80% occurrences threatened / moderate degree and immediacy of threat)
0.3	Threat Rank/Not very threatened in California (<20% of occurrences threatened / low degree and immediacy of threat or no current threats known)

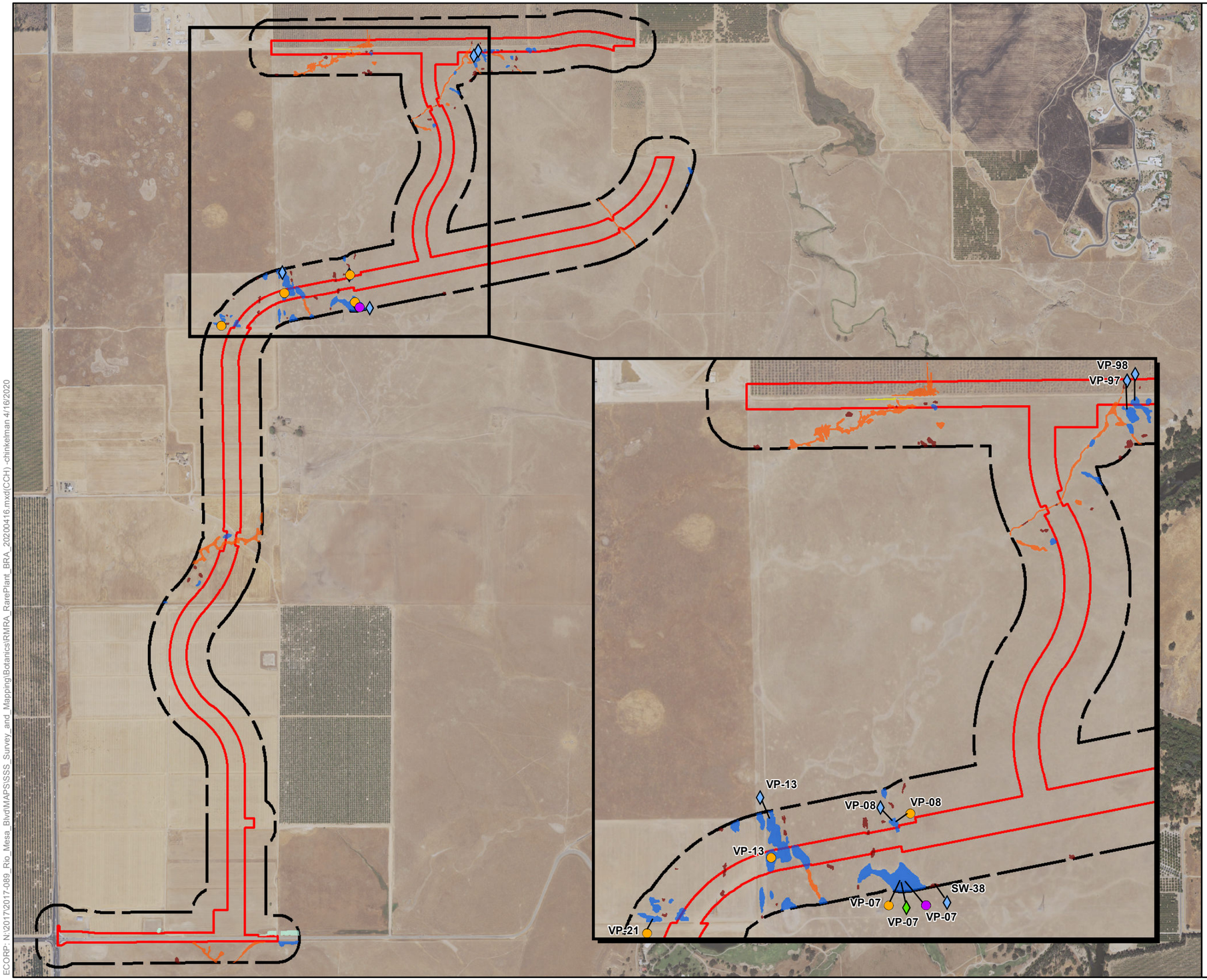
[2] According to species-specific occurrences of dwarf downingia in the CNDDB, the species has been documented in man-made features such as tire ruts, scraped depressions, stock ponds, and roadside ditches (CDFW 2017a).

4.3.1.7 Special-Status Plant Species

The majority of the Study Area was surveyed by early and late season surveys in 2017, 2019, or 2020. A small area in the southern portion of the Study Area has not been surveyed for early or late season special-status plants; however, the grading limits of the Project avoid this portion of the Study Area, therefore there would be no impact if special-status plants species were present. The results of these surveys are discussed in the descriptions of the plant species below.

A total of 18 special-status plant species were identified as having the potential to occur within the Study Area based on the literature review (Table 4.3-2). Upon further analysis and after the reconnaissance site visit, six species were determined to be absent from the Study Area due to the lack of suitable habitat (Table 4.3-2). No further discussion of these species is provided in this analysis. Figure 4.3-4. *Special-Status Plant Survey Results* is provided below. A brief description of the remaining 12 species that have the potential to occur within the Study Area follows.

Figure 4.3-4. Special-Status Plant Survey Results



Map Features

- Temporary Construction Easement
- Study Area

Special-Status Plants

2017

- *Castilleja campestris* ssp. *succulenta*
- *Orcuttia inaequalis*

2019

- *Castilleja campestris* ssp. *succulenta*
- *Orcuttia inaequalis*

Aquatic Resources Delineation [1]

Wetlands

- Vernal Pool
- Seasonal Wetland
- Seasonal Wetland Swale

Other Waters

- Detention Basin
- Ditch

ECORP Consulting, Inc.
ENVIRONMENTAL CONSULTANTS

ECORP: N:\2017\2017-089_Rio_Mesa_Blvd\MAPS\SSS_Survey_and_Mapping\Botanics\RMRA_RarePlant_BRA_20200416.mxd[CCH]--chinkelman 4/16/2020

2017-089 Rio Mesa Road Alignment

Scale in Feet
0 1,200

Photo Source: NAIP (2018)

Map Date: 4/16/2020

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Brassy Bryum

Brassy bryum (*Bryum chryseum*) is not listed pursuant to either the federal ESA or California ESA but is designated as a CRPR 4.3 species. This species is a moss that occurs in openings in chaparral, cismontane woodland, and valley and foothill grassland (CNPS 2019). Brassy bryum is known to occur at elevations ranging from 164 to 1,969 feet above MSL (CNPS 2019). The current range of this species in California includes Amador, Butte, Fresno, Madera, and Mendocino counties (CNPS 2019).

While there are no CNDDB documented occurrences of brassy bryum within five miles of the Study Area (CDFW 2019), the annual grassland within the Study Area provides suitable habitat for this species. Brassy bryum has potential to occur onsite. However, this species was not found during special-status plant surveys conducted in 2017, 2019, or 2020.

Hoover's Calycadenia

Hoover's calycadenia (*Calycadenia hooveri*) is not listed pursuant to either the federal ESA or California ESA but is designated as a CRPR 1B.3 species. This plant is an herbaceous annual that occurs in rocky soils in cismontane woodland and Valley and foothill grassland (CNPS 2019). Hoover's calycadenia blooms from July through September and is known to occur at elevations ranging from 213 to 984 feet above MSL (CNPS 2019). Hoover's calycadenia is endemic to California; the current range for this species includes Calaveras, Madera, Merced, Mariposa, and Stanislaus counties (CNPS 2019).

While there are no CNDDB documented occurrences of Hoover's calycadenia within five miles of the Study Area (CDFW 2019), the annual grassland onsite provides marginally suitable habitat for this species. Hoover's calycadenia has low potential to occur onsite. This species was not found during special-status plant surveys conducted in 2017, 2019, or 2020.

Succulent Owl's Clover

Succulent owl's clover (*Castilleja campestris* ssp. *succulenta*) is listed as threatened pursuant to the federal ESA, endangered pursuant to the California ESA, and is designated as a CRPR 1B.2 species. This species is a hemiparasitic herbaceous annual that occurs in vernal pools that are often acidic (CNPS 2019). Succulent owl's clover blooms from April to May, and it is known to occur at elevations ranging from 164 to 2,461 feet above MSL (CNPS 2019). Succulent owl's clover is endemic to California; the current range of this species includes Fresno, Madera, Merced, Mariposa, San Joaquin, and Stanislaus counties (CNPS 2019).

There are nine CNDDB documented occurrences of succulent owl's clover within five miles of the Study Area (CDFW 2019). The vernal pools, seasonal wetlands, and seasonal wetland swales within the Study Area provide suitable habitat for this species. Additionally, critical habitat for this species has been mapped within the Study Area (CDFW 2017b; USFWS 2017b). Succulent owl's clover is present within the Study Area and was identified in four vernal pools within the Study Area during surveys conducted in 2017 and 2019 (see Figure 4.3-4, above). Succulent owl's clover is present onsite.

California Jewelflower

California jewelflower (*Caulanthus californicus*) is listed as endangered pursuant to both the federal ESA and California ESA and is designated as a CRPR 1B.1 species. This species is an herbaceous annual that occurs in chenopod scrub, pinyon and juniper woodland, and valley and foothill grassland on sandy soils (CNPS 2019). California jewelflower blooms from February to May, and it is known to occur at elevations ranging from 200 to 3,281 feet above MSL (CNPS 2019). California jewelflower is endemic to California; the current range of this species includes Fresno, Kern, Kings, Santa Barbara, San Luis Obispo, and Tulare counties. This species is believed to be extirpated from Kings and Tulare counties (CNPS 2019).

While there are no CNDDB documented occurrences of California jewelflower within five miles of the Study Area (CDFW 2019), the annual grassland within the Study Area provides marginally suitable habitat for this species. California jewelflower has low potential to occur onsite. However, this species was not found during special-status plant surveys conducted in 2017, 2019, or 2020.

There is no critical habitat for this species mapped within the Study Area.

Ewan's Larkspur

Ewan's larkspur (Delphinium hansenii ssp. ewanianum) is not listed pursuant to either the federal ESA or California ESA but is designated as a CRPR 4.2 species. This species is an herbaceous perennial that occurs in rocky cismontane woodland and valley and foothill grassland (CNPS 2019). Ewan's larkspur blooms between March and May and is known to occur at elevations ranging from 197 to 1,969 feet above MSL (CNPS 2019). Ewan's larkspur is endemic to California; its current range includes Calaveras, Fresno, Kern, Madero, Merced, and Tulare counties (CNPS 2019).

While there are no CNDDB documented occurrences of Ewan's larkspur within five miles of the Study Area (CDFW 2019), the annual grassland within the Study Area provides marginally suitable habitat for this species. Ewan's larkspur has low potential to occur onsite. However, this species was not found during special-status plant surveys conducted in 2017, 2019, or 2020.

Dwarf Downingia

Dwarf downingia (*Downingia pusilla*) is not listed pursuant to either the federal ESA or California ESA but is designated as a CRPR 2B.2 species. This species is an herbaceous annual that occurs in vernal pools and mesic areas in Valley and foothill grasslands (CNPS 2019). Dwarf downingia also appears to have an affinity for slight disturbance since it has been found in manmade features such as tire ruts, scraped depressions, stock ponds, and roadside ditches (Baldwin et al. 2012; CDFW 2019). This species blooms from March through May and is known to occur at elevations ranging from 3 to 1,460 feet above MSL (CNPS 2019). The current range of this species in California includes Amador, Fresno, Merced, Napa, Placer, Sacramento, San Joaquin, Solano, Sonoma, Stanislaus, Tehama, and Yuba counties (CNPS 2019).

There is one documented occurrence of dwarf downingia within five miles of the Study Area (CDFW 2019). The vernal pools and seasonal wetlands onsite provide suitable habitat for this species. Dwarf downingia has potential to occur onsite. However, this species was not found during special-status plant surveys conducted in 2017, 2019, or 2020.

Spiny-Sepaled Button-Celery

Spiny-sepaled button-celery (*Eryngium spinosepalum*) is not listed pursuant to either the federal ESA or California ESA but is designated as a CRPR 1B.2 species. This species is an herbaceous annual/perennial that occurs in Valley and foothill grassland and vernal pools (CNPS 2019). Spiny-sepaled button-celery blooms from April through June and is known to occur at elevations ranging from 262 to 3,199 feet above MSL (CNPS 2019). Spiny-sepaled button-celery is endemic to California; the current range of this species includes Contra Costa, Fresno, Kern, Madera, Merced, San Luis Obispo, Stanislaus, Tulare, and Tuolumne counties (CNPS 2019).

There are four CNDDB documented occurrences of spiny-sepaled button-celery within five miles of the Study Area (CDFW 2017a). The vernal pools, seasonal wetlands, and seasonal wetland swales within the Study Area provides suitable habitat for this species. Spiny-sepaled button celery has potential to occur onsite. However, this species was not found during special-status plant surveys conducted in 2017, 2019, or 2020.

Shining Navarretia

Shining navarretia (*Navarretia nigelliformis* ssp. *radians*) is not listed pursuant to either the federal ESA or California ESA but is designated as a CRPR 1B.2 species. This species is an herbaceous annual that occurs in cismontane woodland, valley and foothill grassland, and vernal pools, sometimes in clayey soils (CNPS 2019). Shining navarretia blooms between April and July and is known to occur at elevations ranging from 213 to 3,281 feet above MSL (CNPS 2019). Shining navarretia is endemic to California; its current range includes Alameda, Contra Costa, Colusa, Fresno, Madera, Merced, Monterey, San Benito, San Joaquin, San Luis Obispo, Stanislaus, and Tulare counties (CNPS 2019).

While there are no CNDDB documented occurrences of shining navarretia within five miles of the Study Area (CDFW 2019), the vernal pools, seasonal wetlands, and seasonal wetland swales within the Study Area may provide suitable habitat for this species. Shining navarretia has potential to occur onsite. However, this species was not detected during special-status plant surveys conducted in 2017, 2019, or 2020.

San Joaquin Valley Orcutt Grass

San Joaquin Valley Orcutt grass (*Orcuttia inaequalis*) is listed as threatened pursuant to the federal ESA, listed as endangered pursuant to the California ESA, and designated as a CRPR 1B.1 species. This herbaceous annual occurs on acidic soils that vary in texture from clay to sandy loam in vernal pools (CNPS 2019). San Joaquin Valley Orcutt grass blooms from April through September and is known to occur at elevations ranging from 33 to 2,477 feet above MSL (CNPS 2019). San Joaquin Valley Orcutt grass is endemic to California; the current range of this species includes Fresno, Madera, Merced, Solano, Stanislaus, and Tulare counties, and is likely extirpated from Stanislaus County (CNPS 2019).

There are seven CNDDB occurrences of San Joaquin Valley Orcutt grass within five miles of the Study Area (CDFW 2019). The vernal pools, seasonal wetlands, and seasonal wetland swales within the Study Area provide suitable habitat for this species. Additionally, critical habitat for this species has been mapped

within the Study Area (CDFW 2017b; USFWS 2017). San Joaquin Valley Orcutt grass is present within the Study Area and was identified in one vernal pool within the Study Area during surveys conducted in 2017 (see Figure 4.3-4, above). San Joaquin Valley Orcutt grass is present onsite.

Hairy Orcutt Grass

Hairy Orcutt grass (*Orcuttia pilosa*) is listed endangered pursuant to both the federal ESA and California ESA and is designated as a CRPR 1B.1 species. This species is an herbaceous annual that occurs in vernal pools (CNPS 2019). Hairy Orcutt grass blooms from May through September and is known to occur at elevations ranging from 151 to 656 feet above MSL (CNPS 2019). Hairy Orcutt grass is endemic to California; the current range of this species includes Butte, Glenn, Madera, Merced, Stanislaus, and Tehama counties (CNPS 2019).

There are three CNDDB documented occurrences of hairy Orcutt grass within five miles of the Study Area (CDFW 2019). The vernal pools, seasonal wetlands, and seasonal wetland swales within the Study Area provide suitable habitat for this species. Additionally, critical habitat for this species has been mapped within the Study Area (CDFW 2017; USFWS 2017). Hairy Orcutt grass has potential to occur onsite. However, this species was not found during special-status plant surveys conducted in 2017, 2019, or 2020.

Hartweg's Golden Sunburst

Hartweg's golden sunburst (*Pseudobahia bahiifolia*) is listed as endangered pursuant to both the federal ESA and California ESA and is designated as a CRPR 1B.1 species. This species is an herbaceous annual that occurs on clay soils that are often acidic in cismontane woodlands, and valley and foothill grasslands (CNPS 2019). Hartweg's golden sunburst blooms from March to April and is known to occur at elevations ranging from 49 to 492 feet above MSL (CNPS 2019). Hartweg's golden sunburst is endemic to California; the current range of this species includes Fresno, Madera, Merced, Stanislaus, Tuolumne, and Yuba counties (CNPS 2019). This species is believed to be extirpated from Yuba County (CNPS 2019).

There are five CNDDB documented occurrences of Hartweg's golden sunburst within five miles of the Study Area (CDFW 2019). The annual grassland within the Study Area provides suitable habitat for this species. Hartweg's golden sunburst has potential to occur onsite. However, this species was not found during special-status plant surveys conducted in 2017, 2019, or 2020.There is no critical habitat for this species mapped within Study Area.

Greene's Tuctoria

Greene's tuctoria (*Tuctoria greenei*) is listed endangered pursuant to the federal ESA, is listed as rare pursuant to the California ESA, and is designated as a CRPR 1B.1 species. This species is an herbaceous annual that occurs in vernal pools (CNPS 2019). Greene's tuctoria blooms from May through July and is known to occur at elevations ranging from 98 to 3,510 feet above MSL (CNPS 2019). Greene's tuctoria is endemic to California; the current range of this species includes Butte, Fresno, Glenn, Madera, Merced, Modoc, Shasta, San Joaquin, Stanislaus, Tehama, and Tulare counties (CNPS 2019). It is considered extirpated from Fresno, Madera, San Joaquin, Stanislaus, and Tulare counties (CNPS 2019).

While there are no CNDDB documented occurrences of Greene's tuctoria within five miles of the Study Area (CDFW 2019), the vernal pools, seasonal wetlands, and seasonal wetland swales within the Study Area provide suitable habitat for this species. Greene's tuctoria has potential to occur onsite. However, this species was not found during special-status plant surveys conducted in 2017, 2019, or 2020.

4.3.1.8 Special-Status Invertebrate Species

Five special-status invertebrate species were identified as having potential to occur within the Study Area based on the literature review (Table 4.3-2). Upon further analysis and after the reconnaissance site visit, two species were determined to be absent from the Study Area due to the lack of suitable habitat. No further discussion of these species is provided in this analysis. Brief descriptions of the remaining three species that have the potential to occur within the Study Area are presented below.

Midvalley Fairy Shrimp

Midvalley fairy shrimp (*Branchinecta mesovallensis*) is not listed pursuant to either the federal ESA or California ESA, but occurrences of this species are tracked by the CNDDB. This species was proposed for listing under the federal ESA and was denied. However, midvalley fairy shrimp has limited distribution and qualifies as a CEQA special-status species. Midvalley fairy shrimp was formally described as a species in 2000 (Belk and Fugate 2000). This species typically occurs in small, shallow vernal pools, swales, and various artificial ephemeral wetland types (e.g., roadside puddles, scrapes and ditches, and railroad toe-drain pools) (Belk and Fugate 2000, USFWS 2004). Midvalley fairy shrimp have been collected from late January to early April (Eriksen and Belk 1999). The cysts typically hatch in the first week of pool filling if water temperatures are near 10˚C (50˚F) (Eriksen and Belk 1999). This species has been documented in several California counties including Sacramento, Solano, Contra Costa, San Joaquin, Madera, Merced, Fresno, and Yolo (Belk and Fugate 2000 and USFWS 2004).

There are two CNDDB documented occurrences of midvalley fairy shrimp within five miles of the Study Area (CDFW 2019). The vernal pools, seasonal wetlands, and seasonal wetland swales within the Study Area provide suitable habitat for this species. Midvalley fairy shrimp has potential to occur onsite.

Vernal Pool Fairy Shrimp

The vernal pool fairy shrimp (*Branchinecta lynchi*) is listed as threatened pursuant to the federal ESA. Vernal pool fairy shrimp may occur in seasonal ponds, vernal pools, and swales during the wet season, which generally occurs from December through May. This species can be found in a variety of pool sizes, ranging from less than 0.001 acre to over 24.5 acres (Eriksen and Belk 1999). The shrimp hatch from cysts when colder water (10˚C [50˚F] or less) fills the pool and mature in as few as 18 days, under optimal conditions (Eriksen and Belk 1999). At maturity, mating takes place and cysts are dropped. Vernal pool fairy shrimp occur in disjunct patches dispersed across California's Central Valley from Shasta County to Tulare County, the central and southern Coast Ranges from northern Solano County to Ventura County, and three areas in Riverside County (USFWS 2003).

There are two CNDDB documented occurrences of vernal pool fairy shrimp within the Study Area and several additional documented occurrences within five miles of the Study Area (CDFW 2019). The vernal

pools, seasonal wetlands, and seasonal wetland swales provide suitable habitat for this species. Because of the two CNDDB documented occurrences within the Study Area and suitable habitat is present, vernal pool fairy shrimp is considered to be present onsite.

There is no critical habitat for this species mapped within the Study Area.

4.3.1.9 Special-Status Amphibian Species

A total of four special-status amphibians were identified as having potential to occur within Study Area based on the literature review (Table 4.3-2). Upon further analysis and after the reconnaissance site visit, two species were determined to be absent from the Study Area due to the lack of suitable habitat. No further discussion of those species is provided in this analysis. A brief description of the remaining two species that have the potential to occur within the Study Area are presented below.

California Tiger Salamander

The Central Valley Discreet Population Segment (DPS) of California tiger salamander (*Ambystoma californiense*, [CTS]) was listed as threatened by USFWS on August 4, 2004 (Federal Register Vol. 69, No. 149: 47212). The Santa Barbara County and Sonoma County DPS', both of which are disjunct from the larger range of the salamander, are federally listed as endangered. As of August 19, 2010, the CTS is listed as a threatened species under the California ESA throughout its range. Populations at the north and south edges of the historical distribution are extirpated; many populations within the interior of the range have been lost, and abundance has been reduced in many areas. Necessary habitat components for CTSs include intact open terrestrial landscapes used by adults for most of their life history, and ponded aquatic features where reproduction occurs. CTS spends most of its adult life within terrestrial subterranean refuges such as California ground squirrel or Botta's pocket gopher (*Thomomys bottae*) burrows (Stebbins 1972, Laredo et al. 1996). Foraging takes place within these subterranean refugia and out in the open at night or during rains. Suitable breeding sites include vernal pools, seasonal wetlands, stock ponds, or, rarely, slow-moving streams. They may use permanent man-made ponds if predatory species (e.g., fish, crayfish) are absent. CTS is endemic to California's Central Valley from Yolo County south to Kern County, and from Santa Barbara County north through the inner coast range to Sonoma County (USFWS 2015).

There is one CNDDB documented occurrence of CTS onsite and several occurrences within five miles of the Study Area (CDFW 2019). The vernal pools within the Study Area provide suitable breeding habitat and the annual grassland provides suitable dispersal and subterranean refuge habitat for this species. Additionally, critical habitat for this species is mapped within the Study Area (CDFW 2019). Because there is one CNDDB documented occurrence within the Study Area, critical habitat is mapped, and suitable habitat is present, CTS is considered to be present onsite.

Western Spadefoot

Western spadefoot (*Spea hammondii*) is not listed pursuant to either the federal ESA or California ESA; however, it is designated as a CDFW species of special concern (SSC). Necessary habitat components of the western spadefoot include loose, friable soils in which to burrow in upland habitats and breeding ponds. Breeding sites include temporary rain pools such as vernal pools and seasonal wetlands, or pools

within portions of intermittent drainages (Jennings and Hayes 1994). Western spadefoots spend most of their adult life within underground burrows or other suitable refugia, such as rodent burrows. In California, western spadefoots are known to occur from the Redding area and Shasta County southward to northwestern Baja California at elevations below 4,475 feet (Jennings and Hayes 1994).

There is a CNDDB documented occurrence of western spadefoot onsite and several occurrences within five miles of the Study Area (CDFW 2019). Additionally, western spadefoot was observed in one of the vernal pools during the April 2017 reconnaissance visit. The vernal pools within the Study Area provide suitable breeding habitat and the annual grassland provides suitable dispersal and subterranean refuge habitat for this species Western spadefoot is present onsite.

4.3.1.10 Special-Status Reptile Species

A total of six special-status reptile species were identified as having potential to occur within the Study Area based on the literature review (Table 4.3-2). Upon further analysis and after the reconnaissance site visit, five were determined to be absent from the Study Area due to the lack of suitable habitat. No further discussion of these species is provided in this analysis. A brief description of the remaining species is provided below.

Blainville's Horned Lizard

Blainville's horned lizard (*Phrynosoma blainvillii*) is considered an SSC by CDFW. This species is a relatively large (to 105 millimeters [mm] in snout-vent length) dorsoventrally flattened, rounded lizard found historically from Redding, California to Baja, Mexico (Jennings and Hayes 1994). Formally considered the coast horned lizard (*P. coronatum*), the species has gone through a long period of taxonomic instability (Jennings and Hayes 1994; Leaché et al. 2009; Montanucci 2004). This diurnal species can occur within a variety of habitats including scrubland, annual grassland, valley-foothill woodlands, and coniferous forests, although it is most common along lowland desert sandy washes and chaparral (Stebbins 2003). In the Coast Ranges, it occurs from Sonoma County south into Baja California (CDFG 1988). It occurs from sea level to 8,000 feet above MSL and an isolated population occurs in Siskiyou County (Stebbins 2003).

Like all horned lizards, Blainville's horned lizard is adorned with pointed and keeled scales, head spines, and parallel lateral fringes of scales, all of which serve to dissuade predators and aid in crypsis (Sherbrooke 2003). This is a ground-dwelling lizard that does not use vertical structures except where they shade the ground (Stebbins and McGinnis 2012).

Blainville's horned lizard is found in open microhabitats such as sandy washes with scattered shrubs or firebreaks in chaparral, where they forage for ants, small beetles and other insects (Jennings and Hayes 1994). Horned lizards (*Phrynosoma*) are native ant specialists and daily activities are centered on aboveground activity patterns of ants, with lizards active generally in mornings and later in the afternoon in the summer. They usually emerge from hibernation in March or April and are active until September or later. Mating takes place in April through early May (Jennings and Hayes 1994), and an average of 12 (but up to 21) eggs are laid from April to June (Stebbins and McGinnis 2012). Hatchlings 25–27 mm in length emerge from July through September (Stebbins and McGinnis 2012). Periods of daily or seasonal inactivity are spent within rodent burrows or underneath the soil or surface objects (CDFG 1988).

There is one historic CNDDB documented occurrence within five miles of the Study Area (CDFW 2017a). The annual grassland within the Study Area provides marginally suitable habitat for this species. Blainville's horned lizard has low potential to occur onsite.

4.3.1.11 Special-Status Bird Species

A total of 21 special-status bird species were identified as having potential to occur within the Study Area based on the literature review (Table 4.3-2). Upon further analysis and after the reconnaissance site visit, 16 species were considered to be absent from the Study Area due to the lack of suitable habitat. These species are listed in the BRA (see Appendix E of this DEIR) along with the supporting information for their elimination from further review. No further discussion of these species is provided in this analysis. A brief description of the remaining five special-status bird species that have the potential to occur within the Study Area is presented below.

Long-Billed Curlew

Long-billed curlew (*Numenius americanus*) is not listed in accordance with either the federal ESA or California ESA but is designated as a bird of conservation concern (BCC) by USFWS and a CDFW watch list species. The breeding range of this species includes the Great Plains, Great Basin and intermontane valleys of the western U.S. and southwestern Canada (Dugger and Dugger 2002). In the U.S., their wintering range includes California, Louisiana, and Texas. Winter foraging habitat includes rice fields (flooded and unflooded), managed wetlands, evaporation ponds, sewage ponds, and grasslands (Dugger and Dugger 2002). Long-billed curlew do not nest in the region but may occasionally forage within grassland communities (or wetlands and agricultural fields) during winter.

There are no CNDDB documented occurrences of long-billed curlew within five miles of the Study Area (CDFW 2019); however, the annual grassland provides suitable foraging habitat onsite. Long-billed curlew has potential to winter onsite.

Swainson's Hawk

Swainson's hawk (*Buteo swainsoni*) is listed as a threatened species and is protected pursuant to California ESA. This species nests in North America (Canada, western United States, and Mexico) and typically winters from South America north to Mexico. However, a small population has been observed wintering in the Sacramento-San Joaquin River Delta (Bechard et al. 2010). In California, the nesting season for Swainson's hawk ranges from mid-March to late August.

Swainson's hawk nests within tall trees in a variety of wooded communities including riparian, oak woodland, roadside landscape corridors, urban areas, and agricultural areas, among others. Foraging habitat includes open grassland, savannah, low-cover row crop fields, and livestock pastures. In the Central Valley, Swainson's hawks typically feed on a combination of California vole (*Microtus californicus*), California ground squirrel, ring-necked pheasant (*Phasianus colchicus*), many passerine birds, and grasshoppers (*Melanopulus* species). Swainson's hawks are opportunistic foragers and will readily forage in association with agricultural mowing, harvesting, discing, and irrigating (Estep 1989). The removal of vegetative cover by such farming activities results in more readily available prey items for this species.

There is one CNDDB documented occurrence of Swainson's hawk within five miles of the Study Area (CDFW 2019), and the transmission towers, orchard, annual grassland, and agricultural areas provide suitable habitat for this species. Swainson's hawk has potential to nest and forage onsite.

Golden Eagle

Golden eagle (*Aquila chrysaetos*) is not listed pursuant to either federal ESA or California ESA. However, it is fully protected according to Section 3511 of the California Fish and Game Code and the federal Bald and Golden Eagle Protection Act. Golden eagles generally nest on cliff ledges and/or large lone trees in rolling to mountainous terrain. Golden eagle nests throughout California except the Central Valley, the immediate coast, and portions of southeastern California (Kochert and Steenhof 2002). Occurrences within the Central Valley are usually dispersing post-breeding birds, non-breeding subadults, or migrants. Foraging habitat includes open grassland and savannah.

There are no CNDDB documented occurrences of golden eagle within five miles of the Study Area (CDFW 2019); however, a golden eagle was observed flying overhead during the site visit. Additionally, the transmission towers and annual grassland within the Study Area provide suitable nesting and foraging habitat for this species. Golden eagle has potential to nest and forage onsite.

Burrowing Owl

Burrowing owl (*Athene cunicularia*) is not listed pursuant to either federal ESA or California ESA; however, this species is designated as a BCC by USFWS and an SSC by the CDFW. Burrowing owls inhabit dry open rolling hills, grasslands, desert floors, and open bare ground with gullies and arroyos. They can also inhabit developed areas such as golf courses, cemeteries, and roadsides within cities, airports, vacant lots in residential areas, school campuses, and fairgrounds (Poulin et al. 2011). This species typically uses burrows created by fossorial mammals, most notably the California ground squirrel, but may also use manmade structures such as cement culverts or pipes; cement, asphalt, or wood debris piles; or openings beneath cement or asphalt pavement (CDFG 2012). The breeding season typically occurs between February 1 and August 31 (California Burrowing Owl Consortium 1993; CDFG 2012).

There is one CNDDB documented occurrence of burrowing owl immediately adjacent to the Study Area (CDFW 2019). The annual grassland community and agriculture fields onsite provide suitable nesting habitat for burrowing owls. No burrowing owls were observed during the site visit; however, many California ground squirrel burrows were observed onsite. Burrowing owl has potential to nest and forage onsite.

Tricolored Blackbird

Tricolored blackbird (TRBL; *Agelaius tricolor*) is listed as a threatened species pursuant to the California ESA and a USFWS BCC. This colonial nesting species is distributed widely throughout the Central Valley, Coast Range, and into Oregon, Washington, Nevada, and Baja California (Meese et al. 2014). TRBL nests in colonies that can range from several pairs to several thousand pairs, depending on prey availability, the presence of predators, or level of human disturbance. TRBL nesting habitat includes emergent marsh, riparian woodland/scrub, blackberry thickets, densely vegetated agricultural and idle fields (e.g., wheat,

triticale, safflower, fava bean fields, thistle, mustard, cane, and fiddleneck), usually with some nearby standing water or ground saturation (Meese et al. 2014). TRBL feed mainly on grasshoppers during the breeding season but may also forage upon a variety of other insects, grains, and seeds in open grasslands, wetlands, feedlots, dairies, and agricultural fields (Meese et al. 2014). The nesting season is generally from March through August.

There is one CNDDB documented nesting colony of TRBL within five miles of the Study Area (CDFW 2019). While there is no suitable nesting habitat within the Study Area, the annual grassland provides suitable foraging habitat for this species. Additionally, TRBL was observed foraging within the vicinity of the Study Area during the March 15, 2017 site visit. TRBL has potential to forage onsite.

4.3.1.12 Special Status Mammal Species

A total of six special-status mammal species were identified as having potential to occur within the Study Area based on the literature review (Table 4.3-2). Upon further analysis and after the reconnaissance site visit, two species were considered to be absent from the Study Area due to the lack of suitable habitat. No further discussion of these species is provided in this analysis. Brief descriptions of the remaining four species that have the potential to occur within the Study Area are presented below.

American Badger

American badger (*Taxidea taxus*) is designated in California as an SSC. The species historically ranged throughout much of the state, except in humid coastal forests. Badgers were once numerous in the Central Valley; however, populations now occur in low numbers in the surrounding peripheral parts of the valley and in the adjacent lowlands of eastern Monterey, San Benito, and San Luis Obispo counties (Williams 1986). Badgers occupy a variety of habitats, including grasslands and savannas. The principal requirements seem to be significant food supply, friable soils, and relatively open, uncultivated ground (Williams 1986).

There are no CNDDB documented occurrences of American badger within five miles of the Study Area (CDFW 2019). The annual grassland onsite provides suitable habitat for this species. American badger has potential to occur onsite.

Pallid Bat

Pallid bat (*Antrozous pallidus*) is not listed pursuant to federal ESA or California ESA; however, this species is considered an SSC by CDFW. The pallid bat is a large, light-colored bat with long, prominent ears and pink, brown, or grey wing and tail membranes. This species ranges throughout North America from the interior of British Columbia, south to Mexico, and east to Texas. The pallid bat inhabits low elevation (below 6,000 feet) rocky arid deserts and canyonlands, shrub-steppe grasslands, karst formations, and higher elevation coniferous forest (above 7,000 feet). This species roosts alone or in groups in the crevices of rocky outcrops and cliffs, caves, mines, trees, and in various manmade structures such as bridges and barns. Pallid bats are feeding generalists that glean a variety of arthropod prey from surfaces as well as capturing insects on the wing. Foraging occurs over grasslands, oak savannahs, ponderosa pine forests, talus slopes, gravel roads, lava flows, fruit orchards, and vineyards. Although this species utilizes

echolocation to locate prey, they often use only passive acoustic cues. This species is not thought to migrate long distances between summer and winter sites (WBWG 2017).

There are no CNDDB documented occurrences of pallid bat within five miles of the Study Area (CDFW 2019). However, the nursery trees and abandoned barn structures within the Study Area provide suitable roosting habitat for this species and the annual grassland and orchard provide suitable foraging habitat for this species. Pallid bad has potential to roost and forage onsite.

San Joaquin Kit Fox

San Joaquin kit fox (*Vulpes macrotis mutica*) is listed as threatened under the California ESA and as endangered under the federal ESA. Although the precise historical range of the San Joaquin kit fox is unknown, Grinnell et al. (1937) believed that prior to 1930, San Joaquin kit fox occupied most of the San Joaquin Valley from southern Kern County north to Tracy, San Joaquin County, on the west side, and near La Grange, Stanislaus County, on the east side. Since then the San Joaquin kit fox population has declined primarily as a result of habitat loss to agricultural, urban, industrial, and mineral development in the San Joaquin Valley. San Joaquin kit fox has been listed as endangered for over 30 years, yet despite the loss of habitat and apparent decline in numbers since the early 1970s, there has never been a comprehensive survey of its entire range or habitat that was once thought to be occupied (Morrell 1971;USFWS 1983). Despite the lack of a comprehensive data set, local surveys, research projects and incidental sightings indicate that kit foxes currently inhabit some areas of suitable habitat on the San Joaquin Valley floor and in the surrounding foothills of the coastal ranges, Sierra Nevada, and Tehachapi Mountains, from southern Kern County north to Contra Costa, Alameda, and San Joaquin counties on the west, and near La Grange, Stanislaus County on the east side of the San Joaquin Valley (Williams in litt. 1990), and some of the larger scattered islands of natural land on the San Joaquin Valley floor in Kern, Tulare, Kings, Fresno, Madera, and Merced counties (USFWS 1998).

In the southern portion of the range, the kit fox is commonly associated with Valley sink scrub, Valley saltbush scrub, upper Sonoran subshrub scrub, and annual grassland. Kit foxes also inhabit grazed grasslands, petroleum fields (Morrell 1971; O'Farrell 1980), and survive adjacent to tilled or fallow fields (Jensen 1972; Ralls and White 1991). In the central portion of the range, which includes Madera County, San Joaquin kit fox is associated with Valley sink scrub, interior coast range saltbush scrub, upper Sonoran subshrub scrub, annual grassland and the remaining native grasslands. Agriculture dominates this region where kit foxes mostly inhabit grazed, nonirrigated grasslands, but also live next to and forage in tilled or fallow fields, irrigated row crops, orchards, and vineyards (USFWS 1998). In the northern portion of their range, kit foxes commonly are associated with annual grassland (Hall 1983) and valley oak woodland (Bell et al. 1994). Kit foxes inhabit grazed grasslands, grasslands with wind turbines, and also live adjacent to and forage in tilled and fallow fields, and irrigated row crops (Bell et al. 1994). They usually inhabit areas with loose-textured (friable) soils, suitable for den excavation (USFWS 1983). Where soils make digging difficult, the foxes frequently use and modify burrows built by other animals (Orloff et al. 1986). Structures such as culverts, abandoned pipelines, and well casings also may be used as den sites (USFWS 1983).

San Joaquin kit fox is primarily nocturnal and carnivorous, but commonly seen during the day in the late spring and early summer (Orloff et al. 1986). Major prey includes kangaroo rats (*Dipodomys* sp.), black-

tailed jackrabbits (*Lepus californicus*), desert cottontails (*Sylvilagus audubonii*), deer mice (*Peromyscus maniculatus*), California ground squirrels, ground-nesting birds, and insects (Scrivener et al. 1987).

There is one CNDDB documented occurrence of San Joaquin kit fox within five miles of the Study Area (CDFW 2019). The annual grassland in the Study Area provides suitable dispersal habitat for this species. San Joaquin kit fox has low potential to occur onsite.

Spotted Bat

Spotted bat (*Euderma maculatum*) is not listed pursuant to either federal ESA or California ESA; however, this species is considered an SSC by CDFW. Spotted bat is easily identifiable because of its unique coloration, which includes black dorsal fur with three white spots, a white ventral surface, and long pink ears. The spotted bat occurs throughout western North America from British Columbia to Jalisco, Mexico. This species has been found from below sea level to 8,858 feet in elevation, and occurs in arid, low-desert habitats all the way to high-elevation conifer forests. Specific vegetation types where spotted bats are found include desert, subalpine meadows, pinyon-juniper woodland, ponderosa pine, mixed-conifer forest, canyon bottoms, rims of cliffs, riparian areas, fields, and open pasture. Roosting sites are generally cracks, crevices, and caves, high in fractured rock cliffs if available. When foraging, spotted bats fly about 66 to 164 feet above the ground and echolocate at a wavelength audible to humans but often not to prey species. The diet of this species is made up primarily of moths (WBWG 2017).

There is one CNDDB documented occurrence within five miles of the Study Area (CDFW 2019); however, there is no suitable roosting habitat within the Study Area. The annual grassland onsite provides suitable foraging habitat. Spotted bat has low potential to forage onsite.

4.3.1.13 Special-Status Fish Species

The literature review indicated two special-status fish species (Delta smelt [*Hypomesus transpacificus*] and hardhead [*Mylopharodon conocephalus*]) had the potential to occur in the Study Area (Table 4.3-2). However, fieldwork confirmed that both species are absent from the Study Area due to the lack of suitable habitat. No further discussion of these species is provided in this DEIR.

4.3.1.14 Wildlife Movement Corridors

The Study Area is largely undeveloped with several wetland features scattered throughout. Wildlife likely use the annual grassland and wetland features for movement and dispersal; however, the active agricultural fields may hinder wildlife use. Wildlife species that may use the Study Area as a migratory or movement corridor include birds such as passerines, raptors, wading birds, and waterfowl. Highly mobile mammal species such as coyote (*Canis latrans*) and raccoon (*Procyon lotor*) are expected to occasionally move through the Study Area.

4.3.1.15 Critical Habitat

There is Critical Habitat designated within the Study Area for succulent owl's clover and San Joaquin Valley Orcutt grass, Hairy Orcutt Grass, and CTS (Figure 4.3-5. *USFWS Designated Critical Habitat*).

Figure 4.3-5. USFWS Designated Critical Habitat

Map Features

- Study Area
- Project Area

USFWS Critical Habitat (July 2018)

- California Tiger Salamander
- Succulent Owl's-clover
- Hairy Orcutt Grass
- San Joaquin Orcutt Grass

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AVE 12

San Joaquin River

Madera County

Fresno County

Location: N:\2017\2017-089_Rio_Mesa_Blvd\MAPS\SSS_Survey_and_Mapping\Critical_Habitat\RMRA_CritHab_20201204.mxd (CCH)-chinkelman 12/4/2020

201-089 Rio Mesa Boulevard Road Alignment

Feet

0 950 1,900

ECORP Consulting, Inc.
ENVIRONMENTAL CONSULTANTS

Map Date: 12/4/2020

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4.3.2 Regulatory Setting

4.3.2.1 Federal

Endangered Species Act of 1973 (FESA)

The federal ESA (FESA) protects plants and animals that are listed as endangered or threatened by the USFWS and the National Marine Fisheries Service (NMFS). Section 9 of FESA prohibits the taking of listed wildlife, where take is defined as "harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, collect, or attempt to engage in such conduct" (50CFR 17.3). For plants, this statute governs removing, possessing, maliciously damaging, or destroying any listed plant on federal land and removing, cutting, digging up, damaging, or destroying any listed plant on non-federal land in knowing violation of state law (16 USC 1538). Under Section 7 of FESA, federal agencies are required to consult with the USFWS and NMFS if their actions, including permit approvals or funding, could adversely affect a listed (or proposed) species (including plants) or its critical habitat. Through consultation and the issuance of a biological opinion (BO), the USFWS or NMFS may issue an incidental take statement allowing take of the species that is incidental to an otherwise authorized activity provided the activity will not jeopardize the continued existence of the species. Section 10 of FESA provides for issuance of incidental take permits where no other federal actions are necessary provided a Habitat Conservation Plan (HCP) is developed.

FESA Section 7

Section 7 of FESA mandates that all federal agencies consult with USFWS and/or NMFS to ensure that federal agencies' actions do not jeopardize the continued existence of a listed species or adversely modify critical habitat for listed species. If direct and/or indirect effects will occur to critical habitat that appreciably diminish the value of critical habitat for the survival and recovery of a species, the adverse modifications will require formal consultation with USFWS or NMFS. If adverse effects are likely, the applicant must conduct a biological assessment (BA) for the purpose of analyzing the potential effects of the project on listed species and critical habitat to establish and justify an "effect determination." The federal agency reviews the BA; if it concludes that the project may adversely affect a listed species or its habitat, it prepares a BO. The BO may recommend "reasonable and prudent alternatives" to the project to avoid jeopardizing or adversely modifying critical habitat. If a jeopardy or adverse modification of critical habitat determination results from the consultation, the federal agency may choose one of several options:

- Adopt one of the reasonable and prudent alternatives that eliminates the jeopardy or adverse modification of critical habitat determinations in the BO;
- Decide not to grant the permit, fund the project, or undertake the action;
- Request an exemption from the Endanger Species Committee;
- Propose modification of the action, or off additional reasonable and prudent alternatives not already considered, and reinitiate consultation; or
- Choose to take other actions that satisfy Section 7(a)(2) of the FESA.

FESA Section 10

When no discretionary action is being taken by a federal agency, but a project may result in the take of listed species, an incidental take permit under Section 10 of the FESA is necessary. The purpose of the incidental take permit is to authorize the take of federally listed species that may result from an otherwise lawful activity, not to authorize the activities themselves. In order to obtain an incidental take permit under Section 10, an application must be submitted that includes an HCP. In some instances, applicants, USFWS, and/or NMFS may determine that an HCP is necessary or prudent, even if a discretionary federal action will occur. The purpose of the HCP planning process associated with the permit application is to ensure that adequate minimization and mitigation for impacts to listed species and/or their habitat will occur.

The FESA and implementing regulations (Title 16 United States Code (USC) §§1531 et seq. (16 USC 1531 et seq.) and Title 50 Code of Federal Regulations (CFR) §§17.1 et seq. (50 CFR §§17.1 et seq.)) include provisions for the protection and management of federally listed threatened or endangered plants and animals and their designated critical habitats. Section 7 of the FESA requires a permit to take threatened or endangered species during lawful project activities. The administering agency for the above authority is the USFWS for terrestrial, avian, and most inland aquatic species and NMFS for marine species, including anadromous fishes.

Critical Habitat and Essential Habitat

Critical Habitat is defined in Section 3 of the FESA as (1) the specific areas within the geographical area occupied by a species, at the time it is listed in accordance with the ESA, on which are found those physical or biological features essential to the conservation of the species and that may require special management considerations or protection; and (2) specific areas outside the geographical area occupied by a species at the time it is listed, upon a determination that such areas are essential for the conservation of the species. For inclusion in a Critical Habitat designation, habitat within the geographical area occupied by the species at the time it was listed must first have features that are essential to the conservation of the species. Critical Habitat designations identify, to the extent known and using the best scientific data available, habitat areas that provide essential life cycle needs of the species (areas on which are found the primary constituent elements). Primary constituent elements are the physical and biological features that are essential to the conservation of the species and that may require special management considerations or protection. These include but are not limited to the following:

- Space for individual and population growth and for normal behavior;
- Food, water, air, light, minerals, or other nutritional or physiological requirements;
- Cover or shelter;
- Sites for breeding, reproduction, or rearing (or development) of offspring; or
- Habitats that are protected from disturbance or are representative of the historic, geographical, and ecological distributions of a species.

Excluded essential habitat is defined as areas that were found to be essential habitat for the survival of a species and assumed to contain at least one of the primary constituent elements for the species but were excluded from the Critical Habitat designation. The USFWS has stated that any action within the excluded essential habitat that triggers a federal nexus will be required to undergo the Section 7(a)(1) process, and the species covered under the specific Critical Habitat designation would be afforded protection under Section 7(a)(2) of ESA.

Magnuson-Stevens Fishery Conservation and Management Act

In accordance with the Magnuson-Stevens Fishery Conservation and Management Act, as amended by the Sustainable Fisheries Act of 1996 (Public Law 104-267), federal agencies are required to consult with the NMFS for activities that may affect essential fish habitat (EFH). EFH consists of the waters and substrate necessary for fish spawning, breeding, feeding, or growth to maturity, and includes several important components: adequate substrate; water quality; water quantity, depth, and velocity; channel gradient and stability; food; cover and habitat complexity; space; access and passage; and habitat connectivity (Pacific Fishery Management Council 2000).

Fish and Wildlife Coordination Act

Section 7 of the Fish and Wildlife Coordination Act (16 USC 742 et seq., 16 USC 1531 et seq., and 50 CFR 17) requires consultation with the USFWS and NMFS if any project facilities could jeopardize the continued existence of an endangered species. Applicability depends on federal jurisdiction over some aspect of the project. The administering agency for these authorities is the USACE in coordination with the USFWS and NMFS.

Migratory Bird Treaty Act

The *Migratory Bird Treaty Act* (MBTA) (16 USC §§703–711) includes provisions for the protection of migratory birds, including the nonpermitted take of migratory birds, under the authority of the USFWS and CDFW. The MBTA protects over 800 species, including geese, ducks, shorebirds, raptors, songbirds, and many common species.

Bald and Golden Eagle Protection Act

The *Bald and Golden Eagle Protection Act of 1940* (as amended) provides for the protection of bald eagle and golden eagle by prohibiting the take, possession, sale, purchase, barter, offer to sell, purchase or barter, transport, export or import, of any bald or golden eagle, alive or dead, including any part, nest, or egg, unless allowed by permit (16 USC 668(a); 50 CFR 22). USFWS may authorize take of bald eagles and golden eagles for activities where the take is associated with, but not the purpose of, the activity and cannot practicably be avoided (50 CFR 22.26).

Clean Water Act of 1977

The stated purpose of the federal Clean Water Act (CWA) is to "restore and maintain the chemical, physical, and biological integrity of the nation's waters." Section 404 of the CWA prohibits the discharge of dredged or fill material into "waters of the United States" without a permit from the USACE. The

definition of waters of the U.S. includes rivers, streams, estuaries, the territorial seas, ponds, lakes, and wetlands. Wetlands are defined as those areas "that are inundated or saturated by surface or ground water at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions" (33 CFR 328.3 7b). The USEPA also has authority over wetlands and may use its veto authority to veto a USACE permit.

Substantial impacts to wetlands may require an individual permit. Projects that only minimally affect wetlands may meet the conditions of one of the existing Nationwide Permits. A Water Quality Certification or waiver pursuant to Section 401 of the CWA is required for Section 404 permit actions; this certification or waiver is issued by the Regional Water Quality Control Board (RWQCB).

The alteration of a USACE federally authorized civil works project requires a permit pursuant to Section 408 (33 USC 408, Section 14 of the Rivers and Harbors Act of 1899). Projects with minimal impacts require approval by the USACE Sacramento District Construction Operations Group; however, projects with more substantial impacts may require USACE Headquarters review. Coordination with the Central Valley Flood Protection Board (CVFPB), who serve as the Non-Federal Sponsor, is required as a part of the process of obtaining a Section 408 permit.

Section 404 of the CWA (33 USC 1251 et seq., 33 CFR §§320 and 323) gives the USACE authority to regulate discharges of dredge or fill material into waters of the U.S., including wetlands.

Section 401 of the CWA requires a state-issued Water Quality Certification for all projects regulated under Section 404. In California, the RWQCBs issue Water Quality Certifications, with the Central Valley RWQCB having jurisdiction over the Project Site.

4.3.2.2 State

California Environmental Quality Act

In accordance with CEQA Guidelines § 15380, a species not protected on a federal or State list may be considered rare or endangered if the species meets certain specified criteria. These criteria follow the definitions in the federal ESA, California ESA, and §§ 1900-1913 of the California Fish and Game Code, which deal with rare or endangered plants or animals. Section 15380 was included in the CEQA Guidelines primarily to deal with situations where a project under review may have a significant effect on a species that has not yet been listed by either USFWS or CDFW.

California Endangered Species Act (CESA)

The CESA declares that deserving plant or animal species will be given protection by the state because they are of ecological, educational, historical, recreational, aesthetic, economic, and scientific value to the people of the state. CESA established that it is state policy to conserve, protect, restore, and enhance endangered species and their habitats. Under State law, plant and animal species may be formally designated rare, threatened, or endangered by official listing by the California Fish and Game Commission. Listed species are generally given greater attention during the land use planning process by local governments, public agencies, and landowners than are species that have not been listed. CESA authorizes that take of plant or wildlife species listed as endangered or threatened under the federal ESA

and CESA may occur, pursuant to a federal incidental take permit issued in accordance with Section 10 of the federal ESA, if the CDFW certifies that the incidental take statement or incidental take permit is consistent with CESA (California Fish & Game Code §2080.1(a)).

California Fish and Game Code

The California Fish and Game Code provides specific protection and listing for several types of biological resources.

Section 1580 of the California Fish and Game Code presents the process and definition for Designated Ecological Reserves. Designated Ecological Reserves are significant wildlife habitats to be preserved in natural condition for the general public to observe and study.

Section 2081(b) and (c) of the CESA allows CDFW to issue an incidental take permit for a state listed threatened and endangered species only if specific criteria are met. These criteria can be found in California Code of Regulations Title 14 CCR, Sections 783.4(a) and (b). No Section 2081(b) permit may authorize the take of "fully protected" species and "specified birds." If a project is planned in an area where a fully protected species or specified bird occurs, an applicant must design the project to avoid all take. The CDFW cannot provide take authorization under CESA for fully protected species.

The CDFW has direct jurisdiction under California Fish and Game Code Sections 1600 et seq. in regard to any proposed activities that would divert or obstruct the natural flow or change the bed, channel, or bank of any lake or stream. For activities that could affect a lake or stream bed, it is necessary to enter into a Streambed Alteration Agreement (SAA) with CDFW.

Section 3503 of the California Fish and Game Code makes it illegal to destroy any birds' nest or any birds' eggs that are protected under the MBTA. Section 3503.5 further protects all birds in the orders Falconiformes and Strigiformes (birds of prey, such as hawks and owls) and their eggs and nests from any form of take. Section 3505 makes it illegal to take, sell, or purchase any "specified birds" under the Section, including any aigrette or egret, osprey, bird of paradise, goura, numidi, or any part of such bird.

Sections 3800, 3513, and 3503 of the California Fish and Game Code specifically protect birds of prey. Section 3800 states that it is unlawful to take nongame birds, such as those occurring naturally in California that are not resident game birds, migratory game birds, or fully protected birds, except when in accordance with regulations of the commission or a mitigation plan approved by CDFW for mining operations. Section 3513 specifically prohibits the take or possession of any migratory nongame bird as designated in the MBTA.

Species of Special Concern

SSC are defined by CDFW as a species, subspecies, or distinct population of an animal native to California that are not legally protected under the FESA, CESA, or the California Fish and Game Code, but currently satisfy one or more of the following criteria:

- The species has been completely extirpated from the state or, as in the case of birds, it has been extirpated from its primary seasonal or breeding role;

- The species is listed as federally (but not State) threatened or endangered, or meets the State definition of threatened or endangered but has not formally been listed;
- The species has or is experiencing serious (noncyclical) population declines or range retractions (not reversed) that, if continued or resumed, could qualify it for State threatened or endangered status; and
- The species has naturally small populations that exhibit high susceptibility to risk from any factor that if realized, could lead to declines that would qualify it for State threatened or endangered status.

SSC are typically associated with habitats that are threatened. Project-related impacts to SSC, state-threatened, or endangered species are considered "significant" under CEQA.

Native Plant Protection Act of 1977

The Native Plant Protection Act of 1977 and its implementing regulations set forth in Sections 1900 et seq. of the California Fish and Game Code designates rare and endangered plants and provides specific protection measures for identified populations. It is administered by the CDFW.

California Rare Plant Ranks

The CNPS maintains the *Inventory of Rare and Endangered Plants of California* (CNPS 2019), which provides a list of plant species native to California that are threatened with extinction, have limited distributions, and/or low populations. Plant species meeting one of these criteria are assigned to one of six CRPRs. The rank system was developed in collaboration with government, academia, non-governmental organizations, and private sector botanists, and is jointly managed by CDFW and the CNPS. The CRPRs are currently recognized in the California Natural Diversity Database (CNDDB). The following are definitions of the CNPS CRPRs:

- Rare Plant Rank 1A – presumed extirpated in California and either rare or extinct elsewhere.
- Rare Plant Rank 1B – rare, threatened, or endangered in California and elsewhere.
- Rare Plant Rank 2A – presumed extirpated in California, but more common elsewhere.
- Rare Plant Rank 2B – rare, threatened, or endangered in California but more common elsewhere.
- Rare Plant Rank 3 – a review list of plants about which more information is needed.
- Rare Plant Rank 4 – a watch list of plants of limited distribution.

Additionally, the CNPS has defined Threat Ranks that are added to the CRPR as an extension. Threat Ranks designate the level of threat on a scale of 1 through 3, with 1 being the most threatened and 3 being the least threatened. Threat Ranks are generally present for all plants ranked 1B, 2B, or 4, and for the majority of plants ranked 3. Plant species ranked 1A and 2A (presumed extirpated in California), and some species ranked 3, which lack threat information, do not typically have a Threat Rank extension. The following are definitions of the CNPS Threat Ranks:

- Threat Rank 0.1 – Seriously threatened in California (more than 80 percent of occurrences threatened/high degree and immediacy of threat).
- Threat Rank 0.2 – Moderately threatened in California (20-80 percent occurrences threatened/moderate degree and immediacy of threat).
- Threat Rank 0.3 – Not very threatened in California (less than 20 percent of occurrences threatened/low degree and immediacy of threat or no current threats known).

Factors, such as habitat vulnerability and specificity, distribution, and condition of occurrences, are considered in setting the Threat Rank; and differences in Threat Ranks do not constitute additional or different protection. Depending on the policy of the lead agency, substantial impacts to plants ranked 1A, 1B, or 2 are typically considered significant under CEQA Guidelines § 15380. Significance under CEQA is typically evaluated on a case-by-case basis for plants ranked 3 or 4.

Porter-Cologne Water Quality Act

The RWQCB implements water quality regulations under the federal CWA and the Porter-Cologne Water Quality Act. These regulations require compliance with the National Pollutant Discharge Elimination System (NPDES), including compliance with the California Storm Water NPDES General Construction Permit for discharges of stormwater runoff associated with construction activities. General Construction Permits for projects that disturb one or more acres of land require development and implementation of a Storm Water Pollution Prevention Plan. Under the Porter-Cologne Water Quality Act, the RWQCB regulates actions that would involve "discharging waste, or proposing to discharge waste, within any region that could affect the water of the state" (Water Code 13260(a)). Waters of the State are defined as "any surface water or groundwater, including saline waters, within the boundaries of the state" (Water Code 13050 (e)). The RWQCB regulates all such activities, as well as dredging, filling, or discharging materials into waters of the State, that are not regulated by USACE due to a lack of connectivity with a navigable water body. The RWQCB may require issuance of a Waste Discharge Requirements (WDR) for these activities.

Water Quality Control Plan for the Sacramento/San Joaquin River Basins (Basin Plan)

Water quality standards for water bodies of the Sacramento River and San Joaquin River basins are provided in the *Water Quality Control Plan for the Sacramento River and San Joaquin River Basins (Basin Plan;* Central Valley Regional Water Quality Control Board [CVRWQCB] 2018). The Basin Plan identifies the following beneficial uses associated with aquatic resources:

- Warm Freshwater Habitat (WARM) – uses of water that support warm water ecosystems including, but not limited to, preservation or enhancement of aquatic habitats, vegetation, fish, or wildlife, including invertebrates.
- Cold Freshwater Habitat (COLD) – uses of water that support cold water ecosystems including, but not limited to, preservation or enhancement of aquatic habitats, vegetation, fish, or wildlife, including invertebrates.

- Migration of Aquatic Organisms, Warm and Cold (MIGR) – uses of water that support habitats necessary for migration or other temporary activities by aquatic organisms, such as anadromous fish.
- Spawning, Reproduction, and/or Early Development, Warm (SPWN) – uses of water that support high quality aquatic habitats suitable for reproduction and early development of fish.

4.3.2.3 Local

Madera County General Plan

Section 5: Agricultural and Natural Resources of the *Madera County General Plan* Policy Document includes several goals and policies related to the protection of forest resources, water resources, wetland and riparian areas, fish and wildlife habitat, and vegetation. Additionally, Section 5 includes several goals and policies related to open space for the preservation of natural resources. Goals and policies pertaining to biological resources and pertinent to the Project are as follows:

Goal 5.D: *To protect wetland communities and related riparian areas throughout Madera County as valuable resources.*

Policy 5.D.1. The County shall comply with the wetlands policies of the U.S. Army Corps of Engineers, the U.S. Fish and Wildlife Service, and the California Department of Fish and Wildlife. Coordination with these agencies at all levels of project review shall continue to ensure that appropriate mitigation measures and the concerns of these agencies are adequately addressed.

Policy 5.D.2. The County shall require new development to mitigate wetland loss in both regulated and non-regulated wetlands through any combination of avoidance, minimization, or compensation. The County shall support mitigation banking programs that can provide the opportunity to mitigate impacts to rare, threatened, and endangered species and/or the habitat which supports these species in wetland and riparian areas.

Policy 5.D.3. The County shall require development to be designed in such a manner that pollutants and siltation will not significantly adversely affect the value or function of wetlands.

Policy 5.D.4. The County shall require riparian protection zones around natural watercourses. Riparian protection zones shall include the bed and bank of both low and high flow channels and associated riparian vegetation, the band of riparian vegetation outside the high flow channel, and buffers of 100 feet in width as measured from the top of bank of unvegetated channels and 50 feet in width as measured from the outer edge for the canopy of riparian vegetation. Exceptions may be made in existing

developed areas where existing development and lots are located within the setback areas.

Policy 5.D.5. The County shall strive to identify and conserve remaining upland habitat areas adjacent to wetlands and riparian areas that are critical to the feeding or nesting of wildlife species associated with these wetland and riparian areas.

Policy 5.D.6. The County shall require new private or public developments to preserve and enhance existing native riparian habitat unless public safety concerns require removal of habitat for flood control or other public purposes. In cases where new private or public development results in modification or destruction of riparian habitat for purposes of flood control, the developers shall be responsible for creating new riparian habitats within or near the project area at a ratio of 3:1 acres of new habitat for every acre destroyed.

Policy 5.D.7. The County shall support the management of wetland and riparian plant communities for passive recreation, groundwater recharge, nutrient catchment, and wildlife habitats. Such communities shall be restored, where possible.

Policy 5.D.8. The County shall support the goals and policies of the San Joaquin River Parkway Plan to preserve existing habitat and maintain, enhance, or restore native vegetation to provide essentially continuous riparian and upland habitat for wildlife along the river between Friant Dam and the Highway 145 crossing.

Goal 5.E: To protect, restore, and enhance habitats that support fish and wildlife species so as to maintain populations at viable levels.

Policy 5.E.1. The County shall identify and protect critical nesting and foraging areas, important spawning grounds, migratory routes, waterfowl resting areas, oak woodlands, wildlife movement corridors, and other unique wildlife habitats critical to protecting and sustaining wildlife populations.

Policy 5.E.2. The County shall require development in areas known to have particular value for wildlife to be carefully planned and, where possible, located so that the reasonable value of the habitat for wildlife is maintained.

Policy 5.E.3. The County shall encourage private landowners to adopt sound wildlife habitat management practices, as recommended by the California Department of Fish and Game officials and the U.S. Fish and Wildlife Service.

Policy 5.E.4. The County shall support preservation of the habitats of rare, threatened, endangered, and/or other special status species. The County shall consider developing a formal habitat conservation plan in consultation with federal and state agencies, as well as other resource conservation organizations. Such a plan would provide a mechanism for the acquisition and management of lands supported by threatened and endangered species.

Policy 5.E.5. The County shall support the maintenance of suitable habitats for all indigenous species of wildlife through maintenance of habitat diversity.

Policy 5.E.6. The County shall ensure the conservation of sufficiently large, continuous expanses of native vegetation to provide suitable habitat for maintaining abundant and diverse wildlife, if this preservation does not threaten the economic well-being of the county.

Policy 5.E.7. The County shall support the preservation or reestablishment of fisheries in the rivers and streams within the county, whenever possible.

Policy 5.E.8. The County shall ensure close monitoring of pesticide use in areas adjacent to habitats of special status plants and animals.

Policy 5.E.9. The County shall promote effective methods of ground squirrel control on croplands bordering sensitive habitat that do not place kit foxes and other special-status species at risk.

Policy 5.E.10. Prior to approval of discretionary development permits involving parcels within a significant ecological resource area, the County shall require, as part of the environmental review process, a biotic resources evaluation of the sites by a qualified biologist. The evaluation shall be based upon field reconnaissance performed at the appropriate time of year to determine the presence or absence of rare, threatened, or endangered species of plants or animals. Such evaluation will consider the potential for significant impact on these resources and will either identify feasible measures to mitigate such impacts or indicate why mitigation is not feasible.

Policy 5.E.11. The County shall provide for a minimum 200 foot wildlife corridor along the San Joaquin River between Friant Dam and the Highway 145 crossing, consistent with the San Joaquin River Parkway Plan. The County shall require a buffer with a minimum width of 150 feet between existing or planned urban or suburban uses. Exceptions may be necessary where the minimum width is infeasible due to topography or other physical constraints. In these instances, an offsetting expansion on the opposite side of the river should be provided.

4.3.3 Environmental Impacts and Mitigation Measures

4.3.3.1 Thresholds of Significance

The following thresholds of significance are based on Appendix G of the CEQA Guidelines. For purposes of this DEIR, implementation of the Project would be considered to have a significant adverse impact on biological resources if it would:

- 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 CDFW or USFWS, and meets the definition of Section 15380 (b), (c), or (d) of the CEQA Guidelines.
- Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations or by 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.
- Conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan.

4.3.3.2 Methods of Analysis

The analysis provided below considers the potential direct, indirect, and cumulative impacts of construction, operations, and maintenance of the Project. Potential impacts are analyzed using information identified in the Project description, the environmental setting for biological resources, results of literature and field surveys, and the adequacy of onsite habitat for potentially occurring sensitive species, and then comparing this information to the thresholds of significance identified below. When a Project-related change in biological resources exceeds a threshold, a potentially significant impact is considered to occur as a result of the Project. Evaluation of the Project was conducted through an examination of potential impacts that could reasonably be assumed or inferred to occur with respect to construction and/or long-term operation and maintenance of the Project. For significant impacts, mitigation measures were designed to reduce the impacts to less-than-significant levels wherever possible.

Impacts to candidate, sensitive, or special-status species would be significant if the Project-related activity is expected to affect any of the following: (1) a species listed as rare, threatened or endangered by the state of California or federal government at the time the Notice of Preparation for this EIR was published;

(2) a major population or subpopulation of a species that would result in the regional decline of this species; (3) a relatively large number of individuals within a population that is considered rare or declining; (4) the species' metapopulation (e.g., if one of only a few known populations occurs in the impact zone, or if the species has extremely narrow habitat requirements); or (5) a habitat type or vegetation community in regional decline or that is regionally endemic.

Impacts to rare species would be less than significant if the Project-related activity impacts do not meet the criteria above and because (1) a relatively small number of non-listed individuals would be impacted; (2) populations with a larger number of individuals are abundant in the region; (3) recovery and conservation efforts are documented to adequately conserve the species or habitat, and impacts would not affect the recovery or conservation of this species or habitat; or (4) the species or habitat is locally common and fairly abundant in the region.

4.3.3.3 Project Impacts and Mitigation Measures

Impact 4.3-1: Project construction activities could adversely affect, either directly or through habitat modifications, species identified as a candidate, sensitive, or special-status wildlife species in local or regional plans, policies or regulations, or by the California Department of Fish and Wildlife or U.S. Fish and Wildlife Service. Impact Determination: *Less than significant with mitigation incorporated.*

Threshold:	*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 CDFW or USFWS, and meets the definition of Section 15380 (b), (c), or (d) of the CEQA Guidelines.*

Project construction activities including site clearing, grading, staging area development, trenching, infrastructure installation, paving, and curb and sidewalk construction could result in adverse impacts on special-status wildlife species (including birds, reptiles, amphibians, mammals, and invertebrates) and their habitats. Special-status species are protected under the FESA, CESA, California Fish and Game Code, CEQA, and other regulations. Vehicle and equipment operation, vegetation clearing, ground disturbance and other upland activities during construction could result in substantial adverse impact on special-status species potentially occurring within the Project Site or in the adjacent areas in the larger Study Area during construction. These effects are addressed below.

Special-Status Bird Species

Suitable nesting and/or wintering and foraging habitat for five special-status birds is present within the Study Area. These include long-billed curlew, Swainson's hawk, golden eagle, burrowing owl, and TRBL. Swainson's hawk, golden eagle, and TRBL were observed on or within the vicinity of the Study Area during 2017 site visits. If nesting individuals are present during construction, the Project could result in harassment to nesting individuals and may temporarily disrupt foraging activities. In addition to the above-listed special-status birds, all native birds, including raptors, are protected under the California Fish and Game Code and the federal MBTA, and construction-related adverse impact on these species would be considered a potentially significant impact. Construction-related impacts could include nest

abandonment, reduced reproductive success, and reduced overall health. Swainson's hawk and other raptors utilize tall trees and transmission towers for nesting and grassland for foraging. No tall trees are proposed for removal; however, there are tall trees and transmission towers in the vicinity of the Project Site. If raptors such as Swainson's hawk are nesting in the Study Area, Project-related activities could have an indirect adverse effect on nesting.

Disturbance of grassland as a result of Project construction could result in reduced overall health due to reduced nutritional intake for bird species that could potentially forage on-site. The ruderal/disturbed vegetation community is dominated by farmland, orchards, annual grassland, and existing dirt roads. Bird species may be directly affected by construction activities if they come in contact with equipment or personnel on-site. The impact of construction-related activities on special-status and protected bird species is considered potentially significant requiring mitigation.

Mitigation Measure BIO-5 requires pre-construction nesting raptor and bird surveys at least 14 days prior to construction activities during the nesting season (February 1 – August 31) and establishment of 300-foot no-disturbance buffers around any identified nests. Mitigation Measure BIO-6 Requires burrowing owl surveys to be conducted at least 30 days prior to starting ground disturbing activities, designation of sensitive areas to be protected, and monitored, and establishment of a minimum 500-foot avoidance buffer. The measure also requires that it if avoidance of an occupied burrow is not feasible a burrowing owl eviction plan shall be developed in consultation with CDFW. Implementation of Mitigation Measures BIO-5 and BIO-6 would reduce potential impacts to nesting raptors, migratory birds, and burrowing owl to less than significant.

Reptiles

The Project Site provides marginally suitable habitat for Blainville's horned lizard, a CDFW Species of Special Concern. As such, the species could be present during Project construction and adversely affected by construction. Potential direct impacts on this species during construction include mortality or injury of individuals through contact with construction vehicles or equipment and through removal of habitat that may be used by the species. Potential indirect impacts on this species could occur during construction due to the effects of Project noise and vibration in and near the Project Site. Because the species will likely be underground when construction activity is occurring, impacts related to noise generated by those activities will be attenuated by the soil surrounding the underground burrows. This impact is considered potentially significant requiring mitigation. Mitigation Measure BIO-4 requires pre-construction surveys for Blainville's horned lizard passive movement or capture and relocation to suitable habitat by a qualified wildlife biologist. Mitigation Measure BIO-4 would reduce potential impacts to Blainville's horned lizard to less than significant.

Amphibians

CTS and western spadefoot are both considered to occur within the Project Site. The Vernal pools within the Project Site and surrounding land provide suitable breeding habitat and the annual grassland provides suitable dispersal habitat for these species. Additionally, critical habitat for CTS is mapped within the Study Area. Potential direct impacts on these species during construction include mortality or injury of

individuals through contact with construction vehicles or equipment and through removal of habitat that may be used by the species. Potential indirect impacts on these species could occur during construction due to Project noise and vibration within the Study Area. Because these species will likely be underground when construction activity is occurring, impacts related to noise generated by those activities will be attenuated by the soil surrounding the underground burrows.

For the reasons presented above, the impact on these species during construction is considered potentially significant requiring mitigation. Mitigation Measure BIO-2 requires that prior to construction activities, take coverage from USFWS under Sections 7 or 10 of the federal ESA and CDFW under Section 2081 of the California Fish and Game Code would be obtained for any potential impacts to CTS. As specified in Mitigation Measure BIO-2, permanent preservation of offsite breeding and uplands habitat would be required. Additionally, Mitigation Measure BIO-3 provides specific construction impact avoidance measures. In combination, Mitigation Measures BIO-2 and BIO-3 and would reduce impacts to CTS and western spadefoot to less than significant.

Mammals

American badger and San Joaquin kit fox have potential to occur within the Project Site. During construction potential direct affects to these species could occur from contact with construction equipment which could result in injury or mortality. If these species are in burrows or dens within the area surrounding the construction area, indirect effects could occur from construction activities including noise and vibration generated and attenuated underground. In addition, these disturbances could cause abandonment of underground habitat, which may cause susceptibility to predation. For the reasons presented above, the impact on these mammal species during construction is considered potentially significant requiring mitigation.

Pallid bat and spotted bat both have potential to forage on-site. The BRA documents potential roosting habitat for pallid bat in a barn and in the orchard trees. The orchard trees have since been removed and the barn will not be removed as part of the Project. The Project could result in disruption of foraging causing stress and malnutrition of these species. In addition, noise from adjacent construction could have an adverse effect on roosting pallid bats in the barn, if present. Both of these species, if affected by construction would most likely move to adjacent habitats.

For the reasons presented above, the impact on these bat species during construction is less than significant and does not require mitigation.

Mitigation Measure BIO-7 requires pre-construction American badger surveys at least two weeks prior to ground disturbing activities, if American badgers are found and do not leave the Project Area on their own volition consultation with CDFW on potential eviction efforts prior to initiation of ground disturbing activities shall be required. Mitigation Measure BIO-8 requires transect surveys of the Project Site and a 250-foot buffer (i.e., the Study Area) to identify potential kit fox dens and other kit fox sign. If kit foxes are found on or within 250 feet of the Project Site, the measure requires cessation of construction activities until a qualified wildlife biologist confirms that the individual(s) has left of its own volition. Furthermore, the measure requires that if San Joaquin kit fox dens are found, they shall be avoided by appropriate distances and coordination with CDFW for incidental take permission as may be required. Mitigation

Measures BIO-7 and BIO-8 would reduce potential impacts to American badger and San Joaquin kit fox to less than significant.

Invertebrates

Vernal pool fairy shrimp and Midvalley fairy shrimp occur within vernal pools and seasonal wetlands within the Study Area. Since the Project would result in fill of some of these habitats there would be direct take of these species. During construction, adjacent habitat may be indirectly affected by changes in hydrology, the introduction of dust from grading, and trash from construction workers. These impacts are considered potentially significant requiring mitigation. Mitigation Measure BIO-1 would provide compensatory mitigation that would offset impacts to Vernal pool fairy shrimp and Midvalley fairy shrimp sufficient to reduce impacts to the species to less than significant.

Impact Determination

In response to the findings presented above, mitigation measures specific to each of the species listed above were developed to effectively reduce the potential for significant impacts. Specifically, measures requiring pre-construction surveys for Blainsville's horned lizard, burrowing owl, nesting birds and raptors, CTS, western spadefoot, American badger, San Joaquin kit fox, and general special-status species, would allow for early detection of these species. These measures would be required for both Project phases of construction: Phase 1 and Phase 2. If species are found, measures include requirements to establish no-disturbance buffers around such species and, as required, consult with CDFW or USFWS prior to work within the vicinity of a special-status species. Additionally, these mitigation measures restrict certain activities to specific seasons to avoid sensitive periods for such species. These measures (**BIO-1 through BIO-8**) are listed below. With implementation of these measures the impact of Project construction activities on listed wildlife species is found to be ***less than significant with mitigation***.

Mitigation Measures

BIO-1: Preservation of Vernal Pool Fairy Shrimp and Midvalley Fairy Shrimp Habitat

- Obtain take coverage from USFWS under Section 7 of FESA, and preserve vernal pool fairy shrimp habitat (e.g., vernal pools and seasonal wetlands) at an off-site mitigation property at a minimum ratio of 1.5:1 and as agreed upon through consultation with USFWS.

BIO-2: Take Coverage for California Tiger Salamander (CTS)

- Obtain take coverage for CTS from USFWS under Section 7 or Section 10 of FESA and obtain take coverage for CTS from CDFW under Section 2081 of the California Fish and Game Code.

- Preserve in perpetuity suitable breeding habitat (e.g., vernal pools) at an off-site mitigation property at a minimum ratio of 1.5:1 and as agreed upon through consultation with USFWS and CDFW.

- Preserve in perpetuity suitable upland habitat at an off-site mitigation property at a minimum ratio of 1:1 and as agreed upon through consultation with USFWS and CDFW.

BIO-3: Special-Status Amphibian Avoidance

- Prior to the start of ground disturbing activities on the Project Site, the Project proponent shall retain a qualified CTS and western spadefoot biologist (Biologist).
- Prior to the start of ground disturbing activities on the Project Site, the Biologist shall conduct an education program to the workers onsite. The program shall consist of a presentation from the Biologist that includes a discussion of the biology and general behavior of CTS and western spadefoot, information about the distribution and habitat needs of these animals, sensitivity of these animals to human activities, and their status of legal protection. A pamphlet that summarizes this information shall be handed out to the workers. If new workers come to the Project Site, their direct supervisor will be responsible for providing them with the pamphlet.
- Prior to the start of ground disturbing activities in areas considered potential habitat for CTS and western spadefoot, the Biologist shall conduct a pre-construction survey. This survey shall be conducted at least two weeks prior to the start of ground disturbing activities. If a CTS is found, the Biologist shall allow the animal to leave on its own volition. If a western spadefoot is found, the Biologist may relocate the animal to a safe location offsite.
- The Biologist shall train the on-site workers to check all equipment and the surrounding area every morning prior to starting construction for CTS and western spadefoot. If either are found the workers shall allow the animal to leave on its own volition and immediately contact the Biologist regarding the observation.
- The Biologist shall submit all observations of western spadefoot and CTS to CDFW's California Natural Diversity Database (CNDDB) within 60 calendar days of the observation.

Special-Status Reptiles

BIO-4: Blainville's horned lizard Pre-construction Survey

- Conduct a pre-construction Blainville's horned lizard no more than two weeks prior to ground disturbing activities. Any Blainville's horned lizard individuals discovered in the Project Site immediately prior to or during Project activities shall be allowed to move out of the work area of their own volition. If this is not feasible, they shall be captured by a qualified wildlife biologist and relocated out of harm's way to the nearest suitable habitat at least 100 feet from the Project work area where they were found.

Birds and MBTA Protected Birds (Including Raptors)

BIO-5: Special-Status Bird Surveys

- Conduct a pre-construction nesting raptor and bird survey of the Project Site at least 14 days prior to the commencement of construction activities during the nesting season (February 1 – August 31). Surveys shall be conducted within 500 feet of the Project Site for raptors and 100 feet of the Project Site for nesting birds. If construction activities are confined to a portion of the Project Site (e.g., phasing), then that area and the applicable buffer distance shall be surveyed.

- If active nests are found, a no-disturbance buffer around the nests shall be established. The buffer distance shall be established by a qualified biologist and is recommended to be a minimum 300 feet for raptors and 50 feet for non-raptor birds. The buffer shall be maintained until the fledglings are capable of flight and become independent of the nest tree, or the nest is deemed inactive; to be determined by a qualified biologist. Once the nest is no longer active, no further measures are necessary. Pre-construction nesting surveys are not required for construction activity outside the nesting season.

BIO-6: **Burrowing Owl.** At least 30 days prior to starting ground disturbing activities within the Project Site, a qualified wildlife biologist shall survey for burrowing owl within the Project Site and a 500-foot radius of the Project Site, . If ground disturbing activities are confined to a portion of the Project Site (e.g., phasing), then that area and a 500-foot radius shall be surveyed. Surveys shall be conducted at appropriate times to maximize detection. If any active burrowing owl burrows are observed, these burrows shall be designated a sensitive area, protected, and monitored by a qualified biologist during construction activities. A minimum 500-foot avoidance buffer shall be established and maintained around each active owl burrow during the nesting season (February 1 through August 31). If any active burrowing owl burrows are observed outside of the nesting season, a minimum 150-foot no disturbance buffer shall be established around each burrow. Permittee can request buffer reductions in writing and provide a description of the activity that will occur in addition to alternate minimization measures and monitoring.

- If avoidance of an occupied burrow is not feasible and the County or its construction contractor proposes to evict burrowing owls from burrows, the County shall submit to CDFW a Burrowing Owl Eviction Plan (Eviction Plan) at least 30 days prior to any activity requiring eviction of owls. The Eviction Plan shall include details regarding the eviction via one-way doors, including but not limited to the materials used and at least twice daily monitoring of subject burrows to ensure that owls are not trapped; timing of eviction only outside the nesting season; and details about any proposed use of artificial burrows, including but not limited to design, installation, and maintenance.

Special-Status Mammals

BIO-7: American Badger Surveys

- Conduct a pre-construction American badger survey at least two weeks prior to ground disturbing activities. If American badgers are found, allow them to leave the Project area on their own volition. If American badgers do not leave, consultation with CDFW on potential eviction efforts shall be required prior to initiation of ground disturbing activities.

BIO-8: San Joaquin Kit Fox Surveys

- At least 30 days prior to the start of ground disturbing activities, a qualified wildlife biologist shall perform transect surveys of the Project Site and a 250-foot buffer, to identify potential dens and other kit fox sign. If sign of kit fox is detected, a qualified wildlife biologist shall be available on-site during all Project-related activities that could impact the species. If kit foxes are found on or within 250 feet of the Project Site, all activity shall cease until a qualified wildlife biologist confirms that the individual(s) has left of its own volition. If ground disturbing activities are confined to a portion of the Project Site (e.g., phasing), then that area and a 250-foot radius shall be surveyed.

- If San Joaquin kit fox dens are found, they shall be avoided by appropriate distances (known den = 100 feet; pupping den = 500 feet). Absolutely no disturbance to known San Joaquin kit fox dens shall occur and no work shall occur within the above buffers without contacting CDFW and obtaining written authorization to do so. The County shall obtain an Incidental Take Permit for San Joaquin kit fox may if required for such activities.

Impact 4.3-2: Operation and maintenance of the completed Project could adversely affect species identified as a candidate, sensitive, or special-status wildlife species. Impact Determination: *Less than significant*.

Threshold:	*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 CDFW or USFWS, and meets the definition of Section 15380 (b), (c), or (d) of the CEQA Guidelines.*

Potential construction-related impacts to special-status wildlife species are discussed above. The long-term operation and maintenance of the proposed road and modified land and vegetation could also create the potential for impacts to special-status wildlife species. Special-status wildlife species could be struck by automobiles while trying to cross the road. The installation of the roadway culverts under the Project segment of Rio Mesa Boulevard would reduce the potential for this, because special-status wildlife would utilize the roadway culverts rather than the road to migrate. Annual grassland vegetation immediately adjacent to the road shall be maintained (e.g., mowed) during the summer months only

when special-status amphibians are underground and ground nesting birds are less likely to be present to reduce impacts. Roadway maintenance would be confined to the roadway where special-status wildlife will not be present, so there will be no impact.

As noted above, the Project will construct roadway culverts to facilitate the movement of CTS and western spadefoot below the finished roadway. These culverts also maintain connectivity of hydrology for state or federally protected wetlands. The completed Project could potentially alter the hydrology of adjacent CTS breeding habitat. If the ponding period of adjacent breeding habitat is decreased, then CTS larvae may not have enough time to metamorphize. If the ponding period is increased then predators (e.g., bull frogs) may start to populate the feature. As part of long-term operation and maintenance of the Project, these culverts would be periodically cleaned out of debris to ensure optimum function to facilitate CTS and western spadefoot below the roadway and to ensure that hydrologic connectivity is maintained. Cleaning operations would consist of hand removing debris. These cleaning operations would be conducted during the summer months when CTS and western spadefoot are underground.

Mitigation Measure BIO-9 requires periodic cleaning of the culverts so that CTS, western spadefoot, and other wildlife can utilize them as movement corridors to avoid the roadway and would reduce this impact to less than significant.

For the above reasons and with implementation of Mitigation Measure BIO-10, Project operation and maintenance on listed species is ***less than significant with mitigation***.

Mitigation Measures

BIO-9: Road Maintenance Protection Measures Amphibians

Annual grassland vegetation immediately adjacent to the road shall be maintained (e.g., mowed) during the summer months only when special-status amphibians are underground and ground nesting birds are less likely to be present. Roadway maintenance shall be confined to the roadway where special-status wildlife are not be present. Culverts shall be periodically cleaned out of debris to ensure optimum function to facilitate CTS and western spadefoot below the roadway and to ensure that hydrologic connectivity is maintained. Cleaning operations shall consist of hand removing debris only. Cleaning operations shall be conducted during the summer months only when CTS and western spadefoot are underground.

Impact 4.3-3: Project construction could adversely affect special-status plant species. Impact Determination: *Less than significant with mitigation.*

Threshold:	*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 CDFW or USFWS, and meets the definition of Section 15380 (b), (c), or (d) of the CEQA Guidelines.*

Construction Impacts

Two special-status plants (succulent owl's clover and San Joaquin Valley Orcutt grass) were identified during the surveys. Succulent owl's clover was found in three vernal pools within the Study Area and San Joaquin Valley Orcutt grass was found in one vernal pool. Both are federally listed as threatened and State listed as endangered. Potential adverse effects on these species and habitat during Project construction would result in a potentially significant impact and require mitigation. With implementation of mitigation measure **BIO-10,** below, potential construction impacts on special-status plants would be reduced to ***less than significant with mitigation***.

Operation and Maintenance Impacts

Various activities would be carried to operate and maintain the roadway and related facilities once Project construction is complete. These activities include maintaining adjacent vegetation, cleaning debris from the roadway culverts and roadway maintenance. Proposed operation and maintenance activities are not expected to adversely affect special-status plant species because the special-status plant species that have potential to occur exist only in the wetlands. These species are not expected to occur in the annual grassland adjacent to the roadway or under the roadway culverts. Therefore, operation and maintenance of the Project therefore is considered ***less than significant***.

Mitigation Measures

BIO-10: Succulent owl's clover and San Joaquin Valley Orcutt grass

- Establish avoidance zones around plants to clearly demarcate areas for avoidance. Avoidance measures and buffer distances may vary between species and the specific avoidance zone distance will be determined in coordination with appropriate resource agencies (CDFW and USFWS). If plants cannot be avoided, consultation with USFWS (under Sections 7 of the federal ESA) and/or take coverage from CDFW under Section 2081 of the California Fish and Game Code would be required.

Impact 4.3-4: The Project could affect riparian habitat or sensitive natural communities. Impact Determination: *less than significant with mitigation incorporated.*

Threshold:	*Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations or by CDFW or USFWS.*

The Study Area does not contain riparian habitat; however, the area does support other sensitive natural communities including vernal pools and seasonal wetlands that would be impacted (filled) as a result of Project construction. The Project fill activities would comply with Clean Water Act Section 404 and 401 permitting requirements, as discussed further under Impact 4.3-5, below. The impact of Project construction on Waters of the U.S. is considered potentially significant.

As discussed above, the Project Site also contains Critical Habitat for succulent owl's clover and San Joaquin Valley Orcutt grass, Hairy Orcutt Grass, and CTS. Project construction activities could directly or

indirectly adversely affect Critical Habitat. The potential impact on waters of the U.S. and Critical Habitat are considered potentially significant.

With implementation of Mitigation Measure **BIO-10**, above, addressing protection of Succulent owl's clover and San Joaquin Valley Orcutt grass, and the implementation of Mitigation Measure **BIO-12** described in detail under Impact 4.3-5, below, the Project construction and operation and maintenance impacts on jurisdictional wetlands and other waters would be ***less than significant with mitiga****tion*.

Mitigation Measures

Implement Mitigation Measures **BIO-10** and **BIO-11**.

Impact 4.3-5: The Project would require construction and fill within waters of the U.S. and waters of the State. Impact Determination: *less than significant with mitigation incorporated*.

Threshold:	*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.*

Approximately 7.548 acres of aquatic resources exist in the Study Area. Of those 7.548 acres, 7.099 acres are classified as wetlands (vernal pools, seasonal wetlands, seasonal wetland swales) and 0.449 acres are classified as other waters (detention basins and ditches) (see Figure 4.3-2, above, and Appendix F to this DEIR). Based on the Project footprint, a total of 1.977 acres of potential waters of the U.S. and waters of the State will be impacted by the Project (Figure 4.3-6. *Aquatic Resources Impacts*). The impacted features include 1.423 acres of vernal pool, 0.129 acre of seasonal wetland, 0.397 acre of seasonal wetland swale, and 0.028 acre of ditch (Figure 4.3-6).

Any alterations of, or discharges into, waters of the U.S. and waters of the state, including wetlands as defined pursuant to Section 404 of the federal CWA, must be in conformance with the CWA. Compliance is achieved through conformance with Sections 404 and 401 permitting and certification requirements, respectively, prior to any grading or construction that may impact jurisdictional area(s), as applicable.

The Project will require a Section 404 permit issued by the USACE for fill activities associated with Project construction. Project construction and operation and maintenance activities could adversely affect, either directly or indirectly, 1.9777 acres of potential waters of the U.S. and waters of the state. With implementation of Mitigation Measure **BIO-11,** this impact is considered ***less than significant with mitigation incorporated***.

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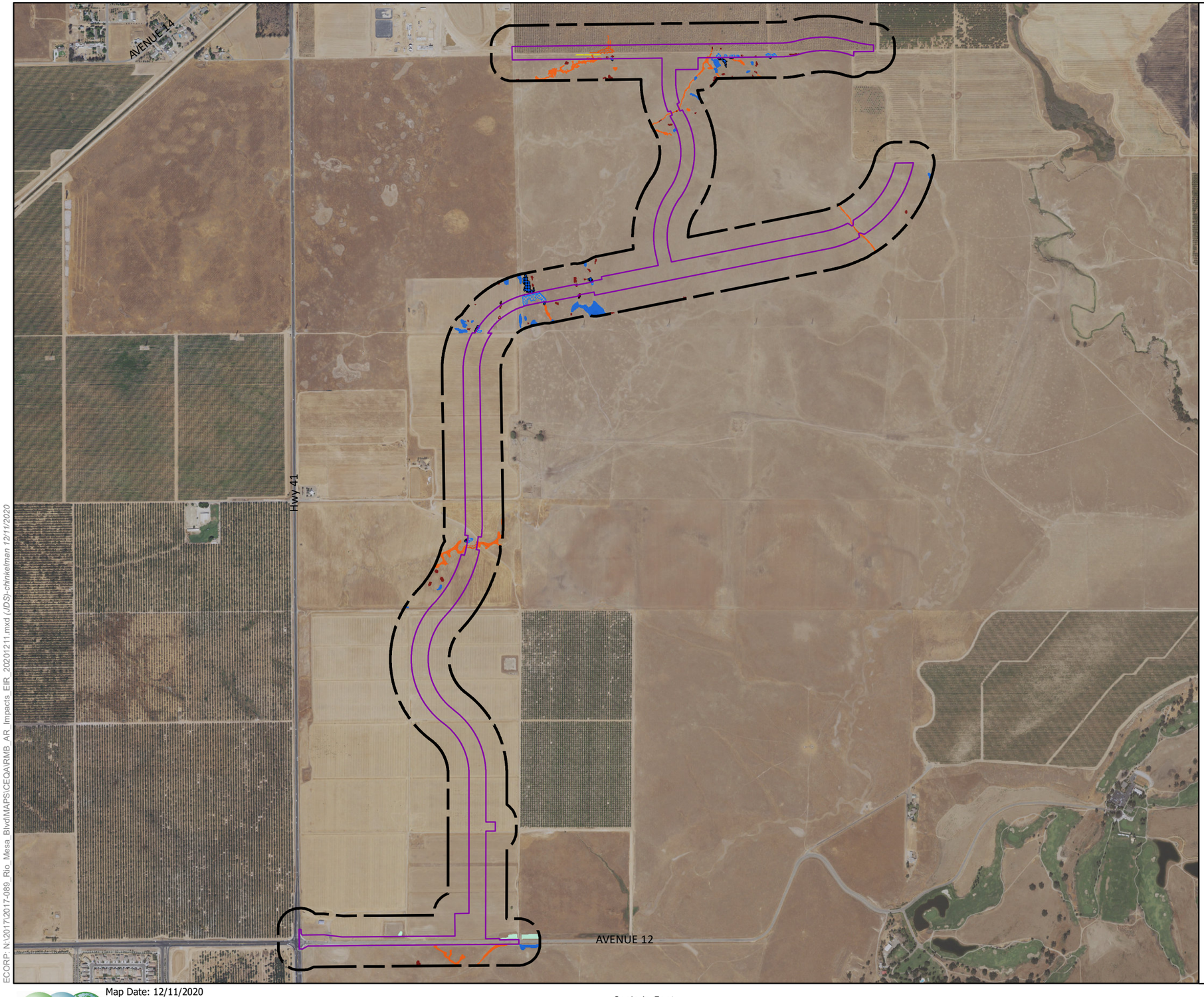


Map Features

- Study Area
- Project Area

USACE Impacts

Direct Impact

- Vernal Pool
- Seasonal Wetland
- Seasonal Wetland Swale
- Ditch

Indirect Impact

- Vernal Pool
- Seasonal Wetland

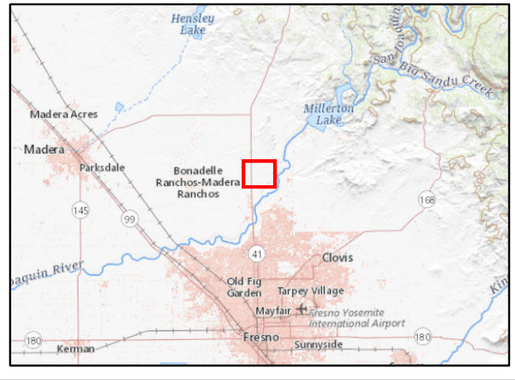
No Impact

- Vernal Pool
- Seasonal Wetland
- Seasonal Wetland Swale
- Detention Basin

Impacts			
Aquatic Resource Type	Direct Impact (Acres)	Indirect Impact (Acres)	Total (Acres)
Vernal Pool	0.786	0.637	1.423
Seasonal Wetland	0.094	0.035	0.129
Seasonal Wetland Swale	0.397	0.000	0.397
Ditch	0.028	0.000	0.028
Total	**1.305**	**0.672**	**1.977**

The acreage value for each feature has been rounded to the nearest 1/1000 decimal. Summation of these values may not equal the total potential Waters of the U.S. acreage reported.

Sources: ESRI, USGS, NAIP (2018), Morton and Pitalo



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Map Date: 12/11/2020

ECORP Consulting, Inc.
ENVIRONMENTAL CONSULTANTS

Scale in Feet
0 1,000

Figure 4.3-6. Aquatic Resources Impacts

2017-089 Rio Mesa Boulevard

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Mitigation Measures

BIO-11: Authorization to fill waters of the U.S. under the Section 404 and 401 of the federal CWA (Section 404 Permit and Section 401 Water Quality Certification) shall be obtained from USACE and RWQCB prior to discharging any dredged or fill materials into any waters of the U.S. Since the waters of the U.S. are also waters of the State, the 401 Water Quality Certification will authorize fill to waters of the State. Specific impact avoidance, minimization, and/or compensation measures shall be developed and implemented as part of the Section 404 Permit to ensure no-net-loss of wetland function and values. To facilitate such authorization, an application for a Section 404 Permit and an application for a 401 Water Quality Certification for the Project shall be prepared and submitted to USACE and RWQCB and will include direct, avoided, and preserved acreages to Waters of the U.S. Mitigation for impacts to Waters of the U.S. would consist of a minimum of a 1:1 replacement ratio for direct impacts; however final mitigation requirements shall be developed in consultation with USACE. These measures may include:

- Purchase of mitigation credits at an Agency-approved mitigation bank; and/or
- Permittee-responsible mitigation (e.g., preservation and creation) at an off-site mitigation property.

Impact 4.3-6: The Project could affect wildlife movement and/or migration. Impact Determination: *less than significant with mitigation.*

Threshold:	*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.*

The upland areas of the Project Site consisting primarily of ruderal habitats, unused agricultural fields, and annual grasslands are of modest ecological value to most wildlife species. These areas are regularly or have potential to be used by wildlife species.

Vernal pools within the Project Site may provide potential breeding habitat for CTS and western spadefoot, and surrounding grasslands may provide upland refugia for both species. Migration of CTS and western spadefoot between upland refugia and breeding habitat may occur within the Project Site. As discussed under Impact 4.3-2 above, implementation of Mitigation Measure BIO-9 would reduce the potential impact of construction related activities on CTS and western spadefoot that could disperse onto the Project Site. Specifically, Mitigation Measure **BIO-3** requiring pre-construction surveys would allow for early detection of these species and adequate avoidance. The potential impact of the Project's operation on the movement and dispersal of CTS and western spadefoot, however, is considered potentially significant in that placement of the roadway through and near areas of suitable habitat could substantially restrict their movement in and between these areas. Mitigation Measure **BIO-12**, below, would reduce this impact to ***less than significant with mitigation***.

Mitigation Measures

BIO-12: Construct Wildlife Crossings

- Construct wildlife crossings at selected locations through the Project road alignment to facilitate wildlife movement for special-status amphibians and reptiles. The crossings will consist of culverts constructed beneath roadways, the number and locations of which shall be determined in coordination with CDFW and USFWS through the Section 7 or Section 10 and Section 2081 processes described under Mitigation Measure **BIO-2**.

Impact 4.3-7: The Project could conflict with local policies and ordinances associated with protection of biological resources. Impact Determination: *less than significant with mitigation*.

Threshold:	*Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance.*

Construction activities and ultimate operation of the Project are subject to goals and policies of applicable County plans specific to the protection of biological resources. Section 5: Agricultural and Natural Resources of the *Madera County General Plan Policy Document* includes several goals and policies related to the protection of forest resources, water resources, wetland and riparian areas, fish and wildlife habitat, and vegetation. Additionally, Section 5 includes several goals and policies related to open space for the preservation of natural resources (Madera County 1995). The goals and policies that are pertinent to the Project include compliance wetlands policies of the USACE, USFWS, and CDFW; mitigation for loss of regulated and unregulated wetlands; conservation of upland areas adjacent to wetlands; protection of critical nesting foraging areas; and preservation of habitat for rare, threatened, endangered, and/or other special-status species.

As discussed in Impacts 4.3-1 through 4.3-6, above, the Project could adversely affect plant and animal species of special concern, sensitive natural communities, wetlands and other waters, and wildlife movement corridors, posing a potential conflict with Madera County policies pertaining to the protection of biological resources. However, implementation of Mitigation Measures **BIO-1 through BIO-12** would reduce these impacts to levels considered less than significant. With implementation of these measures, the Project would avoid significant impacts to biological resources and would not conflict with any local plans or policies protecting biological resources. Therefore, this is impact would be ***less than significant with mitigation***.

Mitigation Measures

Implement Mitigation Measures **BIO-1 through BIO-12.**

Impact 4.3.8: The Project would not conflict with HCPs, Natural Community Conservation Plans, or other conservation plans. Impact Determination: *less than significant.*

Threshold:	*Conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan.*

No habitat conservation plans have been prepared or approved in Madera County. Therefore, the Project would not conflict with any such plan. The Project would not proceed until all required consultation under FESA Section 7 or Section 10 with USFWS (if applicable).

Construction of the Project would not be initiated until all applicable USACE, USFWS, and RWQCB permits and approvals are obtained. The Project would comply with all terms and conditions specified in the permits and approvals. There is no adopted habitat conservation plan, natural community conservation plan, or other approval local, regional, or state habitat conservation plan, recovery plan, or Biological Opinion that the Project would conflict with, therefore, the impact is ***less than significant***.

Mitigation Measures

None required.

4.3.4 Cumulative Impacts

4.3.4.1 Regulatory Setting

In keeping with Section 15130 of the State CEQA Guidelines, an EIR must discuss "cumulative impacts" on affected resources and the Project's incremental contribution to those impacts. Cumulative impacts are those that result from past, ongoing, and reasonably foreseeable future actions, combined with the potential impacts of the Project. The analysis of cumulative impact takes into account the combined impacts of individual land use plans and projects. Cumulative impacts can result from individually minor but collectively substantial impacts taking place over time. The definition of cumulative impacts under the California Environmental Quality Act can be found in Section 15355 of the California Environmental Quality Act Guidelines.

In developing a list of plans and projects for use in an analysis of cumulative impact, the selection of which projects to include depends on the resource being evaluated and the nature of the Project. For purposes of the following evaluation, only those projects/plans that could affect resources potentially adversely affected by the Project are listed. The list of projects is further limited to projects/plans occurring in the area roughly defined as south of Avenue 12, adjacent to SR 41 between Avenue 12 and SR 141, and projects east of the SR 41/SR 141 intersection.

Cumulative impacts on biological resources in the Study Area could result from roadway and infrastructure construction, residential, commercial, industrial, and agricultural development. These land use activities can degrade habitat and species diversity through displacement and fragmentation of habitats and populations, alteration of hydrology, contamination, erosion, sedimentation, disruption of migration corridors, and changes in water quality.

4.3.4.2 Affected Environment

Cumulative impacts to which the Project could contribute are those impacts that result from past, present, and reasonably foreseeable future actions occurring in the area roughly defined as south of Avenue 12, adjacent to SR 41 between Avenue 12 and SR 141, and projects east of the SR 41/SR 141 intersection. This evaluation relies in part on analysis presented in the recently certified Final EIR on the Madera 42 South Expressway Project.[1]

4.3.4.3 Past, Current, and Reasonably Foreseeable Projects

The list of reasonably foreseeable, current, and past projects for this cumulative impact review is presented in Table 4.3-3. *Cumulative Projects List* below, and includes relevant land use plans, roadway projects, and approved and planned residential, infrastructure, industrial, and commercial projects. It is based in part on projects adjacent to and near the Project that were identified by Madera County and by Caltrans (District 6) in the March 2020 Final EIR referenced above. The table lists past projects, projects under construction, and reasonably foreseeable future projects considered for the cumulative impact analysis.

Table 4.3-3. Projects List for Cumulative Impact Assessment: Biological Resources

Project Name	Location	Description	Biological Impacts	Status
Madera 41 South Expressway	State Route 41. Madera County. Post mile 1.5 to 7.6	Proposes extending freeway north and transitioning into a four-lane expressway at Avenue 12 on new and existing alignment	Habitat for special-status species	Final Environmental Document
Ranchos Rehab Project	State Route 41 from post mile 7.6 to north of State Route 145	Proposes widening to four-lane expressway on new and existing alignment	Habitat for special-status species	Draft Environmental Document
Riverstone/ Gateway Village	West of State Routh 41 north/ south of Avenue 12	Proposes 6,568 dwellings on 1,973 acres, light industrial uses, 148 acres of open space, and four elementary schools	Habitat for special-status species	Construction began in Winter 2015
Tesoro Viejo	East of State Route 41 between Avenue 12 and the Madera Canal	Proposes 5,200 residential units, commercial space, light industrial, open space and parks, schools, a sewage treatment and water treatment facility, and community park/storm water retention basin	Habitat for special-status species	Construction began in Fall 2017

[1] *Madera 41 South Expressway On State Route 41 from 0.8 mile south of the Avenue 11 Undercrossing to 1.4 miles north of Avenue 15 in Madera County (SCH# 2015051074) Final Environmental Impact Report/Environmental Assessment and Section 4(f) Evaluation with Finding of No Significant Impact.* Prepared by the State of California Department of Transportation. March 2020.

Table 4.3-3. Projects List for Cumulative Impact Assessment: Biological Resources

Project Name	Location	Description	Biological Impacts	Status
Gunner Ranch West	West of State Route 41 north/south of Avenue 10	2,840 residential units, commercial space, hospital-related services, medical offices, a government center, open space, parks, hospital electrical substation, and a 62-acre wastewater treatment plant	Habitat for special-status species	No construction date
Bonadelle Ranchos Number 9	West of State Route 41 between Avenues 14 and 15	Includes 1- and 2-acre residential units, commercial lots, and a church	Habitat for special-status species	Existing
Rolling Hills	West of State Route 41 between Avenues 11 and 12	299 housing units, commercial units, fire station	Habitat for special-status species	Built
Madera Quarry	North of State Route 145 and 2 miles west of State Route 41	Mines and processes, aggregate material and transports offsite	Habitat for special-status species	Opened August 2015
Vulcan Materials Austin Quarry	South of State Route 145, west of State Route 41	Mines and processes, aggregate material and, transports offsite	Habitat for special-status species	Approved by County 2016
Community Medical Center	Adjacent to and west of proposed Rio Mesa Blvd. North of Ave. 12	Hospital and medical center.	Habitat for special-status species	Preliminary planning.
Paseo Pacifico Specific Plan	Adjacent to and west of proposed Rio Mesa Blvd. North of proposed Community Medical Center site	769 Residential and commercial development and 43.3 acres of light industrial.	Habitat for special-status species	Environmental review ongoing.

Cumulative Impacts

State and Federally Listed Species and Critical Habitat

The Project would contribute to cumulative impacts on critical habitat for threatened and endangered species. It would additionally impact wetland and vernal pool habitats. The proposed roadway and infrastructure alignment has largely been converted to agricultural use, limiting the habitat available for vernal pool and native upland plants; however, as discussed above, the Study Area still supports areas designated as Critical Habitat for CTS. Additionally, Critical Habitat for two vernal pool plant species, the San Joaquin Valley Orcutt grass and succulent owl's clover, and a crustacean, the vernal pool fairy shrimp, occur within the Study Area and would be directly and indirectly affected by Project construction.

As previously discussed, the construction of Rio Mesa Boulevard was envisioned as an integral part of the Rio Mesa Area Plan. That plan Includes three sub-areas on about 15,000 acres:

1. North Fork Village - now called North Shore at Millerton Lake, includes 5,200 residential units of high-, medium-, low-, and very low-density; and mixed-use, commercial (including highway service commercial), light industrial uses, open space and parks,

schools, a sewage treatment and water treatment facility, and community park/storm water retention basin

2. Rio Mesa Community - Tesoro Viejo development within this area includes 5,200 residential units of high-, medium-, low-, and very low-density; and mixed-use, commercial (including highway service commercial), light industrial uses, open space and parks, schools, a sewage treatment and water treatment facility, and community park/storm water retention basin
3. Avenue 12 Village - includes the Tra Vigne Subdivision, which proposes 432 medium-density residential lots on 70 acres, approximately 70 acres of open space and a wastewater treatment plant. A partial Draft Environmental Impact Report was recirculated for public review in July 2015 but has not been approved by Madera County yet (Caltrans 2020). Properties immediately adjacent to the Project alignment that are currently under development or in plan development include Tesoro Viejo, Paseo Pacifico, and the Community Medical Center.

As development in the region continues, sensitive wildlife species native to the region and their habitat, including those species listed under CESA and FESA and those individuals identified by state and federal resources agencies as Species of Concern, Fully Protected, or sensitive, will be lost through conversion of existing open space to urban development. Although more mobile species might be able to survive these changes in their environment by moving to new areas, less mobile species could be locally extirpated. With continued conversion of natural habitat to human use, the availability and accessibility of remaining foraging and natural habitats in this ecosystem would dwindle and those remaining natural areas may not able to support additional plant or animal populations above their current carrying capacities. Thus, the conversion of plant and wildlife habitat on a regional level as a result of development would result in a significant regional cumulative impact on special-status species and their habitats.

The Project would result in permanent conversion of terrestrial and aquatic plant and wildlife habitat. Temporary potential Project effects on wildlife would be reduced or avoided through Project Mitigation Measures **BIO-1 through BIO-12**, as discussed above. With Project implementation, some critical habitat for succulent owl's clover, San Joaquin Valley Orcutt grass, and CTS will be permanently lost. The Compensatory mitigation proposed in BIO-1, BIO-2, and BIO-12 would offset the loss of critical habitat. For these reasons, the proposed Project's contribution to the cumulative impact on terrestrial and aquatic plants and wildlife would be ***less than considerable.***

4.3.4.4 Protected Wetlands and Waters of the U.S.

The Central Valley represents the cumulative context for the evaluation of cumulative impacts to wetlands, which includes the watersheds of both the Sacramento and the San Joaquin Rivers. Estimates of wetlands that historically existed in California range from 3 to 5 million acres, with the current estimate of wetland acreage in California at approximately 450,000 acres. This represents an 85 to 90 percent reduction in total amount of wetlands within the State. Within the Central Valley, which provides the cumulative context for this analysis, wetlands have diminished to approximately 300,000 acres. Because wetland habitats within the Central Valley have been substantially reduced from their historic extent, and probable future

development within the region would continue to remove or otherwise modify this habitat, such developments would result in a significant cumulative impact.

Project impacts to waters of the U.S. would be mitigated offsite through a Section 404 Permit and a Water Quality Certification or waiver pursuant to Section 401 of the CWA from the RWQCB. Therefore, no net loss of federally protected wetlands or waters of the U.S. would occur. For these reasons, the Project's contribution to the cumulative impact on protected wetlands and Waters of the U.S and State would be ***less than considerable.***

4.3.4.5 Movement and Migration

The San Joaquin Valley, which is the southern half of the Central Valley, represents the cumulative context for the evaluation of cumulative impacts to wildlife movement. Development over the past 150 years has encroached upon and displaced biological resources throughout the San Joaquin Valley of California. The conversion of grassland, oak woodland, riparian woodland, vernal pools, riverine, and other native habitats that support special-status species to agriculture, urban and suburban development, and roads has not only resulted in considerable habitat loss but has resulted in habitat fragmentation such that native wildlife species occurring in intact patches of native habitat cannot readily access other intact habitat patches. In recent years, the lack of connectivity between native habitat patches of the San Joaquin Valley has rendered many terrestrial species once common to those habitat patches susceptible to local extinction. Consequently, the conversion of open areas on a regional level as a result of cumulative development would result in a regionally significant cumulative impact on wildlife corridors such that it could interfere substantially with the movement of native resident or migratory wildlife species.

Though the Project would temporarily disturb terrestrial habitats in the Project Site during construction, terrestrial movement across the land would not be prevented due to the construction of the CTS migration culverts as part of the Project. It is also important to note that a substantial obstacle to CTS migration to the west of the Project Site exists in the form of SR-41 which runs roughly parallel to the Project approximately 2,500 feet to the west of the north/south Project alignment, just north of the Rio Mesa Boulevard/Avenue 12 intersection. Upon completion of construction, no permanent impacts to aquatic or terrestrial movement and migration would occur. For these reasons, the Project's contribution to the cumulative impact of past and future development on wildlife movement in the Project Site resulting from either Project construction or operation and maintenance, would be ***less than considerable***.

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4.4 Cultural and Paleontological Resources

This section describes and evaluates the potential impacts to cultural and paleontological resources resulting from construction and operation of the proposed Project. Applicable regulations, plans, and standards are listed in Section 4.4.2. Section 4.4.1 provides a description of the existing environmental setting/affected environment for Cultural Resources in the Project region and Project Site. Cultural resources are defined as pre-contact (prehistoric) and historic sites, buildings, objects, structures, and districts or any other physical evidence associated with human activity considered important to a culture or a community for scientific, traditional, or religious reasons. Paleontological resources are generally considered to be fossilized remains, traces, or imprints of organisms preserved in or on the Earth's crust, that are of interest and provide information about the history of life on Earth.

Much of the information in this section is based on information from the *Cultural Resources Inventory and Evaluation Rio Mesa Boulevard Project* (ECORP 2020). Due to the sensitive nature of cultural resources, which is restricted from public distribution by state and federal law, the Cultural Resources Inventory and Evaluation Report is not included in the EIR appendices; however, all pertinent information necessary for understanding the cultural resources setting and potential impacts of the Project sufficient for this CEQA evaluation is included in this section.

While this section includes discussion of Native American pre-contact and historic information, Section 4.9 of this DEIR includes further analysis of the ethnography of the Project area as it relates to Tribal Cultural Resources.

4.4.1 Environmental Setting

4.4.1.1 Regional Pre-Contact History

It is generally understood that human occupation of California began at least 10,000 years before present (BP). The archaeological record indicates that between approximately 10,000 and 8000 BP, a predominantly hunting economy existed, characterized by archaeological sites containing numerous projectile points and butchered large animal bones. Although small animal bones and plant grinding tools are rarely found within archaeological sites of this period, small game and floral foods were probably exploited on a limited basis. A lack of deep cultural deposits from this period suggests that groups included only small numbers of individuals who did not often stay in one place for extended periods.

Around 8000 BP, archaeological evidence indicates there was a shift in focus from hunting towards a greater reliance on plant resources. This period, which extended until around 5000 years BP, is sometimes referred to as the Millingstone Horizon (Wallace 1978). An increase in the size of groups and the stability of settlements is indicated by deep, extensive middens at some sites from this period.

In sites dating to after about 5000 BP, archaeological evidence indicates that reliance on both plant gathering and hunting continued as in the previous period, with more specialized adaptation to particular environments. During this period, new peoples from the Great Basin began entering southern California. These immigrants, who spoke a language of the Uto-Aztecan linguistic stock, seem to have displaced or

absorbed the earlier population of Hokan-speaking peoples. Population densities became higher than before and settlement became concentrated in villages and communities along the coast and interior valleys. (Erlandson 1994; McCawley 1996).

4.4.1.2 Ethnography

The Project Site and surrounding area can be associated with territory occupied by the Penutian-speaking Northern Valley Yokuts. Their territory extended from above the junction of the San Joaquin, Old, and Mokelumne rivers on the north, to the westward bend in the San Joaquin River approximately 5 miles south of the Project Site. The ethnography of the northern, or lower, San Joaquin Valley is poorly known. Thus, the available information has been gleaned from historic accounts of early explorers, soldiers, hunters and trappers, and missionaries.

The Yokuts, (meaning "person" or "people") who were Penutian/Yokutsan speakers, were divided into three distinct groups: the Northern Valley Yokuts, the Southern Valley Yokuts, and the Foothills Yokuts. These groups spoke different dialects and were separated by features on the land such as rivers or hills. By the time the Spanish arrived in the early part of the nineteenth century, the Northern Valley Yokuts had established settlements on low mounds in the Delta and along the banks of the San Joaquin River and its tributaries.

Village settlements were composed of small round-to-oval house structures, closely spaced in a row along a riverbank. Houses were covered with light, woven tule reed mats, Villages were located mostly along the eastern bank of the San Joaquin River and along its tributaries. Not surprisingly, given their proximity to rivers and the Delta, a large part of Northern Valley Yokuts subsistence was based on fishing. King salmon, which spawned in the San Joaquin River and its tributaries, were an important resource, but the Yokuts made use of other native species such as white sturgeon, river perch, western suckers, and Sacramento pike. Gathering of plant resources, was as important as fishing, with acorns from the stands of huge valley oaks being a major component of this activity.

Like their Nisenan neighbors to the north, the Northern Valley Yokuts were politically organized into tribelets, estimated to be of about 300 people each. A tribelet identified as the Chowchilla reportedly lived along the Chowchilla River, which is about 22 miles northwest of the Project site (ECORP 2020).

4.4.1.3 Project Area History

The Project Site is in Madera County. Fresno County was formed in 1855 when it separated from Mariposa County. Madera County was formed in 1893 when it separated from Fresno County. The majority of the county line between Madera and Fresno Counties is the San Joaquin River. Madera is the Spanish term for wood. The county derives its name from the town of Madera, named when the California Lumber Company built a log flume to carry lumber to the Central Pacific Railroad that was constructed through Madera in 1876 (Madera County Historical Society 2019).

Territorially, Madera County is the area enclosed by the crest of the Sierra Nevada on the east, by the Chowchilla River on the north and by the San Joaquin River on the south and west. Almost midway through this belt of land flows the Fresno River, on which the City of Madera, the County seat, now stands.

Madera history, before and after the formation of the county in 1893, has been determined by its three different physical areas and their resources: first, the belt of the foothill region in which gold was discovered and the first village established for the accommodation of settlers on the only available water supply. Second, the plains area, with little water supply under natural conditions that could furnish only pasture until electric power warranted pumping or highly capitalized water storage furnished gravity water by canals to the farmer. Third, the higher Sierras, with timber, mineral, and opportunities for recreation and the accommodation of tourists in Yosemite (ECORP 2020).

Euro-American Settlers in the area were drawn to the gold camps after 1848, and the earliest settlements near the Study Area were along rivers and other transportation routes in what was then still Mariposa County. As production in gold mining waned, the settlers turn to pursuits such as ranching and farming.

Agriculture in the study area and surrounding region gained ground with the more prominent ranching industry since the gold rush. Early on, farms needed to be located near a perennial water source. This constraint minimized competition for land between ranching and agriculture, since agricultural interests had no reason to expand out into pastureland areas that were unsuitable for farming. By the 1870s however, the development of extensive irrigation systems began in the Central Valley. Dry soils were easily converted into lush, fecund farmlands. A "no-fence law" was passed in 1874, which obligated the rancher to herd his own cattle and sheep by holding the rancher accountable to any damage his livestock caused in the fields, while farmers were not required to fence their agricultural holdings. This gave the agricultural industry a dominate hold on the economy (ECORP 2020).

Growth of the livestock industry in the 1860s and 1870s was remarkable, because due to nearly a decade of extreme weather and drought, securing a constant flow of water was difficult. Innovative methods such as the American-style windmill were moderately successful in keeping water supply constant for the increasing amount of land being allocated to farming and agriculture (ECORP 2020).

Wheat fields dominated the agricultural crop holdings in the mid-1870s, but some farmers had been experimenting with grapes and citrus orchards. In the 1880s, a drop in the price of wheat caused an abrupt shift in focus to these newer crops. Vineyards and orchards quickly replaced wheat fields in much of the valley in Madera County. This diversification in crops was crucial to the success of the agricultural industry. The entire economy was less susceptible to market downturns than if only a single commodity was held. The land around the study area supported a wide variety of crops, including grapes, citrus, tomatoes, and berries (ECORP 2020). Known Cultural Resources in the Study Area

The efforts to identify cultural resources within the study area consisted of a records search of the California Historical Resources Information System (CHRIS) at Southern San Joaquin Valley Information Center (SSJVIC), a review of historic maps, photographs, records on file with the State Office of Historic Preservation, ethnographic information, literature pertaining to the study area and surrounding region, a review of geological and soils data, and an archaeological pedestrian survey and are outlined in the Methods section below.

The records search identified three cultural resources within 0.5 mile of the study area. One is believed to be associated with Native American occupation of the vicinity, and two are historic-period sites,

associated with early Euro-Americans ranching and farming activities. No previously recorded cultural resources are located with the study area.

The nearest NRHP listed property is nine miles southwest of the study area. The nearest California Landmark is located seven miles northeast of the Study Area. The historic period maps and literature indicated that the Study Area was historically agricultural lands and was largely undeveloped until at least 1964 when it was used for agricultural land and eventually orchards in the 1970s. Historic GLO land patent records from the BLM's patent information database indicates that between 1872 and 1891 most of the study area land was obtained through cash purchases from the federal government. No responses to the letters sent to the San Joaquin Historical Society have been received as of the preparation of this document.

The nearest Native American village indicated in ethnographic literature is Holowichniu, located near Millerton Lake, approximately five miles northeast of the Study Area. A search of the Sacred Lands File by the NAHC did indicate the presence of Native American cultural resources in the Study Area, and the Dumna Wo-Wah were contacted to request additional information on any resources in the Study Area. No cultural resources were identified in the Study Area through consultation.

Ultimately, no potential Historical Resources were identified within the study area through the records search or literature review.

During the subsequent pedestrian survey, one historic period cultural resources was identified: FB-002, a historic-period gravity-based irrigation system represented by a series of interconnected, partially exposed and underground irrigation features located throughout the property. These irrigation features first appear on 1972 aerial photographs as the property was intensively converted into orchard production by this time. This resource includes three detention basins, seven irrigation pumps, a well, and electrical panel features, 20 to 30 concrete joint-mortared standpipes, and a series of concrete pipe irrigation connected by underground laterals.

ECORP carried out historical and archival research to evaluate FB-002 within its historic context (water conveyance for ranching and agriculture in the Central Valley and Madera County). Archival research revealed no evidence that this resource is associated with an historical event or a person or contributed to the broad patterns of history; it does not represent an example of any established architectural style or have uniquely artistic traits, and it does not have the potential to yield information important to pre-contact history or history. Therefore, it is not eligible for the NRHP and CRHR as an individual resource and it does not contribute to any known or suspected historic district. It is not considered a Historical Resource or a unique archaeological resource.

A review of geological and soils reports indicates there exists the potential for buried pre-contact archaeological sites in the study area due to the to the presence of alluvium along the San Joaquin River located less than one mile southeast of the study area and the likelihood of pre-contact archaeological sites located along perennial waterways.

4.4.1.4 Paleontological Resources

A paleontological records search of online data published by the University of California, Museum of Paleontology (UCMP) was completed by ECORP Senior Archaeologist Wendy Blumel on October 2, 2017. The UCMP lists 235 paleontological specimens from two localities in Madera County; however, not all specimens in the UCMP collections have been cataloged and digitized and other specimens have likely been recorded within the vicinity of the Project area (UCMP 2017). The specific location of all recorded localities is available only to qualified paleontologists, and the location of these uncatalogued occurrences relative to the Project area is unclear without more extensive archival research. Of the 235 published specimens recorded within Madera County, six are fossil invertebrates and 229 are fossil vertebrates, primarily of from the Genus Equus (UCMP 2017). Two-hundred and twenty-eight of the cataloged finds in Madera County were collected from one location, approximately 30 miles to the northwest of the Project area and are Pleistocene in age.

According to the Soil Survey Geographic Database for Madera County, California (NRCS 2017), eight soil units, or types, have been mapped within the study area. These are: (AsA) Alamo clay, 0 to 1 percent slopes; (RaA) Ramona sandy loam, 0 to 3 percent slopes; (RaB) Ramona sandy loam, 3 to 8 percent slopes; (RdC) Redding gravelly loam, 3 to 15 percent slopes; (RgC) Redding-Raynor complex, 3 to 15 percent slopes; (SaA) San Joaquin sandy loam, 0 to 3 percent slopes, MLRA 17; (WrB) Whitney and Rocklin sandy loams, 3 to 8 percent slopes; and (WRC) Whitney and Rockling sandy loams, 8 to 15 percent slopes (NRCS 2017). All of these soils except Redding gravelly loam, 3 to 15 percent slopes and Redding-Raynor complex, 3 to 15 percent slopes and San Joaquin sandy loam, 0 to 3 percent slopes, are either considered hydric or have hydric components (NRCS 2017).

Surface sediments within the Project area consist primarily of Pleistocene nonmarine sediments (Qc) with small outcroppings of Tertiary nonmarine sediments (Tc) in the western portion of the Project area (Matthews and Burnett 1965). Due to inconsistency in naming sediment formations throughout the San Joaquin Valley, it is unclear whether or not the Pleistocene sediments in the Project area correspond with the Pleistocene non-marine Turlock Lake Formation that runs to the north and northwest of the Project area along the Sierra Nevada foothills. It appears that the Project area is located on the same broad outcrop of Pleistocene sediments labeled as the Turlock Lake Formation on the adjacent Geologic Map of the Raymond Quadrangle (Bateman et al. 1982). The Turlock Lake Formation has been known to contain vertebrate fossils associated with the Irvingtonian Age (1.8 million years to 240,000 years BP) (Marchand and Allwardt 1981).

ECORP also requested a records search and literature review from the Los Angeles County Museum of Natural History (LACMNH) for the project area. The results of the LACMNH records search did not find any fossil vertebrate localities that lie directly within the proposed project area boundaries; however, nearby locations within sedimentary deposits similar to those that occur in the Project area may be present. According to the geologic mapping, surface deposits for the entire Project area consist of soil on top of late Pleistocene deposits of the Riverbank Formation. LACMNH does not have any vertebrate fossil localities specifically designated as coming from the Riverbank Formation, but show the closest vertebrate fossil locality from similar deposits is LACM 7254, several miles northwest of the proposed Project area on

the south side of Ash Slough northeast of Chowchilla, that produced a fossil specimen of Elephantoid, proboscidea.

4.4.2 Regulatory Framework

4.4.2.1 Federal

Approvals from the United States Army Corps of Engineers (USACE) may be required for the Project due to potential impacts to wetlands and other waters under federal jurisdiction (discussed further in Section 4.3 of the DEIR). Therefore, discussion of cultural resources requirements associated with federal agency approvals is included here.

National Historic Preservation Act

The National Historic Preservation Act (NHPA) requires that federal agencies consider the potential effects of their undertakings on resources identified in or eligible for listing in the National Register of Historic Places (NRHP), which is the nation's master inventory of known historic resources. The NRHP is administered by the National Park Service (NPS) and includes listings of buildings, structures, sites, objects, and districts that possess historic, architectural, engineering, archaeological, or cultural significance at the national, state, or local level.

Structures, sites, buildings, districts, and objects over 50 years of age can be listed in the NRHP as significant historic resources. However, properties under 50 years of age that are of exceptional importance or are contributors to a historic district can also be included in the NRHP.[1] The criteria for listing in the NRHP include resources that:

a) are associated with events that have made a significant contribution to the broad patterns of history;
b) are associated with the lives of persons significant in our past;
c) embody the distinctive characteristics of a type, period, or method of construction, or that represent the work of a master, or that possess high artistic values, or that represent a significant and distinguishable entity whose components may lack individual distinction; or
d) have yielded or may likely yield information important in prehistory or history.

4.4.2.2 State

California Register of Historical Resources

The California Register of Historic Resources (CRHR) is used by state and local agencies, private groups, and citizens to identify, evaluate, register, and protect California's historical resources. The CRHR is the list of the state's significant historical and archaeological resources. This program encourages public

[1] A [historic] district possesses a significant concentration, linkage, or continuity of sites, buildings, structures, or objects united historically or aesthetically by plan or physical development (NPS 1983).

recognition and protection of resources of architectural, historical, archaeological, and cultural significance, identifies historical resources for state and local planning purposes, determines eligibility for state historic preservation grant funding, and affords certain protections under CEQA.

California Environmental Quality Act

Under CEQA, public agencies must consider the effects of their actions on both historical resources and unique archaeological resources. Pursuant to PRC § 21084.1, a "project that may cause a substantial adverse change in the significance of an historical resource is a project that may have a significant effect on the environment." Section 21083.2 requires agencies to determine whether proposed projects would have effects on unique archaeological resources.

"Historical resource" is defined by PRC § 21084.1 as, "a resource listed in, or determined to be eligible for listing in, the California Register of Historical Resources." Under CEQA Guidelines Section 15064.5(a), historical resources include the following:

- A resource listed in, or determined to be eligible by the State Historical Resources Commission, for listing in the CRHR (PRC § 5024.1).
- A resource included in a local register of historical resources, as defined in PRC § 5020.1(k) or identified as significant in a historical resource survey meeting the requirements of PRC § 5024.1(g), will be presumed to be historically or culturally significant. Public agencies must treat any such resource as significant unless the preponderance of evidence demonstrates that it is not historically or culturally significant
- Any object, building, structure, site, area, place, record, or manuscript which a lead agency determines to be historically significant or significant in the architectural, engineering, scientific, economic, agricultural, educational, social, political, military, or cultural annals of California may be considered to be a historical resource, provided the lead agency's determination is supported by substantial evidence in light of the whole record. Generally, a resource will be considered by the lead agency to be "historically significant" if the resource meets the criteria for listing in the California Register of Historical Resources (PRC Section 5024.1), including the following:

    a) Is associated with events that have made a significant contribution to the broad patterns of California's history and cultural heritage;
    b) Is associated with the lives of persons important in our past;
    c) Embodies the distinctive characteristics of a type, period, region, or method of construction, or represents the work of an important creative individual, or possesses high artistic values; or
    d) Has yielded, or may be likely to yield, information important in prehistory or history.

The fact that a resource is not listed in, or determined to be eligible for listing in the CRHR, not included in a local register of historical resources (pursuant to PRC § 5020.1(k)), or identified in a historical resources

survey (meeting the criteria in PRC § 5024.1(g)) does not preclude a lead agency from determining that the resource may be an historical resource as defined in PRC §§ 5020.1(j) or 5024.1.

Historical resources are usually 45 years old or older and must meet at least one of the criteria for listing in the CRHR, described above (such as association with historical events, important people, or architectural significance), in addition to maintaining a sufficient level of integrity.

Properties of local significance that have been designated under a local preservation ordinance (local landmarks or landmark districts) or that have been identified in a local historical resources inventory may be eligible for listing in the CRHR and are presumed to be historical resources for purposes of CEQA unless substantial evidence indicates otherwise (PRC § 5024.1 and California Code of Regulations (CCR), Title 14, § 4850). Unless a resource listed in a survey has been demolished, lost substantial integrity, or there is a preponderance of evidence indicating that it is otherwise not eligible for listing, a lead agency should consider the resource to be potentially eligible for the CRHR.

CEQA also requires lead agencies to determine if a proposed project would have a significant effect on unique archaeological resources. If a lead agency determines that an archaeological site is a historical resource, the provisions of PRC Section 21084.1 and CEQA Guidelines Section 15064.5 would apply. If an archaeological site does not meet the CEQA Guidelines criteria for a historical resource, then the site may meet the threshold of PRC Section 21083.2 regarding unique archaeological resources. As defined by PRC Section 21083.2(g) a "unique archaeological resource" is:

> *an archaeological artifact, object, or site about which it can be clearly demonstrated that, without merely adding to the current body of knowledge, there is a high probability that it meets any of the following criteria:*
>
> - Contains information needed to answer important scientific research questions and that there is a demonstrable public interest in that information.
> - Has a special and particular quality such as being the oldest of its type or the best available example of its type.
> - Is directly associated with a scientifically recognized important prehistoric or historic event or person."

The CEQA Guidelines note that if a resource is neither a unique archaeological resource nor a historical resource, the effects of the project on that resource shall not be considered a significant effect on the environment (14 CCR Section 15064[c][4]).

If the project would result in a significant impact to a historical resource or unique archaeological resource, treatment options under PRC § 21083.2 include activities that preserve such resources in place in an undisturbed state. Other acceptable methods of mitigation under Section 21083.2 include excavation and curation or study in place without excavation and curation (if the study finds that the artifacts would not meet one or more of the criteria for defining a unique archaeological resource).

Section 7050.5(b) of the California Health and Safety Code specifies protocol when human remains are discovered, as follows:

> In the event of discovery or recognition of any human remains in any location other than a dedicated cemetery, there shall be no further excavation or disturbance of the site or any nearby area reasonably suspected to overlie adjacent remains until the coroner of the county in which the human remains are discovered has determined, in accordance with Chapter 10 (commencing with Section 27460) of Part 3 of Division 2 of Title 3 of the Government Code, that the remains are not subject to the provisions of Section 27492 of the Government Code or any other related provisions of law concerning investigation of the circumstances, manner and cause of death, and the recommendations concerning treatment and disposition of the human remains have been made to the person responsible for the excavation, or to his or her authorized representative, in the manner provided in Section 5097.98 of the Public Resources Code. The coroner shall make his or her determination within two working days from the time the person responsible for the excavation, or his or her authorized representative, notifies the coroner of the discovery or recognition of the human remains.

CEQA Guidelines Section 15064.5(e) requires that excavation activities stop whenever human remains are uncovered and that the county coroner be called in to assess the remains. If the County coroner determines that the remains are those of Native Americans, the NAHC must be contacted within 24 hours. At that time, the lead agency must consult with the appropriate Native Americans, if any, as timely identified by the NAHC. Section 15064.5 directs the lead agency (or applicant), under certain circumstances, to develop an agreement with the Native Americans for the treatment and disposition of the remains.

In addition to the mitigation provisions pertaining to accidental discovery of human remains, the CEQA Guidelines also require that a lead agency make provisions for the accidental discovery of historical or archaeological resources, generally. Pursuant to § 15064.5(f), these provisions should include "an immediate evaluation of the find by a qualified archaeologist. If the find is determined to be an historical or unique archaeological resource, contingency funding and a time allotment sufficient to allow for implementation of avoidance measures or appropriate mitigation should be available. Work could continue on other parts of the building site while historical or unique archaeological resource mitigation takes place."

4.4.2.3 Local

The Project is located in unincorporated Madera County and is subject to applicable goals and policies of the Madera County General Plan. General Plan Policy Document Section 4 "Recreational and Cultural Resources," includes Goal 4.D and related policies relevant for consideration in this cultural resources evaluation as follows:

Goal 4.D: *To identify, protect, and enhance Madera County's important historical, archaeological, paleontological, and cultural sites and their contributing environment.*

Policy 4.D.1 *The County shall solicit the views of the local Native American community in cases where development may result in disturbance to sites containing evidence of Native American activity and/or to sites of cultural importance.*

Policy 4.D.2 *The County shall coordinate with the cities and advisory councils in the county to promote the preservation and maintenance of Madera County's paleontological, archaeological, and historical resources.*

Policy 4.D.3 *The County shall require that discretionary development projects identify and protect from damage, destruction, and abuse, important historical, archaeological, paleontological, and cultural sites and their contributing environment.*

Policy 4.D.4 *The County shall, within its power, maintain confidentiality regarding the locations of archaeological sites in order to preserve and protect these resources from vandalism and the unauthorized removal of artifacts. If significant archaeological and cultural resources are open to the public, the County shall control public access to prevent damage or vandalism.*

Policy 4.D.5 *The County shall provide for the placement of historical markers or signs on adjacent county roadways and major thoroughfares to attract and inform visitors of important historic resource sites.*

Policy 4.D.6 *The County shall encourage the preservation of the original architectural character of significant historic structures and districts. To this end, the County shall use the State Historic Building Code.*

Policy 4.D.7 *The County will use existing legislation and propose local legislation for the identification and protection of cultural resources and their contributing environment.*

Policy 4.D.8 *The County shall support the registration of cultural resources in appropriate landmark designations (i.e., National Register of Historic Places, California Historical Landmarks, Points of Historical Interest, or Local Landmark). The County shall assist private citizens seeking these designations for their property.*

4.4.3 Environmental Impacts and Mitigation Measures

4.4.3.1 Thresholds of Significance

The Project would have a significant impact on cultural resources if it would:

1. Cause a substantial adverse change in the significance of a Historical Resource pursuant to CEQA Guidelines Section 15064.5;

2. Cause a substantial adverse change in the significance of an archaeological resource pursuant to CEQA Guidelines Section 15064.5; or

3. Disturb any human remains, including those interred outside of dedicated cemeteries, without proper handling and notifications.

State CEQA Guidelines Section 15064.5 defines *substantial adverse change* as physical demolition, destruction, relocation, or alteration of the resource or its immediate surroundings such that the significance of an historical resource is materially impaired.

CEQA Guidelines Section 15064.5(b)(2) defines *materially impaired* for purposes of the definition of substantial adverse change as follows:

> The significance of an historical resource is materially impaired when a project:
>
> (A) Demolishes or materially alters in an adverse manner those physical characteristics of an historical resource that convey its historical significance and that justify its inclusion in, or eligibility for, inclusion in the California Register of Historical Resources; or
>
> (B) Demolishes or materially alters in an adverse manner those physical characteristics that account for its inclusion in a local register of historical resources pursuant to section 5020.1(k) of the Public Resources Code or its identification in an historical resources survey meeting the requirements of section 5024.1(g) of the Public Resources Code, unless the public agency reviewing the effects of the project establishes by a preponderance of evidence that the resource is not historically or culturally significant; or
>
> (C) Demolishes or materially alters in an adverse manner those physical characteristics of a Historical Resource that convey its historical significance and that justify its eligibility for inclusion in the California Register of Historical Resources as determined by a lead agency for purposes of CEQA.

CEQA requires that if a project would result in an effect that may cause a substantial adverse change in the significance of a historical resource or would cause significant effects on a unique archaeological resource, then alternative plans or mitigation measures must be considered. Therefore, prior to assessing effects or developing mitigation measures, the significance of cultural resources must first be determined. The steps that are normally taken in a cultural resources investigation for CEQA compliance are as follows:

- identify potential historical resources and unique archaeological resources;
- evaluate the significance of the potential historical resources; and
- evaluate the effects of the project on eligible (significant) historical resources and unique archaeological resources.

The Project would have a significant impact on paleontological resources if it would directly or indirectly destroy a unique paleontological resource of site.

4.4.3.2 Methods

Cultural Resource Records Search and Literature Review

A records search was conducted for the property at the SSJVIC of the CHRIS at California State University, Bakersfield on July 19, 2017 (SSJVIC Search #17-368). An additional records search was conducted at the SSJVIC on February 3, 2020 for revisions to the study area under SSJVIC search #20-055. The purposes of the records searches were to determine the extent of previous surveys within a 0.5-mile radius of the proposed Project location, and to determine whether previously documented pre-contact or historic archaeological sites, architectural resources, or traditional cultural properties exist within this area.

In addition to the official records and maps for archaeological sites and surveys in Madera County, the following historic references were also reviewed: Historic Property Data File for Madera County (OHP 2012); *The National Register Information System* (NPS 2020); *Office of Historic Preservation, California Historical Landmarks* (OHP 2020); *California Historical Landmarks* (OHP 1996 and updates); *California Points of Historical Interest* (OHP 1992 and updates); *Directory of Properties in the Historical Resources Inventory* (1999); *Caltrans Local Bridge Survey* (Caltrans 2019); *Caltrans State Bridge Survey* (Caltrans 2018); and *Historic Spots in California* (Kyle 2002).

Other references examined included a RealQuest Property Search, historic General Land Office (GLO) plat maps and land patent records (Bureau of Land Management [BLM] 2020), historical maps and aerial photographs of the study area to inform about past property uses and built environment. Ethnographic literature and maps were reviewed to determine whether Native American pre-contact villages or resources were located in the vicinity of the study area.

In addition to the record search, ECORP contacted the California Native American Heritage Commission (NAHC) on July 20, 2017 to request a search of the Sacred Lands File for the study area to determine whether or not Sacred Lands have been recorded by California Native American tribes within the study area. Native American Sacred Lands may coincide with archaeological sites.

ECORP mailed letters to the Madera County Historical Society on June 1, 2017 to solicit comments or obtain historical information that the repository might have regarding events, people, or resources of historical significance in the area.

Pedestrian Survey

From August 14 through 22, 2017 and again on February 11, 12, 13, and 14, 2020, ECORP subjected the study area to an intensive pedestrian survey under the guidance of the *Secretary of the Interior's Standards for the Identification of Historic Properties* (NPS 1983) using transects spaced 15 meters apart. ECORP expended a total of 16 person days in the field. At that time, the ground surface was examined for indications of surface or subsurface cultural resources. The general characteristics of the ground surface were inspected for indications of subsurface deposits that may be present on the surface, such as circular depressions or ditches. Whenever possible, the locations of subsurface exposures caused by such factors as rodent activity, water or soil erosion, or vegetation disturbances were examined for artifacts or for

indications of buried deposits. No subsurface investigations or artifact collections were undertaken during the pedestrian survey.

4.4.3.3 Direct and Indirect Impacts/Effects

Impact 4.4-1 **The Project could adversely affect the significance of a historical or archaeological resource pursuant Section 15064.5. Impact determination: *Less than significant with mitigation*.**

Threshold:	*Substantial adverse change in the significance of a Historical Resource pursuant to CEQA Guidelines Section 15064.5.*

The *Cultural Resources Inventory and Evaluation* (ECORP 2020) identified one resource within and adjacent to the Project Site that would have the potential to be adversely affected as a result of Project construction disturbance. The resources is identified as FB-002 and consists of a historic-period irrigation system comprised of several interconnected features including detention basins, electric water pumps, wells, concrete pipe outlets and irrigation, and concrete standpipes. This resource was evaluated by ECORP for its historical significance and found to not be a historical resource or a unique archaeological resource. Therefore, the Project would not result in the removal or alteration of any known Historical Resource.

However, excavation and other ground disturbance activities associated with Project construction would have the potential to adversely affect unknown Historical Resources that may be present within construction disturbance areas. If such resources area present, damage to the resources could be considered a significant impact. Mitigation Measure **CUL-1** requires the cessation of construction activities within 100 feet of any subsurface deposit discovery having the potential to be cultural or human in origin and that the discovery be evaluated and properly treated prior to reinitiation of construction within the area. The implementation of Mitigation Measure **CUL-1**, the Project's impact associated with unknown Historical Resources would be reduced to less than significant.

Mitigation Measure

CUL-1: If subsurface deposits having the potential to be cultural or human in origin are discovered during construction, all work must halt within a 100-foot radius of the discovery. A qualified professional archaeologist, meeting the Secretary of the Interior's Professional Qualification Standards for prehistoric and historic archaeology, shall be retained to evaluate the significance of the find, and shall have the authority to modify the no-work radius as appropriate, using professional judgment. The following notifications shall apply, depending on the nature of the find:

- If the professional archaeologist determines that the find does not represent a cultural resource, then work may resume and no agency notifications are required. A record of the archaeologists determination shall be made in writing to the County.

- If the professional archaeologist determines that the find does represent a cultural resource from any time period or cultural affiliation, then he or she shall immediately notify USACE and Madera County. The agencies shall consult on a finding of eligibility and implement appropriate treatment measures, if the find is determined to be eligible for inclusion in the NRHP or CRHR. Work cannot resume within the no-work radius until the lead agencies, through consultation as appropriate, determine that the site either: 1) is not eligible for the NRHP or CRHR; or 2) that the treatment measures have been completed to their satisfaction.

- If the professional archaeologist determines that the find represents a potential Native American resource that does not include human remains, the professional archeologist and County shall notify the Dumna Wo-Wah tribe. The agencies shall consult with the tribes to assess the significance and eligibility of the find and shall implement appropriate treatment measures if the find is determined to be eligible for inclusion in the NRHP or CRHR. Work shall not resume within the no-work radius until the County determines, through consultation as appropriate, that the find either: 1) is not eligible for the NRHP or CRHR; or 2) that the treatment measures have been completed to their satisfaction.

Impact 4.4-2 **Project construction could affect significant archaeological resources. Impact determination: *Less than significant with mitigation*.**

Threshold:	*Substantial adverse change in the significance of an archaeological resource pursuant to CEQA Guidelines Section 15064.5.*

The Cultural Resources Inventory and Evaluation Report (ECORP 2020) did not identify any archaeological resources within the Project Site based on a records search and pedestrian surface surveys. However, the potential exists for Project excavations within alluvium deposits to yield archeological resources associated with Native American pre-contact villages and occupation of the Project area. The Northern Valley Yokuts territory encompasses the study area and pre-contact villages were often located along waterways such as the San Joaquin River. Thus, the San Joaquin River southeast of the study area increases the likelihood of potential subsurface Native American artifacts within the study area. For this reason, the Project construction activities involving excavation and other ground disturbance would have the potential to disturb and adversely affect unknown archeological resources and would result in a significant impact to archaeological resources.

Mitigation Measure **CUL-1**, above, would provide for identification and appropriate treatment of archaeological resources that may be discovered during Project activities and is considered sufficient to reduce the potential impact to archaeological resources to less than significant. Therefore, the impact is found to be ***less than significant with mitigation***.

Mitigation Measure

Implement Mitigation Measure **CUL-1**.

Impact 4.4-3: Potential for disturbance of human remains during Project construction. Impact determination: *Less than significant with mitigation*.

Threshold:	*Disturbance of human remains, including those interred outside of dedicated cemeteries.*

Ground disturbance and other activities associated with construction of the Project could disturb human remains if present within the Project area. The presence of human remains within the Project area could not be determined by surface investigation alone. The potential for human remains to be present within the Project area and encountered during project activities is considered a potentially significant impact. Implementation of the procedures for addressing human remains as specified in Mitigation Measure **CUL-2** would ensure proper treatment of any human remains encountered during project construction and would reduce the impact to less than significant. This impact is, therefore, less than significant with mitigation.

Mitigation Measure

CUL-2: If human remains are discovered during Project construction activities, all ground-disturbing activity within 100 feet of the resources shall cease and the County Coroner shall be notified immediately, in accordance with Section 5097.98 of the California PRC and Section 7050.5 of California's Health and Safety Code. If the remains are determined by the County Coroner to be Native American, the Coroner shall notify NAHC and procedures under state law shall be followed. If necessary, the archaeologist may provide professional assistance to the Most Likely Descendant, including the excavation and removal of the human remains before resuming ground-disturbing activities within 100 feet of where the remains were discovered.

Impact 4.4-2 Project construction could affect undiscovered significant paleontological resources. Impact determination: *Less than significant with mitigation*.

Threshold:	*Destruction of a unique paleontological resource or site.*

While there are no known occurrences of unique paleontological resources within the Project's area of disturbance, results of the literature review and paleontological records search conducted for this Project indicate the potential for unknown significant resources to exist beneath the surface that could be disturbed or destroyed as a result of Project construction. With implementation of Mitigation Measure PA-1, however, significant impact would be avoided. The impact, therefore, is found to be ***less than significant with mitigation*.**

Mitigation Measure

PA-1: If paleontological or other geologically sensitive resources be identified during any phase of project development, the construction manager shall cease operation at the site of the discovery and immediately notify the Madera County Community Development Department. The owner/applicant shall retain a qualified paleontologist to provide an

evaluation of the find and to prescribe mitigation measures to reduce impacts to a less than significant level. In considering any suggested mitigation proposed by the consulting paleontologist, the Community Development Department shall determine whether avoidance is necessary and feasible in light of factors such as the nature of the find, project design, costs, land use assumptions, and other considerations. If avoidance is unnecessary or infeasible, other appropriate measures (e.g., data recovery) shall be instituted. Work may proceed on other parts of the project site while mitigation for paleontological resources is carried out.

4.4.3.4 Cumulative Impact

Approach to Assessing Cumulative Impact on Cultural Resources

Section 15130 (a) of the California State CEQA Guidelines states:

> An EIR shall discuss cumulative impacts of a project when the project's incremental effect is cumulatively considerable, as defined in section 15065 (a)(3). Where a lead agency is examining a project with an incremental effect that is not "cumulatively considerable," a lead agency need not consider that effect significant, but shall briefly describe its basis for concluding that the incremental effect is not cumulatively considerable.

Significant impacts on cultural resources typically occur when important sites, features, or artifacts are lost, damaged, or destroyed without appropriate mitigation such as recording or data recovery. As these resources are destroyed or displaced, important information is lost and connections to past events, people and cultures are diminished. As land disturbance associated with development in Madera County occurs, cultural resources may be destroyed or otherwise adversely affected. Madera County contains extensive cultural resources, including Native American archaeological sites and historical sites associated with early Euro-American settlement, ranching, and agriculture.

Native American archaeological sites in the county include village sites, burial grounds, procurement sites, and lithic scatters. Impacts on these cultural resources are likely to occur as residential and commercial growth occurs in Madera County. Archaeological surveys of the Project study area found no cultural resources, but the potential does exist for Project construction to affect unknown buried archaeological resources or human remains, as archaeological sites may be present with no surface manifestation.

Implementation of Mitigation Measures **CUL-1** and **CUL-2**, above, would reduce the potential impact on unknown buried cultural resources or human remains to less than significant. Given that surveys of the Project Area found no significant cultural resources and given that Mitigation Measures **CUL-1** and **CUL-2** would avoid any significant impact on previously unknown resources, the Project's potential contribution to the cumulative impact on county-wide cultural resources is considered ***less than considerable***.

4.5 Greenhouse Gas and Climate Change

This section of the EIR assesses the potential impacts associated with greenhouse gas (GHG) emissions resulting from construction and operation of the Project.

4.5.1 Environmental Setting

Certain gases in the earth's atmosphere, classified as GHGs, play a critical role in determining the earth's surface temperature. Solar radiation enters the earth's atmosphere from space. A portion of the radiation is absorbed by the earth's surface and a smaller portion of this radiation is reflected back toward space. This absorbed radiation is then emitted from the earth as low-frequency infrared radiation. The frequencies at which bodies emit radiation are proportional to temperature. Because the earth has a much lower temperature than the sun, it emits lower-frequency radiation. Most solar radiation passes through GHGs; however, infrared radiation is absorbed by these gases. As a result, radiation that otherwise would have escaped back into space is instead "trapped," resulting in a warming of the atmosphere. This phenomenon, known as the greenhouse effect, is responsible for maintaining a habitable climate on earth. Without the greenhouse effect, the earth would not be able to support life as we know it.

Prominent GHGs contributing to the greenhouse effect are carbon dioxide (CO_2), methane (CH_4), and nitrous oxide (N_2O). Fluorinated gases also make up a small fraction of the GHGs that contribute to climate change. Fluorinated gases include chlorofluorocarbons, hydrofluorocarbons, perfluorocarbons, sulfur hexafluoride, and nitrogen trifluoride; however, it is noted that these gases are not associated with typical land use development. Human-caused emissions of these GHGs in excess of natural ambient concentrations are believed to be responsible for intensifying the greenhouse effect and leading to a trend of unnatural warming of the earth's climate, known as global climate change or global warming. It is "extremely likely" that more than half of the observed increase in global average surface temperature from 1951 to 2010 was caused by the anthropogenic increase in GHG concentrations and other anthropogenic factors together (Intergovernmental Panel on Climate Change [IPCC] 2014).

Table 4.5-1, *Greenhouse Gases,* describes the primary GHGs attributed to global climate change, including their physical properties, primary sources, and contributions to the greenhouse effect. Each GHG differs in its ability to absorb heat in the atmosphere based on the lifetime, or persistence, of the gas molecule in the atmosphere. CH4 traps over 25 times more heat per molecule than CO2, and N2O absorbs 298 times more heat per molecule than CO2 (IPCC 2014). Often, estimates of GHG emissions are presented in CO2 equivalents (CO2e), which weight each gas by its global warming potential. Expressing GHG emissions in CO2e takes the contribution of all GHG emissions to the greenhouse effect and converts them to a single unit equivalent to the effect that would occur if only CO2 were being emitted.

Table 4.5-1 Greenhouse Gases

Greenhouse Gas	Description
CO_2	CO_2 is a colorless, odorless gas. CO_2 is emitted in a number of ways, both naturally and through human activities. The largest source of CO_2 emissions globally is the combustion of fossil fuels such as coal, oil, and gas in power plants, automobiles, industrial facilities, and other sources. A number of specialized industrial production processes and product uses such as mineral production, metal production, and the use of petroleum-based products can also lead to CO_2 emissions. The atmospheric lifetime of CO_2 is variable because it is so readily exchanged in the atmosphere.[1]
CH_4	CH_4 is a colorless, odorless gas and is the major component of natural gas, about 87 percent by volume. It is also formed and released to the atmosphere by biological processes occurring in anaerobic environments. CH_4 is emitted from a variety of both human-related and natural sources. Human-related sources include fossil fuel production, animal husbandry (intestinal fermentation in livestock and manure management), rice cultivation, biomass burning, and waste management. These activities release significant quantities of CH_4 to the atmosphere. Natural sources of CH_4 include wetlands, gas hydrates, permafrost, termites, oceans, freshwater bodies, non-wetland soils, and other sources such as wildfires. The atmospheric lifetime of CH_4 is about 12 years.[2]
N_2O	N_2O is a clear, colorless gas with a slightly sweet odor. N_2O is produced by both natural and human-related sources. Primary human-related sources of N_2O are agricultural soil management, animal manure management, sewage treatment, mobile and stationary combustion of fossil fuels, adipic acid production, and nitric acid production. N_2O is also produced naturally from a wide variety of biological sources in soil and water, particularly microbial action in wet tropical forests. The atmospheric lifetime of N_2O is approximately 120 years.[3]

Sources: [1]USEPA 2016a, [2]USEPA 2016b, [3]USEPA 2016c

Climate change is a global issue. GHGs are global pollutants, unlike criteria air pollutants and toxic air contaminants (TACs), which are pollutants of regional and local concern. Whereas pollutants with localized air quality effects have relatively short atmospheric lifetimes (about one day), GHGs have long atmospheric lifetimes (one to several thousand years). GHGs persist in the atmosphere long enough to be dispersed around the globe. Although the exact lifetime of any particular GHG molecule is dependent on multiple variables and cannot be pinpointed, it is understood that more CO_2 is emitted into the atmosphere than is sequestered by ocean uptake, vegetation, or other forms. Of the total annual human-caused CO_2 emissions, approximately 55 percent is sequestered through ocean and land uptakes every year, averaged over the last 50 years, whereas the remaining 45 percent of human-caused CO_2 emissions remains stored in the atmosphere (IPCC 2013).

The quantity of GHGs required to have a measurable influence global climate is very large, and the GHG emissions of any one project would not measurably contribute to a noticeable incremental change in the global average temperature or to global, local, or microclimates. Thus, for the purposes CEQA analysis, GHG impacts are inherently cumulative.

4.5.1.1 Sources of Greenhouse Gas

In 2019, the California Air Resource Board (CARB) released the 2019 edition of the California GHG inventory covering calendar year 2017 emissions. In 2017, California emitted 424.1 million gross metric tons of CO_2e including from imported electricity. Combustion of fossil fuel in the transportation sector was the single largest source of California's GHG emissions in 2017, accounting for approximately 41

percent of total GHG emissions in the state. This sector was followed by the industrial sector (24 percent) and the electric power sector including both in-state and out-of-state sources (15 percent) (CARB 2019).

Emissions of CO_2 are by-products of fossil fuel combustion. CH_4, a highly potent GHG, primarily results from off-gassing (the release of chemicals from nonmetallic substances under ambient or greater pressure conditions) and is largely associated with agricultural practices and landfills. N_2O is also largely attributable to agricultural practices and soil management. CO_2 sinks, or reservoirs, include vegetation and the ocean, which absorb CO_2 through sequestration and dissolution (CO_2 dissolving into the water), respectively, two of the most common processes for removing CO_2 from the atmosphere.

4.5.2 Regulatory Setting

4.5.2.1 State

Executive Order S-3-05

Executive Order (EO) S-3-05, signed by Governor Arnold Schwarzenegger in 2005, proclaims that California is vulnerable to the impacts of climate change. It declares that increased temperatures could reduce the Sierra Nevada snowpack, further exacerbate California's air quality problems, and potentially cause a rise in sea levels. To combat those concerns, the EO established total GHG emission targets for the state. Specifically, emissions are to be reduced to the 2000 level by 2010, the 1990 level by 2020, and to 80 percent below the 1990 level by 2050.

While dated, this executive order remains relevant because a more recent California Appellate Court decision, Cleveland National Forest Foundation v. San Diego Association of Governments (November 24, 2014) 231 Cal.App.4th 1056, examined whether it should be viewed as having the equivalent force of a legislative mandate for specific emissions reductions. While the California Supreme Court ruled that the San Diego Association of Governments did not abuse its discretion by declining "to adopt the 2050 goal as a measure of significance in light of the fact that the EO does not specify any plan or implementation measures to achieve its goal", the decision also recognized that the goal of a 40-percent reduction in 1990 GHG levels by 2030 is "widely acknowledged" as a "necessary interim target to ensure that California meets its longer-range goal of reducing greenhouse gas emissions 80 percent below 1990 levels by the year 2050."

Assembly Bill 32 Climate Change Scoping Plan and Updates

In 2006, the California legislature passed Assembly Bill (AB) 32 (Health and Safety Code § 38500 et seq., or AB 32), also known as the Global Warming Solutions Act. AB 32 requires CARB to design and implement feasible and cost-effective emission limits, regulations, and other measures, such that statewide GHG emissions are reduced to 1990 levels by 2020 (representing a 25-percent reduction in emissions). AB 32 anticipates that the GHG reduction goals will be met, in part, through local government actions. CARB has identified a GHG reduction target of 15 percent from current levels for local governments and notes that successful implementation relies on local governments' land use planning and urban growth decisions.

Pursuant to AB 32, CARB adopted a Scoping Plan in December 2008, which was re-approved by CARB on August 24, 2011, that outlines measures to meet the 2020 GHG reduction goals. To meet these goals,

California must reduce its GHG emissions by 30 percent below projected 2020 business-as-usual emissions levels or about 15 percent from today's levels. The Scoping Plan recommends measures for further study and possible State implementation, such as new fuel regulations. It estimates that a reduction of 174 million metric tons of CO2e (about 191 million U.S. tons) from the transportation, energy, agriculture, and forestry sectors and other sources could be achieved should the State implement all of the measures in the Scoping Plan.

The Scoping Plan is required by AB 32 to be updated at least every five years. The first update to the AB 32 Scoping Plan was approved on May 22, 2014 by CARB. The 2017 Scoping Plan Update was adopted on December 14, 2017. The Scoping Plan Update addresses the 2030 target established by Senate Bill (SB) 32 as discussed below and establishes a proposed framework of action for California to meet a 40-percent reduction in GHG emissions by 2030 compared to 1990 levels. The key programs that the Scoping Plan Update builds on include increasing the use of renewable energy in the state, the Cap-and-Trade Regulation, the Low Carbon Fuel Standard, and reduction of CH4 emissions from agricultural and other wastes.

Executive Order B-30-15

On April 20, 2015 Governor Brown signed EO B-30-15 to establish a California GHG reduction target of 40 percent below 1990 levels by 2030. The Governor's EO aligns California's GHG reduction targets with those of leading international governments such as the 28-nation European Union, which adopted the same target in October 2014. California is on track to meet or exceed the target of reducing GHG emissions to 1990 levels by 2020, as established in the California Global Warming Solutions Act of 2006 (AB 32, discussed above). California's new emission reduction target of 40 percent below 1990 levels by 2030 will make it possible to reach the ultimate goal of reducing emissions 80 percent below 1990 levels by 2050. This is in line with the scientifically established levels needed in the U.S. to limit global warming below 2 degrees Celsius, the warming threshold at which major climate disruptions are projected, such as super droughts and rising sea levels.

Senate Bill 32 and Assembly Bill 197 of 2016

In August 2016, Governor Brown signed SB 32 and AB 197, which serve to extend California's GHG reduction programs beyond 2020. SB 32 amended the Health and Safety Code to include Section 38566, which contains language to authorize CARB to achieve a statewide GHG emission reduction of at least 40 percent below 1990 levels by no later than December 31, 2030. SB 32 codified the targets established by EO B-30-15 for 2030, which set the next interim step in the State's continuing efforts to pursue the long-term target expressed in EOs S-3-05 and B-30-15 of 80 percent below 1990 emissions levels by 2050.

Senate Bill X1-2 of 2011 and Senate Bill 350 of 2015

SB X1-2 of 2011 requires all California utilities to generate 33 percent of their electricity from renewables by 2020. SB X1-2 sets a three-stage compliance period requiring all California utilities, including independently owned utilities, energy service providers, and community choice aggregators, to generate 20 percent of their electricity from renewables by December 31, 2013; 25 percent by December 31, 2016; and 33 percent by December 31, 2020. SB X1-2 also requires the renewable electricity standard to be met

increasingly with renewable energy that is supplied to the California grid from sources within, or directly proximate to, California.

In October 2015, SB 350 was signed by Governor Brown, which requires retail sellers and publicly owned utilities to procure 50 percent of their electricity from renewable resources by 2030. In 2018, SB 100 was signed by Governor Brown, codifying a goal of 60-percent renewable procurement by 2030 and 100 percent by 2045 Renewal Portfolio Standards.

Executive Order B-55-18

Governor Jerry Brown Signed Executive B-55-18 into law in September 2018. Order Executive Order B-55-18 sets a goal for the state to reach carbon neutrality no later than the year 2045, and to maintain negative net emissions thereafter. Carbo neutrality refers to achieving a net zero carbon dioxide emissions. This can be achieved by reducing or eliminating carbon emissions, balancing carbon emissions with carbon removal, or a combination of the two. This goal is in addition to existing statewide targets for GHG emission reduction.

4.5.2.2 Local

San Joaquin Valley Air Pollution Control District

The local air quality agency regulating the Project site is the San Joaquin Valley Air Pollution Control District (SJVAPCD), the regional air pollution control agency for the San Joaquin Valley Air Basin (SJVAB). To provide guidance to local lead agencies on determining significance for GHG emissions in CEQA documents, the SJVAPCD provides a tiered approach in assessing significance of project specific GHG emission increases as shown below (SJVAPCD 2015):

- Projects complying with an approved GHG emission reduction plan or GHG mitigation program which avoids or substantially reduces GHG emissions within the geographic area in which the project is located would be determined to have a less-than-significant individual and cumulative impact for GHG emissions. Such plans or programs must be specified in law or approved by the lead agency with jurisdiction over the affected resource and supported by a CEQA-compliant environmental review document adopted by the lead agency. Projects complying with an approved GHG emission reduction plan or GHG mitigation program would not be required to implement Best Performance Standards (BPS).
- Projects implementing BPS would not require quantification of project specific GHG emissions. Consistent with CEQA Guidelines, such projects would be determined to have a less-than-significant individual and cumulative impact for GHG emissions.
- Projects not implementing BPS would require quantification of project-specific GHG emissions and demonstration that project-specific GHG emissions would be reduced or mitigated by at least 29 percent and compared to Business-as-Usual (BAU), including GHG emission reductions achieved since the 2002-2004 baseline period, consistent with GHG emission reduction targets established in the 2017 Scoping Plan. Projects achieving at least a 29 percent GHG emission

reduction compared to BAU would be determined to have a less-than-significant individual and cumulative impact for GHGs.

The BPS and the BAU portions of the SJVAPCD tiered approach are inapt for this Project given its small scope and relatively low level of projected GHG emissions, as further described in the following sections. Moreover, in *Center for Biological Diversity v. Department of Fish & Wildlife* (2015) 62 Cal.4th 204, 225, 229 (also known as the "Newhall Ranch" decision),, the California Supreme Court explained that use of a BAU method, in which a project that demonstrates certain GHG reductions below the Scoping Plan's BAU scenario, is an acceptable methodology for determining potentially significant GHG emissions effects for purposes of CEQA; however, such a BAU approach must include substantial evidence showing how a project-level reduction in GHG emissions "in comparison to business as usual is consistent with achieving A.B. 32's statewide goal of a 29 percent reduction from business as usual." Examining the Newhall Ranch project's EIR, the Court further explained that:

[*a]t bottom, the EIR's deficiency stems from taking a quantitative comparison method developed by the Scoping Plan as a measure of the greenhouse gas emissions reduction effort required by the state as a whole, and attempting to use that method, without consideration of any changes or adjustments, for a purpose very different from its original design: To measure the efficiency and conservation measures incorporated in a specific land use development proposed for a specific location. The EIR simply assumes that the level of effort required in one context, a 29 percent reduction from business as usual statewide, will suffice in the other, a specific land use development. From the information in the administrative record, we cannot say that conclusion is wrong, but neither can we discern the contours of a logical argument that it is right. The analytical gap left by the EIR's failure to establish, through substantial evidence and reasoned explanation, a quantitative equivalence between the Scoping Plan's statewide comparison and the EIR's own project-level comparison deprived the EIR of its "sufficiency as an informative document."*(*Center for Biological Diversity v. Department of Fish & Wildlife* (2015) 62 Cal.4th 204, 227, internal citations omitted.) Thus, given this Project's scope and relatively low projected GHG emissions, the project-level to state-level BAU comparison required in the Newhall Ranch decision would be inappropriate for the Project's analysis of GHG emissions. The BAU approach is further inapt because the SJVAPCD thresholds are based on statewide GHG-reduction targets for the year 2020, and the Project would be constructed beginning in the year 2021.

Madera County General Plan

The Air Quality Element of the Madera County General Plan (Madera County, 2010) includes the following goal associated with greenhouse gas emissions:

AQ Goal G1: *Reduce Madera County's proportionate contribution of greenhouse gas emissions and the potential impact that may result on climate change from internal governmental operations and land use activities within its authority.*

The Transportation and Circulation section of the Madera County General Plan Policy Document includes the following policy associated with greenhouse gas emission reductions:

Policy 2.A.2. The County shall develop the transportation system to reduce vehicle miles traveled, conserve energy resources, minimize air pollution, and reduce greenhouse gas emissions.

4.5.3 Environmental Impacts

4.5.3.1 Thresholds of Significance

According to Appendix G of the CEQA Guidelines, climate change impacts are considered significant if implementation of the Project would:

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

For reasons explained in more detail below, this evaluation uses an GHG emissions threshold of 900 tons per year to determine whether the Project GHG emissions would be significant.

The CEQA Guidelines do not prescribe specific methodologies for performing an assessment, do not establish specific thresholds of significance, and do not mandate specific mitigation measures. Rather, the CEQA Guidelines emphasize the lead agency's discretion to determine the appropriate methodologies and thresholds of significance consistent with the manner in which other impact areas are handled in CEQA. With respect to GHG emissions, the CEQA Guidelines Section 15064.4(a) states that lead agencies "shall make a good-faith effort, based to the extent possible on scientific and factual data, to describe, calculate or estimate" GHG emissions resulting from a project. The CEQA Guidelines note that an agency has the discretion to either quantify a project's GHG emissions or rely on a "qualitative analysis or other performance-based standards." (14 CCR 15064.4(b)). A lead agency may use a "model or methodology" to estimate GHG emissions and has the discretion to select the model or methodology it considers "most appropriate to enable decision makers to intelligently take into account the project's incremental contribution to climate change." (14 CCR 15064.4(c)). Section 15064.4(b) provides that the lead agency should consider the following when determining the significance of impacts from GHG emissions on the environment:

1. The extent 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.
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)).

In addition, Section 15064.7(c) of the CEQA Guidelines specifies that "[w]hen adopting or using thresholds of significance, a lead agency may consider thresholds of significance previously adopted or recommended by other public agencies, or recommended by experts, provided the decision of the lead agency to adopt such thresholds is supported by substantial evidence" (14 CCR 15064.7(c)). The CEQA

Guidelines also clarify that the effects of GHG emissions are cumulative and should be analyzed in the context of CEQA's requirements for cumulative impact analysis (see CEQA Guidelines Section 15130). As a note, the CEQA Guidelines were amended in response to Senate Bill 97. In particular, the CEQA Guidelines were amended to specify that compliance with a GHG emissions reduction plan renders a cumulative impact insignificant (Association of Environmental Planners [AEP] 2019).

Per CEQA Guidelines Section 15064(h)(3), a project's incremental contribution to a cumulative impact can be found not cumulatively considerable if the project would comply with an approved plan or mitigation program that provides specific requirements that would avoid or substantially lessen the cumulative problem within the geographic area of the project. To qualify, such plans or programs must be specified in law or adopted by the public agency with jurisdiction over the affected resources through a public review process to implement, interpret, or make specific the law enforced or administered by the public agency. Examples of such programs include a "water quality control plan, air quality attainment or maintenance plan, integrated waste management plan, habitat conservation plan, natural community conservation plans [and] plans or regulations for the reduction of greenhouse gas emissions." Put another way, CEQA Guidelines Section 15064(h)(3) allows a lead agency to make a finding of less than significant for GHG emissions if a project complies with adopted programs, plans, policies and/or other regulatory strategies to reduce GHG emissions.

As previously stated, the BPS and the BAU portion of the SJVAPCD tiered approach, based on the 2015 California Supreme Court Newhall Ranch decision, are unsuited to the small scope and projected GHG emissions resulting from the Project. Furthermore, the SJVAPCD tiered thresholds are based on statewide GHG-reduction targets for the year 2020, and the Project would be constructed beginning in the year 2021. Therefore, the Project GHG emissions are quantified and compared to the thresholds issued by the California Air Pollution Control Officers Association (CAPCOA), which is an association of the air pollution control officers from all 35 local air quality agencies throughout California, including the SJVAPCD.

CAPCOA recommends a significance threshold of 900 metric tons of CO_2e annually for each individual project construction and operational phases. This threshold is based on a capture rate of 90 percent of land use development projects, which in turn translates into a 90 percent capture rate of all GHG emissions. The 900 metric ton threshold, the lowest promulgated in any region in the state, is considered by CAPCOA to be low enough to capture a substantial fraction of future residential and nonresidential development that will be constructed to accommodate future statewide population and economic growth, while setting the emission threshold high enough to exclude small projects that will in aggregate contribute a relatively small fraction of the cumulative statewide GHG emissions (CAPCOA 2008).

In *Center for Biological Diversity v. Department of Fish and Wildlife* (2015) 62 Cal. 4th 2014, 213, 221, 227, following its review of various potential GHG thresholds proposed in an academic study [Crockett, *Addressing the Significance of Greenhouse Gas Emissions: California's Search for Regulatory Certainty in an Uncertain World* (July 2011), 4 Golden Gate U. Envtl. L. J. 203], the California Supreme Court identified the use of numeric bright-line thresholds as a potential pathway for compliance with CEQA GHG requirements. The study found numeric bright line thresholds designed to determine when small projects were so small as to not cause a cumulatively considerable impact on global climate change was consistent with CEQA. Specifically, Public Resources Code section 21003(f) provides it is a policy of the state that

"[a]ll persons and public agencies involved in the environmental review process be responsible for carrying out the process in the most efficient, expeditious manner in order to conserve the available financial, governmental, physical and social resources with the objective that those resources may be better applied toward the mitigation of actual significant effects on the environment." The Supreme Court-reviewed study noted, "[s]ubjecting the smallest projects to the full panoply of CEQA requirements, even though the public benefit would be minimal, would not be consistent with implementing the statute in the most efficient, expeditious manner. Nor would it be consistent with applying lead agencies' scarce resources toward mitigating actual significant climate change impacts." (Crockett, *Addressing the Significance of Greenhouse Gas Emissions: California's Search for Regulatory Certainty in an Uncertain World* (July 2011), 4 Golden Gate U. Envtl. L. J. 203, 221, 227.)

As previously described, the 900 metric tons of CO_2e per year threshold represents a 90 percent capture rate (i.e., this threshold captures projects that represent approximately 90 percent of GHG emissions from new sources). The 900 metric tons of CO_2e per year value represents less than one percent of future 2050 statewide GHG emissions target and is therefore typically used to define small projects within this air basin that are considered less than significant. Land use projects above the 900 metric tons of CO_2e per year level would fall within the percentage of largest projects that are worth mitigating without wasting a Lead Agency's scarce financial, governmental, physical, and social resources. (Crockett 2011). As noted in the academic study, the fact that small projects below a numeric bright line threshold are not subject to CEQA-based mitigation, does not mean such small projects do not help the state achieve its climate change goals because even small projects participate in or comply with non-CEQA-based GHG reduction programs, contribute to reductions in GHG emissions from construction projects.

This analysis therefore relies on the stringent 900 metric tons of CO2e per year threshold for the following reasons. First, as described above, a BAU approach is inapt given the Project's small size and scope—the Project would contribute roughly less than one percent of GHG emissions to cumulative statewide GHG emissions, based on 2050 statewide GHG emission targets. Second, the SJVAPCD BAU approach relies on AB32 goals for 2020, and the Project would begin construction in 2021. Third, there is no local, adopted Climate Action Plan that could provide guidance on appropriate GHG emission thresholds for projects of similarly small size, or how the Project might demonstrate compliance with any such local GHG emission requirements or measures. Fourth, the 900 metric tons of CO2e per year threshold is better suited to analyzing the Project's potential GHG emissions than a proxy threshold from a different Air Basin's guidelines or plans; such plans and guidelines are not adapted or calibrated to, prepared for, or adopted for use in, the SJVAPCD.

4.5.3.2 Methodology

GHG emissions associated with Project construction were modeled using the CalEEMod, version 2016.3.2 consistent with CEQA Guidelines Section 15064(c) (model output is provided in Appendix D of this DEIR). CalEEMod is a statewide land use emissions computer model designed to quantify air pollutant and GHG emissions associated with both construction and operations from a variety of land use projects.

4.5.3.3 Project Impact Analysis

Impact 4.5-1: Project construction would generate GHG emissions. Impact determination: Less than significant.

Threshold:	*Generation of GHG emissions in excess of 900 metric tons CO2E per year.*

GHG emissions associated with the Project would result from combustion of fossil fuels during construction activities involving the use of construction equipment and vehicles.

Project construction GHG emissions were calculated using CalEEMod model defaults for Madera County refined to reflect Project specifications, such as the duration of construction activities and types of construction equipment to be used. Construction emissions were calculated using separate modeling calculations for Phase 1 construction and Phase 2 construction to account for the various construction activities of each phase. Operational impacts were not assessed in this analysis as the Project does not propose any new buildings or residents and therefore no permanent stationary emissions would be associated with the Project once construction is complete.

The Project would accommodate existing and predicted traffic demands and uphold Madera County's goals to reduce VMT, improve safety on roadways, and provide better access to regional transportation routes. The Project has been designed to accommodate approved and planned development in the County, per the Final Rio Mesa Area Plan (1995) and is consistent with projections contained in the Circulation Element of the Madera County General Plan and other applicable regional plans such as the Madera County Transportation Plan (MCTC 2018) and Board Resolution 2016-269 Official Plan Line (Madera County 2016). The Project is also not expected to induce an increase in VMT because it is not intended to relieve existing or future congestion on existing roadways. Instead, and as discussed in Chapters 3 and 4.8 of this DEIR, it is intended to provide more direct access to existing and future development and, thus, reduce vehicle trip length from the SR 41/Avenue 12 intersection to Tesoro Viejo and to provide access to parcels adjacent to the proposed road alignment as envisioned in the RMAP. Therefore, the Project's operations would not result in unplanned vehicle trips resulting in new GHG emissions that were not already analyzed and approved in the applicable plans.

Greenhouse gas emissions during construction of both Phase 1 and Phase 2 were estimated and compared to the significance threshold. Phase 1 construction was modeled beginning in June of 2021 and is predicted to last approximately one year. Due to the construction activities proposed in Phase 1, it was assumed that initial activities would be performed during the summer (dry) months. As such, Phase 1 was modeled as beginning in June of 2021 and extending into 2022. Construction of Phase 2 was modeled beginning in January of 2023 and is predicted to last approximately 9 months. The activities assumed to take place in each phase, timing and construction equipment necessary are provided in Appendix C.

Table 4.5-2, Construction-Related Greenhouse Gas Emissions, provide the estimated construction GHG emissions associated with each phase.

Table 4.5-2. Construction-Related Greenhouse Gas Emissions	
Emissions Source	**CO_2e (metric tons per year)**
Phase 1	
Construction 2021	896
Construction 2022	257
Phase 2	
Construction 2023	*896*
Significance Threshold	*900*
Exceed Significance Threshold?	**No**

Source: CalEEMod version 2016.3.2. See Appendix D for emission model outputs.

As shown in Table 4.5-2, GHG emissions during Project construction would not exceed the significance threshold of 900 metric tons of CO_2e during any year of construction.

Once constructed, the Project components would not generate GHG emissions from long-term operations. As discussed in more detail in Section 4.8, Transportation, the Project would not increase vehicle trips or vehicle trip distances as compared to conditions without the Project and is not anticipated to induce VMT because the Project is not intended to relieve existing or future congestion on existing roadways. Instead, the Project is intended to provide more direct access to existing and future development and, thus, reduce vehicle trip length from the SR 41/Avenue 12 intersection to Tesoro Viejo and provide access to parcels adjacent to the proposed road alignment as envisioned in the RMAP. Therefore, the Project would not result in long-term increases in GHG emissions and thus the impact of the Project's GHG emissions would be ***less than significant***.

Impact 4.5-2 The Project would not conflict with any approved plan, policy, or regulation adopted for the purpose of reducing GHG emissions.

Threshold:	*Conflict with an applicable plan, policy or regulation adopted for the purpose of reducing the emissions of greenhouse gases.*

The County of Madera does not currently have an applicable plan, policy, or regulation adopted for the purpose of reducing GHG emissions. However, as previously described the State of California promulgates several mandates and goals to reduce statewide GHG emissions, including the goal to reduce statewide GHG emissions to 40 percent below 1990 levels by the year 2030 (SB 32). As previously described, temporary Project-related GHG emissions during construction would not exceed GHG significance thresholds, which were developed in consideration of statewide greenhouse reduction goals. Furthermore, the Project would not include new permanent sources of GHG emissions and would not generate new or unplanned permanent GHG emissions. The Project is part of the Rio Mesa Area Plan (Circulation Concept Plan) approved in 1995.

Project construction GHG emissions would not exceed the significance thresholds. The Project would accommodate previously planned development consistent with the adopted RMAP and would not change land uses anticipated in the RMAP. The Project would not generate new traffic or increase vehicle trips or vehicle miles traveled. For these reasons, the Project would not conflict with or obstruct implementation of any applicable plan, policy or regulation adopted for the purpose of reducing GHG emissions, therefore, this impact is ***less than significant***.

4.5.3.4 Cumulative Impacts

Climate change is a global issue. An individual project of this size and nature is of insufficient magnitude by itself to influence climate change or result in a substantial contribution to the global GHG inventory. Therefore, the GHG impacts discussed above and the thresholds used for determining the significance of the Project's GHG emissions also represents the project's cumulative contribution to GHG impacts. The additive effect of Project-related GHG emissions would not result in a reasonably foreseeable cumulatively considerable contribution to global climate change. As discussed above, the Project would not result in significant GHG emissions and would not conflict with applicable plans. For these reasons, the Project would have a less than considerable contribution to cumulative impacts associated with GHG emissions and climate change.

4.6 Hydrology and Water Quality

This section describes potential impacts of Project associated with hydrology and water quality. This section includes a description of the existing regional and local environmental conditions related to hydrology, drainage, and water quality. This section also lists regulatory requirements for the protection of water resources and water quality that could pertain to the Project. An overview of the methods used herein to assess potential project impacts is provided, as are impact significance thresholds. The potential impacts of the Project on hydrology and water quality are assessed relative to those thresholds. Where necessary to address a significant or potentially significant impact, mitigation measures to reduce such impacts are identified.

The 2017 IS/MND prepared for the Project (included as Appendix A-2 of this DEIR and discussed in more detail in Section 4.1) provided an initial review of potential Project effects on hydrology and water quality. The IS/MND concluded the following:

- The Project would not place housing or other structures or otherwise impede flows within a 100-year flood hazard area.
- The Project would not present a risk of property damage, injury, or death due to levee or dam failure.
- The Project would not be subject to inundation due to seiche, tsunami or mudflow.

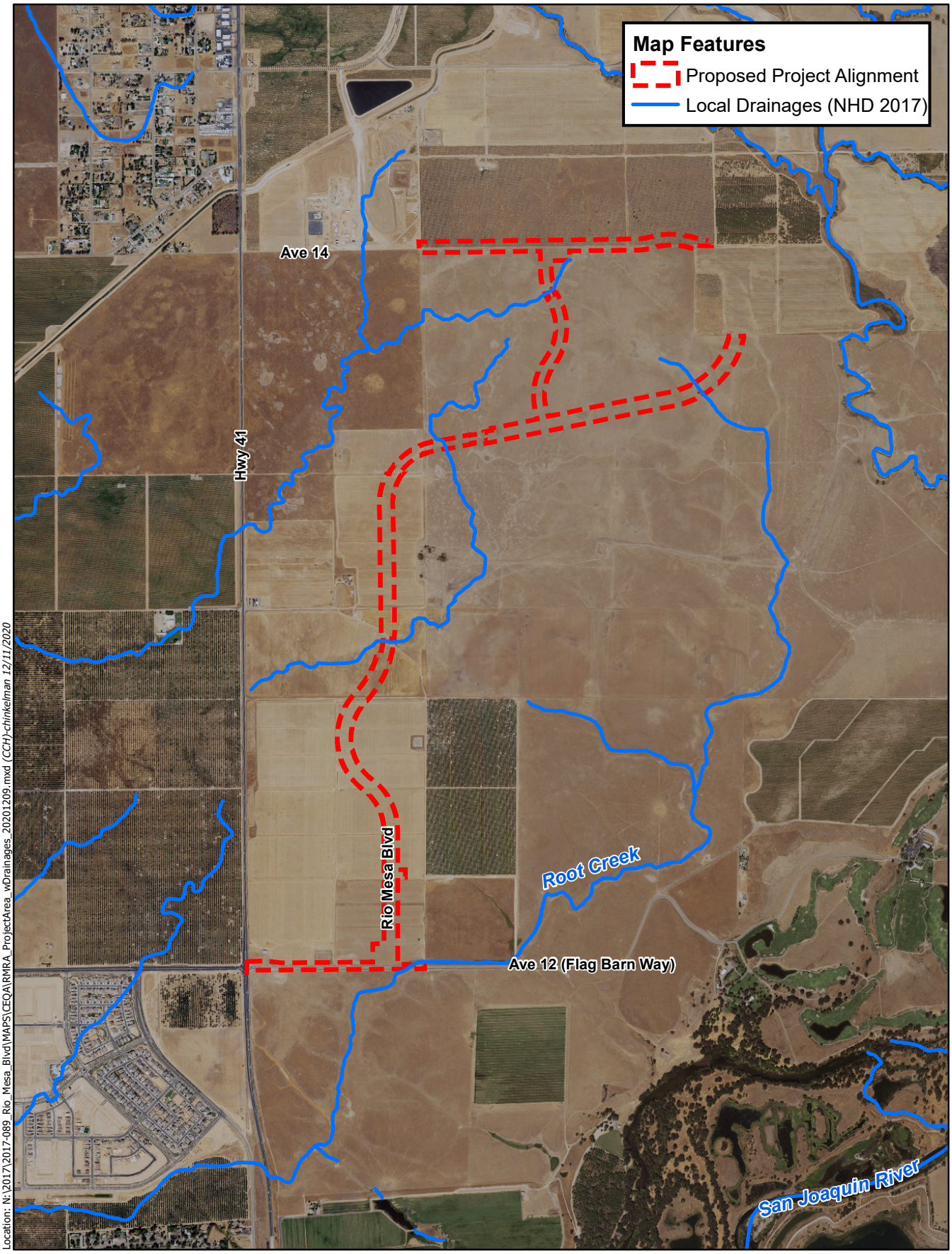
These issues have therefore been eliminated from further analysis in this DEIR.

4.6.1 Environmental Setting

4.6.1.1 Regional Hydrology and Drainage

The Project Site is within the San Joaquin River Basin, San Joaquin Valley Floor Hydrologic Unit. The San Joaquin River Basin is a 15,880-square-mile watershed that drains the entire San Joaquin watershed. The San Joaquin River Basin is an alluvial valley bounded by the Sierra Nevada Mountains to the east, the Tehachapi Mountains to the southeast, and the South Coast Ranges to the west. At its nearest point, the San Joaquin River is approximately 1.5 miles southeast of the Project Site. Drainage from and Project Site and surrounding areas is primarily to the southwest and away from the nearest portions of the San Joaquin River. A short segment of the roadway alignment near the northeastern termination point drains to the southeast to an ephemeral swale which, in turn, confluences with an ephemeral drainage identified as Root Creek near where Root Creek intersects with Avenue 12 (see Figure 4.6-1). Other surface water bodies in the vicinity include the Fresno River which is about 10 miles northwest of the Project Site, irrigation canals, and small creeks. The mountain ranges surrounding the San Joaquin Valley isolate it from marine influences, resulting in an arid to semi-arid climate (Madera County 2019).

The 58-year average annual precipitation from 1948 through 2005 is approximately 14.93 inches per year at Friant Government Camp (WRCC 2018). About 88 percent of the annual precipitation occurs from November through April. Annual precipitation is variable and over a 58-year period of record, annual precipitation varied from a low of 8.03 inches (1989) to a high of 28.28 inches (1983).



Location: N:\2017\2017-089_Rio_Mesa_Blvd\MAPS\CEQA\RMRA_ProjectArea_wDrainages_20201209.mxd (CCH)-chinkelman 12/11/2020

Map Date: 12/11/2020
Photo Source: NAIP (2018)
Service Layer Credits: Copyright: ©2015 DeLorme

Scale in Feet
0 700 1,400

ECORP Consulting, Inc.
ENVIRONMENTAL CONSULTANTS

Figure 4.6-1.
Local Drainages in Project Area

2017-089 Rio Mesa Boulevard Road Alignment

The average winter low temperature in the vicinity of the Project area is 37.2°F and average summer high temperature is 93.9°F. Average annual precipitation is approximately 12.23 inches.

4.6.1.2 Project Site Drainage

The Project Site and adjacent areas are largely undeveloped and support former and ongoing agricultural uses including cultivated annual crops and annual grasslands used for livestock pasture. One rural residence is located approximately 500 feet west of the Project alignment and one mile north of Avenue 12.

The Project Site is composed of gently rolling terrain in the north and flat terrain in the south, where the land has been leveled for agriculture. Elevations within the Project Site range from approximately 380 - 470 feet above mean sea level. The San Joaquin River is about 1.5 miles southeast of the Project Site, and Little Dry Creek and its tributaries are approximately 1.5 miles northwest of the Project Site. The main hydrologic features in the Project vicinity are the Madera Canal located north of the Project Site and the Lateral 6.2 canal, which connects with the Madera Canal south of Avenue 15 and runs southwest. Neither of these are within the Project Site. Several seasonal swales are located within the Site as are two ditches within the northern portion of the Project Site along Avenue 14. Three detention basins are located in the southern portion of the Project Site near Avenue 12.

As noted above, a short segment of the proposed alignment just south of the Tesoro Viejo southern boundary drains to the southeast. Runoff from this area drains to a seasonal swale. This swale is identified as Root Creek on some area maps. Root Creek has no incised stream channel in the Project vicinity. As shown in Figure 4.6-1, Root Creek intersects with Avenue 12 about 300 yards east of the proposed Rio Mesa Boulevard/Avenue 12 intersection, runs west along the north side of Avenue 12 for approximately 200 yards then goes beneath Avenue 12 just east of the proposed Rio Mesa Boulevard/Avenue 12 intersection. From there, Root Creek runs south/southwest and beneath SR 41 and continues to drain to the west.

4.6.1.3 Regional Surface Water Quality

The *Sacramento River Basin and San Joaquin River Basin Water Quality Control Plan* (Basin Plan) as amended (CVRWQCB 2018) provides guidance in the management of surface water quality within the San Joaquin River watershed. The Basin Plan identifies "Beneficial Uses" which are critical to water quality management in California. State law defines beneficial uses of California's waters that may be protected against quality degradation to include (and not be limited to) "...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" (Water Code § 13050(f)). Protection and enhancement of existing and potential beneficial uses are primary goals of water quality planning. The San Joaquin River provides water for a number of beneficial uses as designated in the Basin Plan, including municipal and industrial use; irrigation; stock watering; contact and non-contact recreation; warm and cold freshwater spawning habitat; warmwater and coldwater fish migration; and wildlife habitat. San Joaquin River water quality is generally acceptable for these designated beneficial uses. (CVRWQCB 2018).

Surface water quality is highly dependent on the natural and human-influenced nature of the drainage area and shallow groundwater characteristics (where groundwater contributes to streamflow). In general, as runoff water flows over the landscape, it picks up dissolved chemicals, particulate material, and gross debris from the surface it flows over, prior to discharge into a water body. The effects of this runoff water on surface water quality depend upon the amount and type of material being picked up and transported, as well as the amount of water or flow rate in the receiving water. Where shallow groundwater interacts with surface waters, the quality of groundwater will affect the surface water, and the quality of surface water will also affect groundwater. As infiltrating water moves through the soil to groundwater, it also picks up chemicals, including natural chemicals dissolved from soil and mineral materials, and other chemicals can also be filtered out. Consequently, the surface water quality will reflect the water quality of runoff, precipitation, and shallow groundwater. In developed areas, dry weather flows (e.g., lawn watering, car washing, and others) and irrigation flow can also affect surface water quality (Madera County 2020). The Project Site and the drainage area upgradient of the Project Site are predominated by undeveloped lands currently or formerly used for agricultural uses. The quality of surface water runoff onto and across the Project Site under existing conditions is expected to be generally good given upgradient areas are largely undeveloped and do not currently support active agricultural operations.

Section 303(c)(2)(b) of the federal Clean Water Act (CWA) requires states to adopt water quality standards for all surface waters of the United States based on the water body's designated beneficial use. There are no 303(d) receiving water bodies within the Project Site, nor runoff from the Project Site directly discharge to a 303(d) water body. No drinking water reservoirs and/or recharge facilities are located within the Project Site, and no Regional Water Quality Control Board (RWQCB) special requirements or concerns have been identified related to the Project. To comply with the requirements of the Construction General Permit (see Regulatory Setting), the Project Site risk level was determined as Risk Level 1, the lowest risk, for erosion and transporting sediment to receiving waters (Caltrans 2020).

Storm water runoff from within the Project Site flows to side storage ditches or to open rangeland or farmland. No total maximum daily loads (TMDLs) are applicable to Project Site runoff. Total maximum daily loads is a calculation of the maximum amount of a pollutant that a water body can receive and still safely meet water quality standards (Caltrans 2020). The Project Site is located in a rural area which currently has no connection to any municipal storm drain or sewer system.

4.6.2 Regulatory Setting

4.6.2.1 Federal

Clean Water Act

The federal Clean Water Act (CWA) was enacted with the primary purpose of restoring and maintaining the chemical, physical, and biological integrity of the Nation's waters. The CWA also directs states to establish water quality standards for all "Waters of the United States" and to review and update such standards on a triennial basis. Section 319 mandates specific actions for the control of pollution from nonpoint sources.

The USEPA has delegated responsibility for implementation of portions of the CWA, including water quality control planning and control programs, such as the National Pollutant Discharge Elimination System (NPDES) Program, to the State Water Resources Control Board (SWRCB) and the Regional Water Quality Control Boards (RWQCBs).

Section 303(c)(2)(b) of the CWA requires states to adopt water quality standards for all surface waters of the United States based on the water body's designated beneficial use. Where multiple uses exist, water quality standards must protect the most sensitive use. Water quality standards are typically numeric, although narrative criteria based upon biomonitoring methods may be employed where numerical standards cannot be established or where they are needed to supplement numeric standards. Water quality standards for the area that includes the Project Site are listed in the Basin Plan (CVRWQCB 2018).

National Pollutant Discharge Elimination System

The goal of the NPDES diffuse source regulations is to improve the quality of stormwater discharged to receiving waters to the "maximum extent practicable" through the use of best management practices (BMPs). The NPDES permit system was established in the CWA to regulate point source discharges (a municipal or industrial discharge at a specific location or pipe) and certain types of diffuse source dischargers. As defined in the federal regulations, nonpoint sources are generally exempt from federal NPDES permit program requirements. Nonpoint pollution 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 and is not conveyed by way of pipelines or discrete conveyances. Urban stormwater runoff and construction site runoff, however, are diffuse sources regulated under the NPDES permit program because they discharge to receiving waters at discrete locations in a confined conveyance system. Sections 401 and 402 of the CWA contain general requirements regarding NPDES permits.

Section 307 of the CWA describes the factors that the USEPA must consider in setting effluent limits for priority pollutants. For diffuse-source discharges (e.g., municipal stormwater and construction runoff), the NPDES program establishes a comprehensive stormwater quality program to manage urban stormwater and minimize pollution of the environment to the maximum extent practicable. The NPDES program consists of (1) characterizing receiving water quality, (2) identifying harmful constituents, (3) targeting potential sources of pollutants, and (4) implementing a Comprehensive Stormwater Management Program. State implementation of the NPDES program as it relates to the Project is discussed below under State and Regional regulations.

Executive Order 11988 (Flood Plain Management)

EO 11988 (Flood Plain Management) links the need to protect lives and property with the need to restore and preserve natural and beneficial flood plain values. Specifically, federal agencies are directed to avoid conducting, allowing, or supporting actions on the base flood plain unless the agency finds that the base flood plain is the only practicable alternative location.

Floodplain Development

The Federal Emergency Management Agency (FEMA) is responsible for determining flood elevations and floodplain boundaries based on USACE studies and approved agency studies. FEMA is also responsible for distributing the Flood Insurance Rate Maps, which are used in the National Flood Insurance Program (NFIP). These maps identify the locations of special flood hazard areas (SFHAs), including the 100-year flood zone. FEMA allows nonresidential development in SFHAs; however, construction activities are restricted depending upon the potential for flooding within each area. Federal regulations governing development in a SFHA are set forth in Title 44, Part 60 of the CFR, which enables FEMA to require municipalities that participate in the NFIP to adopt certain flood hazard education standards for construction and development in 100-year flood plains.

National Toxics Rule and California Toxics Rule

In 1992, pursuant to the CWA, USEPA promulgated the National Toxics Rule (NTR) criteria to establish numeric criteria for priority toxic pollutants for California. The NTR established water quality standards for 42 priority pollutants not covered at that time under California's statewide water quality regulations. In May 2000, USEPA issued the California Toxics Rule (CTR), which promulgated numeric criteria for additional priority pollutants. The CTR documentation (Volume 65, pages 31682–31719 of the Federal Register [65 FR 31682–31719], May 18, 2000, along with amendments in February 2001 "carried forward" the previously promulgated criteria of the NTR, thereby providing a single document listing of water quality criteria for 126 priority pollutants for California surface waters.

Federal Antidegradation Policy

The federal antidegradation policy is designed to protect existing uses and the level of water quality necessary to protect existing uses and provide protection for higher quality and national water resources. The federal policy directs states to adopt a statewide policy that includes the following primary provisions (40 Code of Federal Regulations [CFR] 131.12):

1. Existing instream water uses and the level of water quality necessary to protect the existing uses shall be maintained and protected.

2. Where the quality of waters exceeds levels necessary to support propagation of fish, shellfish, and wildlife and recreation in and on the water, that quality shall be maintained and protected unless the state finds, after full satisfaction of the intergovernmental coordination and public participation provisions of the state's continuing planning process, that allowing lower water quality is necessary to accommodate important economic or social development in the area in which the waters are located.

3. Where high quality waters constitute an outstanding National resource, such as waters of national and state parks and wildlife refuges and waters of exceptional recreational or ecological significance, that water quality shall be maintained and protected.

Rivers and Harbors Appropriation Act of 1899

Section 10 of the Rivers and Harbors Appropriation Act of 1899 prohibits obstructions, alternations, and modifications to the navigable waters of the United States. The San Joaquin River in the vicinity of the proposed Common Diversion Facility project site is not considered navigable by the USACE. The San Joaquin River is considered navigable in the reach extending from its mouth to Sycamore Road (7 miles downstream from US 99 Fresno) (USACE 2020), over 15 miles southwest of the Project Site.

4.6.2.2 State

Porter-Cologne Water Quality Control Act

The Porter-Cologne Water Quality Control Act is California's statutory authority for the protection of water quality. Under the act, California must adopt water quality policies, plans, and objectives (synonymous with the term "criteria" used by USEPA) that ensure beneficial uses of state waters are reasonably protected. The Porter-Cologne Water Quality Control Act requires the nine RWQCBs to adopt water quality control plans that define the beneficial uses of the water bodies throughout the region to be protected, the water quality objectives necessary for reasonable protection of the beneficial uses, and a program of implementation for achieving the water quality objectives. In addition, the act authorizes the SWRCB and RWQCBs to issue and enforce waste discharge requirements for discharges of waste to surface waters and land. The Project Site and the San Joaquin River is within the jurisdiction of the Central Valley RWQCB.

Water Quality Control Plan for the Sacramento River and San Joaquin River Basins

The *Water Quality Control Plan for the Sacramento River and San Joaquin River Basins* (Basin Plan) (CVRWQCB 2018) defines the beneficial uses, water quality objectives, implementation programs, and surveillance and monitoring programs for waters of the Sacramento River and San Joaquin River basins. The Basin Plan contains specific numeric water quality objectives for bacteria, dissolved oxygen, pH, pesticides, electrical conductivity, temperature, turbidity, and trace elements, as well as numerous narrative water quality objectives, which are applicable to certain water bodies or portions of water bodies.

State Water Resources Control Board Resolution No. 68-16: Statement of Policy with Respect to Maintaining High Quality Waters in California

The goal of SWRCB Resolution No. 68-16 ("Statement of Policy with Respect to Maintaining High Quality Waters in California") is to maintain high quality waters where they exist in the state. Resolution No. 68-16 states, in part:

1. Whenever the existing quality of water is better than the quality established in policies as of the date on which such policies become effective, such existing high quality will be maintained until it has been demonstrated to the State that any change will be consistent with maximum benefit to the people of the State, will not unreasonably affect present and anticipated beneficial use of such water and will not result in water quality less than that prescribed in the policies.

2. Any activity which produces or may produce a waste or increased volume or concentration of waste and which discharges or proposes to discharge to existing high quality waters will be required to meet waste discharge requirements which will result in the best practicable treatment or control of the discharge necessary to assure that (a) a pollution or nuisance will not occur and (b) the highest water quality consistent with maximum benefit to the people of the State will be maintained.

The SWRCB has interpreted Resolution No. 68-16 to incorporate and be consistent with the federal antidegradation policy (RWQCB 2016).

Statewide National Pollutant Discharge Elimination System Storm Water Permit for General Construction Activity

The SWRCB has issued an NPDES General Permit for Storm Water Discharges Associated with Construction and Land Disturbance Activities (Order No. 2009-0009) - DWQ/NPDES Permit No. CAS000002, as amended by Orders 2010-0014-DWQ and 2012-0006-DWQ (General Construction Permit). The General Construction Permit applies to projects with construction activity of greater than one acre in size. The General Construction Permit requires the preparation of a Stormwater Pollution Prevention Plan (SWPPP) that identifies and describes the best management practices (BMPs) to be implemented at construction sites to control pollution from stormwater runoff. Coverage is obtained by submitting a Notice of Intent (NOI), risk assessment, post-construction calculations, a site map, the SWPPP, and a signed certification statement by the legally responsible person to the SWRCB prior to construction.

4.6.2.3 Regional/Local

Madera County General Plan and Rio Mesa Area Plans

The Project Site is located within the boundaries of two County of Madera planning documents: Madera County General Plan and Rio Mesa Area Plan (RMAP). The Project is immediately adjacent to the Tesoro Viejo Specific Plan (TVSP) area but is not within the TVSP boundary. No RMAP goals or policies associated with hydrology and water quality issues associated with the Project have been identified. The following Madera County General Plan goals and polices associated with hydrology and water quality are relevant for consideration:

Madera County General Plan

Goal 3.E *To provide efficient, cost-effective, and environmentally-sound storm drainage and flood control facilities.*

Policy 3.E.5: The County shall encourage project designs that minimize drainage concentrations and impervious coverage and maintain, to the extent feasible, natural drainage conditions.

Goal 5.C *To protect and enhance the natural qualities of Madera County's streams, creeks and groundwater.*

Policy 5.C.2 The County shall minimize sedimentation and erosion through control of grading, cutting of trees, removal of vegetation, placement of roads and bridges, and use of off-road vehicles. The County shall discourage grading activities during the rainy season, unless adequately mitigated, to avoid sedimentation of creeks and damage to riparian habitat.

Policy 5.C.3: The County shall require new development of facilities near rivers, creeks, reservoirs, or substantial aquifer recharge areas to mitigate any potential impacts of release of pollutants in flood waters, flowing river, stream, creek, or reservoir waters.

Policy 5.C.4: The County shall require the use of feasible and practical Best Management Practices (BMPs) to protect streams from the adverse effects of construction activities and shall encourage the urban storm drainage systems and agricultural activities to use BMPs.

Policy 5.C.7: The County shall protect groundwater resources from contamination and further overdraft by encouraging water conservation efforts and supporting the use of surface water for urban and agricultural uses wherever feasible.

Goal 6.B *To minimize the risk of loss of life, injury, damage to property, and economic and social dislocations resulting from flood hazards.*

Policy 6.B.1: The County shall require flood-proofing of structures in areas subject to flooding.

Policy 6.B.3: The County shall restrict uses in designated floodways to those that are tolerant of occasional flooding and do not restrict or alter flow of flood waters. Such uses may include agriculture, outdoor recreation, mineral extraction, and natural resource areas.

Policy 6.B.4: The County shall require that all development within areas subject to 100-year floods be designed and constructed in a manner that will not cause floodwaters to be diverted onto adjacent property or increase flood hazards to other areas.

Madera Subbasin Sustainable Groundwater Management Act Joint Groundwater Sustainability Plan

The Sustainable Groundwater Management Act (SGMA) was passed by the California Legislature in 2014. The SGMA established new measures for groundwater management and regulation statewide. SGMA provides for local control of groundwater resources while requiring sustainable management of the state's groundwater basins. Under the provisions of SGMA, local agencies must establish governance of their subbasins by forming Groundwater Sustainability Agencies (GSAs) with the authority to develop, adopt,

and implement a Groundwater Sustainability Plan (GSP, or Plan) for the subbasin. Under the GSP, GSAs must adequately define and monitor groundwater conditions in the subbasin and establish criteria to maintain or achieve sustainable groundwater management within 20 years of GSP adoption. (Madera Subbasin Coordination Committee 2020)

The Project is located within the Madera Subbasin in the portion of the subbasin under the authority of the Madera County GSA. In January 2020 and in accordance with the requirements of the SGMA, the Madera Subbasin GSAs adopted the Madera Subbasin Groundwater Management Act Joint GSP. The purpose of this GSP is to characterize groundwater conditions in the Madera Subbasin, evaluate and report on conditions of overdraft, establish sustainability goals, and to describe programs and management actions the GSAs intend to implement to achieve sustainable groundwater management by 2040. While this plan focuses on groundwater management actions by City of Madera GSA, Madera County GSA, Madera Irrigation District GSA, and Madera Water District GSA, these actions are considered in the context of the entire basin setting and the actions of other GSAs in the Madera Subbasin to achieve subbasin-level sustainability. (Madera Subbasin Coordination Committee 2020)

The GSP lists 25 projects and management actions with the goal of bringing the current net recharge into balance with groundwater use within the subbasin. In wet years, projects will provide direct recharge of surplus surface water and in-lieu recharge from strategic and expanded use of surface water through conveyance and storage efforts. Management actions will reduce groundwater pumping through demand management. These projects and management actions may change over the GSP implementation period (2020-2040) as GSAs practice adaptive management as they monitor and learn more about groundwater conditions in the Madera Subbasin. In particular, the volume of groundwater pumping required through demand management may increase or decrease depending on the volume of direct recharge or in-lieu recharge provided by projects. (Madera Subbasin Coordination Committee 2020)

4.6.3 Environmental Impacts and Mitigation Measures

4.6.3.1 Thresholds of Significance

The following thresholds of significance are based on Appendix G of the CEQA Guidelines. For purposes of this DEIR, implementation of the Project would have a significant adverse impact on hydrology and water quality if it would result in any of the following:

A. Violate any water quality standards or waste discharge requirements or otherwise substantially degrade surface or groundwater quality

B. Substantially decrease groundwater supplies or interfere substantially with groundwater recharge such that the project may impede sustainable groundwater management of the basin;

C. 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:

(i) result in substantial erosion or siltation on- or off-site;

(ii) substantially increase the rate or amount of surface runoff in a manner which would result in flooding on- or offsite;

(iii) 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

(iv) impede or redirect flood flows.

D. In flood hazard, tsunami, or seiche zones, risk release of pollutants due to project inundation.

E. Conflict with or obstruct implementation of a water quality control plan or sustainable groundwater management plan.

As discussed in the introduction to this section of the DEIR, the Project's potential impacts relative to Threshold C(iv) (flood flows) and Threshold D (flood hazard, tsunami, or seiche zones) were addressed in the 2017 ISMND for the Project and are not evaluated further herein.

4.6.3.2 Project Impacts and Mitigation Measures

Impact 4.6-1 Project potential to interfere with groundwater recharge. Impact Determination: *less than significant*.

Threshold:	*Substantially decrease groundwater supplies or interfere substantially with groundwater recharge such that the project may impede sustainable groundwater management of the basin, or 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, or provide substantial additional sources of polluted runoff.*

The Project Site is currently predominantly undeveloped area with soil and vegetated surfaces that provide for surface water infiltration to groundwater. The Project would involve resurfacing areas within the Project site with concrete and asphalt surfaces that would be impermeable and would reduce groundwater recharge from these areas. Phase 1 improvements would result in approximately 10 acres of impervious area and Phase 2 would result in an additional approximately 10 acres of impervious area. As discussed under Impact 4.6-3 below, the Project Site traverses three watershed sub-basins totaling approximately 1,920 acres. The Project would result in an increase in impervious area of approximately one percent of the watershed area. This increase would not be substantial relative to the surrounding area with surfaces that would remain permeable. Runoff from the roadway would be directed to existing drainage features in the area which would continue to contribute to groundwater recharge. The Project's relatively minimal contribution to additional impermeable surface is considered to less than significant impact on groundwater recharge.

The Project would not use groundwater supplies and would not adversely affect any existing wells. Therefore, Project impacts on groundwater supplies and recharge would be ***less than significant***.

Impact 4.6-2 The Project could adversely affect surface or groundwater water quality during construction and operation and/or result in increased erosion or siltation in stormwater runoff. Impact Determination: *less than significant.*

Threshold:	*Violate any water quality standards or waste discharge requirements or otherwise substantially degrade water quality.*

Construction

The Project would result in surface disturbance of approximately 92.45 acres.

Various Project construction activities could adversely affect water quality of runoff from the Project Site including vegetation clearing, grading trenching, pipeline installation, paving and sidewalk and gutter construction. Each activity has the potential to disturb soil and increase susceptibility to higher rates of erosion from rain, streamflow, or wind which, in turn, could result in sediment transport from the site. These activities would occur during both Phase 1 and Phase 2 of Project construction. Construction activities under both phases is planned to occur during the seasonally dry period of the year typical of the Central Valley (i.e., June through October) when risk of rainfall and related stormwater runoff at the site would be minimal.

The use of motorized equipment, and storage and handling of fuels and equipment lubricants and fluids, could result in petroleum product discharges that could be harmful to water quality if they directly enter the river or are spilled on the ground where they may enter the groundwater, or be mobilized and transported in stormwater runoff following construction. Other potential construction-related contaminants associated with the equipment used, contained in products used to construct project facilities, or inadvertently discharged by construction workers may include trash, cleaners, solvents, and human sanitary wastes.

Construction activities would be conducted in conformance with applicable federal and state regulations pertaining to grading and erosion control, and contaminant spill control and response measures described below. The Project's construction contractor would be required to develop a SWPPP and implement appropriate construction BMPs for all activities that may result in the discharge of construction-related contaminants from disturbed construction areas. Implementation of appropriate erosion control and pollution prevention BMPs would avoid and minimize construction-related erosion and contaminant discharges. In addition to the BMPs, the SWPPP will include BMP inspection and monitoring activities, and identify responsibilities of all parties, contingency measures, agency contacts, and training requirements and documentation for those personnel responsible for installation, inspection, maintenance, and repair BMPs.

All construction activities associated with the Project would be subject to regulatory requirements and specific BMPs identified in the SWPPP. Typical construction BMPs for compliance with the Construction General Permit include, but are not limited to, scheduling or limiting activities to certain times of year; prohibiting certain construction practices; implementing equipment maintenance schedules and procedures; implementing a monitoring program; implementing other management practices to prevent or reduce pollution, such as using temporary mulching, seeding, or other suitable stabilization measures

to protect uncovered soils; storing materials and equipment to ensure that spills or leaks do not enter surface waters; installation of silt fencing along the perimeter of construction disturbance areas, developing and implementing a spill prevention and cleanup plan; installing traps, filters, or other devices at drop inlets to prevent contaminants from entering surface waters; and using barriers, such as straw bales or plastic, to minimize the amount of uncontrolled runoff that could enter surface water.

Adherence to Adopted Water Quality Policy

The Project would comply with pertinent requirements of all applicable water quality policies, such as the CWA, the Porter Cologne Water Quality Control Act, California Water Code, the Madera County General Plan, and the Madera County Code (Chapter 14.50 [Grading and Erosion Control]). A key element of compliance with the above would be the implementation of construction BMPs as a component of the Project.

The County would ensure that a SWPPP is prepared and implemented during construction. The SWPPP would include, but would not necessarily be limited to, the following applicable best management practices (BMPs) for controlling stormwater runoff:

- Erosion and Sediment Control BMPs addressing construction scheduling, such as phasing and season avoidance, to minimize erosion and sedimentation; perimeter protection, such as straw wattles or silt fences; velocity dissipation devices or check dams to prevent gulley erosion and/or slow water down to allow sediment to settle out; runoff or run-on protection; soil stabilization, including stabilized construction entrances and roadways; wind erosion protection; street sweeping; and permanent or temporary disturbed area coverage.
- Vehicle and Equipment Operation BMPs (vehicle and equipment cleaning/maintenance, potable water/irrigation controls). Several types of vehicles and equipment would be used on site throughout Project construction, including graders, scrapers, excavators, loaders, trucks and trailers, backhoes, generators, and compressors. The SWPPP would specify that all vehicle maintenance be conducted at least 100 feet away from operational inlets and drainage facilities and on a level graded area. Drip pans or absorbent pads would be used for all vehicle and equipment maintenance activities that involve grease, oil, solvents, or other vehicle fluids. Vehicle and equipment fueling would take place in a contained staging area to prevent discharges of fuel and other vehicle fluids.
- Staging Area BMPs. The SWPPP would specify BMPs for control of pollutants associated with equipment re-fueling, operation, and maintenance within the Project construction staging area which may include the following: construction equipment shall be brought to the site no sooner than it is needed and shall be removed from the site as soon as practical; off-site major equipment maintenance; contained designated areas for vehicle and equipment maintenance facilities to prevent discharges of fuel and other vehicle fluids; contained designated areas for vehicle and equipment fueling to prevent discharges of fuel and other vehicle fluids.
- Waste Management and Materials Management BMPs. Waste management and material pollution BMPs for control of pollutants associated with the storage of construction materials and

construction activities may include the following: material delivery and storage; material use; stockpile management; spill prevention and control; solid waste management; sanitary/septic waste management; hazardous waste management; contaminated soil management; and concrete waste management.

The SWRCB has identified the development of a construction SWPPP as an appropriate protective mechanism for water quality during construction activities. Incorporation of required BMPs under a SWPPP reduces the potential discharge of stormwater pollutants from these activities. Madera County Code requires a grading permit prior to construction that meets all federal, state, and local laws, regulations, and directives for grading activities, which would ensure preparation of a SWPPP and implementation of effective BMPs.

Adherence to applicable water quality laws, and preparation and implementation of a Project construction SWPPP and would ensure that potential water quality impacts associated with Project construction would be ***less than significant***.

Post-Construction

Upon completion of Phase 1 construction, the proposed two-lane roadway will be in place, graded landscape corridors will have been hydroseeded, and utilities infrastructure will be in place within the Rio Mesa Boulevard alignment and within the two linked utility corridors. With implementation of BMPs as required under the SWPPP potential significant impact on water quality due to storm runoff from the Project Site will be avoided. These BMPs installing traps, filters, or other devices at drop inlets to prevent contaminants from entering surface waters; and using barriers, such as straw bales or plastic, to minimize the amount of uncontrolled runoff that could enter surface water. The SWPPP will also outline long-term maintenance and management practices for the systems put in place in compliance with the plan in addition to any permanent erosion control measures implemented as required by the Construction General Permit for the Project.

Upon the completion of Phase 2 of the Project, Rio Mesa Boulevard will have been expanded to four lanes and a permanent landscape corridor established and maintained. As with Phase 1 construction described above, the implementation of SWPPP BMPs in addition to permanent erosion control measures implemented under the Construction General Permit will be sufficient to avoid potential significant impact on water quality due to erosion, sedimentation or pollutants from storm water runoff from the Project Site. as required under the SWPPP potential significant impact on water quality due to storm runoff from the Project Site will be avoided. These BMPs installing traps, filters, or other devices at drop inlets to prevent contaminants from entering surface waters; and using barriers, such as straw bales or plastic, to minimize the amount of uncontrolled runoff that could enter surface water. The SWPPP will also outline long-term maintenance and management practices for the systems put in place in compliance with the plan in addition to any permanent erosion control measures implemented as required by the Construction General Permit for the Project.

For the reasons presented above, adherence to applicable water quality laws, implementation SWPPP BMPs and Construction General Permit permanent erosion control measures and would ensure that potential water quality impacts from runoff from the completed Project would be ***less than significant***.

Impact 4.6-3 **The Project introduction of impervious surfaces would increase the rate of surface water runoff from the Project Site. Impact Determination: *less than significant*.**

Threshold:	*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 a substantial increase in the rate or amount of surface runoff in a manner which would result in flooding on- or offsite, or would exceed the capacity of existing or planned stormwater drainage systems.*

The Project is located within three primary watershed areas that could be affected by this Project. The total contributing area from the three sheds is approximately 1,920 acres (see Figure 4.6-2). The Project would result in a permanent increase of impermeable surface of approximately 20 acres. With the development of adjacent land uses consistent with the RMAP, it is anticipated that post-development outflow from the Project Site will be equal to or less than the pre-development outflows as a result of future development of improvements such as retention basins and water quality swales to facilitate infiltration in keeping with the goals and policies of the RMAP. The Project would result in a minor alternation of drainage patterns, limited to the immediate Project Site. Stormwater runoff from the Project Site after Phase 1 construction would be conveyed via vegetated roadside swales into drain inlets which in turn would convey the runoff to culvert crossings which would discharge to existing drainage swales. The Project's storm drain culverts would be designed to safely pass the anticipated run-offs from the project as well as from the adjacent lands that drain towards the project from 24-hour, 100-year rain events. Culverts would be designed to the standards of the Federal Highway Administration Hydraulic Design of Highway Culverts (HDS-5, latest edition) and the Madera County Design Standards.

Upon completion of Phase 2, stormwater runoff from the Project Site would be conveyed via concrete curbs and gutters into drain inlets installed as components of Phase 2 and would then follow the same drainage routes as Phase 1 discharge. Surface water runoff from constructed areas after both Phase 1 and Phase 2 would ultimately discharge to existing drainages downgradient of the Project Site consistent with existing drainage patterns. The Project is designed to maintain existing drainage patterns utilizing a series of box culverts to convey stormwater runoff from the east (upgradient) side of the Project segment of Rio Mesa Boulevard to the west (downgradient) side.

No drainage, stormwater, or runoff impacts specifically related to impervious surfaces are anticipated during construction.

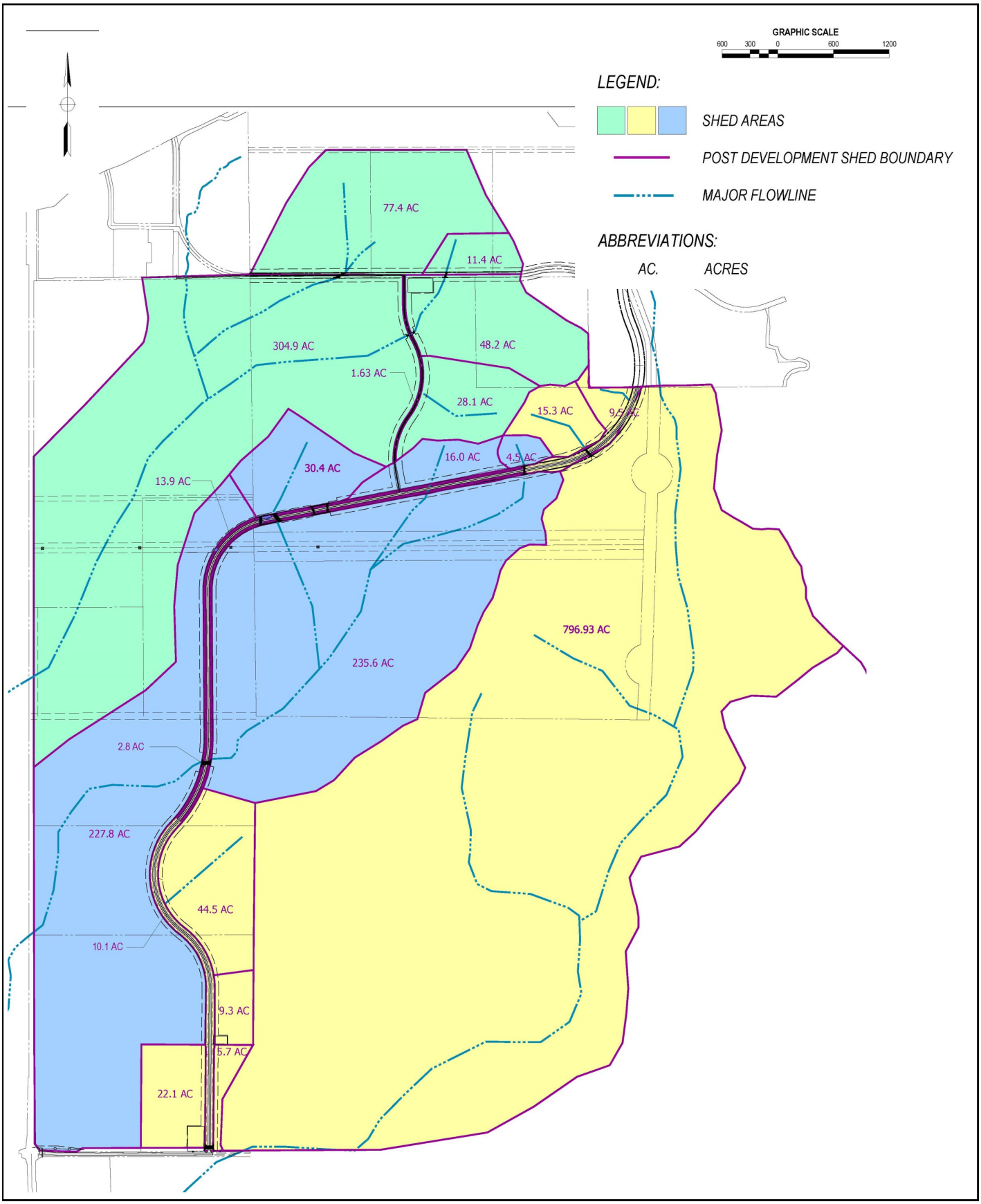


Figure 4.6-2. Post Development Shed Map

2017-089 Rio Mesa Boulevard

ECORP Consulting, Inc.
ENVIRONMENTAL CONSULTANTS

For the reasons discussed above, the Project would not substantially alter existing drainage patterns and would not substantially increase the rate or amount of surface runoff from the Project Site. Project drainage facilities are designed to adequately accommodate critical future storm events (i.e., 100-year storm events). Therefore, the Project's impact on the rate and amount of surface water runoff would be ***less than significant***.

Impact 4.6-4 Project consistency with the Madera Subbasin Groundwater Sustainability Plan. Impact Determination: *less than significant*.

Threshold:	*Conflict with or obstruct implementation of the Madera Subbasin Groundwater Sustainability Plan.*

As described in Section 4.6.2.3 above, the Project is located within the Madera Subbasin for groundwater resources and is, therefore, subject to the objectives and policies of Madera Subbasin Joint GSP as administered by the Madera County GSA. The GSP lists 25 projects and management actions with the goal of bringing the current net groundwater recharge within the subbasin into balance with groundwater use within the subbasin. In wet years, projects will provide direct recharge of surplus surface water and in-lieu recharge from strategic and expanded use of surface water through conveyance and storage efforts. Management actions will reduce groundwater pumping through demand management. These projects and management actions may change over the GSP implementation period (2020-2040) as GSAs practice adaptive management as they monitor and learn more about groundwater conditions in the Madera Subbasin. In particular, the volume of groundwater pumping required through demand management may increase or decrease depending on the volume of direct recharge or in-lieu recharge provided by projects.

As discussed at Impact 4.6.1 above, neither construction nor operation of the Project would require the use of groundwater or directly affect any existing wells within the Project area. Impact 4.6.1 also concludes that the Project would not substantially affect groundwater recharge. For these reasons, the effects of the Project on groundwater recharge are found to be less than significant.

Given the less than significant impact of the Project on groundwater recharge and the absence of groundwater pumping associated with the Project, the Project would not conflict or obstruct any specific projects or management actions included in the Madera Subbasin GSP nor would it conflict with the GSP's overall goal of achieving a balance between groundwater use and recharge within the subbasin by 2040. Therefore, this impact is ***less than significant***.

4.6.4 Cumulative Impacts

The Project's hydrology and water quality impacts discussed in Section 4..6.4, above, would have the potential to contribute to hydrology and water quality impacts associated with from past, present, and reasonably foreseeable future actions occurring in the area roughly defined as south of Avenue 12, adjacent to SR 41 between Avenue 12 and SR 141, and projects east of the SR 41/SR 141 intersection. For purposes of this section, this includes past, ongoing, and future development within the RMAP area.

Groundwater

Impact 4.6-1 above, addresses the potential for Project impacts on local groundwater conditions. As discussed, the Project would result in an increase in impervious surfaces in the area, but would not significantly reduce groundwater recharge or the rate of infiltration in the Project area. The Project's contribution to total impervious surface area with the RMAP plan area is approximately 20 acres. This represents approximately 1 percent of the 1,920 acres within the three watershed areas in which the Project is located. Future development within the RMAP area is also expected to increase the amount of impervious area within the Project area which would also have the potential to decrease groundwater recharge. Such future development would be subject to County stormwater design standards and groundwater recharge planning, and will require future development to include stormwater retention basins that limit or avoid increases in stormwater runoff rates and volumes associated with new impermeable surfaces and will provide for groundwater recharge. These requirements on future development and the Project's minor increase in impermeable surfaces result in a conclusion that the Project would have a less than considerable effect on cumulative groundwater recharge impacts.

Impact 4.6-5 concludes that the Project would be consist with the Madera Subbasin Groundwater Sustainability Plan (GSP) and, therefore, would not have a potential cumulative effect associated with GSP implementation.

For these reasons, the Project's contribution to cumulative effects associated with groundwater is ***less than considerable***.

Water Quality and Drainage

As discussed under Impacts 4.6-2 and 4.6-3 above, Project construction would be subject to a SWPPP and the Project would implement stormwater pollution prevention BMPs identified in the SWPPP during construction that would include erosion and sediment control practices, waste management practices, spill containment and clean up, water conservation, and other BMPs to reduce potential pollutants in stormwater runoff. Future development within the RMAP would also have the potential to result in water quality impacts during construction and as a result of the permanent conversion of land uses to developed areas. These future developments will be subject to implementation of stormwater quality protection measures to avoid or minimize their effects on water quality. Furthermore, for any pollutant identified as causing or contributing to impairment of water bodies in the San Joaquin Valley Floor Hydrologic Unit area, TMDLs are or will be developed, further restricting the potential for discharge of pollutants in such a manner that would cause or contribute to violation of water quality standards or waste discharge requirements.

As described above, construction activities associated with the Project could have a short-term impact on water quality. With implementation of BMPs, and compliance with all permit conditions, significant impacts during construction due to increases in sedimentation and turbidity from runoff from the Project Site, and the potential inadvertent release of chemicals, fuels, or lubricants typically used during construction would be avoided. Long-term effects on water quality due to runoff from the Project Site would be avoided through compliance with the measures and protocols described above. Other

development within the area having the potential for water quality impacts would be subject to similar water quality protection provisions for construction and operation of any such development. Therefore, the Project's contribution to cumulative water quality conditions is ***less than considerable.***

Flooding

As described in Impact 4.6-3 runoff from the Project would be equal to or less than the pre-development outflows as a result of future development of improvements such as retention basins and water quality swales to facilitate infiltration in keeping with the goals and policies of the RMAP. Therefore, its contribution to the cumulative impact on flooding downstream of the Project would be negligible and ***less than considerable***.

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4.7 Noise

This section describes the environmental setting for noise, including the regulatory setting and existing site conditions and the potential noise impacts that could result from the Project. In support of the noise impact analysis, noise modeling was conducted by ECORP Consulting, Inc. Modeling results are included with this DEIR as Appendix G.

4.7.1 Environmental Setting

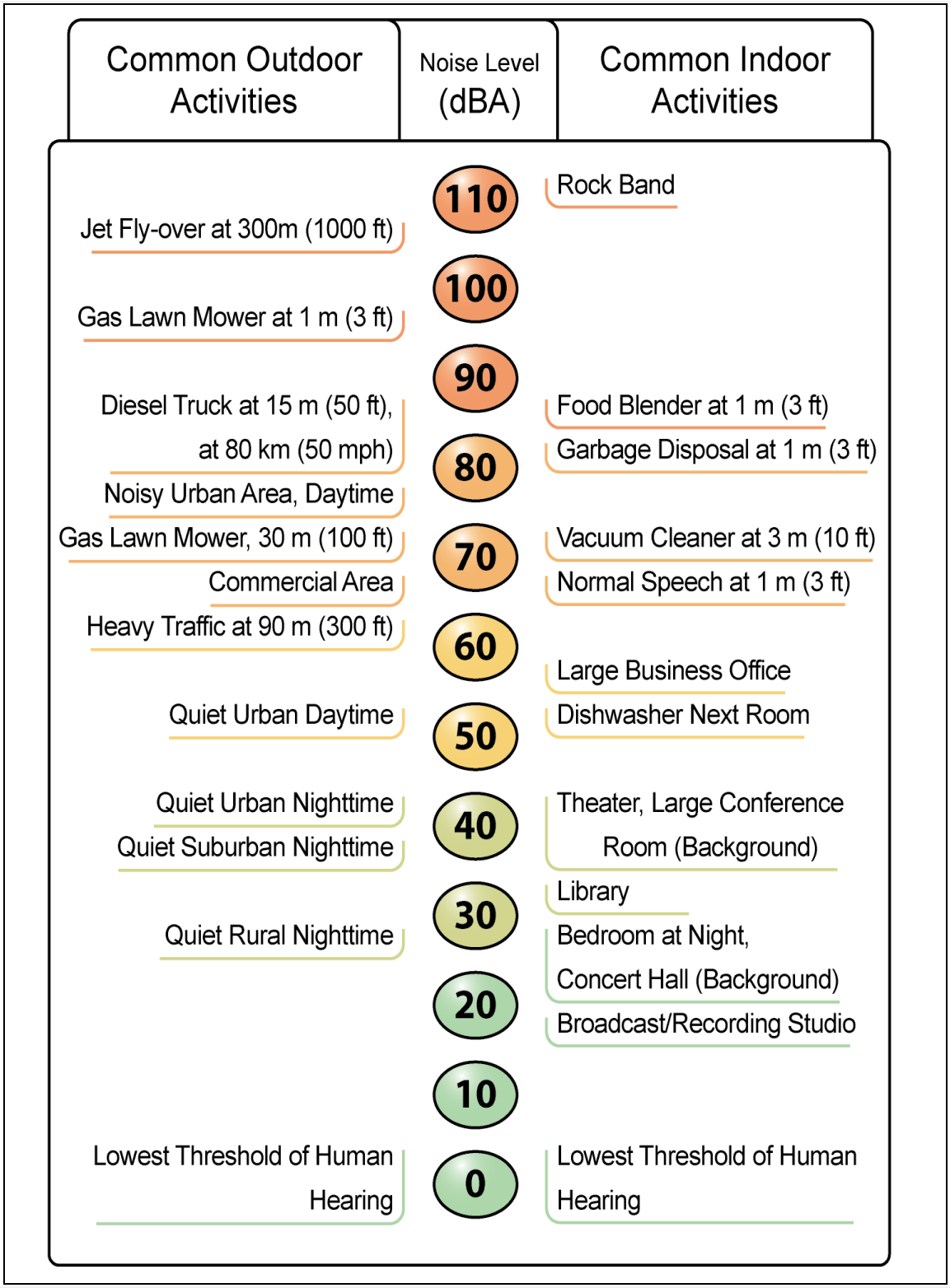
4.7.1.1 Fundamentals of Sound and Environmental Noise

Addition of Decibels

Noise is defined as unwanted sound. Sound is technically described in terms of the loudness (amplitude) and frequency (pitch) of the sound. The standard unit of measurement of the loudness of sound is the decibel (dB). Decibels are based on a logarithmic scale. The logarithmic scale compresses the wide range in sound pressure levels to a more usable range of numbers for human understanding. Because the decibel (dB) scale is logarithmic, not linear; sound levels cannot be added or subtracted through ordinary arithmetic. Two sound levels 10 dB apart differ in acoustic energy by a factor of 10. When the standard logarithmic decibel is A-weighted (dBA), an increase of 10 dBA is generally perceived as a doubling in loudness. For example, a 70-dBA sound is half as loud as an 80-dBA sound and twice as loud as a 60-dBA sound. When two identical sources are each producing sound of the same loudness, the resulting sound level at a given distance would be three dB higher than one source under the same conditions (Federal Transit Administration [FTA] 2018). For example, a 65-dB source of sound, such as a truck, when joined by another 65 dB source results in a sound amplitude of 68 dB, not 130 dB (i.e., doubling the source strength increases the sound pressure by three dB). Under the decibel scale, three sources of equal loudness together would produce an increase of five dB. Typical noise levels associated with common noise sources are depicted in Figure 4.7-1.

Sound Propagation and Attenuation

Noise can be generated by a number of sources including mobile sources such as automobiles, trucks, and airplanes, and stationary sources such as construction sites, machinery, and industrial operations. Sound spreads (propagates) uniformly outward in a spherical pattern, and the sound level decreases (attenuates) at a rate of approximately six dB for each doubling of distance from a stationary or point source. Sound from a line source, such as a highway, propagates outward in a cylindrical pattern, often referred to as cylindrical spreading. Sound levels attenuate at a rate of approximately three dB for each doubling of distance from a line source, such as a roadway, depending on ground surface characteristics (Federal Highway Administration [FHWA] 2011). No excess attenuation is assumed for hard surfaces like a parking lot or a body of water. Soft surfaces, such as soft dirt or grass, can absorb sound, so an excess ground-attenuation value of 1.5 dB per doubling of distance is normally assumed. For line sources, an overall attenuation rate of three dB per doubling of distance is assumed (FHWA 2011).



Source: Caltrans 2012

Figure 4.7-1 Common Noise Levels

Noise levels may also be reduced by intervening topography or structures. For instance, a single row of detached buildings between the receptor and the noise source generally reduces the noise level by about five dBA (FHWA 2006), while a solid wall or berm generally reduces noise levels by 10 to 20 dBA (FHWA 2011). However, noise barriers or enclosures specifically designed to reduce site-specific construction noise can provide a sound reduction of 35 dBA or greater (Western Electro-Acoustic Laboratory, Inc. [WEAL] 2000). To achieve the most potent noise-reducing effect, a noise enclosure/barrier must physically fit in the available space, must completely break the "line of sight" between the noise source and the receptors, must be free of degrading holes or gaps, and must not be flanked by nearby reflective surfaces. Noise barriers must be sizable enough to cover the entire noise source and extend lengthwise and vertically as far as feasibly possible to be most effective. The limiting factor for a noise barrier is not the component of noise transmitted through the material, but rather the amount of noise flanking around and over the barrier. In general, barriers contribute to decreasing noise levels only when the structure breaks the line of sight between the source and the receiver.

The manner in which older homes in California were constructed generally provides a reduction of exterior-to-interior noise levels of about 20 to 25 dBA with closed windows (Caltrans 2002). The exterior-to-interior reduction of newer residential units is generally 30 dBA or more (Harris Miller, Miller & Hanson Inc. [HMMH] 2006). Generally, in exterior noise environments ranging from 60 dBA Community Noise Equivalent Level (CNEL) to 65 dBA CNEL, interior noise levels can typically be maintained below 45 dBA, a typically residential interior noise standard, with the incorporation of an adequate forced air mechanical ventilation system in each residential building, and standard thermal-pane residential windows/doors with a minimum rating of Sound Transmission Class (STC) 28. (STC is an integer rating of how well a building partition attenuates airborne sound. In the U.S., it is widely used to rate interior partitions, ceilings, floors, doors, windows, and exterior wall configurations.) In exterior noise environments of 65 dBA CNEL or greater, a combination of forced-air mechanical ventilation and sound-rated construction methods is often required to meet the interior noise level limit. Attaining the necessary noise reduction from exterior to interior spaces is readily achievable in noise environments less than 75 dBA CNEL with proper wall construction techniques following California Building Code methods, the selections of proper windows and doors, and the incorporation of forced-air mechanical ventilation systems.

Noise Descriptors

The decibel scale alone does not adequately characterize how humans perceive noise. The dominant frequencies of a sound have a substantial effect on the human response to that sound. Several rating scales have been developed to analyze the adverse effect of community noise on people. Because environmental noise fluctuates over time, these scales consider that the effect of noise on people is largely dependent on the total acoustical energy content of the noise, as well as the time of day when the noise occurs. The L_{eq} is a measure of ambient noise, while the Community Noise Equivalent Level (CNEL) (see Table 4.7-1: *Common Acoustical Descriptors*).

Table 4.7-1 Common Acoustical Descriptors

Descriptor	Definition
Decibel, dB	A unit describing the amplitude of sound, equal to 20 times the logarithm to the base 10 of the ratio of the pressure of the sound measured to the reference pressure. The reference pressure for air is 20.
Sound Pressure Level	Sound pressure is the sound force per unit area, usually expressed in micropascals (or 20 micronewtons per square meter), where 1 pascal is the pressure resulting from a force of 1 newton exerted over an area of 1 square meter. The sound pressure level is expressed in decibels as 20 times the logarithm to the base 10 of the ratio between the pressures exerted by the sound to a reference sound pressure (e.g., 20 micropascals). Sound pressure level is the quantity that is directly measured by a sound level meter.
Frequency, Hz	The number of complete pressure fluctuations per second above and below atmospheric pressure. Normal human hearing is between 20 Hz and 20,000 Hz. Infrasonic sound are below 20 Hz and ultrasonic sounds are above 20,000 Hz.
A-Weighted Sound Level, dBA	The sound pressure level in decibels as measured on a sound level meter using the A-weighting filter network. The A-weighting filter de-emphasizes the very low and very high frequency components of the sound in a manner similar to the frequency response of the human ear and correlates well with subjective reactions to noise.
Equivalent Noise Level, L_{eq}	The average acoustic energy content of noise for a stated period of time. Thus, the L_{eq} of a time-varying noise and that of a steady noise are the same if they deliver the same acoustic energy to the ear during exposure. For evaluating community impacts, this rating scale does not vary, regardless of whether the noise occurs during the day or the night.
L_{max}, L_{min}	The maximum and minimum A-weighted noise level during the measurement period.
L_{01}, L_{10}, L_{50}, L_{90}	The A-weighted noise levels that are exceeded 1%, 10%, 50%, and 90% of the time during the measurement period.
Day/Night Noise Level, L_{dn} or DNL	A 24-hour average L_{eq} with a 10 dBA "weighting" added to noise during the hours of 10:00 p.m. to 7:00 a.m. to account for noise sensitivity in the nighttime. The logarithmic effect of these additions is that a 60 dBA 24-hour L_{eq} would result in a measurement of 66.4 dBA L_{dn}.
Community Noise Equivalent Level, CNEL	A 24-hour average L_{eq} with a 5 dBA "weighting" during the hours of 7:00 p.m. to 10:00 p.m. and a 10 dBA "weighting" added to noise during the hours of 10:00 p.m. to 7:00 a.m. to account for noise sensitivity in the evening and nighttime, respectively. The logarithmic effect of these additions is that a 60 dBA 24-hour L_{eq} would result in a measurement of 66.7 dBA CNEL.
Ambient Noise Level	The composite of noise from all sources near and far. The normal or existing level of environmental noise at a given location.
Intrusive	That noise which intrudes over and above the existing ambient noise at a given location. The relative intrusiveness of a sound depends on its amplitude, duration, frequency, and time of occurrence and tonal or informational content as well as the prevailing ambient noise level.

Source: Caltrans. 2020. Initial Study/Environmental Assessment Annotated Outline. https://dot.ca.gov/programs/environmental-analysis/standard-environmental-reference-ser/forms-templates#aos

The dBA sound level scale gives greater weight to the frequencies of sound to which the human ear is most sensitive. Because sound levels can vary markedly over a short period of time, a method for describing either the average character of the sound or the statistical behavior of the variations must be utilized. Most commonly, environmental sounds are described in terms of an average level that has the same acoustical energy as the summation of all the time-varying events.

The scientific instrument used to measure noise is the sound level meter. Sound level meters can accurately measure environmental noise levels to within about ± one dBA. Various computer models are used to predict environmental noise levels from sources, such as roadways and airports. The accuracy of the predicted models depends on the distance between the receptor and the noise source. Close to the noise source, the models are accurate to within about ± one to two dBA.

Human Response to Noise

The human response to environmental noise is subjective and varies considerably from individual to individual. Noise is often cited as a health problem, not in terms of actual physiological damage, such as hearing impairment, but in terms of inhibiting general well-being and contributing to undue stress and annoyance. Health effects of noise arise from interference with human activities including sleep, speech, recreation, and tasks that demand concentration or coordination. Hearing loss can occur at the highest noise intensity levels.

Noise environments and consequences of human activities are usually well represented by median noise levels during the day or night or over a 24-hour period. Environmental noise levels are generally considered low when the CNEL is below 60 dBA, moderate in the 60 to 70 dBA range, and high above 70 dBA. Examples of low daytime levels are isolated, natural settings with noise levels as low as 20 dBA and quiet, suburban, residential streets with noise levels around 40 dBA. Noise levels above 45 dBA at night can disrupt sleep. Examples of moderate-level noise environments are urban residential or semi-commercial areas (typically 55 to 60 dBA) and commercial locations (typically 60 dBA). People may consider louder environments adverse, but most will accept the higher levels associated with noisier urban residential or residential-commercial areas (60 to 75 dBA) or dense urban or industrial areas (65 to 80 dBA). Regarding increases in dBA noise levels, the following relationships should be noted in understanding this analysis:

- Except in carefully controlled laboratory experiments, a change of 1 dBA cannot be perceived by humans.
- Outside of the laboratory, a 3 dBA change is considered a just-perceivable difference.
- A change in level of at least 5 dBA is required before any noticeable change in community response would be expected. An increase of 5 dBA is typically considered substantial.
- A 10 dBA change is subjectively heard as an approximate doubling in loudness and would almost certainly cause an adverse change in community response.

Effects of Noise on People

Hearing Loss

While physical damage to the ear from an intense noise impulse is rare, a degradation of auditory acuity can occur even within a community noise environment. Hearing loss occurs mainly due to chronic exposure to excessive noise but may be due to a single event such as an explosion. Natural hearing loss associated with aging may also be accelerated from chronic exposure to loud noise.

The Occupational Safety and Health Administration (OSHA) has a noise exposure standard that is set at the noise threshold where hearing loss may occur from long-term exposures. The maximum allowable level is 90 dBA averaged over 8 hours. If the noise is above 90 dBA, the allowable exposure time is correspondingly shorter.

Annoyance

Attitude surveys are used for measuring the annoyance felt in a community for noises intruding into homes or affecting outdoor activity areas. In these surveys, it was determined that causes for annoyance include interference with speech, radio and television, house vibrations, and interference with sleep and rest. The L_{dn} as a measure of noise has been found to provide a valid correlation of noise level and the percentage of people annoyed. People have been asked to judge the annoyance caused by aircraft noise and ground transportation noise. There continues to be disagreement about the relative annoyance of these different sources. For ground vehicles, a noise level of about 55 dBA L_{dn} is the threshold at which a substantial percentage of people begin to report annoyance.

Fundamentals of Environmental Groundborne Vibration

Vibration Sources and Characteristics

Sources of earthborne vibrations include natural phenomena (e.g., earthquakes, volcanic eruptions, sea waves, landslides) or manmade causes (explosions, machinery, traffic, trains, construction equipment, etc.). Vibration sources may be continuous (e.g., factory machinery) or transient (e.g., explosions).

Ground vibration consists of rapidly fluctuating motions or waves with an average motion of zero. Several different methods are typically used to quantify vibration amplitude. One is the peak particle velocity (PPV), another is the root mean square (RMS) velocity. The PPV is defined as the maximum instantaneous positive or negative peak of the vibration wave. The RMS velocity is defined as the average of the squared amplitude of the signal. The PPV and RMS vibration velocity amplitudes are used to evaluate human response to vibration.

Table 4.7-2. *Human Reaction and Damage to Buildings for Continuous or Frequent Intermittent Vibration Levels* displays the reactions of people and the effects on buildings produced by continuous vibration levels. The annoyance levels shown in the table should be interpreted with care since vibration may be found to be annoying at much lower levels than those listed, depending on the level of activity or the sensitivity of the individual. To sensitive individuals, vibrations approaching the threshold of perception can be annoying. Low-level vibrations frequently cause irritating secondary vibration, such as a slight rattling of windows, doors, or stacked dishes. The rattling sound can give rise to exaggerated vibration complaints, even though there is very little risk of actual structural damage. In high-noise environments, which are more prevalent where groundborne vibration approaches perceptible levels, this rattling phenomenon may also be produced by loud airborne environmental noise causing induced vibration in exterior doors and windows.

Table 4.7-2. Human Reaction and Damage to Buildings for Continuous or Frequent Intermittent Vibration Levels

Peak Particle Velocity (inches/second)	Approximate Vibration Velocity Level (VdB)	Human Reaction	Effect on Buildings
0.006–0.019	64–74	Range of threshold of perception	Vibrations unlikely to cause damage of any type
0.08	87	Vibrations readily perceptible	Recommended upper level to which ruins and ancient monuments should be subjected
0.1	92	Level at which continuous vibrations may begin to annoy people, particularly those involved in vibration sensitive activities	Virtually no risk of architectural damage to normal buildings
0.2	94	Vibrations may begin to annoy people in buildings	Threshold at which there is a risk of architectural damage to normal dwellings
0.4–0.6	*98–104*	*Vibrations considered unpleasant by people subjected to continuous vibrations and unacceptable to some people walking on bridges*	*Architectural damage and possibly minor structural damage*

Source: Caltrans 2020

Ground vibration can be a concern in instances where buildings shake and substantial rumblings occur. However, it is unusual for vibration from typical urban sources such as buses and heavy trucks to be perceptible. For instance, heavy-duty trucks generally generate groundborne vibration velocity levels of 0.006 PPV at 50 feet under typical circumstances, which as identified in Table 4.7-2 is considered very unlikely to cause damage to buildings of any type. Common sources for groundborne vibration are planes, trains, and construction activities such as earth moving, which requires the use of heavy-duty earthmoving equipment. For the purposes of this analysis, a PPV descriptor with units of inches per section is used to evaluate construction-generated vibration for building damage and human complaints.

Existing Ambient Noise Environment

Noise Sensitive Land Uses

Noise-sensitive land uses are generally considered to include those uses where noise exposure could result in health-related risks to individuals, as well as places where quiet is an essential element of their intended purpose. Residential dwellings are of primary concern because of the potential for increased and prolonged exposure of individuals to both interior and exterior noise levels. Additional land uses such as hospitals, historic sites, cemeteries, and certain recreation areas are considered sensitive to increases in exterior noise levels. Schools, churches, hotels, libraries, and other places where low interior noise levels are essential are also considered noise-sensitive land uses.

The Project is proposing to construct a new segment of Rio Mesa Boulevard between the existing Avenue 12 and Avenue 14 roadways, widen a short segment of Avenue 12, and install utilities within roadway rights-of-ways and within linked utility line corridors. The nearest sensitive receptor to the Project Site is a

rural residence located approximately 500 feet to the west of the proposed Rio Mesa Boulevard alignment footprint at the nearest. This residence is positioned between State Route 41 (SR 41), which is approximately 1,400 feet to the west of this residence, and the proposed Rio Mesa Boulevard alignment. There is an additional rural residential structure located to the east of the proposed Rio Mesa Boulevard however this structure is uninhabitable.

4.7.1.2 Existing Ambient Noise Environment

Madera County contains extensive agricultural land uses along with a range of residential, industrial, commercial, recreational, and open space areas. Key noise sources in the County include motor vehicle traffic, agricultural activities, airplane traffic, railroads, and stationary sources such as food processing plants and residential land uses. The Project Site is within and primarily surrounded by inactive agricultural land. The most predominant source of noise in the Project vicinity is vehicle noise from area roadways, in particular SR 41. Per Under existing conditions, the segment of SR 41 west of the Project Site experiences approximately 20,200 daily vehicle trips (Caltrans 2019). Existing traffic noise levels currently generated on this segment of SR 41 were calculated using the FHWA Highway Noise Prediction Model (FHWA-RD-77-108). Based on the estimated daily vehicle trips provided by Caltrans (2019), the predicted noise level at 100 feet from the centerline of SR 41 is approximately 63.7 dB L_{dn} (Appendix G). The predicted noise level associated with vehicles on SR 41 at 1,400 feet from the centerline of SR 41 is approximately 46.4 dB L_{dn}. The Project Phase 2 improvements to the SR 41/Avenue 12 intersection would abut SR 41. The distance of Phase 1 and 2 Project facilities (Rio Mesa Boulevard and the linked utility corridors) from SR 41 ranges from approximately 1,300 feet at the bend in roadway north of the Rio Mesa Boulevard/Avenue 12 intersection to approximately 1.3 miles from SR 41 in the northeast termination point.

A residence is located approximately 500 feet from the Project Site as shown on Figure 4.7-1. As noted, the residence is located approximately 1,400 feet from the centerline of SR 41 and thus the existing ambient noise levels at the exterior of this residence associated with SR 41 traffic noise level is predicted to be approximately 46.4 dB L_{dn} under existing conditions.

The Arnold Ranch airport is the closest airport to the Project Site and is located approximately 0.65 miles south of the Project Site. Arnold Ranch airport is limited to small plane. The airport's effect on noise levels in the Project area would be limited given that only small planes use it and because the Project does not involve the placement of noise-sensitive receptors within the flight paths of planes using the airport.

4.7.2 Regulatory Setting

4.7.2.1 Federal

Occupational Safety and Health Act (OSHA) of 1970 regulates noise levels in the workplace to protect workers from occupational noise exposure.

4.7.2.2 State

CEQA

The California Environmental Quality Act requires a strictly baseline versus build analysis to assess whether a proposed project would have a noise impact. If a proposed project is determined to have a significant noise impact under the California Environmental Quality Act. The State of California regulates vehicular and freeway noise affecting classrooms, sets standards for sound transmission and occupational noise control, and identifies noise insulation standards and airport noise/land-use compatibility criteria. Guidance for assessing the potential for impact due to noise is provided in the *Technical Noise* (Caltrans 2013).

4.7.2.3 Local

Madera County General Plan Noise Element

Section 7, *Noise*, of the Madera County General Plan provides goals and policies for minimizing noise impacts on the community and for coordinating with surrounding jurisdictions and other entities regarding noise control. The following General Plan Noise goal and policy are relevant for consideration if the Project:

Goal 7.A: *To protect County residents from harmful and annoying effects of exposure to excessive noise*

Policy 7.A.2: Noise created by new transportation noise sources, including roadway improvement projects, shall be mitigated so as not to exceed 60 dB Ldn within the outdoor activity areas of existing or planned noise-sensitive land uses and 45 dB Ldn in interior spaces of existing or planned noise-sensitive land uses.

Madera County Code of Ordinances

Section 9.58.020-G of the County's Code of Ordinances (Madera County 2020) regulates construction noise by limiting construction activities to the hours of 7 a.m. to 7 p.m. Monday through Friday and 9 a.m. to 5 p.m. on Saturdays. Construction activities are prohibited on Sundays. The County's Code of Ordinances does not establish a numerical noise level threshold.

Section 9.58.020-F of the County's Code of Ordinances states that operating or permitting the operation of any device that creates a vibration on adjacent private property which is above the vibration perception threshold of 0.1 inches per second is prohibited.

4.7.3 Environmental Impacts

4.7.3.1 Thresholds of Significance

The impact analysis provided below is based on the following California Environmental Quality Act Guidelines Appendix G thresholds of significance. The Project would result in a significant noise-related impact if it would produce the following:

1) 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.

2) Generation of excessive groundborne vibration or groundborne noise levels.

3) For a project located within the vicinity of a private airstrip or an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project expose people residing or working in the project area to excessive noise levels.

4.7.3.2 Methodology

This analysis of the existing and future noise environments is based on noise prediction modeling and empirical observations. In order to estimate the worst-case construction noise levels that may occur at the nearest noise-sensitive receptors in the Project vicinity, predicted construction noise levels were calculated utilizing the FHWA's Roadway Construction Model (2006). Operational noise levels (i.e., noise from vehicle use of the Project segment of Rio Mesa Boulevard) are addressed using the FHWA Highway Noise Prediction Model (FHWA-RD-77-108). Groundborne vibration levels associated with construction activities for the Project were evaluated utilizing typical groundborne vibration levels associated with construction equipment, obtained from the Caltrans guidelines set forth above. Potential groundborne vibration impacts related to structural damage and human annoyance were evaluated, taking into account the distance from construction activities to nearby land uses.

4.7.3.3 Direct and Indirect Project Impacts

Impact 4.7-1: Project construction and operation could generate noise levels in excess of standards. Impact determination: *Less than significant.*

Threshold:	*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.*

Short-Term Construction Noise

Construction noise levels associated with the Project would vary depending on the nature of the activities being performed. Noise generated during Project construction would primarily be associated with the operation of off-road equipment for onsite construction activities as well as construction vehicle travel on area roadways. Construction noise typically occurs intermittently and varies depending on the nature or

phase of construction (e.g., site preparation, grading, paving). Noise generated by construction equipment, including earthmovers, material handlers, and portable generators, can reach high levels. Typical operating cycles for these types of construction equipment may involve one or two minutes of full-power operation followed by three to four minutes at lower power settings. Other primary sources of acoustical disturbance would be random incidents, which would last less than one minute (such as dropping large pieces of equipment or the hydraulic movement of machinery lifts). During construction, exterior noise levels could negatively affect sensitive receptors in the vicinity of the construction site.

The nearest noise-sensitive land use is residence located approximately 500 feet west of the Project Site. As previously described, Section 9.58.020-G of the County's Code of Ordinances regulates construction noise by limiting construction activities to the hours of 7 a.m. to 7 p.m. Monday through Friday and 9 a.m. to 5 p.m. on Saturdays. Construction activities are prohibited on Sundays. The County does not specify a numeric threshold pertaining to the noise associated with construction.

Although construction would be limited to the days and hours as required by County Ordinance, this analysis also considers the anticipated construction noise levels that may occur at the nearest noise-sensitive receptor. Construction equipment noise levels were calculated using the Roadway Noise Construction Model for the clearing, grade preparation, rough excavation, various construction, paving and painting process for Phase 1 and Phase 2 of construction and compared against the construction-related noise level threshold established in the Criteria for a Recommended Standard: Occupational Noise Exposure prepared in 1998 by National Institute for Occupational Safety and Health (NIOSH). A division of the US Department of Health and Human Services, NIOSH identifies a noise level threshold based on the duration of exposure to the source. The NIOSH construction-related noise level threshold starts at 85 dBA for more than 8 hours per day; for every 3-dBA increase, the exposure time is cut in half. This reduction results in noise level thresholds of 88 dBA for more than 4 hours per day, 92 dBA for more than 1 hour per day, 96 dBA for more than 30 minutes per day, and up to 100 dBA for more than 15 minutes per day. For the purposes of this analysis, the lowest, more conservative threshold of 85 dBA L_{eq} is used as an acceptable threshold for construction noise at the nearby existing and future planned sensitive receptors.

The anticipated short-term construction noise levels generated for the necessary equipment is presented in Table 4.7-3.

Table 4.7-3 Unmitigated Construction Average (dBA) Noise Levels at Nearest Receptor

Equipment	Estimated Exterior Construction Noise Level at 500 feet	Construction Noise Significance Threshold (dBA L_{eq})	Exceed Standard at Nearest Residence?
Phase 1			
Clearing			
Scraper	59.6	85	**No**
Grader	61.0	85	**No**
Tractor	60.0	85	**No**
Water Truck (2)	65.1 (each)	85	**No**
Combined Clearing Equipment	**69.9**	85	**No**

Table 4.7-3 Unmitigated Construction Average (dBA) Noise Levels at Nearest Receptor

Equipment	Estimated Exterior Construction Noise Level at 500 feet	Construction Noise Significance Threshold (dBA L_{eq})	Exceed Standard at Nearest Residence?
Grade Preparation			
Tractor	60.0	85	**No**
Water Truck (2)	65.1 (each)	85	**No**
Compactor	56,2	85	**No**
Combined Grade Preparation Equipment	**69.0**	85	**No**
Rough Excavation			
Scraper (2)	59.6 (each)	85	**No**
Compactor	56.2	85	**No**
Grader	61.0	85	**No**
Tractor	60.0	85	**No**
Water Truck (2)	65.1 (each)	85	**No**
Combined Rough Excavation Equipment	**70.4**	85	**No**
Sewer System Construction			
Excavator (2)	56.7 (each)	85	**No**
Loader	55.1	85	**No**
Tractor	60.0	85	**No**
Water Truck (2)	65,1	85	**No**
Combined Sewer System Construction Equipment	**69.4**	85	**No**
Aggregate Base Access Road Construction			
Scraper	61.0	85	**No**
Grader	59.6	85	**No**
Roller	53.0	85	**No**
Water Truck	65.1	85	**No**
Combined Aggregate Base Access Road Construction Equipment	**67.5**	85	**No**
Bridge Structures Construction			
Forklift	59.4	85	**No**
Hydralift	47.7	85	**No**
Concrete Pump Truck	54.8	85	**No**
Excavator	55.1	85	**No**
Loader	60.0	85	**No**
Combined Bridge Structure Construction Equipment	**67.6**	85	**No**
Lime Treated Subgrade Construction			
Grader	61.0	85	**No**
Scraper	59.6	85	**No**
Roller (2)	53.0 (each)	85	**No**
Water Truck (3)	65.1 (each)	85	**No**
Mixer	57.0	85	**No**
Tractor (2)	60.0 (each)	85	**No**
Combined Lime Treated Subgrade Construction Equipment	**71.7**	85	**No**

Table 4.7-3 Unmitigated Construction Average (dBA) Noise Levels at Nearest Receptor

Equipment	Estimated Exterior Construction Noise Level at 500 feet	Construction Noise Significance Threshold (dBA L_{eq})	Exceed Standard at Nearest Residence?
Raised Median Curbs Construction			
Tractor	60.0	85	**No**
Paving Equipment	54.2	85	**No**
Combined Raised Median Curbs Construction Equipment	**61.0**	85	**No**
Paving of Roadway Section			
Paver	54.2	85	**No**
Roller (3)	53.0 (each)	85	**No**
Combined Paving Equipment	**59.4**	85	**No**
Striping and Signage			
Tractor	60.0	85	**No**
Paint Truck	62.5	85	**No**
Power Broom	56.7	85	**No**
Combined Striping and Signage Equipment	**65.1**	85	**No**
Drain System Construction			
Excavators (3)	56.7 (each)	85	**No**
Loader	55.1	85	**No**
Tractor	60.0	85	**No**
Forklift	59.4	85	**No**
Concrete Mixing Truck	54.8	85	**No**
Water Truck	65.1	85	**No**
Combined Drain System Construction Equipment	**68.6**	85	**No**
Recycled Water and Water System Construction			
Excavators (2)	56.7 (each)	85	**No**
Loaders	55.1	85	**No**
Tractor	60.0	85	**No**
Water Truck	65.1	85	**No**
Combined Recycled Water and Water System Construction Equipment	**67.4**	85	**No**
Dry Utility System Construction			
Grader	61.0	85	**No**
Scraper	59.6	85	**No**
Mixer	54.8	85	**No**
Tractor (2)	60.0 (each)	85	**No**
Roller (2)	53.0 (each)	85	**No**
Water Truck (3)	65.1 (each)	85	**No**
Combined Dry Utility System Construction Equipment	**71.6**	85	**No**
Street Light System Instillation			
Tractor	60.0	85	**No**
Backhoe	53.6	85	**No**
Combined Street Light System Instillation Equipment	**60.9**	85	**No**

Table 4.7-3 Unmitigated Construction Average (dBA) Noise Levels at Nearest Receptor

Equipment	Estimated Exterior Construction Noise Level at 500 feet	Construction Noise Significance Threshold (dBA L_{eq})	Exceed Standard at Nearest Residence?
Phase 2			
Clearing			
Scraper	59.6	85	**No**
Grader	61.0	85	**No**
Water Truck	65.1	85	**No**
Combined Clearing Equipment	**67.3**	85	**No**
Grade Preparation			
Grader	61.0	85	**No**
Water Truck (2)	65.1 (each)	85	**No**
Compactor	56.2	85	**No**
Combined Grade Preparation Equipment	**69.1**	85	**No**
Rough Excavation			
Scraper	59.6	85	**No**
Compactor	56.2	85	**No**
Grader	61.0	85	**No**
Water Truck (2)	65.1 (each)	85	**No**
Combined Rough Excavation Equipment	**69.6**	85	**No**
Drain System Construction			
Excavator	56.7	85	**No**
Loader	55.1	85	**No**
Water Truck	65.1	85	**No**
Combined Drain System Construction Equipment	**66.1**	85	**No**
Dry Utilities Construction			
Excavator	56.7	85	**No**
Loader	55.1	85	**No**
Water Truck	65.1	85	**No**
Combined Dry Utilities Construction Equipment	**66.1**	85	**No**
Lime Treated Subgrade Construction			
Grader	61.0	85	**No**
Scraper	59.6	85	**No**
Rollers (2)	53.0 (each)	85	**No**
Water Truck (2)	65.1 (each)	85	**No**
Mixer	54.8	85	**No**
Compactors (2)	56.2 (each)	85	**No**
Combined Lime Treated Subgrade Construction Equipment	**70.1**	85	**No**
Aggregate Base Roadway Construction			
Grader	61.0	85	**No**
Scraper	59.6	85	**No**
Roller (2)	53.0 (each)	85	**No**
Water Truck (2)	65.1 (each)	85	**No**
Combined Aggregate Base Roadway Construction Equipment	**69.6**	85	**No**

Table 4.7-3 Unmitigated Construction Average (dBA) Noise Levels at Nearest Receptor

Equipment	Estimated Exterior Construction Noise Level at 500 feet	Construction Noise Significance Threshold (dBA L_{eq})	Exceed Standard at Nearest Residence?
Concrete Curbs, Gutters and Sidewalk Construction			
Paver	54.2	85	**No**
Tractor	60.0	85	**No**
Combined Concrete Curbs, Gutters and Sidewalk Construction Equipment	**61.0**	85	**No**
Asphalt Paving Roadway Construction			
Paver	54.2	85	**No**
Roller (3)	53.0 (each)	85	**No**
Combined Asphalt Paving Roadway Construction Equipment	**59.4**	85	**No**
Striping and Signage			
Tractor	60.0	85	**No**
Paint Truck	62.5	85	**No**
Power Broom	56.7	85	**No**
Combined Striping and Signage Equipment	**65.1**	85	**No**
Landscape and Irrigation			
Trucks (2)	50.3 (each)	85	**No**
Backhoe	53.6	85	**No**
Trencher (2)	56.7 (each)	85	**No**
Combined Landscape and Irrigation Equipment	**61.4**	85	**No**

Source: Construction noise levels were calculated by ECORP Consulting, Inc. using the FHWA Roadway Noise Construction Model (FHWA 2006). Refer to Appendix G of this DEIR for Model Data Outputs.

Notes: Various construction equipment was based on information supplied by the Project proponent and can be found in Appendix C: Construction Sequence. The noise values shown for "Combined" equipment in Table 4.7-3 reflect the cumulative noise generated by all equipment in each particular category including multiple pieces of the same piece of equipment.

As depicted in Table 4.7-3, no individual or cumulative construction equipment noise levels would exceed the 85 dBA NIOSH construction noise threshold at the nearest noise- sensitive receptor. For this reason and because construction activities would be conducted within the hours and days allowed by County Ordinance, the Project's construction noise impact is considered ***less than significant***.

Long-Term Operational Noise

Vehicle use of the Project segment of Rio Mesa Boulevard would result in a new transportation noise source within the Project area. To assess potential long-term noise impacts of the Project, predicted noise levels associated with predicted average daily trips (ADT) on the Project segment of Rio Mesa Boulevard were considered in terms of potential effects on existing noise-sensitive land uses as well as potential future land uses adjacent to the Project. As discussed further in Section 4.8 of this DEIR, the Project segment of Rio Mesa Boulevard is forecast to experience 5,512 ADT when the Project segment of Rio Mesa Boulevard is initially completed (year 2022) and increase to 17,900 ADT by the year 2042 as additional development occurs within the Project area. (Methods and assumptions used in predicting future traffic volumes are discussed further in Section 4.8 and in the Traffic Impact Study included as Appendix H of this DEIR.)

Predicted traffic noise levels were calculated using the FHWA Highway Noise Prediction Model (FHWA-RD-77-108) (See Appendix G). Traffic noise levels were modeled for the predicted future traffic volume on Rio Mesa Boulevard of 17,900 average daily trips in 2042 (KDA 2020). The predicted noise level at the existing residence 500 feet from the centerline of the proposed Rio Mesa Boulevard in 2042 is projected to be 56.6 dB $L_{dn.}$

Policy 7.A.2 of the Madera County General Plan states that noise created by new transportation noise sources, including roadway improvement projects, shall be mitigated so as not to exceed 60 dB L_{dn} within the outdoor activity areas of existing or planned noise-sensitive land uses and 45 dB L_{dn} in interior spaces of existing or planned noise-sensitive land uses. The predicted future (2042) noise level of 56.6 dB L_{dn} at the existing residence associated with vehicle travel on Rio Mesa Boulevard is below the 60 dB Ldn outdoor area standard. Furthermore, the manner in which older homes in California were constructed generally provides a reduction of exterior-to-interior noise levels of about 20 to 25 dBA with closed windows (Caltrans 2002) and an assumed reduction factor of 20 dBA for the existing residence is considered appropriate for this analysis. Assuming an attenuation of 20 dB for the interior of the existing residence, the predicted interior noise level is 36 dB L_{dn} and is below the 45 dB Ldn interior noise standard. For these reasons, transportation noise from the Project segment of Rio Mesa Boulevard would not have a significant noise impact at the existing noise-sensitive land use (residence) located approximately 500 feet from the Project. Since the nearest noise sensitive receptor would experience exterior and interior noise levels below the County's noise standards, this impact is considered ***less than significant***.

No other noise-sensitive land uses are currently located in areas potentially affected by transportation noise associated with the Project segment of Rio Mesa Boulevard. Although not a Project impact, this DEIR also presents information on predicted noise levels adjacent to the Project segment for the purposes of disclosure and for future land use planning considerations. The predicted 60 dBA noise contour is approximately 296 feet from the Rio Mesa Boulevard centerline based on the predicted year 2042 ADT of 17,900.

Impact 4.7-2 Project construction and operation activities would generate groundborne vibration and vibration noise. Impact determination: *Less than significant*.

Threshold:	*Generation of excessive groundborne vibration or groundborne noise levels.*

Construction-Generated Vibration

Project construction would have the potential to result in varying degrees of temporary groundborne vibration, depending on the specific construction equipment used and the operations involved. Ground vibration generated by construction equipment spreads through the ground and diminishes in magnitude with increases in distance.

Construction-related ground vibration is normally associated with impact equipment such as pile drivers, jackhammers, and the operation of some heavy-duty construction equipment, such as dozers and trucks. It is not anticipated that pile drivers would be necessary during Project construction. Vibration decreases rapidly with distance and is concentrated near the source of a particular construction activity.

Groundborne vibration levels associated with typical construction equipment and activities considered representative of anticipated vibration associated with the Project are summarized in Table 4.7-4.

Table 4.7-4. Typical Construction Equipment Vibration Levels

Equipment Type	Peak Particle Velocity at 25 Feet (inches per second)
Large Bulldozer	0.089
Pile Driver	0.170
Caisson Drilling	0.089
Loaded Trucks	0.076
Rock Breaker	0.089
Jackhammer	0.035
Small Bulldozer/Tractor	0.003

Source: FTA 2018; Caltrans 2020

As previously stated the County's regulation pertaining to vibration is included in Section 9.58.020-F of the County's Code of Ordinances, stating that operating or permitting the operation of any device that creates a vibration on adjacent private property which is above the vibration perception threshold of 0.1 inches per second is prohibited. The nearest offsite structure of concern to the construction area is located approximately 500 feet distant. Based on the vibration levels presented in Table 4.7-4, the maximum ground vibration generated by construction activities (pile driving) would be approximately 0.170 inches per second PPV at 25 feet.

Based on the representative vibration levels presented for various construction equipment types in Table 4.7-4 and the construction vibration assessment methodology published by the FTA (2018), it is possible to estimate the potential Project construction vibration levels at the nearest offsite structure 500 feet distant. The FTA provides the following equation: [PPVequip = PPVref x $(25/D)^{1.5}$]. Table 4.7-5 presents the expected Project related vibration levels at a distance of 500 feet.

Table 4.7-5 Construction Vibration Levels at 500 Feet

Receiver PPV Levels (in/sec)[1]							Peak Vibration	RMS Velocity Levels[2]	Threshold	Exceed Threshold
Large Bulldozer	Pile Driver	Drilling	Loaded Trucks	Rock Breaker	Jack-hammer	Small Bulldozer				
0.0009	0.001	0.009	0.0008	0.0009	0.0003	0.00003	**0.001**	0.0007	0.1	**No**

[1]Based on the Vibration Source Levels of Construction Equipment included on Table 4.7-5 (FTA 2018).
[2]Vibration levels in PPV are converted to RMS velocity using a 0.70 conversion factor identified by Caltrans (2020),

Groundborne vibrations attenuate rapidly from the source due to geometric spreading and material damping. Geometric spreading occurs because the energy is radiated from the source and spreads over an increasingly large distance while material damping is a property of the friction loss which occurs during the passage of a vibration wave. As shown in Table 4.7-5, the maximum predicted peak vibration at the

nearest structure at 500 feet from the construction area is 0.001 in/sec and would be well below the County standard of 0.1 in/sec. Thus, the impact is considered ***less than significant***.

Operational-Generated Vibration

Once construction is complete the Project would not include the use of any stationary equipment that would result in excessive groundborne vibration levels. The new roadway would accommodate a variety of vehicles that have the potential to generate groundborne vibrations. Heavy-duty trucks, the vehicles expected to produce the highest levels of groundborne vibration from use of Rio Mesa Boulevard, are expected to generate groundborne vibration velocity levels of no more than 0.006 PPV at 50 feet under typical circumstances. Therefore, the Project would result in negligible groundborne vibration impacts during post construction operations and this impact is considered less than significant.

Impact 4.7-3: Public airport noise impacts. Impact determination: *No impact*.

Threshold:	*Located within the vicinity of a private airstrip or an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project expose people residing or working in the Project Area to excessive noise levels.*

The nearest airport to the Project site is the Arnold Ranch Airport, located approximately 0.65 miles south of the Project Site. No land use plan for this airport has been adopted and the County General Plan does not identify this airport as a substantial source of noise. Because the Project would not introduce new residents or permanent workers to the Project Site, the Project would have ***no impact*** on future residents or permanent workers due to noise from aircraft arriving or departing Arnold Ranch Airport.

4.7.3.4 Cumulative Setting, Impacts, and Mitigation Measures

Cumulative Noise Impacts

Construction activities associated with the Project and other construction projects in the area could occur simultaneously. However, construction noise is generally limited to areas immediately adjacent to the construction site. Construction noise for the Project was determined to be less than significant following compliance with the County's Municipal Code. Cumulative development in the vicinity of the Project Site could result in elevated construction noise levels at sensitive receptors in the Project area. It is assumed that any construction activity in the vicinity of Project construction activity would be required to comply with the applicable County Municipal Code limitations on allowable hours of construction as is the Project. As such, the cumulative effect of construction noise on sensitive receptors potentially affected by the Project would be less than significant. Therefore, the Project's contribution to this effect would be considered ***less than considerable***

In terms of cumulative operational noise, the Project would not provide new permanent stationary sources of noise over existing conditions. Considering cumulative traffic noise, Rio Mesa Boulevard would accommodate traffic that would generate noise levels up to 56.6 dBA L_{dn} at the nearest sensitive receptor, which is located approximately 500 feet west of the proposed alignment and 1,400 feet east of SR 41. As previously described, the segment of SR 41 that traverses the Project area accommodates approximately

20,200 average daily trips. Traffic noise on SR 41, the predominate existing source of noise in the vicinity, currently generates noise levels of 46.4 dBA L_{dn} at this residence (see Appendix G). As previously described, the dB scale is logarithmic, not linear; therefore, sound levels cannot be added or subtracted through ordinary arithmetic. When two noise sources, each contributing their own sound level, are combined the differing acoustic energy of each source must be accounted in order to determine their combined effect. In this case, the existing noise levels generated from traffic on SR 41 at the existing residence is 46.4 dBA L_{dn}, 10.2 dBA less than the projected noise levels at this residence from traffic noise on the proposed Rio Mesa Boulevard. When combining two distinct noise sources differing by 10.2 dBA, 0.7 dBA is added to the highest noise level value in order to determine the combined effect (Caltrans 2013). Therefore, the combined noise levels from SR 41 and the proposed Rio Mesa Boulevard at this sensitive receptor would be 57.3 dBA L_{dn}, which is below the County threshold of 60 dBA L_{dn} presented in the Madera County General Plan Policy 7.A.2. Therefore, the Project would not generate substantial permanent or temporary noise levels over existing conditions. The Project contribution, therefore, would be ***less than considerable***.

Cumulative Vibration Impacts

As discussed at Impact 4.7-2, once construction is complete the Project would not include the use of any stationary equipment that would result in excessive groundborne vibration levels. The new roadway would accommodate a variety of vehicles that have the potential to generate groundborne vibrations. Heavy-duty trucks, the vehicles expected to produce the highest levels of groundborne vibration from use of Rio Mesa Boulevard, are expected to generate groundborne vibration velocity levels of no more than 0.006 PPV at 50 feet under typical circumstances. In addition, vibration generated by traffic on SR 41 is not expected to combine with, and thus intensify the effect of, vibration from Rio Mesa Boulevard traffic because vibration from SR 41 would dissipate over the roughly 2,000 feet separating the two roadways. For the above reasons, the cumulative effect of Project-generated vibration is considered negligible and its long-term contribution to future conditions would be ***less than considerable***.

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4.8 Transportation

The purpose of this section is to describe the effects of Project construction and operation on vehicle access, traffic, and circulation. This section addresses Project consistency with adopted programs, plans, ordinances, and policies pertaining to vehicle traffic. It also includes an assessment of potential Project effects on transit, bicycle and pedestrian facilities and Project consistency with adopted plans pertaining to those transportation modes. Lastly, this section addresses potential Project impacts on vehicle miles traveled (VMT) as specified in CEQA Guidelines Section 15064.3, subdivision (b); whether there exist potential safety hazards related to Project design; and potential Project effects on emergency access.

A traffic assessment of the Project was performed by KD Anderson & Associates, Inc. The results of that assessment are included the report *Traffic Impact Analysis for the Rio Mesa Blvd Project* (November 2020) (TIA) which is included as Appendix H to this DEIR. The TIA includes an evaluation of the Project effects on levels of service (LOS) traffic delay on public roads. Traffic delay has been a traditional measure of project traffic impacts under CEQA for several decades, but recent changes to CEQA direct public agencies to no longer consider traffic delay as a CEQA impact. Traffic delay-based metrics such as roadway capacity and level of service performance measures that have traditionally been used to assess transportation impacts of projects under CEQA must be replaced by new performance measures, such as vehicle miles traveled (VMT). The TIA is included as an attachment to this EIR and provides information pertaining to anticipated changes to levels of service that could occur as a result of the Project. That analysis is provided for informational purposes and for consideration of traffic and circulation issues only and the changes in levels of service are not considered an impact under CEQA.

4.8.1 Environmental Setting

4.8.1.1 Project Location

As discussed in more detail in Chapter 3, the Project would construct an approximately 2.3-mile segment of new road (Rio Mesa Boulevard) and widen an approximately 2,200-foot segment of Avenue 12 to provide a connection between the SR 41/Avenue 12 intersection in the south to the southernmost point of the internal road network within the Tesoro Viejo Master Planned Community[1] (Tesoro Viejo) to the north. The Project also includes improvements to Avenue 12 between the SR 41 and the proposed Rio Mesa Boulevard. The Project also includes development of two linked utility corridors. The northern-most utility corridor is oriented east to west and is aligned with an unimproved segment of Avenue 14. The second corridor runs south from unimproved Avenue 14 to the proposed Rio Mesa Boulevard alignment. Both utility corridors would include unpaved access roads that would not be available for public motor vehicle use.

The Project Site is primarily within and surrounded by inactive agricultural land. This area was once an active agricultural area; however, it has not been actively farmed or used as range land for many years and

[1] Tesoro Viejo development includes 5,200 residential units of high-, medium-, low-, and very low-density; and mixed-use, commercial (including highway service commercial), light industrial uses, open space and parks, schools, a sewage treatment and water treatment facility, and community park/storm water retention basin.

is now primarily unirrigated grassland. Aside from the existing paved roadway and graded shoulders along Avenue 12, the Project Site is undeveloped.

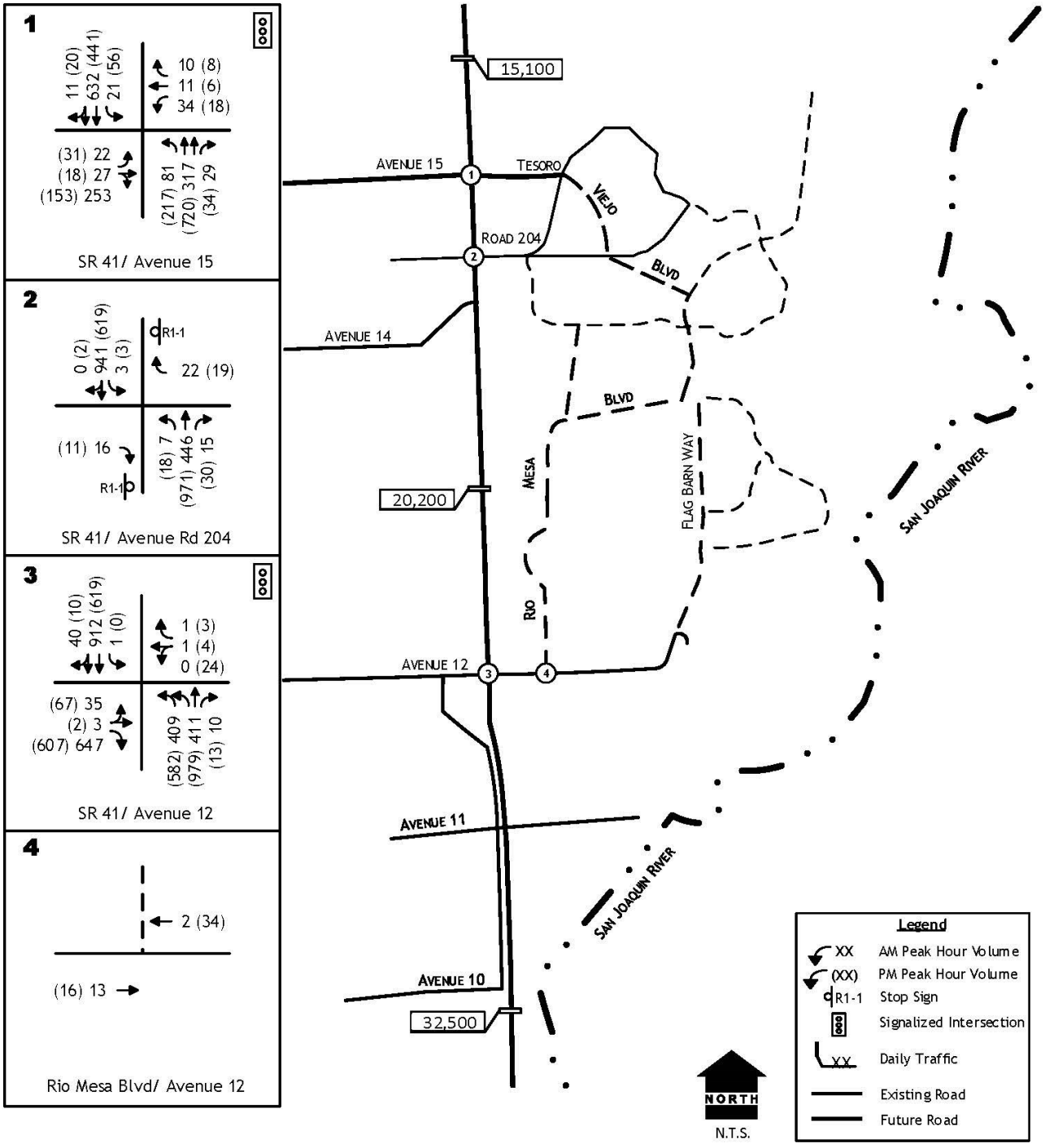
The general topography of the area is varied and composed of gently rolling terrain in the north and flat terrain in the south, where the land has been leveled for agriculture. Beyond Avenue 12 to the south of the Project Site is Arnold Ranch Airstrip and the San Joaquin River. To the southeast is the River Bend Golf Course and beyond is the San Joaquin River. To the northeast is the Sumner Hill residential subdivision and beyond that is the San Joaquin River. To the north is the approved Tesoro Viejo development and Avenue 14. SR 41 is west of the Project Site.

4.8.1.2 Roadway Network

Regional access to the study area is provided by SR 41 and SR 145. SR 41 is the major north/south roadway serving the Project Site and defines the western boundary of the Tesoro Viejo Specific Plan area. SR 41 continues north and east providing a connection to communities such as Oakhurst and continues to Yosemite National Park. To the south, SR 41 provides a connection to the city of Fresno, SR 99 and Interstate 5 (I-5), and beyond toward the central coast.

Local access to the Project area is provided via Avenue 15, Road 204, and Avenue 12, as shown on Figure 4.8-1 The major east/west access to the north side of the Project Site is provided by Road 204. Most of the roadways serving the Project Site are rural roadways with limited shoulders and pedestrian facilities. The major roadways are described below:

- **State Route 41** is the primary regional roadway in eastern Madera County and extends from San Luis Obispo County through the city of Fresno to Yosemite National Park. It is a two-lane, rural, undivided highway north of the Children's Boulevard interchange to Yosemite National Park, a four-lane north/south freeway from Children's Boulevard to Friant Road, and a six-lane freeway south of Friant Road through the city of Fresno. SR-41 parallels the Project Site to the west. In 2020, Caltrans approved the Madera 41 South Expressway Project which includes the widening of SR-41 and other improvements along the segment of SR-41 that runs parallel to the proposed Rio Mesa Boulevard alignment. That project envisions but did not study, assess or reach any conclusions about a future development of an interchange at the SR-41/Avenue 12 intersection.
- **State Route 145/Road 145** is a two-lane, east/west roadway that extends from SR 99 in the City of Madera to its intersection with SR 41 northwest of the Rio Mesa Boulevard Project area, and continues east as Road 145 to Road 206.
- **Road 204** is a two lane, east/west roadway that extends from SR 41 (between Avenues 14 and 15) to Killarney Road near Sumner Hill. Road 204 bisects Tesoro Viejo. The easterly Road 204 connection to SR 41 is ultimately eliminated under the Tesoro Viejo plan.
- **Avenue 12** forms the southern boundary of the Project Site and extends from east of SR 41 to west of SR 99. It is a two-lane roadway which is ultimately planned to be a four-lane, divided arterial. Future plans include an interchange to replace the current at-grade intersection with SR 41 and extension of Avenue 12 through the RMAP area.



Source: KDAnderson & Associates, Inc.

Figure 4.8-1 Year 2022 Without Rio Mesa Boulevard
Traffic Volumes and Lane Configurations
2017-089-Rio Mesa Boulevard

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- Avenue 14 is an unpaved access roadway west of SR 41. East of SR 41, Avenue 14 is a paved two-lane roadway.
- **Avenue 15** is a two-lane, east/west, rural road which extends from the city of Madera to SR-41. Portions of the roadway provide access to residential and commercial uses.

The **SR 41 / Avenue 15 intersection** is controlled by a traffic signal. The intersection has two through travel lanes in each direction on SR 41 plus separate left turn and right turn lanes. The eastbound Avenue 15 approach has a separate left turn lane and combined through plus right turn lane. The westbound approach has a left turn lane, through lane and separate right turn lane.

The **SR 41 / County Road 204 intersection** lies about 0.5 mile south of Avenue 15. This intersection is controlled by stop signs on the County Road 204 approaches. Separate left turn lanes are provided in each direction on SR 41. Traffic entering SR 41 at this location is limited to "right-turns only;" and ultimately SR 41 access to Tesoro Viejo is planned to be eliminated consistent with the RMAP circulation plan. Under the opening day conditions assessed herein the intersection is assumed to continue to permit access to and from Tesoro Viejo and the Sumner Hill residential subdivision.

The **SR 41 / Avenue 14 intersection.** Avenue 14 to the west of SR 41 lies about 0.25 mile south of Road 204. This intersection is controlled by. Avenue 14 has a stop sign at SR 41. Avenue 14 east of SR 41 lies about .5 miles south of 204. Avenue 14 east of SR 41 is an unpaved access road with no intersection controls at SR 41.

The **SR 41 / Avenue 12 intersection** is controlled by an actuated traffic signal. SR 41 Northbound SR 41 at this intersection includes dual northbound left turn lanes, a single northbound through lane and an approximately 600-foot northbound right turn lane. Southbound SR 41 at this intersection has a single left turn lane, two through lanes and a right turn lane. Each Avenue 12 approach to SR 41 has two entry lanes configured as a combined left plus through lane and a separate right turn lane.

4.8.1.3 Existing Traffic Volumes

Traffic volume data for existing conditions was collected at study area intersections on May 23, 2019. These traffic counts are included in the appendix to the report *Traffic Impact Analysis for the Rio Mesa Blvd Project* (November 2020) which is included in its entirety as Appendix H to this DEIR. Sections 4.8.1.4 and 4.8.1.5 discuss intersection and road segment levels of service based on existing traffic volumes.

4.8.1.4 Intersection Level of Service.

The observed peak hour volumes are the basis for intersection LOS calculations based on the methodologies contained in the 2010 Highway Capacity Manual (HCM). The peak hour volumes and LOS results are presented in Table 4.8-1, and LOS worksheets are included in Appendix H.

Table 4.8-1.Existing Intersection Levels of Service

Intersection	Control	Year 2019			
		AM Peak Hour		PM peak Hour	
		Average Delay (sec/veh)	LOS	Average Delay (sec/veh)	LOS
SR 41 / Avenue 15	Signal	22.9	C	20.0	B
SR 41 / Co Road 204					
Eastbound Approach	EB/WB Stop	18.4	C	13.1	B
Westbound Approach		11.5	B	19.6	C
SR 41 / Avenue 12	Signal	59.5	E	44.7	D

4.8.1.5 Roadway Segment Level of Service.

The observed peak hour volumes are the basis for roadway segment LOS calculations based on the methodologies contained in the 2010 HCM. The peak hour volumes and LOS results are presented in Table 4.8-2, and LOS worksheets are included in Appendix H.

Table 4.8-2. Existing Roadway Segment Levels of Service

Street	Location	Direction	Year 2019			
			AM Peak Hour		PM Peak Hour	
			Volume (vph)	LOS	Volume (vph)	LOS
SR 41	North of Avenue 12 to Road 204 (2 lanes)	NB	447	C	1,049	E
		SB	953	E	629	D
	Road 204 to Avenue 15 (2 lanes)	NB	468	D	990	E
		SB	944	E	624	D
Avenue 12	East of SR 41 (2 lanes)	EB	14	A	15	A
		WB	2	A	31	A

4.8.1.6 Public Transit

The Madera County Connection provides transit service within eastern Madera County and service is provided along SR 41. Stop locations include the Children's Hospital, the SR 41/Road 145 park-and-ride lot, and downtown Madera. There are currently no stops within the RMAP planning area east of SR 41. The service runs daily from approximately 6:00 A.M. to 1:00 A.M. Transfers are provided between the Madera Area Express and the Fresno Area Express.

4.8.1.7 Pedestrian and Bicycle Facilities

As noted above, the Project Site, aside from Avenue 12 east of SR 41, is undeveloped and contains no pedestrian or bicycle facilities. North of the Project, development of the Tesoro Viejo Specific Plan is ongoing and includes pedestrian facilities such as sidewalks, crosswalks, and pedestrian signals. Crosswalks are provided at major intersections. Existing and proposed bicycle facilities include Class I bike paths, Class II bike lanes, and Class III bike routes. Bike paths are paved trails that are separated from roadways. Bike lanes are located in the street, and are identified by striping, pavement legends, and signs. Bike routes are roadways that have been designated for bicycle use and usually do not include additional pavement width for cyclists and are identified by signs only. Future facilities are planned and are described in the Madera County 2004 Regional Bicycle Transportation Plan as well as the RMAP. A Class II bike lane is planned for Avenue 12 from Road 38 to SR 41. A Class III bike route is planned for Avenue 12 from SR 41 to the San Joaquin River. Furthermore, the RMAP defines a conceptual circulation plan that included the provision of Class II bike lanes on all arterial, collector and local access roads, and the provision of Class III bike routes on all local rural roads.

4.8.2 Regulatory Setting

This section describes the relevant regulatory policies and planning documents related to transportation as they pertain to the proposed Project. These documents include the following:

4.8.2.1 Federal

There are no federal regulations pertaining to transportation that are pertinent to this review of the Project.

4.8.2.2 State

There are no State regulations pertaining to transportation that are applicable to the Project.

4.8.2.3 Regional/Local

The Project is located within the boundaries of four local planning documents with relevance to transportation: the Madera County General Plan, the Rio Mesa Area Plan, the Madera County Regional Transportation Plan, and the Madera County Transportation Commission Active Transportation Plan. Development and operation of the Project is subject to goals and policies contained in these plans. The goals and policies applicable to transportation and the Project are as follows:

Madera County General Plan

The Transportation and Circulation Element of the Madera County General Plan, as most recently amended by Board Resolution 2015-142, includes the following goals relevant for consideration associated with the Project:

Goal 2.A: *To maintain a comprehensive and coordinated multimodal transportation system that enhances the mobility of people, improves the environment, and is safe, efficient, and cost effective.*

Goal 2.B: *To improve County roadways to include pedestrian, bicycle, and transit facilities to better serve all users, including drivers, pedestrians, bicyclists, and transit passengers of all ages and abilities.*

Goal 2.C: *To provide for the long-range planning and development of the county's roadway system, ensure the safe and efficient movement of people and goods, and provide sufficient access to existing and new development.*

Goal 2.E: *To provide a safe, comprehensive, and integrated system of facilities for non-motorized transportation to meet the needs of commuters and recreational users.*

Madera County 2018 Regional Transportation Plan and Sustainable Communities Strategy (RTP)

The RTP is a long-range transportation plan providing a vision for regional transportation investments over at least a 20-year period. Using growth forecasts and socioeconomic trends the Plan considers the role of transportation including economic factors, quality of life issues, and environmental factors. The goals presented in the RTP are intended to guide Madera County Transportation Commission (MCTC) in its decision-making pertaining to future growth in the Madera County and its pursuit of highly integrated transportation systems (MCTC 2019). These goals include:

1. To support equitable access to effective transportation options for all, regardless of race, income, national origin, age, location, physical ability, or any other factor.
2. To promote intermodal transportation systems that are fully accessible, encourage quality and sustainable growth and development, support the region's environmental resource management strategies, and are responsive to the needs of current and future travelers.
3. To promote and develop transportation systems that stimulate, support, sustain, and enhance the movement of people and goods to foster economic competitiveness of the Madera region.
4. To enhance transportation system coordination, efficiency, and intermodal connectivity to keep people and goods moving and meet regional transportation goals.
5. To maintain the efficiency, safety, and security of the region's transportation system.
6. To improve the quality and sustainability of the natural and human built environment through regional cooperation of transportation systems planning activities. MCTC 2019 Regional Transportation Plan/Sustainable Communities Strategy 1-9
7. To maximize funding to maintain and improve the transportation network.
8. To identify reliable transportation choices through the public participation process approved by MCTC.
9. To protect the environment and health of our residents by improving air quality and encouraging active transportation (non-motorized transportation, such as bicycling and walking).

Rio Mesa Area Plan

As discussed, the Project is located within the RMAP area. The RMAP encompasses approximately 15,000 acres of planned mixed-use development. The circulation element of the RMAP includes the following goals and policies:

Goal 1 *Provide a safe and efficient circulation system for the movement of people and goods throughout the area plan.*

Policy 1.1: Circulation design shall take into account land use and transportation plans of Madera County, Caltrans, the City of Madera, and Fresno County.

Policy 1.2: Create a transportation system that minimizes impacts on adjacent communities.

Goal 2 *Provide a circulation system which supports planned land uses while maintaining a desired LOS on all streets and at all intersections*

Policy 2.1: Maintain a LOS not less than LOS "D" for intersections during peak hours.

Goal 3 *Encourage east/west linkages to connect the project to other activity areas within the County*

Policy 3.1: Extend Avenues 9, 12, and 15 into the project area to promote east/west linkages

Goal 4 *Provide for a non-vehicular circulation system to connect activity centers throughout the area plan and to connect development areas to the San Joaquin River Parkway and master trail system, as may be adopted by the San Joaquin River Conservancy and Madera County pursuant to state law.*

Policy 4.1: The trails system should be coordinated with regional trail planning.

Policy 4.2: Provide for limited access to the river corridor in the form of roads, trails, and staging areas, in a manner consistent with the San Joaquin River Parkway Plan as approved by the Parkway Conservancy and Madera County.

Policy 4.3: Plan for an extensive trails system to link the campus with the community at large (applies to the University Overlay Plan).

Madera County Transportation Commission Active Transportation Plan

The *Madera County Transportation Commission Active Transportation Plan* (ATP), adopted May 23, 2018, envisions a comprehensive bicycle and pedestrian network across Madera County. As the region's Metropolitan Planning Organization (MPO), the Madera County Transportation Commission (MCTC) is responsible for the adoption of the County's Regional Transportation Plan (RTP)/Sustainable Communities Strategy (SCS) and Transportation Improvement Program as required by State and Federal law. The ATP supports these processes by providing a long-range vision for the bicycle and pedestrian network across the County. The ATP also supports local planning processes by providing a vision and guidance for the creation of active transportation facilities across the County. The plan simultaneously considers countywide connections as well as local networks for the City of Madera, the City of Chowchilla, and selected unincorporated communities.

4.8.3 Environmental Impacts and Mitigation Measures

4.8.3.1 Thresholds of Significance

The following thresholds of significance are based on Appendix G of the CEQA Guidelines. For purposes of this DEIR, implementation of the Project would have a significant adverse impact on transportation if it 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) (2) which states:

  "Transportation projects that reduce, or have no impact on, vehicle miles traveled should be presumed to cause a less than significant transportation impact. For roadway capacity projects, agencies have discretion to determine the appropriate measure of transportation impact consistent with CEQA and other applicable requirements. To the extent that such impacts have already been adequately addressed at a programmatic level, such as in a regional transportation plan EIR, a lead agency may tier from that analysis as provided in Section 15152."
- Substantially increase hazards 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.

4.8.3.2 Methods of Analysis

The TIA evaluates the impact of the Project on both near-term and long-term background traffic conditions. The following scenarios are evaluated in that report:

- Current Year 2019 conditions;
- Opening Day 2022 Plus Rio Mesa Boulevard Phase 1 Project; and
- Future Year 2042 Cumulative Conditions with Rio Mesa Boulevard Phase 2.

A primary objective of the KD Anderson report is to assess the operation of roads and intersections upon completion of the Project in order to determine if traffic conditions resulting from the Project would be consistent with the goals and policies of the Madera County General Plan. In accordance with recently enacted amendments to CEQA (pursuant to the passage and signing of Senate Bill 743), operational Level of Service is no longer a significance criterion under CEQA. Thus, the analysis considers whether the project would result in effects that are appreciably inconsistent with the General Plan and whether improvements are needed to achieve General Plan consistency. In accordance with CEQA Guidelines Section 15064.3, subdivision (b), this section also addresses potential Project impacts on vehicle miles traveled (VMT).

4.8.3.3 Project Impacts and Mitigation Measures

Impact 4.8-1 The location, design, construction and operation of the Project could conflict with applicable regional plans addressing transportation-related projects in the Project Area. Impact Determination: *Less than significant*.

Threshold:	*Conflict with a program, plan, ordinance or policy addressing the circulation system, including transit, roadway, bicycle and pedestrian facilities.*

As discussed in Chapter 3, an objective of the Project is to "construct a new secondary arterial (four-lane undivided) roadway connection between Avenue 12 and the southern terminus of the approved internal roadways within Tesoro Viejo consistent with the intent of the Circulation Concept Plan of the RMAP and OPL." The proposed Project would provide this connection and would further the overall objectives of land use and transportation plans applicable within the Project area. In consideration of the programs, plans, ordinances, or policies addressing the circulation system summarized in Section 4.8.2, above, no conflicts of the Project have been identified. Ultimately, a determination of plan consistency will be made by County decision makers when considering Project approvals. Discussion of the Project's consistency with various transportation plans is provided below.

Madera County General Plan Consistency

Transportation-related goals contained in the Madera County General Plan of potential applicability to the Project are listed in Section 4.8.2.3 above.

Associated with the Project environmental review, KD Anderson & Associates, Inc. (KDA) prepared a "Traffic Impact Analysis for the Rio Mesa Boulevard Project" (TIA) which is included as Appendix H of this DEIR. (KDA 2020) The analysis presented in the TIA and summarized below evaluates the traffic conditions predicted to occur upon completion of Phase 1 of the Project and under future (year 2042) conditions with implementation of Phase 2 of the Project. Although CEQA no longer permits the consideration of congestion as an environmental effect, the County General Plan includes level of service standards and thus, in part, the TIA informs the determination of consistency with applicable goals and policies of the General Plan. Policy 2.C.2 of the County General Plan states that "the County shall develop and manage its roadway system to maintain a minimum Level of Service D on all State and County Roadways."

The TIA analyses of conditions predicted to occur on the projected 2022 "opening day" of the Project and analysis of conditions in 2042 are contingent on various key assumptions listed in the TIA as is the forecasting methodology.

Traffic Volumes / Level of Service. Figures 4.8-1 and 4.8-2 present Year 2022 a.m. and p.m. peak hour traffic volumes under these conditions without and with Rio Mesa Boulevard Phase 1 and Figure 4.8-3 presents predicted Year 2042 conditions with Rio Mesa Boulevard Phase 2.

Intersection Levels of Service. Traffic flow conditions has been determined and described in terms of operating levels of service. Intersection levels of service were calculated in the TIA using the methodologies contained in the 2010 Highway Capacity Manual (HCM), and the results are noted in Table 4.8-3.

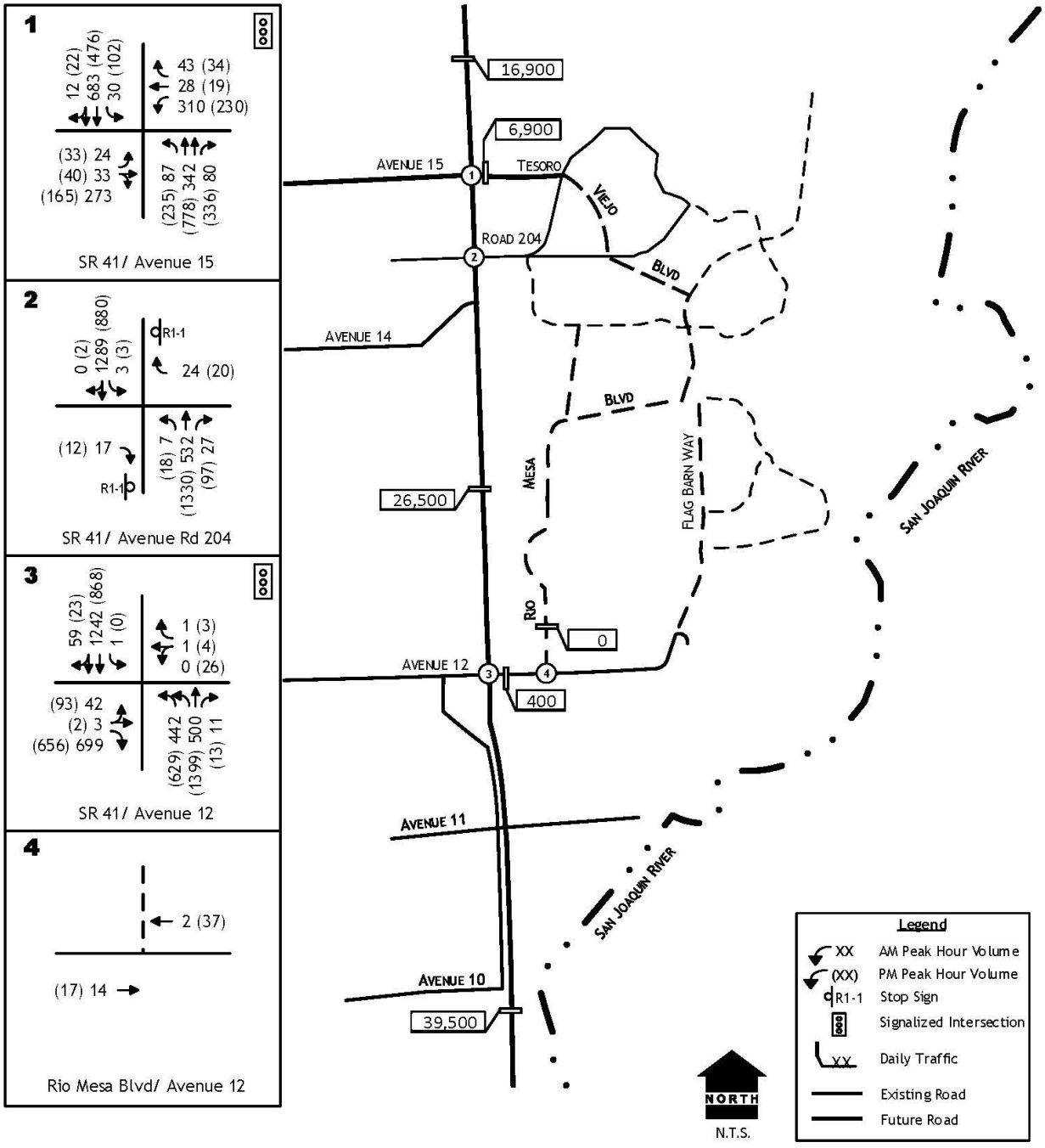
The TIA concludes that the Project would improve levels of service during the p.m. peak hour, as northbound traffic bound for the Tesoro Viejo area that would otherwise be in the single northbound travel lane on SR 41 between Avenue 12 and Avenue 15 would instead use Avenue 12 and the Project segment of Rio Mesa Boulevard. This trip diversion would reduce the average p.m. peak-hour delay at the signalized intersections of SR 41/Avenue 12 and SR 41/Avenue 15. Improved levels of service would also be expected at the SR 41 / Avenue 15 intersection in the a.m. peak hour, however, diversion of southbound SR 41 traffic to the westbound Avenue 12 intersection by way of Rio Mesa Boulevard would worsen levels of service at the SR 41 / Avenue 12 intersection during the a.m. peak period, adding an average of 10 seconds of delay. Under 2022 conditions with the Project, all intersections would operate at LOS D or better achieving the General Plan LOS standard, with the exception of the SR 41/Avenue 12 intersection during the a.m. peak period which would operate at LOS F.

In the near term, measures that would improve the operation of the SR 41 / Avenue 12 intersection in the a.m. peak hour would need to involve creating additional capacity for the large number of vehicles turning right from eastbound Avenue 12 onto southbound SR 41. Widening southbound SR 41 to create an exclusive merge lane for the those turns would reduce delay, and, in the long term, a grade separated interchange is planned. Widening westbound Avenue 12 would not have an appreciable effect on near term traffic conditions.

Also as shown in Table 4.8-3, year 2042 conditions with the Project (including Phase 2 improvements) can be expected to experience levels of service below the County LOS D standard at various locations. However, it is important to note that 2042 conditions represent predicted conditions with the Project and with future growth in vehicle trips that would not be caused by the Project. Thus, while the predicted levels of service are presented here for informational purposes, the predicted year 2042 levels of service occur as a result of future increases in vehicle trips not attributable to the Project.

Level of Service on Roadway Segments. Year 2022 and Year 2042 roadway segment Levels of Service are noted in Table 4.8-4. As shown in the table, existing peak-period conditions on the two SR 41 study segments are LOS E with the exception of the northbound segments during the a.m. peak period which are LOS D. Avenue 12 experience LOS A and B under existing conditions. Overall, conditions on the two-lane segments of SR 41 will continue to exceed the LOS D until such time as SR 41 improvements unrelated to the Project are implemented. Under 2042 conditions, levels of service on SR 41 are predicted

to be substantially improved as compared to existing conditions. These future conditions are attributed to predicted/assumed SR 41 future conditions, including implementation of the SR 41 Expressway Project to provide two travel lanes in each direction on SR 41 through the study area. Year 2042 conditions on Avenue 12 with Project (including Phase 2 improvements) are predicted to achieve LOS D or better with the exception of eastbound Avenue 12 during the p.m. peak period which is predicted to operate at LOS E. However, it is important to note that year 2042 conditions represent predicted conditions with the Project and with future growth in vehicle trips that would not be caused by the Project. Thus, while the predicted levels of service are presented here for informational purposes, the predicted year 2042 levels of service occur as a result of future increases in vehicle trips not attributable to the Project.



Source: KDAnderson & Associates, Inc.

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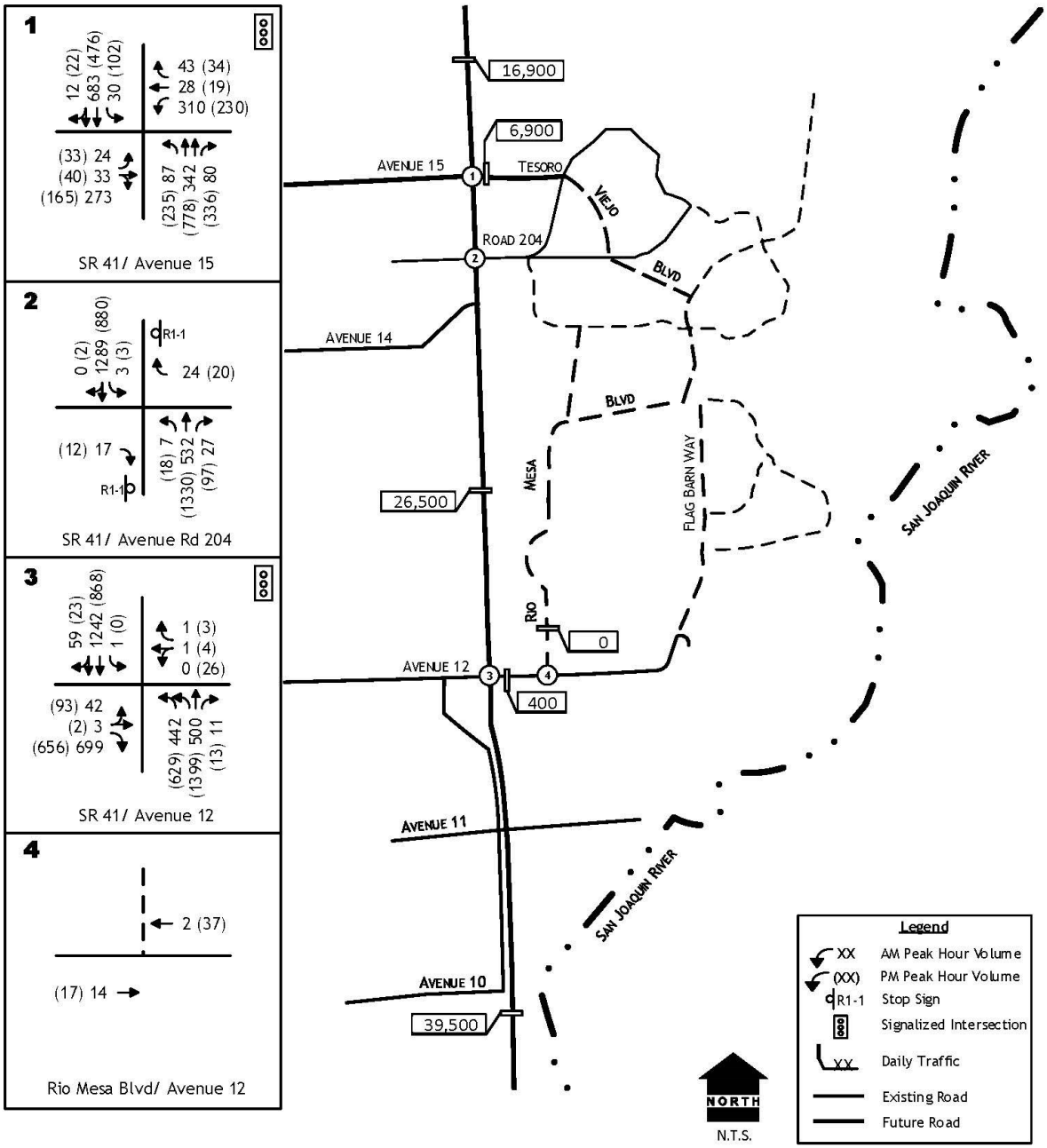
Figure 4.8-2 Year 2022 Plus Rio Mesa Boulevard
Traffic Volumes and Lane Configurations
2017-089-Rio Mesa Boulevard



Source: KDAnderson & Associates, Inc.

ECORP Consulting, Inc.
ENVIRONMENTAL CONSULTANTS

Figure 4.8-3 Year 2042 Plus Rio Mesa Boulevard
Traffic Volumes and Lane Configurations
2017-089-Rio Mesa Boulevard

Table 4.8-3. Year 2022 and Year 2042 Intersection Levels of Service

Intersection	Control	AM Peak Hour						PM Peak Hour					
		Year 2022 No Project		Year 2022 With Rio Mesa Boulevard Phase 1		Year 2042 With Rio Mesa Boulevard Phase 2		No Project		Year 2022 With Rio Mesa Boulevard Phase 1		Year 2042 With Rio Mesa Boulevard Phase 2	
		Average Delay (sec/veh)	LOS	Average Delay (sec/veh)	LOS	Average Delay (sec/veh)	LOS	Average Delay (sec/veh)	LOS	Average Delay (sec/veh)	LOS	Average Delay (sec/veh)	LOS
SR 41 / Avenue 15	Signal	51.8	D	51.1	D	45.9	D	76.5	E	31.9	C	135.9	F
SR 41 / Co Road 204													
Eastbound Approach	EB/WB Stop	28.4	D	26.0	D	See note 1.		17.0	C	16.1	C	See note 1.	
Westbound Approach		12.5	B	12.3	B			33.0	D	26.8	D		
SR 41 / Avenue 12	Signal	120.2	F	130.5	F	204.5	F	94.5	F	74.5	E	201.8	F
Avenue 12 / Rio Mesa Boulevard Eastbound approach	SB Stop	See note 2.				9.3	A	See note 2.				25.9	D

Notes:
1. The TIA year 2042 evaluation scenario assumes implementation of the SR 41 Expressway Project providing two travel lanes in each direction on SR 41 through the study area with no access to Tesoro Viejo via SR 41 at Road 204.
2. The TIA does not evaluate year 2022 conditions for the Avenue 12/Rio Mesa Boulevard intersection. However, because traffic volumes under the year 2022 with-Project scenario would be less than those under year 2042 with-Project conditions and because year 2042 with Project conditions are predicted to be LOS A during the a.m. peak period and LOS D during the p.m. peak period, it can be concluded that levels of service at this location under 2022 conditions would be the same or better than 2042 conditions and would be LOS D or better.

Table 4.8-4. Year 2022 and Year 2042 Roadway Segment Levels of Service

Street	Location	Direction	AM Peak Hour						PM Peak Hour					
			Year 2022 No Project		Year 2022 With Rio Mesa Boulevard Phase 1		Year 2042 With Rio Mesa Boulevard Phase 2		No Project		Year 2022 With Rio Mesa Boulevard Phase 1		Year 2042 With Rio Mesa Boulevard Phase 2	
			Volume (vph)	LOS	Volume (vph)	LOS	Volume (vph)	LOS	Volume (vph)	LOS	Volume (vph)	LOS	Volume (vph)	LOS
SR 41	North of Avenue 12 to Road 204 (2 lanes each direction)	NB	534	D	519	D	630	A	1,495	E	1.336	E	1,575	B
		SB	1,261	E	1,234	E	1,220	B	891	E	839	E	1,070	A
	Road 204 to Avenue 15 (2 lanes each direction	NB	556	D	536	D	630	A	1,350	E	1,219	E	1,575	B
		SB	1,292	E	1,224	E	1,220	B	885	E	833	E	1,070	A
	North of Avenue 15 (2 lanes each direction)	NB	See note 2.				500	A	See note 2.				1,390	B
		SB					1,275	B					820	A
Avenue 12	East of SR 41 to Rio Mesa Boulevard (2 lanes each direction)	EB	15	A	39	A	260	C	17	A	184	C	565	E
		WB	5	A	70	B	200	C	37	B	86	B	700	D

Notes:
1. Year 2042 scenario assumes the following regarding SR 41: - Implementation of the SR 41 Expressway Project to provide two travel lanes in each direction on SR 41 through the study area. - Access to Tesoro Viejo via SR 41 at Road 204 is not permitted. - The fourth westbound lane at the SR 41 / Avenue 15 intersection that is not used under existing conditions is restriped to provide a second left turn lane.
2. Avenue 12 would be expanded to four lanes during Project Phase 2 construction which for purposes of this analysis is assumed to occur after 2022 but prior to 2042. ___

For the reasons presented above, anticipated levels of service on roadway segments and at intersections appreciably affected by Phase 1 of the Project will be consistent with County General Plan goals and policies pertaining to roadway/intersection operations.

Rio Mesa Area Plan Consistency

The RMAP provides definition and guidelines for the development of an approximately 15,000-acre area of southeastern Madera County to facilitate preparation of developer-initiated specific plans, subdivision maps, and other entitlement requests. The RMAP serves as a policy document to provide the County with land use development decision-making guidance and to provide a planning framework for more detailed implementation plans and measures. Pursuant to the planning principles and conceptual alignments contained in the RMAP, on September 22, 2015, the Board approved Resolution No. 2015-124 adopting an Official Plan Line (OPL) for Rio Mesa Boulevard alignment between Avenue 12 and Avenue 14 "to establish the correct location of the right of way for future development by adjacent property owners." The proposed alignment of Rio Mesa Boulevard is consistent with the conceptual alignment of the roadway shown in the RMAP and as further refined by County approval of the OPL. Project consistency with the OPL is described below.

Rio Mesa Boulevard Official Plan Line Consistency

As discussed in Chapter 3, the Project alignment of Rio Mesa Boulevard varies in certain respects to that of the existing OPL adopted by Board Resolutions 2015-124 and 2016-269. Although the adjusted alignment of the proposed Project varies in its specific location to that of the OPL, the Project alignment provides for serving the same purpose and utility as that of the OPL. Furthermore, as a component of Project approval, the Board would approve an amendment to the OPL providing for consistency with the proposed alignment. Thus, the Project would be consistent with the Rio Mesa Boulevard OPL.

Madera County Transportation Commission Active Transportation Plan Consistency The Project includes design features to facilitate and encourage pedestrian and bicycle travel and would construct Class II bike lanes and sidewalks along both sides of Rio Mesa Boulevard and Avenue 12 Phase 2 improvements. The proposed facilities would provide safe, accessible, and continuous bicycle facilities in keeping with the goals and policies of the Madera County Transportation Commission Active Transportation Plan. The Project is also consistent with conceptual circulation plans for the development of bicycle facilities included in the RMAP, including the provision of Class II bike lanes on arterial and collector roads.

Conclusion

As discussed above, the Project would be consistent with the Madera County General Plan, the Rio Mesa Area Plan, the Rio Mesa Boulevard Official Plan Line, and the Madera County Transportation Commission Active Transportation Plan. Thus, the Project would not conflict with transportation plans or policies and the Project impact associated with potential conflicts with transportation plans is considered ***less than significant***.

Impact 4.8-2 The Project would reduce VMT associated with existing and planned land uses by providing more direct access to SR 41. Impact Determination: *less than significant.*

Threshold:	*Substantial permanent or long-term increase in Vehicle Miles Traveled (VMT).*

Project construction would require vehicle travel associated with the movement of construction personnel, equipment and materials to and from the Project Site. Short-term construction-related vehicle trips are not considered by the County to represent a potentially significant impact associated with VMT. Note that this DEIR addresses potential effects of construction-related vehicle trips associated with air quality, greenhouse gas emissions, noise conditions, and energy consumption in Sections 4.2, 4.5, 4.7 and 6.3, respectively. Thus, this remainder of this impact discussion pertains to the long-term effects of the Project on VMT.

Section 15064.3 (Determining the Significance of Transportation Impacts) of the CEQA Guidelines describes specific considerations for evaluating a project's transportation impacts. Generally, VMT is the most appropriate measure of transportation impacts. VMT refers to the amount and distance of automobile travel attributable to a project. Guidance in applying Section 15064.3 in the preparation of EIRs on transportation projects such as the proposed Project was provided by the California Office of Planning and Research (OPR) in its December 2018 Technical Advisory on Evaluating Transportation Impacts in CEQA (Advisory) (OPR 2018). In regard to the assessment of roadway projects, the Advisory states in part:

> Many transportation projects change travel patterns. A transportation project which leads to additional vehicle travel on the roadway network, commonly referred to as "induced vehicle travel," would need to quantify the amount of additional vehicle travel in order to assess air quality impacts, greenhouse gas emissions impacts, energy impacts, and noise impacts. Transportation projects also are required to examine induced growth impacts under CEQA. (See generally, Pub. Resources Code, §§ 21065 [defining "project" under CEQA as an activity as causing either a direct or reasonably foreseeable indirect physical change], 21065.3 [defining "project-specific effect" to mean all direct or indirect environmental effects], 21100, subd. (b) [required contents of an EIR].) For any project that increases vehicle travel, explicit assessment and quantitative reporting of the amount of additional vehicle travel should not be omitted from the document; such information may be useful and necessary for a full understanding of a project's environmental impacts. (See Pub. Resources Code, §§ 21000, 21001, 21001.1, 21002, 21002.1 [discussing the policies of CEQA].) A lead agency that uses the VMT metric to assess the transportation impacts of a transportation project may simply report that change in VMT as the impact. When the lead agency uses another metric to analyze the transportation impacts of a roadway project, changes in amount of vehicle travel added to the roadway network should still be analyzed and reported.

Section 15064.3 (Determining the Significance of Transportation Impacts) of the CEQA Guidelines describes specific considerations for evaluating a project's transportation impacts. Generally, VMT is the most appropriate measure of transportation impacts. VMT refers to the amount and distance of automobile travel attributable to a project. Subsection (b)(2) of Section 15064.3 addresses "Transportation Projects" specifically and states:

> Transportation projects that reduce, or have no impact on, vehicle miles traveled should be presumed to cause a less than significant transportation impact. For roadway capacity projects, agencies have discretion to determine the appropriate measure of transportation impact consistent with CEQA and other applicable requirements. To the extent that such impacts have already been adequately addressed at a programmatic level, such as in a regional transportation plan EIR, a lead agency may tier from that analysis as provided in Section 15152.

Guidance in applying Section 15064.3 in the preparation of EIRs on transportation projects such as the proposed Project was provided by the California Office of Planning and Research (OPR) in its December 2018 *Technical Advisory on Evaluating Transportation Impacts in CEQA* (Advisory). The Advisory states that a transportation project which leads to additional vehicle travel on the roadway network, commonly referred to as "induced vehicle travel," would need to quantify the amount of additional vehicle travel in order to assess air quality impacts, greenhouse gas emissions impacts, energy impacts, and noise impacts. Transportation projects also are required to examine induced growth impacts. For any project that increases vehicle travel, explicit assessment and quantitative reporting of the amount of additional vehicle travel should not be omitted from the document; such information may be useful and necessary for a full understanding of a project's environmental impacts examine induced growth impacts under CEQA.

The Advisory describes methods of quantifying potential project increases in VMT for projects with the potential for directly increasing VMT by reducing congestion or by indirectly increasing VMT through induced growth. The Advisory also recognizes that some projects, by nature, would not result in significant increases in VMT. For example, VMT increases due to the construction of additional roadway capacity on local or collector streets would not be considered significant if they also improve conditions for pedestrians, cyclists and, if applicable, transit. Additionally, the Advisory recognizes that quantifying VMT may not be suitable for rural locations which are neither congested nor projected to be congested. Quantification VMT is also considered unnecessary when a new roadway would be expected to considerably shorten existing trips by providing new connectivity across a barrier.

As discussed previously, the Project would improve direct access between the SR 41/Avenue 12 intersection and existing and planned development in the Tesoro Viejo Specific Plan Area. The Project would also provide access to approved land uses under the RMAP and on parcels adjacent to the Project segment of Rio Mesa Boulevard, including the proposed Community Medical Center and Paseo Pacifico Specific Plan. The Project would reduce VMT for vehicles traveling between southeastern Tesoro Viejo and the SR-41/Avenue 12 intersection. For example, with the Project segment of Rio Mesa Boulevard the travel distance between the SR 41/Avenue 12 intersection and the southern-most boundary of the Tesoro Viejo Specific Plan Area would be approximately 2.9 miles, whereas existing conditions (without the Project segment of Rio Mesa Boulevard) travel distance between these two points would be approximately 4.7 miles.

In the absence of the proposed Project, development in the Project area (e.g., the Community Medical Center and Paseo Pacifico) would require the development of roadway access connecting to Avenue 12 in the south or Tesoro Viejo in the north. If roadway access were provided to Avenue 12 or to both Avenue 12 and Tesoro Viejo, the VMT associated with such future development would be the same as that expected with the Rio Mesa Boulevard Project. If roadway access were only provided to Tesoro Viejo in

the north and not to Avenue 12, then VMT associated with future development would be higher than with the Project. Thus, development of the Project segment of the Project is not expected to directly or indirectly increase VMT and would likely decrease VMT associated with existing, planned, and anticipated development within the Project area. Proposed development adjacent to the alignment, including two proposed projects (the Community Medical Center and Paseo Pacifico Specific Plan) will be subject to County approval and CEQA review including a quantitative assessment of VMT generation by those projects and mitigation as appropriate under CEQA.

As stated in Section 15064.3 of the CEQA Guidelines and in the 2018 Advisory, construction of roadway projects can induce an increase in VMT when those projects are intended to reduce congestion on roadways that are currently congested or expected to become congested over time. The proposed Project, however, is not intended to relieve existing or future congestion on existing roadways. Instead, and as discussed in Chapter 3 of this DEIR, it is intended to provide more direct access to existing and future development and, thus, reduce vehicle trip length from the SR 41/Avenue 12 intersection to Tesoro Viejo and to provide access to parcels adjacent to the proposed road alignment as envisioned in the RMAP.

In summary, the proposed Project is consistent with applicable regional plans such as the Madera County General Plan, RMAP, MCTP, Board Resolutions 2015-124 and 2016-269, and the Madera County 2004 Regional Bicycle Transportation Plan. Construction of the proposed roadway would provide more direct access to future projects along the Project alignment which, contingent on the completion of environmental review and approval, such future development projects would be responsible for addressing VMT impacts that may be directly associated with those developments. For these reasons, the impact of the Project operation on long-term increases in VMT is considered ***less than significant***.

Impact 4.8-3 Project design would contain no hazards related geometric design and would avoid substantial conflicts with adjacent uses. Impact Determination: *less than significant*.

Threshold:	*Substantially increase hazards due to a geometric design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment).*

The Project's public roadway and intersection features were designed in compliance with Caltrans Local Roadway Safety Manual guidance, and the Project design does not contain features that would be considered dangerous. The Project roadway would not bisect actively cultivated farmland in a manner that would conflict with activities or create incompatible uses. Therefore, this impact is considered ***less than significant***.

Impact 4.8-4 Development of the proposed roadway would result in improved emergency access. Impact Determination: *less than significant*.

Threshold:	*Result in inadequate emergency access project construction and operation.*

Construction of the Project would improve emergency vehicle access to existing and future development within the Project area, including Tesoro Viejo and other development. Emergency vehicles would have

an additional routing option for travel between the SR-41/Avenue 12 intersection and areas to the north and east of SR 41. Therefore, this impact is considered ***less than significant***.

4.8.4 Cumulative Impact

The proposed Project segment of Rio Mesa Boulevard is an important element in the RMAP area circulation system and has been anticipated in the long-term planning for the Project region of Madera County since the 1995 approval of the RMAP. The Project has been reflected in environmental documents prepared for development proposals both east and west of SR 41. Impact 3.8-1, above, discusses predicted levels of service under year 2022 and year 2042 conditions with implementation of the Project Phase 1 and Phase 2 conditions. The year 2042 level of service analysis assumes development of Phase 2 of the Project and incorporates predicted future growth in vehicle trips and other road improvements projects reasonably anticipated to be developed during the period through 2042.

Vehicle trips from within the RMAP, including the Tesoro Viejo Specific Plan area, will continue to increase over time as development consistent with adopted land use plans continues. The volume of traffic using Rio Mesa Boulevard will increase over time as development occurs. The volume occurring at any individual location along the roadway will vary based on where development occurs. The year 2042 analysis presented in the TIA (Appendix H of this DEIR) developed traffic volume forecasts that reflect continuing regional growth and specific development in the area along Rio Mesa Boulevard and provides a detailed explanation of the growth assumptions included in the analysis.

The TIA analysis also assumes that the following regional circulation system improvements have been made by 2042:

- Implementation of the SR 41 Expressway Project to provide two travel lanes in each direction on SR 41 through the study area. Access to Tesoro Viejo via SR 41 at Road 204 is not permitted.
- Rio Mesa Boulevard has been widened to a four-lane section (i.e., Phase 2).
- Internal streets within the four identified development projects will be completed but other future elements of the overall Rio Mesa area circulation system, such as the Flag Barn Way extension north from Avenue 12 are not assumed.
- The fourth westbound lane at the SR 41 / Avenue 15 intersection that is not used today is restriped to provide a second left turn lane.

Year 2042 conditions predicted in the TIA indicate the daily traffic volume on Rio Mesa Boulevard north of Avenue 12 is projected to reach 17,900 ADT. While Madera County does not have an adopted standard for Level of Service based on daily traffic volume, other sources were reviewed in order to confirm that the Project would result in conditions that are not in conflict with the requirements of the Madera County General Plan and to suggest when Phase 2 improvements may need to be implemented to maintain the County General Plan standard of LOS D.

The most commonly accepted Level of Service thresholds based on daily traffic volume are produced by the Florida Department of Transportation (FDOT). Applicable thresholds are presented in Table 4.8-5. As shown the two-lane Rio Mesa Blvd Phase 1 can accommodate 15,900 ADT at the General Plan LOS D

standard, and Rio Mesa Boulevard will need to be widened to a 4-lane section when the daily volume exceeds that level. Assuming a uniform growth rate from Year 2022 to Year 2042 suggest that this traffic volume level might be reached in 18 years, but the actual volume will be dependent on the location of development.

Table 4.8-5. Generalized Annual Average Daily Volume LOS Thresholds

Lanes	Treatment	LOS B	LOS C	LOS D	LOS D With Non-State Adjustment
2	Undivided	*	16,800	17,700	15,900[1]
4	Divided	*	37,900	39,800	-
6	Divided	*	58,400	59,900	-

Source: FDOT Generalized Annual Average Daily Volume LOS Thresholds, 2012
[1] Reduced by 10% for non-state signalized roadway

Similarly, the volume of traffic on Avenue 12 east of SR 41 will warrant a four-lane section in the future. Table 4.8-6 summarizes daily traffic volumes on study area roads under Year 2042 conditions, as well as under previous scenarios.

Table 4.8-6. Daily Traffic Volume Summary

Facility	Location	Daily Traffic Volume			
		2019	2022	2022	2042
		No Project	No Project	With Project	With Project
SR 41	North of Avenue 15	15,100	16,900	16,900	32,600
SR 41	Avenue 12 to Avenue 15	20,200	26,500	24,900	34,300
SR 41	South of Avenue 12	32,500	39,500	39,500	56,200
Tesoro Viejo Boulevard	East of SR 41	1,500 (e)	6,900	5,300	37,400
Avenue 12	East of SR 41	360 (e)	400	2,100	15,700
Rio Mesa Boulevard	North of Avenue 12	0	0	1,700	17,900

(e) value estimated from peak hour traffic

4.8.4.1 Intersection Operations

Figure 4.8-3, above, presents Year 2042 peak hour traffic volumes at study area intersections as developed from traffic model forecasts. Table 4.8-7 presents resulting intersection Levels of Service assuming improvements noted earlier.

Table 4.8-7. Year 2042 Intersection Level of Service

Intersection	Control	AM Peak Hour		PM Peak Hour	
		Average Delay (sec/veh)	LOS	Average Delay (sec/veh)	LOS
SR 41 / Avenue 15	Signal	45.9	D	135.9	F
SR 41 / Avenue 12	Signal	204.5	F	201.8	F
Avenue 12 / Rio Mesa Boulevard Eastbound approach	SB Stop	9.3	A	25.9	D

As indicated, the two signaled intersections on SR 41 are forecast to operate at LOS F during peak traffic hours. Additional improvements would be needed to satisfy the Madera County General Plan's minimum LOS D standard. While it might theoretically be possible to increase the capacity of each intersection to reduce delays and improve the Level of Service, the long-range plan for the SR 41 corridor identifies grade separated interchanges at each location. At its proposed location the Rio Mesa Boulevard intersection on Avenue 12 is roughly ½ mile from the existing centerline of SR 41. This location would provide adequate separation from the future northbound SR 41 ramps intersection, and thus the Rio Mesa Boulevard project does not interfere with the eventual implementation of this planned improvement.

Under these conditions the Avenue 12 / Rio Mesa Boulevard intersection is forecast to operate with Level of Service satisfying the minimum LOS D standard with side street stop sign control. Theoretically a traffic signal may be needed at this location at some point in the future as the area to the east develops, but the Rio Mesa Boulevard project does not interfere with future signalization by Madera County, if needed.

4.8.4.2 Roadway Segment Level of Services

Table 4.8-8 notes the Level of Service on SR 41 segments assuming the roadway is widened to four lanes. As shown, the segments are projected to operate at LOS A or B, which satisfies the General Plan minimum standard. On Avenue 12 the Level of Service is projected to be LOS D / LOS E in the p.m. peak hour. With the expansion of Avenue 12 to four lanes as proposed under Phase 2 of the Project, the LOS D standard would be met.

4.8.4.3 Cumulative Impact Determination

Based on the analysis presented above, completion and operation of Phase 2 of the Project would satisfy the minimum standards for roadway and intersection operations presented in the Madera County General Plan and thus the Project's contribution to any cumulative impact on roadway or intersection operations is considered to be ***less than considerable***.

Table 4.8-8. Year 2042 Roadway Segment Levels of Service

Street	Location	Direction	Lanes	Year 2042			
				AM Peak Hour		PM Peak Hour	
				Volume (vph)	LOS	Volume (vph)	LOS
SR 41	Avenue 12 to Avenue 15	NB	2	630	A	1,575	B
		SB	2	1,220	B	1,070	A
	North of Avenue 15	NB	2	500	A	1,390	B
		SB	2	1,275	B	820	A
Avenue 12	SR 41 to Rio Mesa Boulevard	EB	1	260	C	565	E
		WB	1	200	C	700	D

4.9 Tribal Cultural Resources

This section describes the affected environment and regulatory setting for Tribal Cultural Resources (TCRs) in the Study Area. The contexts in which impacts to TCRs are considered in this chapter was developed by refencing the following sources:

- California Native American Heritage Commission Sacred Lands File Search, July 20, 2017;
- Cultural Resources Inventory and Evaluation for the Rio Mesa Boulevard Project (ECORP 2020); and
- Ethnographic overviews of the North Valley Yokuts (Kroeber 1976; Shipley 1978; Wallace 1978).

The following analysis of the potential environmental impacts related to TCRs is derived primarily from the following sources:

- Confidential AB52 tribal consultation record between the County of Madera and the Dumna Wo-Wah Tribal Government.

4.9.1 Environmental Setting

4.9.1.1 Ethnographic, Religious, and Cultural Context

The Project Site and surrounding area can be associated with territory occupied by the Penutian-speaking Northern Valley Yokuts. Their territory extended from above the junction of the San Joaquin, Old, and Mokelumne rivers on the north, to the big westward bend in the San Joaquin River approximately 5 miles south of the Project Site. The ethnography of the northern, or lower, San Joaquin Valley is poorly known, due to the fact that the native inhabitants were for the most part gone by the time studies were undertaken. Disease, flight from missionization, and conflicts with the miners and settlers who suddenly entered the area in large numbers reduced the native population to small, isolated remnants. Thus, the available information has been gleaned from historic accounts of early explorers, soldiers, hunters and trappers, and missionaries. Archaeology has added some information, but the record is by no means complete (Wallace 1978b).

The Yokuts (meaning "person" or "people"), who were Penutian/Yokutsan speakers, were divided into three distinct groups: the Northern Valley Yokuts, the Southern Valley Yokuts, and the Foothills Yokuts. These groups spoke different dialects and were separated by areas of land such as rivers or mountains (Kroeber 1976; Shipley 1978). Linguistic studies suggest that the Northern Valley Yokuts moved into the valley from the south about 500 years ago, as a result of pressure from another tribe speaking a Numic language moving into the San Joaquin drainage from the west. However, Moratto (1984) suggests that based on archaeological evidence, the Yokuts were in the Stockton area before AD 400. A drier climate in the lower foothills and valley edges may have triggered occupation of the riverbanks in the Central Valley at that time. In any case, by the time the Spanish arrived in the early part of the nineteenth century, the Northern Valley Yokuts were well entrenched, with established settlements on low mounds in the Delta and along the banks of the San Joaquin River and its tributaries (Moratto 1984; Wallace 1978).

Village settlements were composed of small round-to-oval house structures, closely spaced in a row along a riverbank. Houses were covered with light, woven tule reed mats. Villages were located mostly along the eastern bank of the San Joaquin River and along its tributaries. Sweathouses and ceremonial chambers were also found in these villages (Wallace 1978). Kroeber (1976) suggests that territories of the tribes within the Yokuts group averaged about 300 square miles, or about a half-day's walk in each direction.

Not surprisingly, given their proximity to rivers and the Delta, a large part of Northern Valley Yokuts subsistence was based on fishing. King salmon, which spawned in the San Joaquin River and its tributaries, were an important resource. The Yokuts made use of other native species such as white sturgeon, river perch, western suckers, and Sacramento pike. Dragnets with stone sinkers were used, as were harpoons with bone or antler tips (Wallace 1978).

The Yokuts also hunted waterfowl and herds of tule elk and pronghorn antelope. It is thought that hunting was a marginal resource procurement activity when compared to fishing but gathering of plant resources was as important as fishing. Acorns from the stands of huge valley oaks were a staple food. Tule roots and a variety of seeds also were utilized (Wallace 1978).

The Northern Valley Yokuts were politically organized into tribelets, estimated to be of about 300 people each. Tribelets known to be in the Delta area were the Chulamni, the Cholbones, the Coybos, and the Nototemnes. A tribelet identified as the Chowchilla reportedly lived along the Chowchilla River (Wallace 1978) which is about 22 miles northwest of the Project Site. Although the Northern Valley Yokuts spent most of the year in once place, they would disperse seasonally for hunting and gathering expeditions and were sometimes forced out by flooding (Wallace 1978). Chiefs gained their position through wealth, and since women were occasionally chiefs, inheritance appears to have been important (Kroeber 1976).

The Spanish arrived on the coast in 1769 and by 1776 the Central Valley had been explored by José Canizares. In 1808, the area was crossed by Gabriel Moraga, and in 1813, a major battle was fought between the Miwok to the north and the Spaniards near the mouth of the Cosumnes River. The Yokuts appear to have largely escaped being removed to missions by the Spanish, they were not spared the ravages of European-spread disease. In 1833, an epidemic – probably malaria – raged through the Sacramento and San Joaquin valleys, killing an estimated 75 percent of the native population. The discovery of gold in 1848, near the Nisenan village of Colluma (also Coloma), drew thousands of miners into the area, and led to widespread killing and the near total destruction of traditional Nisenan and Yokuts cultures (Wilson and Towne 1978). By the latter part of the 1800s, very few Yokuts were still alive (Kroeber 1976; Wallace 1978).

4.9.2 Regulatory Setting

4.9.2.1 State

Assembly Bill 52

Effective July 1, 2015, AB 52 amended CEQA to require that: 1) a lead agency provide notice to those California Native American tribes that requested notice of projects proposed by the lead agency; and 2) for any tribe that responded to the notice within 30 days of receipt with a request for consultation, the

lead agency must consult with the tribe. Topics that may be addressed during consultation include TCRs, the potential significance of project impacts, type of environmental document that should be prepared, and possible mitigation measures and project alternatives.

Pursuant to AB 52, Section 21073 of the PRC defines California Native American tribes as "a Native American tribe located in California that is on the contact list maintained by the NAHC for the purposes of Chapter 905 of the Statutes of 2004." This includes both federally and non-federally recognized tribes.

Section 21074(a) of the PRC defines TCRs for the purpose of CEQA as:

1) Sites, features, places, cultural landscapes (geographically defined in terms of the size and scope), sacred places, and objects with cultural value to a California Native American tribe that are either of the following:

    a. included or determined to be eligible for inclusion in the California Register of Historical Resources; and/or
    b. included in a local register of historical resources as defined in subdivision (k) of Section 5020.1; and/or
    c. a resource determined by the lead agency, in its discretion and supported by substantial evidence, to be significant pursuant to criteria set forth in subdivision (c) of Section 5024.1. In applying the criteria set forth in subdivision (c) of Section 5024.1 for the purposes of this paragraph, the lead agency shall consider the significance of the resource to a California Native American tribe.

Because criteria a and b also meet the definition of an Historical Resource under CEQA, a TCR may also require additional consideration as an Historical Resource. TCRs may or may not exhibit archaeological, cultural, or physical indicators.

Recognizing that California tribes are experts in their tribal cultural resources and heritage, AB 52 requires that CEQA lead agencies provide tribes that requested notification an opportunity to consult at the commencement of the CEQA process to identify TCRs. Furthermore, because a significant effect on a TCR is considered a significant impact on the environment under CEQA, consultation is used to develop appropriate avoidance, impact minimization, and mitigation measures.

In accordance with Section 21082.3(c)(1) of the PRC, "… information, including, but not limited to, the location, description, and use of the tribal cultural resources, that is submitted by a California Native American tribe during the environmental review process shall not be included in the environmental document or otherwise disclosed by the lead agency or any other public agency to the public, consistent with subdivision (r) of Section 6254 of, and Section 6254.10 of, the Government Code, and subdivision (d) of Section 15120 of Title 14 of the CCR, without the prior consent of the tribe that provided the information." Therefore, the details of tribal consultation summarized herein are provided in a confidential administrative record and not available for public disclosure without written permission from the tribes.

4.9.2.2 Local

Madera County General Plan

The Project is located in unincorporated Madera County and is subject to applicable goals and policies of the Madera County General Plan. General Plan Policy Document Section 4, Recreational and Cultural Resources, includes Goal 4.D and Policy 4.D.1 as follows:

Goal 4.D: To identify, protect, and enhance Madera County's important historical, archaeological, paleontological, and cultural sites and their contributing environment.

Policy 4.D.1 The County shall solicit the views of the local Native American community in cases where development may result in disturbance to sites containing evidence of Native American activity and/or to sites of cultural importance.

Tribal Requests to Madera County for Notification Under AB 52

The County of Madera has received written requests to receive notices of projects pursuant to AB 52 from the four following California Native American Tribes, which identified themselves as being traditionally and culturally affiliated with the lands subject to County of Madera jurisdiction:

- Dumna Wo-Wah Tribal Government
- Chowchilla Yokuts Tribe
- Table Mountain Rancheria
- Picayune Rancheria of the Chukchansi Indians

4.9.3 Impacts and Mitigation Measures

Impact 4.9-1: The Project could adversely affect significant tribal cultural resources (TCRs) as determined by tribal consultation. Impact determination: *Less than significant with mitigation*.

Threshold:	*Cause a substantial adverse change in the significance of a tribal cultural resource, as defined in PRC Section 21074.*

In September 2017 when the County initiated environmental review of the Rio Mesa Boulevard Project, the County sent project notification letters to each of the four tribes having previously requested such notifications. The County's notifications provided information about the Project and requested responses to the offer to consult within 30 days of the tribes' receipt of the letter. No responses were received from the Chowchilla Yokuts Tribe, Table Mountain Rancheria, or the Picayune Rancheria of the Chukchansi Indians. Therefore, no formal consultation under AB 52 with these tribes was initiated. However, a request for consultation from the Dumna Wo-Wah Tribal Government was received by the County. In response to the Dumna Wo-Wah Tribal Government's request, the County met with tribal representatives on October 6, 2017. Topics discussed during the consultation meeting included general information about the

presence of TCRs within the Project area and potential mitigation measures. On October 9, 2017, the County provided the tribe with a copy of the cultural resources technical report for the Project for their review. On October 18, 2017, the County and the Dumna Wo-Wah Tribal Government came to an agreement that there were no TCRs within the Project Area, completing consultation with the Dumna Wo-Wah Tribal Government.

Subsequent to the 2017 consultation, the County determined in 2019 that an environmental impact report would be prepared for the Project. With the decision to prepare an environmental impact report, the County chose to send notifications of the Project to the four tribes to provide an additional opportunity for consultation. No responses requesting additional consultation were received and no TCRs that would be adversely affected by the Project have been identified. Consultation is concluded in accordance with Section 21080.3.2(b)(1) and 21082.3(d)(1) of the California Public Resources Code, and the Project would not adversely affect any known TCRs and thus the impact is considered ***less than significant***. Note that additional discussion of cultural resources and mitigation to address potential inadvertent discovery of cultural resources, which may have the potential be identified as TCRs in future consultation, is provided in Section 4.4 of this DEIR.

4.9.4 Cumulative Impact

4.9.4.1 Approach to Assessing Cumulative Impact on Tribal Resources

As discussed above, the Project would not adversely affect tribal cultural resources, and therefore would not have the potential to result in cumulative impacts associated with tribal cultural resources.

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4.10 Energy Consumption

This section provides an evaluation of the Project's energy consumption and potential for inefficient use of energy or conflicts with state or local plans associated with renewable energy and energy efficiency.

4.10.1 Environmental Setting

Fuel consumption is considered in this analysis as the primary source of energy that would be used for Project construction. Annual fuel consumption in Madera County from 2015 to 2019 is shown in Table 6.3-1.

Table 4.10-1 Annual Fuel Consumption in Madera County 2015–2019

Year	Fuel Consumption (gallons)
2015	118,796,914
2016	122,887,461
2017	120,960,451
2018	120,539,855
2019	119,182,757

Source: California Air Resources Board (CARB) 2017

4.10.2 Regulatory Setting

4.10.2.1 State

CEQA Guidelines

CEQA Guideline Section 15126.2(b) addresses potential energy impacts resulting from projects, and provides that

> "[i]f analysis of the project's energy use reveals that the project may result in significant environmental effects due to wasteful, inefficient, or unnecessary consumption use of energy, or wasteful use of energy resources, the EIR shall mitigate that energy use. This analysis should include the project's energy use for all project phases and components, including transportation-related energy, during construction and operation…Guidance on information that may be included in such an analysis is presented in Appendix F. This analysis is subject to the rule of reason and shall focus on energy use that is caused by the project. This analysis may be included in related analyses of air quality, greenhouse gas emissions, transportation or utilities in the discretion of the lead agency."

Appendix F of the CEQA Guidelines provides a list of potentially significant energy implications of a project that shall be considered an EIR to the extent relevant and applicable to the project. Considerations of potential energy-related environmental impacts associated with a Project include the following:

- The project's energy requirements and its energy use efficiencies by amount and fuel type for each stage of the project including construction, operation, maintenance and/or removal.
- The effects of the project on local and regional energy supplies and on requirements for additional capacity.
- The effects of the project on peak and base period demands for electricity and other forms of energy.
- The degree to which the project complies with existing energy standards.
- The effects of the project on energy resources.
- The project's projected transportation energy use requirements and its overall use of efficient transportation alternatives.

4.10.2.2 Local

Madera County General Plan

The Transportation and Circulation section of the Madera County General Plan Policy Document includes the following policy relevant for consideration in this evaluation:

> *Policy 2.A.2. The County shall develop the transportation system to reduce vehicle miles traveled, conserve energy resources, minimize air pollution, and reduce greenhouse gas emissions.*

4.10.3 Environmental Impacts

4.10.3.1 Thresholds of Significance

Appendix G of the CEQA Guidelines identifies that a Project may have a potentially significant environmental impact if it would result in either of the factors listed below. These factors are used to assess the Project's impact significance in this DEIR.

1. Wasteful, inefficient, or unnecessary consumption of energy resources, during project construction or operation.
2. Conflict with or obstruct a state or local plan for renewable energy or energy efficiency.

4.10.3.2 Methodology

To consider the potential for the Project to result in wasteful, inefficient, or unnecessary consumption of energy during construction, this analysis estimates the amount of fuel necessary for each year of Project construction and compares Project construction fuel construction to total estimated 2019 annual fuel consumption in Madera County. The analysis also considers whether the Project construction fuel consumption would be used in a wasteful or inefficient manner. To assess potential long-term impacts of the Project associated with fuel consumption, the evaluation considers the consistency of the Project with

applicable land use and transportation plans and assess the Project effect on vehicle miles traveled (VMT) and associated fuel use.

4.10.3.3 Project Impacts Analysis

Impact 4.10-1: Potential for wasteful, inefficient, or unnecessary consumption of energy, and potential to conflict with a state or local renewable energy plan or energy efficiency plan.

Thresholds:	*Wasteful, inefficient, or unnecessary consumption of energy resources, during project construction or operation.* *Conflict with or obstruct a state or local plan for renewable energy or energy efficiency.*

Construction

Estimated annual fuel consumption associated with each phase of Project construction is summarized in Table 4.10-2. Project fuel consumption estimates are based on estimated fuel consumption for construction equipment to be used in the various aspects of Project construction and the expected duration of that use as listed in Appendix C of this DEIR. Fuel used by all construction equipment, including vehicle hauling trucks, is assumed to be diesel.

Table 4.10-2 Estimated Project Construction Fuel Consumption

Fuel Consumption	Annual Project Energy Consumption (Gallons)[1]	Estimated Countywide 2019 Fuel Consumption[2]	Percentage Increase Countywide (Percent)
Phase 1			
Project Construction 2021	88,276	119,182,757	0.07
Project Construction 2022	25,320	119,182,757	0.02
Phase 2			
Project Construction 2023	88,276	119,182,757	0.07

Source: CARB, 2017.
Notes: Phase 2 construction would be initiated when traffic volumes on Rio Mesa Boulevard approach 16,000 vehicles per day. The construction duration for Phase 2 is estimated to be 9 months. Thus, because the precise starting year for Phase 2 is not yet determined, this analysis has used 2023, which is the earliest possible date when Phase 2 construction could commence.

As shown, the Project's fuel consumption during the construction period is estimated to be 88,276 gallons during 2021 construction, 23,320 gallons during 2022 construction and 88,276 gallons during Phase 2 construction. Estimated Project fuel consumption represents less than 0.1 percent of annual countywide fuel use in any given year. As such, Project construction would have a nominal effect on local and regional energy supplies.

Furthermore, Project construction equipment would be as energy efficient as comparable construction sites in the region or the state, as it is reasonable to assume that construction contractors would seek to efficiently use fuel during construction as a means to minimize costs. Additionally, construction

equipment fleet turnover and increasingly stringent state and federal regulations on engine efficiency combined with state regulations limiting engine idling times (California Health and Safety Code 44275-44299.2) and requiring recycling of construction debris (Title 14, CCR Division 7) would further reduce the amount of fuel used during Project construction. For these reasons, it is expected that construction fuel consumption associated with the Project would not be inefficient or wasteful and would not consume fuel in a wasteful or unnecessary manner, and the impact of Project construction activities relative to the efficient use of energy resources and consistency with applicable state or local plans would be ***less than significant***.

Long-Term Operations

The Project does not include the provision of new buildings or any other substantial energy consuming components. Development of Rio Mesa Boulevard under the Project is consistent with approved land use and transportation plans, including the Madera County General Plan; Rio Mesa Area Plan; Madera County Regional Transportation Plan; and the Madera County 2018 Regional Transportation Plan and Sustainable Communities Strategy. In accordance with goals and policies included in the General Plan and Regional Transportation Plan and Sustainable Communities Strategy (see Chapter 4.8: Transportation for a detailed description of these Plans and policies applicable to the Project), and consistent with the adopted Rio Mesa Boulevard OPL, the Project includes the construction and maintenance of bicycle lanes and sidewalks to enable safe use of the Project by pedestrians and non-vehicular, non-single occupancy vehicle modes of transportation. Furthermore, by providing a shorter travel distance between SR 41/Avenue 12 and Tesoro Viejo, the Project would reduce VMT resulting in reduced fuel consumption as compared to fuel consumption without the Project segment of Rio Mesa Boulevard.

Because the Project is consistent with previously approved and reviewed plans, provides multi-modal access and energy-efficient transportation alternatives to car use and includes pedestrian access and bicycle lanes, the Project is not considered to result in the wasteful, inefficient, and unnecessary consumption of energy from long-term operations relative to existing conditions. The Project's capacity and sizing, design, and siting are also intended to avoid a wasteful, inefficient, or unnecessary consumption of energy resources. The Project provides more direct access to existing and future planned development, reduces vehicle trip length, and reduces VMT for vehicles traveling between southeastern Tesoro Viejo and the SR 41/Avenue 12 intersection, consistent with the aforementioned plans and as discussed in detail in Chapter 4.8 (Transportation). Therefore, the impact of Project operations on the efficient use of energy resources and consistency with applicable state or local plans would be ***less than significant***.

4.10.4 Cumulative Impacts

Energy consumption associated with the Project is a project-specific impact that would not contribute to inefficient or wasteful use of energy associated with other projects and would not preclude other projects from implementing energy conservation measures. Therefore, the Project would not create the potential for substantial cumulative effects associated with energy.

5 ALTERNATIVES TO THE PROPOSED PROJECT

5.1 Introduction

The CEQA Guidelines specify that an Environmental Impact Report (EIR) must describe a range of reasonable alternatives to the project, or to the location of the project, which would feasibly attain most of the basic project objectives (Guidelines §15126.6(a)). The alternatives analysis must focus on alternatives that are capable of avoiding or substantially lessening the significant adverse impacts caused by the project (Guidelines §15126.6(c)), and alternatives to the "whole of the project" rather than the project's component parts. An EIR must include an alternatives analysis even if the EIR concludes that the project would not cause any significant adverse impacts.

The "no project" alternative, which considers impacts that would occur if existing conditions continue, must be considered (Guidelines §15126.6(e)), and the EIR must also identify the environmentally superior alternative. (If the environmentally superior alternative is the "no project" alternative, the EIR shall also identify an environmentally superior alternative among the other alternatives.) The EIR should not consider alternatives "whose effect cannot be reasonably ascertained and whose implementation is remote and speculative." An EIR need not evaluate an alternative that is considered speculative, theoretical, or unreasonable. Not every potentially feasible alternative need be considered; rather, the relevant test is whether a "reasonable range" of feasible alternatives is considered for that particular project (Guidelines §15126.6(a)).

As discussed in Section 3.5, "Project Objectives," the County is pursuing construction of Rio Mesa Boulevard to implement circulation objectives contemplated in the RMAP. The Project is needed to accommodate approved development already under construction (Tesoro Viejo) and is designed to also provide transportation and utility infrastructure capacities for anticipated future development at the specified land use intensities that are set forth in the RMAP for the parcels adjacent to the Project alignment.

Specific objectives of the Project include the following:

1. Amend the Rio Mesa Boulevard OPL alignment to maintain consistency with the Circulation Concept of the RMAP and achieve the circulation and utilities intent of the OPL while accommodating current transportation planning and land development considerations;
2. Construct a new secondary arterial (four-lane undivided) roadway connection between Avenue 12 and the southern terminus of the approved internal roadways within Tesoro Viejo consistent with the intent of the Circulation Concept Plan of the RMAP and OPL;
3. Phase construction of Rio Mesa Boulevard so as to initially install a two-lane roadway to accommodate existing and projected near-term traffic that can later be widened to the full four-lane width when necessary to accommodate future demand;
4. Improve the existing and future circulation and safety along the segment of SR 41 between Avenue 12 and Avenue 15 by creating an arterial roadway to provide access for travel to and from parcels adjacent to the Project Site;

5. Implement design features to facilitate and encourage pedestrian and bicycle travel consistent with the adopted OPL design parameters;
6. Provide design measures to minimize the potential for California tiger salamander (*Ambystoma californiense* [CTS]) to enter the roadway and to create opportunities for CTS migration/movement under the roadway;
7. Install stormwater collection and conveyance facilities sufficient to manage stormwater runoff from the rights-of-way of the proposed Rio Mesa Boulevard and the Project segment of Avenue 12;
8. Install landscaping and lighting along the Project segments of Rio Mesa Boulevard and Avenue 12;
9. Install water lines, recycled water lines, sewer force main, gravity sewer lines, natural gas pipelines and dry utility conduits sufficient to accommodate future development consistent with the specified land use intensities on adjacent parcels identified in the RMAP and thus reduce the potential for future traffic disruptions and environmental impacts that could otherwise occur with future installation/modification of utilities.

Based on the CEQA Guidelines, several factors need to be considered in determining the range of alternatives analyzed in an EIR and the level of analytical detail that should be provided for each alternative. These factors include (1) significant impacts of the proposed project; (2) the ability of alternatives to avoid or substantially lessen the significant impacts attributable to the project; and (3) the feasibility of the alternatives. While not the determining factor, part of an element of selecting an alternative for consideration in an EIR is that alternative's ability to meet most of the basic objectives of the project.

The impact analyses presented in this DEIR indicate that without mitigation the Project would result in significant or potentially significant impacts on various resources. However, all of the significant or potentially significant impacts of the Project would be avoided or reduced to less than significant through implementation of mitigation measures identified in Chapter 4, and all mitigation measures identified in Chapter 4 are considered feasible. Therefore, with implementation of mitigation, the Project would not result in any significant or potentially significant impacts. Nevertheless, in keeping with CEQA requirements that an EIR must evaluate a reasonable range of project alternatives, this chapter lists alternatives to the project that were considered but eliminated from further analysis, and this chapter provides a detailed comparative analysis of a feasible alternative to the proposed Project that would achieve most of the basic Project objectives and a "no project alternative" as required under Section 15126.6(e) of the CEQA Guidelines.

5.2 Alternatives Considered but Eliminated from Further Analysis in this DEIR

Section 15126.6(a) of the CEQA Guidelines states:

> "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. 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. An EIR is not required to consider alternatives which are infeasible. The lead agency is responsible for selecting a range of project alternatives for examination and must publicly disclose its reasoning for selecting those alternatives. There is no ironclad rule governing the nature or scope of the alternatives to be discussed other than the rule of reason."

CEQA Guidelines §15126.6(f)(2)(A) states, "[o]nly locations that would avoid or substantially lessen any of the significant effects of the project need be considered for inclusion in the EIR." Further, CEQA Guidelines §15126.6(f)(2)(B) states in part, "[i]f the lead agency concludes that no feasible alternative locations exist, it must disclose the reasons for this conclusion, and should include the reasons in the EIR..."

In preparing this DEIR, a number of alternatives were considered for review but were eliminated from further analysis because it was determined they did not meet the guidelines set forth in Section 15126.6(a). Alternatives considered but eliminated from further analysis in this DEIR are discussed below.

5.2.1 Modified Project Alignment

As described in Chapter 3 of this DEIR (Project Description) and explored further in Section 4.3 (Biological Resources), areas that are known as California tiger salamander (CTS) migration corridors occur along the proposed Project alignment. To mitigate potential Project impact on the species, the proposed roadway design includes a 6-inch raised concrete curb (at the back of the proposed sidewalk location) to keep the CTS from accessing the roadway and a series of box culverts approximately 5 feet tall and 10 feet wide to allow CTS and other wildlife to safely pass under the roadway and maintain their existing dispersal patterns. As an alternative to the proposed alignment, alternative alignments were considered in an attempt to lessen or eliminate the potential impact on CTS and thus avoid the need for culvert construction, while still maintaining approximate consistency with the County-approved Official Plan Line (OPL) and providing road access and utilities service to the parcels adjacent to the Project Site.

CTS migration corridors are linear and transect the area across which Rio Mesa Boulevard must cross to achieve the Project objectives. As such, avoidance of the corridors through modification to the alignment is not possible. Therefore, this alternative is infeasible is eliminated from further consideration in this DEIR.

5.2.2 Bridging Roadway Sections

As noted above, the Project alignment crosses CTS migration corridors necessitating the construction of a series of box culverts to mitigate Project impacts on migration. An alternative to culvert construction was considered that would construct roadway bridges on long sections of roadway that traverse the areas that support CTS migration instead of constructing culverts. Although this alternative would achieve most, if not all, of the basic Project objectives, no benefit of this alternative to CTS relative to the proposed culvert construction has been demonstrated or would otherwise be anticipated. Bridge construction would substantially increase the cost of construction and maintenance substantially with no demonstrable benefit. For these reasons, the alternative has been eliminated from further consideration in this DEIR.

5.3 Alternatives Selected for Further Analysis in this DEIR

For purposes of this DEIR, three alternatives to the proposed project, including the No Project Alternative, were selected for further analysis. (See Section 5.2, above, for discussion of additional alternatives considered but eliminated from further analysis.) This selection meets CEQA requirements for the comparative analysis of alternatives to be presented in the EIR and constitutes a reasonable range of alternatives for comparison to the proposed Project. However, and as discussed further below, while these alternatives are considered to represent appropriate alternatives for compliance with CEQA, the alternatives would not necessarily achieve all of the project objectives and would not necessarily avoid or reduce significant effects of the Project (as noted above, the Project would not result in any significant or potential significant impacts with the implementation of mitigation measures identified herein). The alternatives selected for further analysis in this EIR consist of the following and each is described below:

- No Project Alternative (Alternative 1)
- Alternate Alignment (Alternative 2)
- Two-Lane Roadway (Alternative 3)

5.3.1 Alternative 1: No Project Alternative

Under CEQA, an EIR must include a comparative analysis of a No Project Alternative (see CEQA Guidelines § 15126.6(e)). This requirement encourages a Lead Agency to compare the environmental effects of approving a proposed project with the effects of not approving it. The No Project Alternative generally assumes that the land area affected by Project construction would remain in its existing state, while taking into account what would be reasonably expected to occur in the foreseeable future if the Project were not approved. This is typically predicated on the continuation of current plans and ongoing operation of existing available infrastructure, and community services.

Under the No Project Alternative for this EIR the following would occur:

- Rio Mesa Boulevard would not be constructed;
- The proposed installation of utilities infrastructure would not occur; and
- Portions of the RMAP Conceptual Circulation Plan and the Official Plan Line for Rio Mesa Boulevard would not be implemented.

5.3.2 Alternative 2: Alternate Alignment

Alternative 2, Alternate Alignment, was developed for this DEIR to consider the potential environmental benefits of locating the Rio Mesa Boulevard alignment further east. Under Alternative 2 the Avenue 12/Rio Mesa Boulevard intersection would be located approximately 5,100 feet east of the proposed Project alignment. The alternate alignment would approximately coincide with the "Flag Barn Way" alignment shown in Exhibit A of Board Resolution 2016-269 (see Appendix I of this DEIR). Exhibit A is reproduced below as Figure 5-1.

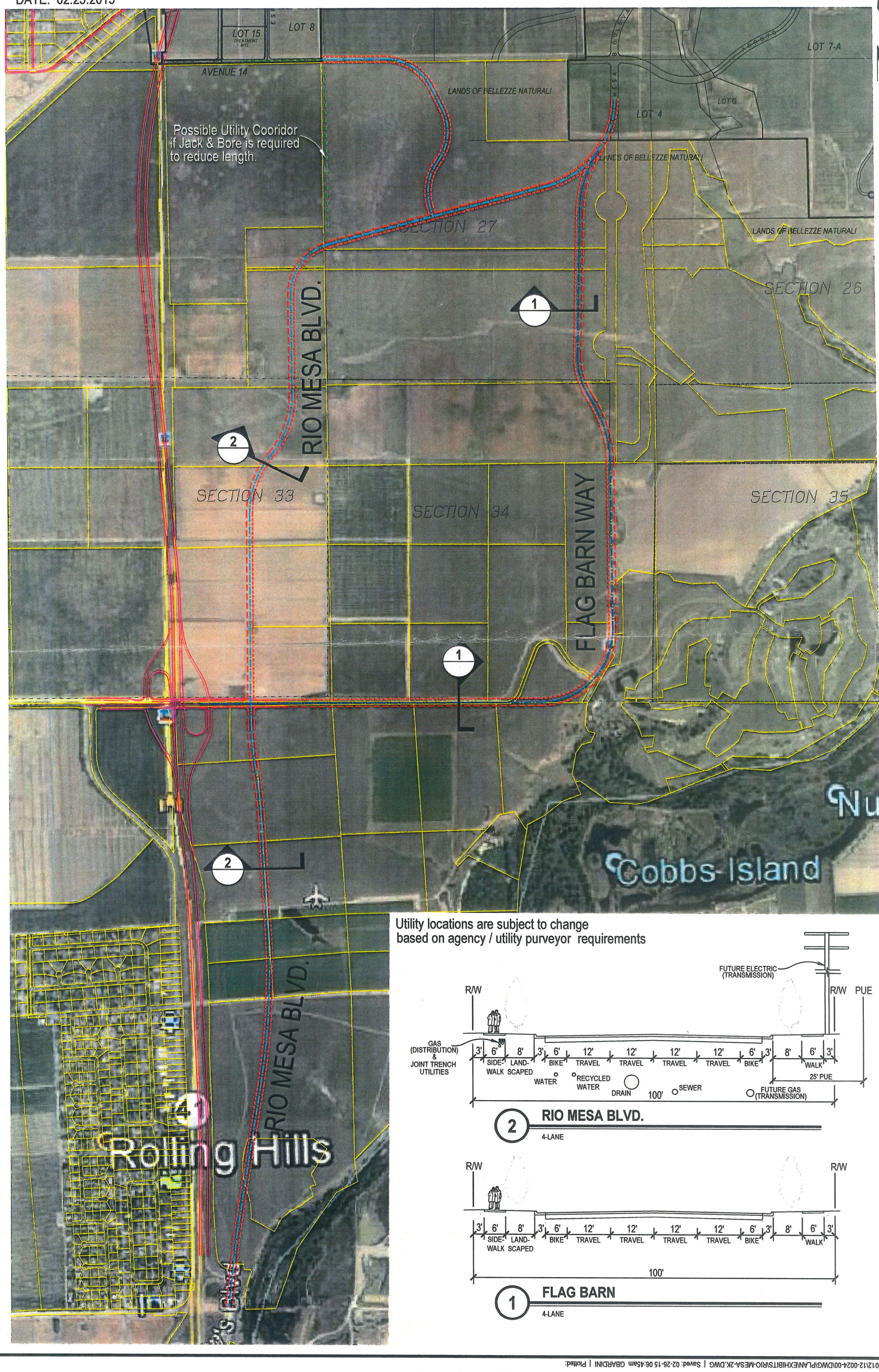
EXHIBIT FOR
RIO MESA BLVD. & FLAG BARN WAY

DATE: 02.25.2015

GRAPHIC SCALE

1500 750 0 1500

1 in = 1500 ft



Utility locations are subject to change based on agency / utility purveyor requirements

Dwg: X:\2012\12-0024-00\DWG\PLAN\EXHIBIT\RIO-MESA-2K.DWG | Saved: 02-26-15 06:45am GBARDINI | Plotted:

Source: County of Madera Board Resolution 2016-269

ECORP Consulting, Inc.
ENVIRONMENTAL CONSULTANTS

Figure 5-1. 2016 Official Plan Line

2017-089 Rio Mesa Boulevard

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Under Alternative 2, the proposed location of the Avenue 12/Rio Mesa Boulevard intersection for the Project would be moved approximately 5,100 feet to the east. As with the proposed Project, 2,200 feet of Avenue 12 extending east from SR 41 would be improved. Under Alternative 2, an additional 5,100 feet of Avenue 12 would be improved extending east from the location of the Project's Avenue 12/Rio Mesa Boulevard intersection. At that location, an alternate Avenue 12/Rio Mesa Boulevard intersection would be constructed under Alternative 2.

From the Alternative 2 Avenue 12/Rio Mesa Boulevard intersection, Rio Mesa Boulevard would extend north approximately 1.8 miles, ending at the same northern termination point as that of the proposed Project. Thus, total road improvements and construction distance of Alternative 2 for 7,300 feet of Avenue 12 improvements and 1.8 mile (9,500 feet) of Rio Mesa Boulevard construction, totaling approximately 16,800 feet. This would exceed the proposed Project's total roadway improvements (approximately 14,350 feet) by 2,450 feet.

Alternative 2 would achieve several of the basic Project objectives identified in Chapter 3 of this DEIR, including providing a connection between the SR 41/Avenue 12 intersection and the circulation system at the southern boundary of Tesoro Viejo.

As with the Project, Alternative 2 would be constructed in two phases. Phase 1 of Alternative 2 would include improvements to approximately 7,300 feet of Avenue 12 east of the SR 41, terminating at a new Avenue 12/Rio Mesa Boulevard intersection. From the Alternative 2 Avenue 12/Rio Mesa Boulevard intersection, approximately 1.8 miles (9,500 feet) of new two-lane roadway would be constructed northward, terminating at the southern boundary of Tesoro Viejo in same location as the proposed Project. As proposed for the Project, Alternative 2 would include installation of utilities infrastructure within the Avenue 12 and Rio Mesa Boulevard roadway rights-of-way. Alternative 2 would also construct two linked utility connections during Phase 1, similar to the proposed Project but along a different alignment between Rio Mesa Boulevard and the Avenue 14 alignment.

Although drainage crossing locations would differ, Alternative 2 would include drainage culverts, including those for CTS migration, where necessary serving a similar function as those of the proposed Project. Unlike the proposed Project, Alternative 2 would not provide direct access to properties adjacent to the proposed Project Rio Mesa Boulevard alignment. Therefore, under Alternative 2, such access, including that to the Community Medical Center and Paseo Pacifico parcels, would need to be developed in the future.

As with the Project, Phase 2 of Alternative 2 would expand Avenue 12 and Rio Mesa Boulevard to four lanes and complete construction of sidewalks, curbs, gutters and streetlights. Improvements to the SR 41/Avenue 12 and Avenue 12/Rio Mesa Boulevard intersections proposed for Phase 2 of the Project, would also be implemented in Phase 2 of Alternative 2.

5.3.3 Alternative 3: Two-Lane Roadway

Under Alternative 3, future construction of Rio Mesa Boulevard would commence as described for Phase 1 of the proposed Project, however the proposed Project's future expansion of the roadway to four lanes would not occur. Under this alternative, the width of the Project's permanent footprint would be reduced

by approximately 24 feet, from 100 feet to 76 feet wide. Most construction activities envisioned for Phase 2 of the Project would be eliminated, thereby avoiding the need to mitigate for associated impacts as prescribed herein. Implementation of Alternative 3 would also reduce the permanent introduction of impervious surfaces and other permanent alteration of lands within the Project right-of-way. Additionally, Under Alternative 3, the length of proposed box culverts to facilitate CTS migration would be reduced under this alternative, potentially making them more conducive to use by CTS.

All utilities proposed for installation with the Phase 1 of the Project would be installed and the two linked utility corridors would also be created as described for the Project. Improvements proposed for Phase 2 of the Project such as sidewalks, bike lanes, permanent landscape corridors, curbs, gutters, and street lights would be constructed concurrently with or immediately following the construction of Phase 1 improvements. Rio Mesa Boulevard/Avenue 12 and SR 41/Avenue 12 intersection improvements, and improvements to Avenue 12 proposed for Phase 2 of the Project would not be implemented under Alternative 3.

5.4 Comparative Analysis of Project Alternatives

5.4.1 Introduction

This section examines the potential environmental impacts associated with each of the alternatives selected for further analysis as compared to impacts of the proposed Project. Through comparison of these alternatives to the Project, the relative environmental advantages and disadvantages of each are evaluated. The section is organized by environmental resource area in the same order as presented in Chapter 4 of this DEIR. Under each resource area, the environmental advantage/disadvantage of each alternative relative to the proposed Project is assessed.

5.4.2 Air Quality

5.4.2.1 Alternative 1

Under the No Project Alternative, the construction of new facilities would not occur. As such, the alternative would have no impact on air emissions due to Project construction activities. Air pollutant and odor emissions associated with construction of the Project are detailed in Section 4.2 of this DEIR. Construction activities for the Project would result in the emission of air pollutants and odors from various sources including, but not limited to, the operation of construction equipment, haul trucks, construction personnel transport, and vegetation removal. Project emissions were quantified based on anticipated construction activities and duration and found to be less than significant, as discussed in Section 4.2 of this DEIR.

Under the No Project Alternative, vehicle travel would continue to use SR 41 between Avenue 12 and Tesoro Viejo and benefits associated with reduced VMT and associated reduction in vehicle air pollutant and GHG emissions attributed to the Project would not be realized under the No Project Alternative.

5.4.2.2 Alternative 2

The types of construction activities and equipment necessary to construct Alternative 2 would be similar to those of the Project. Because the proposed Project involves approximately 2.3 miles of grading for new road construction as compared to the 1.8 miles of new road construction under Alternative 2, Alternative 2 emissions associated with this component of construction could be commensurately less. However, Alternative 2 would require approximately 5,500 feet of improvements along Avenue 12 as compared to the proposed Project's 2,200 feet and Alternative 2 linked utility corridors would also be longer than those of the proposed Project, resulting in relative increases in construction emissions associated with these components as compared to the Project. These variations are not expected to result in a substantial difference in air pollutant emissions between Alternative 2 and the proposed Project. Due to the similar nature, extent, and duration of construction activities associated with both the Project and Alternative 2, it is anticipated that emissions during construction of Phases 1 and 2 of the Alternative 2 would be substantially similar to those of the proposed Project. As with the Project, Phase 1 and 2 construction activities for the Alternative 2 would require implementation of Mitigation Measure **AIR-1** and it is anticipated that this measure would be sufficient to comply with SJVAPCD Rule 9510. For these reasons, Alterantive 2 would not provide appreciable construction-related air pollutant emissions reductions or benefits as compared to the proposed Project.

Under Alternative 2, the distance between the SR 41/Avenue 12 intersection and the Rio Mesa Boulevard termination point at Tesoro Viejo is roughly 2,500 feet longer than the Project. Assuming that the same number of vehicles would travel between the intersection and Tesoro Viejo under both the Project and Alterantive 2, it is reasonalble to assume that Alternative 2 would generate slightly more VMT (just under 0.5 miles per vehicle) than would occur under the Project.

5.4.2.3 Alternative 3

Table 4.2-4 (Unmitigated Construction-Related Criteria Pollutant Emissions) and Table 4.2-5 (Construction Related NO_x and PM_{10} Emissions) in Section 4.2 of this DEIR, list estimated Project emissions for construction Phases 1 and 2 of the proposed Project. As shown in those tables, projected emissions for each phase of the Project would not exceed San Joaquin Valley Air Pollution Control District (SJVAPCD) thresholds and was, therefore found to have a less than significant impact relative to construction-related emissions. Phase 1 and 2 construction activities for the proposed Project would require implementation of Mitigation Measure **AIR-1** sufficient to comply with SJVAPCD Rule 9510.

Alternative 3 would involve similar construction activities as those associated with Phase 1 of the proposed Project, but within a narrower disturbance area along the entire alignment. In addition, Alternative 3 would construct/install various improvements proposed for Phase 2 of the Project including sidewalks, permanent landscaping, all curbs and gutters, bike lanes, and street lights. Additional grading and paving activities included in Phase 2 to expand Rio Mesa Boulevard to four lanes would not be done under Alternative 3.

Emissions generated by Alternative 3 construction activities would be greater than those projected for the Project's Phase 1 because Alternative 3 includes the construction of sidewalks, bike lanes, curbs and gutters that, under the Project would be delayed until Phase 2. While construction emissions for

Alternative 3 have not been modeled for this DEIR, it is anticipated that construction of Alternative 3 would not result in a substantial increase in construction emissions as compared to Phase 1 of the Project and that Alternative 2 construction would not result in the exceedance of SJVAPCD thresholds. This is due in part to the reduced aerial extent of site grading under Alternative 3 relative to the Project. The maximum width of site grading under the Project is 94 feet, not including 3-foot construction easements adjacent to proposed Project grading limits. Under Alternative 3 the width of grading limits would be reduced to approximately 70 feet due to the elimination of the Project's Phase 2 construction of two additional 12-foot-wide paved travel lanes in Rio Mesa Boulevard. As with the proposed Project, it is expected that Alternative 3 construction would require implementation of Mitigation Measure **AIR-1** sufficient to comply with SJVAPCD Rule 9510.

Under Alternative 3, there is no evidence to suggest VMT by vehicles using Rio Mesa Boulevard would be substantially different than that of the Project.

5.4.3 Biological Resources

5.4.3.1 Alternative 1

Under the No Project Alternative, the construction of new facilities would not occur. Therefore, the No Project Alternative would have no impact on biological resources.

5.4.3.2 Alternative 2

As detailed in Section 4.3.3 of this DEIR, the Project would result in potentially significant impacts on various biological resources. Specifically, Project construction activities could adversely impact species identified as a candidate, sensitive, or special-status wildlife species by the California Department of Fish and Wildlife and U.S. Fish and Wildlife Service. The species potentially affected include midvalley fairy shrimp; vernal pool fairy shrimp; California tiger salamander; western spadefoot; Blainville's horned lizard; special status bird species; burrowing owl; American badger; and San Joaquin kit fox. Project construction activities could affect these species either directly or through habitat disruption.

Project construction could also adversely affect two special-status plant species: succulent owl clover and San Joaquin Valley Orcutt grass. Succulent owl's clover was found in three vernal pools within the Project Study Area and San Joaquin Valley Orcutt grass was found in one vernal pool. The Study Area also supports sensitive natural communities in the form of 7.548 acres of aquatic resources of which 7.099 acres are classified as wetlands (vernal pools, seasonal wetlands, or seasonal wetland swales) that could be filled as a result of Project construction.

Construction of Rio Mesa Boulevard under the proposed Project could also provide an impediment to wildlife movement, including potential effects on the movement of CTS and western spadefoot.

Lastly, the Project could conflict with local policies and ordinances associated with protection of biological resources included in the Madera County General Plan Policy Document. The potential Project effects discussed above may also conflict with wetlands policies of the USACE, USFWS, and CDFW; mitigation for loss of regulated and unregulated wetlands; conservation of upland areas adjacent to wetlands; protection of critical nesting foraging areas; and preservation of habitat for rare, threatened, endangered, and/or

other special-status species. As detailed in Section 4.3.3.3 (Project Impacts and Mitigation Measures) of this DEIR), implementation of Mitigation Measures **BIO-1 through BIO-13** would reduce all potentially significant impacts listed above to less-than-significant levels.

Biological surveys of the Alternative 2 alignment have not been conducted. However, based on review of recent aerial photographs (2017, 2018, and 2019), the Alternative 2 alignment would affect areas of undeveloped natural landscape, whereas the majority of the Project would be built in altered landscape (i.e., agriculture). Based on the aerial photograph interpretation, it is reasonable to expect the Alternative 2 alignment would have a similar potential to adversely affect the same special-status species as the Project and could affect more individuals because more habitat for these species would be affected by the Alternative 2 alignment. While areas of CTS and western spadefoot habitat would be directly affected by the Project and require mitigation as discussed in Section 4.3, based on aerial photograph interpretation, it is unlikely the Alternative 2 would avoid the requirement for similar mitigation measures for these species and others affected by the Project. Thus, it is expected that Alternative 2 would require implementation of biological resources mitigation measures similar to those identified for the Project.

5.4.3.3 Alternative 3

As noted above, Alternative 3 would implement all construction activities associated with Phase 1 of the proposed Project. In addition, the Alternative would construct/install various improvements proposed for Phase 2 of the Project including sidewalks, permanent landscaping, all curbs and gutters, bike lanes, and street lights. Additional grading and paving activities included in the Project's Phase 2 to expand Rio Mesa Boulevard to four lanes would not be done under Alternative 3. Culvert installations to facilitate wildlife movement beneath the proposed roadway under the Project would also be implemented under Alternative 3.

Project effects on biological resources were found to be less than significant or less than significant with mitigation as detailed in Section 4.3 of this DEIR. Under Alternative 3, the impact determinations and mitigation requirement would be largely unchanged. The project effects on species of special concern and critical habitat, however, would be somewhat reduced given the smaller aerial extent of site grading under Alternative 3 relative to the Project and the ultimate reduction in width of the proposed roadway. As noted, the maximum width of site grading under the Project is 94 feet, not including 3-foot construction easements adjacent to proposed Project grading limits. Under Alternative 3 the width of grading limits would be reduced to approximately 70 feet due to the elimination of the Project's construction of two additional 12-foot-wide paved travel lanes for Rio Mesa Boulevard during Phase 2.

Furthermore, Alternative 3 would be completed in one phase and one construction season, whereas the Project would require two phases of construction separated by several years. The elimination of future construction activities under Alternative 3 is likely to benefit resident and migratory wildlife in areas surrounding the Project Area though this benefit would be temporary and limited only to the Phase 2 construction period.

5.4.4 Cultural Resources

5.4.4.1 Alternative 1

Under the No Project Alternative, the construction of the proposed roadway and the installation of utilities infrastructure would not occur. As such, potential impacts on cultural resources identified in Section 4.3 of this DEIR would not occur.

5.4.4.2 Alternative 2

As discussed in Section 4.4.3.4 of this DEIR, cultural resource surveys of the Project Study Area conducted by a professional archaeologist found no historical resources of significance or unique archaeological resources. Surveys of the Alternative 2 site were not conducted and the presence or absence of historical or archaeological significance is unknown. As such, it is reasonable to conclude that the potential impact on cultural or historical resources of significance related to the Alternative 2 would be equal to, or greater than the proposed Project.

As discussed in Section 4.4.3.4, while surveys of the Project Site found no cultural or historical significance, there exists to that possibility that unknown buried resources or human remains beneath the Project Site surface could be discovered during Project excavation activities. Mitigation Measures **CUL-1 and CUL-2** are proposed to reduce the impact of these potential discoveries to less than significant. There is no evidence to suggest that the potential to discover unknown subsurface resources is greater either on the Project Site or the Alternative 2 site, however, given that the Project Site has been subject to a higher intensity of cultivated agricultural activity, it could be argued that the likelihood of uncovering previously undiscovered resources would be greater under Alternative 2.

5.4.4.3 Alternative 3

As noted, Alternative 3 roadway and utilities improvements would be constructed within the defined alignments of the proposed Project. Although Alternative 3 would reduce the width of the proposed Rio Mesa Boulevard alignment by approximately 24 feet, significant cultural resources have not been identified in any part of the Project alignment. At most, this area reduction would reduce the potential for the discovery of unknown resources or human remains during construction. As with the proposed Project, Mitigation Measure **CUL-1** would be implemented under Alternative 3 sufficient to address impacts associated with inadvertent discovery of cultural resources during construction disturbance activities.

5.4.5 Greenhouse Gas Emissions and Climate Change

5.4.5.1 Alternative 1

Under the No Project Alternative, the construction of the proposed roadway and the installation of utilities infrastructure would not occur. Under the No Project Alternative, vehicle travel would continue to use SR 41between Avenue 12 and Tesoro Viejo and the reduced VMT and associated reduction in vehicle air pollutant and GHG emissions attributed to the Project would not be realized.

5.4.5.2 Alternative 2

Construction Impacts

Section 4.5.3.3 of this DEIR addresses the potential impact of the Project on GHG emissions and climate change. As discussed in that Section, A primary source of GHG emissions associated with the proposed Project would be combustion of fossil fuels during construction activities. The construction phase of the Project is temporary but would result in GHG emissions from the use of heavy construction equipment and construction-related vehicle trips. Other construction-related activities that would generate GHGs include worker commute trips, haul trucks carrying dredged material from the Project site, and off-road construction equipment (e.g., dozers, loaders, excavators). As shown in Section 4.5.3.3, Project construction would not result in the exceedance of 900 metric tons of CO_2e during any year of construction. Once construction is complete, the generation of these GHG emissions would cease. This, therefore, is considered a less than significant impact.

GHG generation for Alternative 2 was not conducted for this DEIR. However, given that construction activities for the Alternative 2 would be similar in scope and duration as that of the Project, it is reasonable to conclude that, as with the Project, GHG production during construction of Alternative 2 would not exceed 900 metric tons and, therefore, would be considered less than significant.

Long-Term Operations

The Project would not generate quantifiable GHG emissions from long-term operations. The Project does not propose any new buildings or residents and therefore no permanent stationary or mobile source emissions would be associated with the Project once construction is complete. In addition, once completed the Project would not result in unplanned, permanent increases in traffic. The Project would accommodate existing and predicted traffic demands, improve safety on roadways, and provide better access to regional transportation routes. The Project has been designed to accommodate approved and planned development in the County and therefore would not engender new traffic trips that have not already been analyzed and approved, and which could be a potential source of GHG emissions.

Since the Project would be designed to accommodate traffic volumes from planned and approved development and would not directly generate new traffic or increase vehicular trips, a source of GHG emissions, the Project would not contribute to GHG emissions once construction is complete resulting in a less than significant impact.

Since the Project would be designed to accommodate previously planned traffic volumes and would not directly generate new traffic or increase vehicular trips, a source of GHG emissions, and because the short-term GHG emissions do not exceed the significance thresholds used for analysis of the Project, the Project would not conflict with or obstruct implementation of any applicable plan, policy or regulation adopted for the purpose of reducing GHG emissions. This impact would be less than significant.

Under Alternative 2, the distance between the SR 41/Avenue 12 intersection and the Tesoro Viejo circulation system would be slightly longer (approximately 700 feet) therefore long-term vehicular travel on roads developed under Alternative 2 would be slightly greater than that of the Project and thus would generate slightly greater than VMT relative to the Project. As such, GHG emissions from operation of

Alternative 2, would be greater than that projected for the Project. GHG emissions under the alternative, however, would still be considered less than significant based on the GHG impact significance criteria presented herein.

5.4.5.3 Alternative 3

Construction Impacts

As discussed above, a primary source of GHG emissions associated with the proposed Project would be combustion of fossil fuels during construction activities. The construction phase of the Project is temporary but would result in GHG emissions from a variety of construction-related activities described previously. Project construction for both Phase 1 and 2, however, would not result in the exceedance of 900 metric tons of CO_{2e} during any year of construction. Once construction is complete, the generation of these GHG emissions would cease. This, therefore, was found to be a less than significant impact.

GHG generation for the Alternative 3 was not conducted for this DEIR. However, qualitatively, construction activities under Alternative 3 would be more intensive and of greater duration than that associated with the Project's Phase 1 construction. This is due to the construction of Project elements such as sidewalks, curbs, gutters, permanent landscaping, streetlighting and bike lanes under Alternative 3: activities that would be delayed until Phase 2 of the proposed Project. As such, GHG emissions generated by Alternative 3 construction activities would be greater than those projected for the Project's Phase 1 because Alternative 3 includes the construction of sidewalks, bike lanes, curbs and gutters that, under the Project would be delayed until Phase 2. While construction emissions for Alternative 3 have not been modeled for this DEIR, it is reasonable to assume that the increase in construction emissions relative to Phase 1 of the Project would still not result in the exceedance of the 900 metric ton threshold for CO_2 discussed above. This is due in part to the reduced aerial extent of site grading under Alternative 3 relative to the Project. The maximum width of site grading under the Project is 94 feet, not including 3-foot construction easements adjacent to proposed Project grading limits. Under Alternative 3 the width of grading limits would be reduced to approximately 70 feet due to the elimination of the Project's Phase 2 construction of two additional 12-foot-wide paved travel lanes in Rio Mesa Boulevard.

Long-term Operation

As discussed above and in Section 4.5 of this DEIR, the Project would not generate quantifiable GHG emissions from long-term operations. Given that Alternative 3 would construct a two-lane roadway in a location identical to that of the Project, there would be no appreciable difference in GHG emissions between the Project and Alternative 3.

5.4.6 Hydrology and Water Quality

5.4.6.1 Alternative 1

Under the No Project Alternative, the construction of new facilities would not occur. As such, project area drainage, hydrology, and water quality characteristics would remain unchanged relative to existing conditions.

5.4.6.2 Alternative 2

Section 4.6.4 of this DEIR addresses the potential impact of the Project on hydrology and water quality. Analysis presented therein found that the Phase 1 Project improvements will contribute approximately 10 acres of impervious area to create an increase of approximately 0.5% of impervious area from the 1,920 acres of the watersheds in which the Project is located. Phase 2 improvements will add approximately 10 acres of impervious area for a total of approximately 20 acres from existing conditions, to create a 1% increase of impervious area within the three affected watersheds. Given the limited extent of the Project, and the linear nature of the project, this reduction would not be substantial relative to surrounding properties. Runoff from the roadway would be directed to existing drainage features in the area which would contribute to groundwater recharge within the three watersheds. Additionally, construction and operation of the Project does not contain elements that would directly draw from groundwater supplies and the Project would not be constructed immediately above or disturb any existing wells. Therefore, Project impacts on groundwater supplies and recharge would be less than significant.

Alternative 2 would widen Avenue 12 to four lanes for approximately 5,500 feet east of the SR 41/Avenue 12 intersection and construct a new four-lane roadway, approximately 9,500 feet in length, between Avenue 12 and the Tesoro Viejo circulation system. The precise amount of impervious surface area created by Alternative 2 has not been calculated but, given the alternatives' similarity, the effect of Alternative 2 on groundwater recharge would not be substantially different than that of the Project. As with the Project, Alternative 2 would not draw from groundwater supplies. The potential impact of Alternative 2 on existing groundwater wells has not been determined.

Impact 4.6-2 addresses the potential effects of the Project on surface or groundwater water quality during construction and operation. The analysis of that impact found that adherence to applicable water quality laws, preparation of a SWPPP and compliance with the Madera County Municipal Code would ensure that water quality standards are not violated during construction. Consequently, potential impacts associated with violation of waste discharge requirements or water quality standards during construction would be less than significant. Given the similarity between Project and Alternative 2 construction activities, it is likely that this would also be the case for Alternative 2.

The analysis provided under Impact 4.6-2 also found that long-term water quality impacts are not expected to result after completion of the Project. This is due to the linear nature of the project and limited surface area. Given the similarity between Project and Alternative 2, it is likely that this would also be the case for the Alternative 2.

The discussion under Impact 4.6-3 addresses the resulting effect of Project Construction and operation on increased erosion or siltation in stormwater runoff from the Project Site or additional sources of polluted runoff. The proposed project would modify drainage patterns on the project site during and after construction. Phase 1 construction would disturb approximately 92.45 acres and, as discussed above, Project construction would be subject to the requirements of National Pollution Discharge Elimination System (NPDES) through the statewide General Construction Permit described above. for Stormwater Discharges Associated with Land Disturbance and Construction Activities (Order 2009-0009-DWQ, as amended by 2010-0014-DWQ and 2012-0006-DWQ, or as otherwise amended prior to Project

construction). A Stormwater Pollution Prevention Plan (SWPPP) would be prepared for Project construction activities and would identify best management practices (BMPs) to prevent construction pollutants and products from violating water quality standards or waste discharge requirements. Prior to the start of Phase 1 ground-disturbing activities, BMPs to retain, detain, filter and/or convey stormwater runoff would be installed as described in the SWPPP. It is anticipated that silt fencing consisting of filter fabric supported with wooden stakes spaced approximately six feet apart would be used for sediment control along the edges of all temporary disturbance areas.

The SWPPP will also address areas of construction to be affected with the initiation of Phase 2 of the Project. Measures defined in the SWPPP and implemented for Phase 1 construction would also be implemented under Phase 2 as appropriate. Adherence to applicable water quality laws, preparation of a SWPPP and compliance with the Madera County Municipal Code would ensure that water quality standards are not violated during construction. Consequently, potential impacts associated with violation of increased erosion and sedimentation due to Project effects on storm drainage would be less than significant.

Given the similarity between Project and Alternative 2, it is likely that the same conditions described above would apply to Alternative 2. As such, the impact of Alternative 2 would also be considered less than significant.

Impact 4.6-4 addresses the potential for the Project to affect the rate of and amount of surface runoff by constructing two lanes of paved roadway during Phase 1 and expansion to four lanes during Phase 2 of the Project. The analysis of this issue found that the Project, as designed, would not substantially alter the existing drainage pattern within the three watershed areas affected by the Project or substantially increase the rate or amount of surface runoff leaving the Project site. In addition, drainage facilities to be constructed as part of the Project are designed to adequately accommodate critical future storm events. As such, the Project's impact on the rate or amount of surface water runoff and existing or planned drainage facilities would be the impact is considered less than significant. It is assumed that the same standards described above for the Project would also apply to Alternative 2. As such, the impact of Alternative 2 would be similar to that of the Project.

Impact 4.6-5 addresses the effect of increases in impervious surfaces constructed by the Project on groundwater recharge and whether this effect would be inconsistent with Madera Subbasin Groundwater Sustainability Plan. The analysis of Impact 4.4-5 found that, given the limited impact of the Project on groundwater recharge and the absence of groundwater pumping associated with the Project, the Project would not conflict or obstruct any specific projects or management actions included in the Madera Subbasin GSP nor would it conflict with the GSP's overall goal of achieving a balance between groundwater use and recharge within the subbasin by 2040. Therefore, the impact is less than significant. For the same reasons discussed above, Alternative 2 would also not conflict with or obstruct implementation of the Madera Subbasin Groundwater Sustainability Plan.

5.4.6.3 Alternative 3

As discussed above, Phase 1 Project improvements will contribute approximately 10 acres of impervious area to create an increase of approximately 0.5% of impervious area from the 1,920 acres of the

watersheds in which the Project is located. Phase 2 improvements will add approximately 10 acres of impervious area for a total of approximately 20 acres from existing conditions, to create a 1% increase of impervious area within the three affected watersheds. Hydrologically, this reduction was found to be unsubstantial relative to surrounding properties in that runoff from the roadway would be directed to existing drainage features in the area which would contribute to groundwater recharge within the three watersheds. Additionally, construction and operation of the Project does not contain elements that would directly draw from groundwater supplies and the Project would not be constructed immediately above or disturb any existing wells. Therefore, Project impacts on groundwater supplies and recharge would be less than significant.

Under Alternative 3, the ultimate extent of impervious surface area would be reduced relative to the Project Rio Mesa Boulevard would not be widened to four lanes. Aside from future Project expansion of the roadway to four lanes, all other aspects of the Project, including drainage facilities and the treatment stormwater runoff (both during and after construction), would similar under Alternative 3.

5.4.7 Noise

5.4.7.1 Alternative 1

Under the No Project Alternative, the construction of new facilities would not occur. As such, the alternative would have no impact associated with noise generation due to construction or vehicle operation along Rio Mesa Boulevard. Vehicle travel under the No Project alternative would continue to use SR 41 between Avenue 12 and Tesoro Viejo, and any reductions in transportation noise attributed to the Project as a result of reduced vehicle travel on SR 41 would not be realized.

5.4.7.2 Alternative 2

As discussed in Section 4.7.3.2, Impact 4.7-1 addresses noise generated by Project construction and operation and whether that noise would exceed local noise standards. Only one sensitive receptor (a rural residence) is located within relatively close proximity (approximately 500 feet) to Project construction activities. The analysis presented in that discussion found that no individual or cumulative pieces of construction equipment would exceed the 85 dBA NIOSH construction noise standard at the nearby noise sensitive receptor. As long as construction is conducted within the permitted hours presented in Section 9.58.020-G of the County's Code of Ordinance a less than significant impact would occur.

The Alternative 2 alignment for Rio Mesa Boulevard would be located immediately adjacent to, or in close proximity to, three rural residential structures. These structures are located within 500 feet of Alternative 2's Avenue 12/Rio Mesa Boulevard intersection location. Given the location of these sensitive noise receptors in close proximity to construction activities, it is possible, if not likely that noise generated by equipment during Alternative 2 roadway construction would exceed the 85 dBA NIOSH construction noise standard at one or more of these residences.

The sole source of long-term operational noise impacts as a result of the Project is from the creation of a traffic corridor where none previously existed. Predicted traffic noise levels were calculated using the FHWA Highway Noise Prediction Model (FHWA-RD-77-108) (See Appendix G of this DEIR). Upon completion of Phase 2 of construction, the newly constructed Rio Mesa Boulevard would be a four-lane

roadway that is intended to accommodate planned and approved development within the County. After completion of the roadway and buildout of the various land use development projects within the immediate vicinity, such as the Tesoro Viejo Specific Plan, the newly constructed Rio Mesa Boulevard is expected to accommodate up to 17,900 average daily trips by 2040. Based on this information, the predicted noise level at 500 feet from the centerline is expected to be 56.6 dB Ldn. As the nearest current noise sensitive receptor would experience exterior and interior noise levels below the County's noise standards, this impact was found to be less than significant.

As discussed above, the distance to the nearest noise-sensitive receptor to Alternative 2 roadway alignment is substantially less than that of the Project. In fact, two rural residences would be located immediately adjacent to the roadway under Alternative 2. Although long-term noise levels generated under Alternative 2 at adjacent residences was not modeled, it is possible if not likely that interior noise levels at adjacent residences could exceed County noise standards. Comparatively speaking, interior noise levels under Alternative 2 would be greater than those anticipated under the Project due to the closer proximity of receptors to the Alternative 2 roadway alignment.

For reasons discussed under Impact 4.7-2, the Project's impact due to construction-generated groundborne vibration and vibration noise is less than significant. As compared to the proposed Project, vibration-sensitive receptors area located farther from the Alternative 2 alignment and vibration potential vibration-related impacts associated with Alternative 2 would be less than those of the Project.

5.4.7.2 Alternative 3

As discussed above, Impact 4.7-1 addresses noise generated by Project construction and operation and whether that noise would exceed local noise standards for the one sensitive receptor (a rural residence) located approximately 500 feet) to Project construction activities. The analysis presented in that discussion found that no individual or cumulative pieces of construction equipment would exceed the 85 dBA NIOSH construction noise standard at the nearby noise sensitive receptor. As long as construction is conducted within the permitted hours presented in Section 9.58.020-G of the County's Code of Ordinance a less than significant impact would occur for either Phase 1 of Phase 2 of the Project.

Alternative 3 contains no construction elements that differ from those included in the Project. As noted, some elements of the Phase 2 of the Project would be constructed during the only construction phase of Alternative 3, but the impact of these activities during Alternative 3 construction would not differ substantially from those evaluated for the Project Phase 2 in Section 4.6 of the DEIR. As such, the determination of no significant impact for the Project is also applicable to Alternative 3.

As discussed above, the sole source of long-term operational noise impacts from the Project is vehicle use on Rio Mesa Boulevard and Avenue 12. Predicted traffic noise levels were calculated using the FHWA Highway Noise Prediction Model (FHWA-RD-77-108) (See Appendix G). Upon completion of Phase 2 of construction, the newly constructed Rio Mesa Boulevard would be a four-lane roadway that is intended to accommodate planned and approved development within the County. After completion of the roadway and buildout of the various land use development projects within the immediate vicinity, such as the Tesoro Viejo Specific Plan, the newly constructed Rio Mesa Boulevard is expected to accommodate up to 17,900 average daily trips at the completion of Phase 2 of the Project. As with the Project, the predicted

noise level at 500 feet from the centerline is expected to be 56.6 dB L_{dn} under Alternative 3. As the nearest current noise sensitive receptor would experience exterior and interior noise levels below the County's noise standards, this impact was found to be less than significant.

For reasons discussed under Impact 4.7-2, the Project's impact due to construction-generated groundborne vibration and vibration noise is less than significant. Vibration associated with construction of Alternative 3 would be similar to that associated with construction of Phase 1 of the proposed Project. Vibration associated with construction of Phase 2 of the Project would be avoided under Alternative 3.

5.4.8 Transportation

5.4.8.1 Alternative 1

Under the No Project Alternative, the construction of the proposed Rio Mesa Boulevard would not occur. Long-term operations would remain unchanged relative to current conditions, however, future traffic generated by ongoing and future approved development would be redistributed to available roadways if Rio Mesa Boulevard is not built. This could increase future local VMT levels relative to the proposed Project and could potentially adversely affect local congestion on area roadways and intersections. Alternative 1 would be inconsistent with existing approved planning documents, particularly the RMAP, the RMAP Conceptual Transportation Plan and the Official Plan Line and Rio Mesa Boulevard design guidelines as contained in Board Resolutions 2015-124 and 2016-269.

5.4.8.2 Alternative 2

As discussed in Section 4.8.3.2, Impact 4.8-1 addresses the consistency of the proposed Project with applicable regional plans addressing transportation-related projects in the Project Area including the Madera County General Plan, Board Resolution 2015-124 and 2016-269, the Madera County 2018 Regional Transportation Plan and Sustainable Communities Strategy, and the Rio Mesa Area Plan.

To assess Project consistency with the County General Plan, existing traffic volumes, intersection levels of service (LOS) and roadway segment LOS, with and without Phase 1 of Project, were evaluated in Section 4.8.3.4 of this DEIR. For the reasons presented in the section, anticipated levels of service on roadway segments and in intersections appreciably affected by Phase 1 of the Project will be consistent with County General Plan goals and policies pertaining to roadway/intersection operations. As such, the impact is considered less than significant.

Project consistency with the OPL was also assessed in Section 4.8.3.4. As noted in that assessment, the location of the Rio Mesa Boulevard/Avenue 12 intersection shown in Board Resolution 2016-269 was relocated approximately 500 feet to the east in response to comments on the NOP submitted by Caltrans. Although the adjusted alignment of the proposed Project varies in its specific location to that of the OPL, the Project alignment provides for serving the same purpose and utility as that of the OPL. For this reason, the Project is considered consistent with Board Resolution 2016-269 and the impact, therefore, is less than significant.

Under Alternative 2, however, Rio Mesa Boulevard would be relocated approximately 5,100 feet east of the proposed Rio Mesa Boulevard/Avenue 12 intersection which is considered a substantial deviation

from the location shown in the OPL and would significantly alter the "purpose and utility" of the roadway as envisioned in the OPL. This is at least partially evident in Alternative 2's lack of access to properties and future planned uses adjacent to the original Rio Mesa Boulevard alignment. For these reasons, the impact of Alternative 2 relative to its consistency with the General Plan and, more specifically, the OPL under Impact 4.8-1 is considered significant.

Impact 4.8-2 addresses the effect of Project construction activities on vehicle miles traveled (VMT) during Phase 1 and Phase 2 construction. As discussed under Impact 4.8-3 anticipated Phase 1 and Phase 2 construction activities would result in a temporary increase in VMT as a result of the movement of construction personnel, equipment and materials to and from the Project Site. This increase in VMT would, in turn, affect existing air quality, greenhouse gas emissions, noise conditions, and energy consumption. Construction-related effects of the Project on these areas of concern are addressed specifically in Sections 4.2, 4.5, 4.7 and 6.3, respectively, of this DEIR. Potential Project impacts associated with greenhouse gas emissions, noise and energy consumption, were found to be less than significant for reasons detailed in the above sections. Project impacts on air quality, specifically, the potential effect of construction-related air emissions on Project compliance with air quality standards was found to be potentially significant. With implementation of Mitigation Measure **AIR-1**, however, that impact is reduced to less than significant.

Construction activities associated with the Alternative 2 would be similar in scope and duration as that of the Project. As such the generation of VMT during construction of the Alternative 2 is not expected to be substantially different. As with the Project, it is expected that the impact on air quality related to VMT generated by Alternative 2 construction activity would be less than significant with implementation of Mitigation Measure **AIR-1**.

Impact 4.8-3 addresses how Project operation would affect long-term VMT levels. As detailed in that discussion, the Project is intended to provide more direct access to existing and future development and, thus, reduce vehicle trip length. The Project is consistent with and, in some cases, specifically identified in all applicable regional plans such as the Madera County General Plan, RMAP, Madera County Regional Transportation Plan, Board Resolutions 2015-124 and 2016-269, and the Madera County 2004 Regional Bicycle Transportation Plan. Construction of the proposed roadway would provide access to future projects (both approved and pending approval) which are, or would be, responsible for mitigating the impact of increases in VMT directly associated with those developments. For these reasons, the impact of the proposed Project operation on long-term increases in VMT is considered less than significant.

The purpose of constructing the Alternative 2 would be similar to that of the Project discussed above. Trip length between the SR 41/Avenue 12 intersection and the southern connection with the Tesoro Viejo circulation system would be slightly longer (approximately 700 feet) resulting in a marginal increase in VMT as compared to the Project. However, as with the Project, the Alternative 2's VMT impact would be less than significant.

In relation to the impact of the Project and Alternative 2 on emergency access, neither alternative would have an adverse impact on access.

5.4.8.3 Alternative 3

Alternative 3 would construct Rio Mesa Boulevard along the alignment proposed for the Project, and the alternative would include all elements of the Project with the exception of the ultimate expansion of Rio Mesa Boulevard to four lanes and intersection improvements at SR 41/Avenue 12 and Rio Mesa Boulevard/Avenue 12 that would be carried out in Phase 2 of the Project. Construction of Alternative 3 would be completed in a single phase as opposed to two phases as would occur with the Project.

As discussed above, Impact 4.8-1 in Section 4.8 of this DEIR addresses the consistency of the proposed Project with applicable regional plans addressing transportation-related projects in the Project Area including the Madera County General Plan, Board Resolutions 2015-124 and 2016-269, the Madera County 2018 Regional Transportation Plan and Sustainable Communities Strategy, and the Rio Mesa Area Plan. Alternative 3 would implement all elements of the Project with the exception of future expansion of Rio Mesa Boulevard to four lanes. This is a significant departure from the County General Plan and OPL in that the OPL identifies Rio Mesa Boulevard as a four-lane roadway and, given projected 2042 traffic volumes for Rio Mesa Boulevard, the General Plan LOS standard for roadway and intersections would be exceeded without roadway expansion and intersection improvements included in the Project.

Impact 4.8-2 addresses the effect of Project construction activities on VMT during Phase 1 and Phase 2 construction. As discussed under Impact 4.6-3 anticipated Phase 1 and Phase 2 construction activities would result in a temporary increase in VMT as a result of the movement of construction personnel, equipment and materials to and from the Project Site. This increase in VMT would, in turn, affect existing air quality, greenhouse gas emissions, noise conditions, and energy consumption. Construction-related effects of the Project on these areas of concern are addressed specifically in Sections 4.2, 4.5, 4.7 and 6.3, respectively, of this DEIR. As with the Project, Alternative 3 would result in a temporary increase in VMT with related effects on greenhouse gas emissions, noise conditions, and energy consumption. As with the Project, impacts associated with greenhouse gas emissions, noise and energy consumption, due to Alternative 3 construction activities would be less than significant or less than significant with mitigation (i.e., Mitigation Measure **AIR-1**) identified for the Project.

Impact 4.8-3 addresses how Project operation would affect long-term VMT levels. As detailed in that discussion, the Project is intended to provide more direct access to existing and future development and, thus, reduce vehicle trip length. In this regard, Alternative 3 would be identical to the Project. The Project and Alternative 3 is consistent with and, in some cases, specifically identified in all applicable regional plans such as the Madera County General Plan, RMAP, Madera County Regional Transportation Plan, Board Resolutions 2015-124 and 2016-269, and the Madera County 2004 Regional Bicycle Transportation Plan. Construction of the proposed roadway would provide access to future projects (both approved and pending approval) which are, or would be, responsible for mitigating the impact of increases in VMT directly associated with those developments. For these reasons, the impact of the proposed Project and Alternative 3 operation on long-term increases in VMT is considered less than significant.

In relation to the impact of the Project and the Alternative 3 on emergency access, neither alternative would have an adverse impact on access.

5.4.9 Tribal Cultural Resources

5.4.9.1 Alternative 1

Under the No Project Alternative, construction and future use of Rio Mesa Boulevard and the installation of utility infrastructure would not occur. As such, potential impacts on Tribal Cultural Resources (TCRs) from Project construction would be avoided.

5.4.9.2 Alternative 2

As discussed in Section 4.9.4, Impact 4.9-1 addresses the potential effect of Project construction and operation on TCRs as determined by Tribal consultation. The County consulted with the Dumna Wo-Wah Tribal Government regarding potential impacts to TCRs within the Study Area. Confidential consultation resulted in agreement between the County and the Dumna Wo-Wah Tribal Government that there were no TCRs within the Project Area and potential impacts of the proposed Project on TCRs would be less than significant.

Tribal consultation was not conducted for Alternative 2. However, it is reasonable to assume that concerns of the Dumna Wo-Wah Tribal Government would be similar to those associated with the Project given that Alternative 2 is similar to the Project in scope and located roughly parallel to and less that one half mile to the east. The potential impact of Alternative 2 on TCRs cannot be determined at this time as the County is not proposing to construct Alternative 2 and has therefore not requested input from Native American tribal representatives of TCRs that may be associated with the Alternative 2 alignment. Because the proposed Project would not result in a significant impact to TCRs, no further evaluation of Alternative 2 with regarding to TCRs is warranted.

5.4.9.3 Alternative 3

As noted above, Alternative 3 would implement all construction activities associated with Phase 1 of the proposed Project. In addition, the Alternative would construct/install various improvements proposed for Phase 2 of the Project including sidewalks, permanent landscaping, all curbs and gutters, bike lanes, and street lights. Additional grading and paving activities included in the Project's Phase 2 to expand Rio Mesa Boulevard to four lanes would not be done under Alternative 3. Culvert installations to facilitate wildlife movement beneath the proposed roadway under the Project would also be implemented under Alternative 3.

Although Alternative 3 would reduce the width of the proposed Rio Mesa Boulevard alignment by approximately 24 feet, this reduction would not serve to avoid any identified TCRs. As such, Alternative 3 would not provide a substantial advantage or disadvantage relative to the Project pertaining to TCRs. Alternatives Analysis Summary and CEQA Environmentally Superior Alternative

CEQA Guidelines Section 15126.6 provides that an EIR should identify the "environmentally superior" alternative. "If the environmentally superior alternative is the 'no project' alternative, the EIR shall also identify an environmentally superior alternative among the other alternatives." The following sections summarize information and the comparative impact analyses presented above in this chapter and identify the environmentally superior alternative in keeping with CEQA requirements.

5.4.10 Summary of Alternatives Analysis

5.4.10.1 Alternative 1 – No Project Alternative

As discussed in Section 5.4 above, foregoing development of the proposed Project including construction of Rio Mesa Boulevard, improvements to Avenue 12, development two linked utility corridors and the proposed installation of utility infrastructure, would avoid impacts on environmental resource areas assessed in this DEIR. This is because the No Project Alternative generally assumes that the land area affected by Project construction would remain in its existing state. However, in assessing the No Project Alternative, reasonably foreseeable future actions if the Project were not approved also warrant consideration and can be predicated on the continuation of current plans and ongoing operation of existing available infrastructure, and community services.

As discussed previously, the development of Rio Mesa Boulevard in the approximate location in which it is proposed Project is consistent with or, in some cases a key element of various approved land use and transportation plans in Project area including: the Madera County General Plan; Rio Mesa Area Plan; Madera County Regional Transportation Plan; Board-adopted OPL, and the Madera County 2018 Regional Transportation Plan and Sustainable Communities Strategy. Elimination of the Project would impede or alter the implementation of these plans. As a consequence of the No Action Alternative, it is reasonable to expect that development of planned projects adjacent to the Rio Mesa Boulevard alignment would require construction of roadway access and utility infrastructure to serve those developments. Without the Project, it is possible, if not likely, that these facilities would be constructed in piecemeal fashion inconsistent with the applicable approved planning documents cited above. Installation of the utility infrastructure as part of the Project, as opposed to waiting to install the infrastructure later during future development on adjacent parcels, would serve to avoid or reduce the need for future disturbance within the roadway or utility rights-of-way and possible disruption to future residents or commercial uses.

5.4.10.2 Alternative 2 – Alternate Alignment

Under Alternative 2, Rio Mesa Boulevard would be constructed along an alternate alignment east of the proposed Project alignment. As discussed above, with the exception of the alignment, Alternative 2 is similar to the Project in terms of potential environmental effects, with no substantial difference in the significance of impacts between the Project and the Alternative 2. These areas included air quality, greenhouse gas emissions, hydrology and water quality. For other issues addressed above, key differences exist between the Project Alternative 2. However, Alternative 2 would deviate substantially from the Project is its lack of consistency the Madera County General Plan and the adopted Rio Mesa Boulevard OPL. This deviation results in Alternative 2's lack of access to properties and future planned uses adjacent to the proposed Project Rio Mesa Boulevard alignment that more closely follows the adopted OPL. As discussed above, the impact of Alternative 2 relative to its consistency with the General Plan and, more specifically, the OPL is considered significant under Impact 4.8-1. Furthermore, Alternative 2 would extend road access to properties further east of the Project that are not now planned for development. In doing so, it is reasonable to expect that Alternative 2 could induce or accelerate plans to develop these areas.

5.4.10.3 Alternative 3 – Two-Lane Roadway

The construction and operation of Alternative 3 would be similar to the proposed Project in all aspects with the following significant exceptions:

1. Rio Mesa Boulevard would be limited to two travel lanes under Alternative 3;
2. The width of the area disturbed by Rio Mesa Boulevard construction activities along the Project's roadway alignment would be reduced from 100 feet to 76 feet under Alternative 3;
3. Alternative 3 would be completed in a single construction phase; and
4. SR 41/Avenue 12 and Rio Mesa Boulevard/Avenue 12 intersection improvements proposed for Phase 2 of the Project would not be implemented under Alternative 3.

As noted above, Alternative 3 would implement all construction activities associated with Phase 1 of the proposed Project. In addition, Alternative 3 would construct various improvements proposed for Phase 2 of the Project including sidewalks, permanent landscaping, all curbs and gutters, bike lanes, and street lights. Additional grading and paving activities included in Phase 2 to expand Rio Mesa Boulevard to four lanes would not be done under Alternative 3. As discussed above in sections 5.4.2.3 and 5.4.2.5, respectively, air pollutant and GHG emissions would be reduced under Alternative 3 due to the 24-foot reduction in the width grading along the Rio Mesa Boulevard alignment relative to the Project. Emissions associated with construction of sidewalks, gutters and other ancillary features under Alternative 3 would be greater than those of the Phase 1 of the Project, but similar to those anticipated for projected for the Project's Phase 2. For both Alternative 3 and the Project, the air quality impact of construction and operation would be less than significant with implementation of mitigation identified for the proposed Project.

As discussed in sections 5.4.4 and 5.4.9, respectively, the impacts of the Project and Alternative 3 on Cultural and Tribal Resources are not substantively different, and impacts would be less than significant with implementation of mitigation identified for the proposed Project.

Biological resources impacts and mitigation requirements under Alternative 3 would be similar to those of the proposed Project. However, effects would be somewhat reduced given the smaller aerial extent of site grading under Alternative 3 relative to the Project and the reduced width of the proposed roadway. Unlike the Project, Alternative 3 would be completed in one phase and one construction season. The Project would require two phases of construction separated by years if not decades. The elimination of future construction activities under Alternative 3 is likely to benefit resident and migratory wildlife in areas surrounding the Project Area though this benefit would be temporary and limited only to the Phase 2 construction period.

Under Alternative 3, the ultimate extent of impervious surface area would be reduced relative to the Project given that eventual expansion of Rio Mesa Boulevard to four lanes would be avoided. Unlike the Project, Alternative 3 would be completed in one phase and one construction season. The Project would require two phases of construction separated by years if not decades. The elimination of future construction activities under Alternative 3 would avoid potential water quality impacts associated with a second phase of construction activities and disturbance. Aside from future Project expansion of the

roadway to four lanes, all other aspects of the Project, including drainage facilities and the treatment stormwater runoff (both during and after construction), would be similar under Alternative 3.

Construction noise under Alternative 3 at the nearest sensitive receptor would be similar to that expected during Phase 1 of Project construction. Noise associated with Phase 2 Project construction would be avoided under Alternative 3.

Alternative 3 would implement all elements of the Project with the exception of future expansion of Rio Mesa Boulevard to four lanes. This is a departure from the County General Plan and OPL in that the OPL identifies Rio Mesa Boulevard as a four-lane roadway and, based on projected 2042 traffic volumes for Rio Mesa Boulevard, the General Plan LOS standard for roadway and intersections would be exceeded without roadway expansion and intersection improvements included in the Project. (As discussed previously, although traffic congestion is no longer an impact under CEQA, consideration of levels of service is relevant in this DEIR for consideration of the County General Plan.)

5.4.10.4 Environmentally Superior Alternative

Based on the analysis presented above, the No Project Alternative (Alternative 1) is considered environmentally superior to the Project, Alternative 2 and Alternative 3. Under the No Project Alternative, all potential construction-related impacts associated with the Project and described in Chapter 4 of this DEIR would be avoided. While the analyses in Chapter 4 identify no significant and unavoidable impacts on environmental resources, mitigation measures required to reduce all potentially significant construction-related impacts to less-than-significant levels would be unnecessary under the No Project Alternative. As discussed in this DEIR, the Project is consistent with and, in some cases, a key element of, approved plans for transportation, growth and development in the Project area. Failure to construct the Project would hinder or obstruct implementation of those plans, which in turn, could result in long-term environmental consequences associated with the piecemeal development of roadway access and utilities installation that may occur in the absence of the Project. Despite this consideration, the No Project Alternative is still considered the environmentally superior alternative for purposes of this DEIR due to its avoidance of all construction-related impact that could occur under the Project and Alternatives 2 and 3. As discussed above, CEQA Guidelines Section 15126.6 provides that "If the environmentally superior alternative is the 'no project' alternative, the EIR shall also identify an environmentally superior alternative among the other alternatives."

With implementation of all mitigation measures presented in this DEIR, Project construction and operation would result in no impacts that are significant and unavoidable. As such, the implementation of Alternative 2 or Alternative 3 would not serve to eliminate any such impacts related to the Project. However, Alternative 3 is considered environmentally superior to the Project and Alternative 2 based on the substantially lower total area disturbed by construction that would occur relative to the Project and Alternative 2 and the complete elimination of a second phase of construction.

As noted above, Alternative 3 would implement all elements of the Project with the exception of future expansion of Rio Mesa Boulevard to four lanes. This is a departure from the County General Plan and OPL in that the OPL identifies Rio Mesa Boulevard as a four-lane roadway and, based on projected 2042 traffic volumes for Rio Mesa Boulevard, the General Plan LOS standard for roadway and intersections would be

exceeded without the roadway expansion to four lanes and the intersection improvements included in the Project. Nevertheless, for the reasons discussed above, Alternative 3 is considered the environmental superior alternative.

6 OTHER CEQA REQUIREMENTS

In addition to evaluation of impacts associated with the resources addressed in Chapter 4 and evaluation of alternatives to the Project as discussed in Chapter 5, CEQA requires that an EIR identify a project's significant and unavoidable environmental effects, significant and irreversible environmental changes, and growth inducement effects. Each of those issues is considered in this chapter.

6.1 Significant and Unavoidable Environmental Impacts

Section 21100(b)(2) of the Public Resources Code (PRC) provides that an EIR shall include a detailed statement setting forth, "In a separate section: (A) Any significant effect on the environment that cannot be avoided if the project is implemented. Sections 4.1 through 4.10 of this DEIR address the potential environmental effects of the Project based on the CEQA Guidelines Appendix G environmental checklist, consideration of comments on the IS/MND and subsequent NOP for this DEIR, and consideration of reasonably anticipated specific environmental effects. Although the analysis in Sections 4.1 through 4.9 found that without mitigation certain impacts are considered significant or potentially significant, in all instances, the analysis also found that these impacts could be reduced to less than significant with implementation of mitigation measures identified for each. No impact was identified that would remain significant with implementation of the mitigation measures identified in Chapter 4, and each of those mitigation measures is feasible. Therefore, the Project would not result in any impact that is significant and unavoidable.

6.2 Significant Irreversible Environmental Changes

CEQA Guidelines Section 15126(c) requires a discussion of the significant irreversible environmental changes that would be involved in a project should it be implemented. Specifically, Section 15126.2(d) advises that use of nonrenewable resources, "may be irreversible since a large commitment of such resources makes removal or nonuse thereafter unlikely. Primary impacts and, particularly, secondary impacts (such as highway improvement which provides access to a previously inaccessible areas) generally commit future generations to similar uses. Also, irreversible damage can result from environmental accidents associated with the project. Irretrievable commitments of resources should be evaluated to assure that such current consumption is justified." This section addresses these considerations.

The Project would result in the irreversible and irretrievable commitment of nonrenewable energy and material resources, and land, during construction and operation, including the following:

- construction materials, including such resources as aggregate roadbed, asphalt, concrete, and steel and PVC pipe;
- energy expended in the form of gasoline, diesel fuel, and oil for equipment and transportation vehicles that would be needed for project construction; and
- land area committed to the proposed new Rio Mesa Boulevard, Avenue 12 widening, and the establishment of the linked utility corridors.

As discussed previously, the Project would be constructed in two phases. The use of nonrenewable resources (construction materials and energy) to construct the Project represents a minor portion of the region's resources and are not anticipated to affect the availability of these resources for other needs within the region. Construction activities would not result in inefficient use of energy (see Section 4.10 above) or resources. In compliance with applicable SJVAPCD and CARB regulations governing air quality and emissions, construction contractors would be required to comply with equipment operating procedures that would avoid inefficient use of resources associated with construction. [The installation of all utilities with an approved capacity to accommodate the planned development on adjacent parcels as part of the Project's design and construction would minimize the resources needed to supply utilities when such parcels undergo development.

Long-term operation of the Project would consist primarily of roadway and utilities maintenance and the operation of streetlighting along the Rio Mesa Boulevard and Avenue 12 alignments. Energy use for the Project is addressed below in Section 6.3 of this DEIR. The Project as proposed would improve traffic circulation and reduce current and future VMT levels by providing shorter more direct access for Tesoro Viejo and development on other parcels adjacent to the Project Site consistent with the intent of the Circulation Concept Plan of the RMAP and the Official Plan Line. This would lead to lower fuel consumption by providing a logical and convenient alternative to SR 41 for trips south of Tesoro Viejo.

The Project would permanently disturb approximately 58 acres of land, which would be considered irreversibly and irretrievably devoted to the Project's use. This is a very small portion of land within Madera County and is consistent with the County's decisions associated with RMAP approvals. The Project also would provide road access to other of the parcels adjacent to the Project Site, which would facilitate the development of these parcels as contemplated by the RMAP and Official Plan Line. Providing access for development of these parcels has been determined by the County to be desirable.

6.3 Growth-Inducing Impacts of the Project

6.3.1 Regulatory Setting

CEQA Guidelines Section 15126.2(e)) states an EIR must include a discussion of the ways in which the proposed project could foster economic development or population growth, or the construction of additional housing either directly or indirectly, in the surrounding environment. Included in this are projects which would remove obstacles to population growth (a major expansion of a wastewater treatment plant might, for example, allow for more construction in service areas). Increases in the population may tax existing community service facilities, requiring construction of new facilities that could cause significant environmental effects. In accordance with Section 15126.2(e), an EIR must discuss the characteristic of some projects which may encourage and facilitate other activities that could significantly affect the environment, either individually or cumulatively. It must not be assumed that growth in any area is necessarily beneficial, detrimental, or of little significance to the environment.

6.3.2 Project Overview

As described in detail in Chapter 3 (Project Description) of this DEIR, the Project would construct an approximately 2.3-mile segment of new road, widen an approximately 2,200-foot segment of Avenue 12

to provide a connection between the SR 41/Avenue 12 intersection in the south to the southernmost point of the internal road network within the Tesoro Viejo Master Planned Community (Tesoro Viejo) to the north. The Project would also install utility infrastructure (natural gas, potable water, sewer, and drainage pipelines) within the roadway rights-of-way between Avenue 12 and Avenue 14 and along the linked utility corridors. The proposed road improvements would provide direct access to the southern boundary of the Tesoro Viejo development from the SR 41/Avenue 12 intersection and would provide access to future planned development on the parcels adjacent to the proposed roadway. Proposed utilities infrastructure would serve Tesoro Viejo and the parcels adjacent to the proposed roadway alignment. The Project is within the County-approved Rio Mesa Area Plan (RMAP) (County of Madera, 1995), and would implement transportation and utility connections consistent with land uses anticipated in the RMAP.

6.3.3 Project Consistency with Approved Plans

Land use decisions in the Project Area are governed by multiple plans. As noted above, the Project is located within Rio Mesa Plan Area (RMAP). "Area Plans" are planning documents that are subject to environmental review under CEQA, which may entail public circulation of CEQA documents for public comment, when required by CEQA. When adopted by the County, an Area Plan becomes part of the County's General Plan. The RMAP encompasses an area approved for growth by Madera County. Individual projects within the RMAP are required to have Specific Plans each of which is also subject to environmental review under CEQA, and which may entail public circulation of CEQA documents for public comment, when required by CEQA. If the project location does not fall within an existing Area Plan, an Area Plan must be prepared and adopted by the County prior to preparation and approval of the Specific Plan.

The RMAP anticipates development of an approximately 15,000-acre area of southeastern Madera County. The plan is intended to facilitate developer-initiated specific plans, subdivision maps, and other required entitlements. The RMAP serves as a policy document to provide the County with land use development decision-making guidance and to provide a planning framework for more detailed implementation plans and measures. It includes the following planning decisions made by the County that are relevant to the Project:

- Specifies land use types and development intensities throughout the RMAP area, including for the parcels that are adjacent to the Project Site. (RMAP, Exhibit 5, "Land Use Plan.")
- Establishes "conceptual" backbone circulation and infrastructure plans to serve the designated land use types, with the acknowledgment that the mapped road alignments and related infrastructure (including water supply, reclaimed water and sewerage facilities) "should be considered diagrammatic and subject to some adjustment based on more detailed design studies." (RMAP, page 50.)
- Recognizes it is "probable" that the RMAP road network and infrastructure would be built in phases, including, for example, building two-lane roads that could later be expanded to four lanes as the need arises. (RMAP, page 50.)

- Recognizes that infrastructure intended to serve the RMAP area should be sized "to serve the maximum level of development" for the area contemplated by the RMAP, including oversizing the facilities to meet the ultimate and intended requirements of the applicable land use intensities specified in the RMAP. (RMAP, pages 61, 83-84.)
- Acknowledges that roads and infrastructure could be developed as and where needed to service "logical subareas" of the larger RMAP area. (RMAP, pages 82-85, "Infrastructure Phasing".)

Areas that would be accessed by the Project segment of Rio Mesa Boulevard are included in the RMAP which has already been analyzed, planned, and approved for development. The Tesoro Viejo Specific Plan area, to which the Project would connect has also been analyzed, planned and approved. As noted, parcels adjacent to, and that would be accessed by, the Project segment of Rio Mesa Boulevard include the CMC and Paseo Pacifico Specific Plan which are currently in the development planning stage and will be subject to project-specific environmental reviews prior to development approvals. Though development of any given parcel may be in a different stage of entitlement or construction, all land served by the Project is subject to land use development plans that analyzed and approved prescribed development in the area.

The adopted Rio Mesa Boulevard Official Plan Line (OPL) specifies road cross-section geometrics for the Rio Mesa Boulevard alignment consisting of four 12-foot travel lanes (two in each direction) and 6-foot bike lanes, 3-foot curbs and gutters, 8-foot landscape boarders, 6-foot sidewalks, and 3-foot additional rights-of-way on each edge for a combined right-of-way width of 100 feet. The Project comports with these design parameters. Therefore, the Project is consistent with the RMAP's objectives and guidance and complies with and, with minor adjustments to portions of the alignment as discussed in the DEIR, implements the adopted OPL.

Additionally, adopted OPL identifies preliminary locations of joint utilities within the Rio Mesa Boulevard alignment, including underground natural gas distribution and joint trench utilities, water pipelines, recycled water pipelines, storm drains, sewer pipelines, natural gas distribution lines, and above-ground electrical transmission lines. As contemplated by the RMAP, utilities proposed to be installed as part of the Project have been sized to serve the ultimate and intended land use intensities specified, planned, and approved in the RMAP, or the adjacent properties.

Since the Project is planned to be constructed in advance of anticipated future development of the adjacent properties, the utility infrastructure proposed for the Project is sized to accommodate planned future demand, as envisioned in the approved RMAP. Additionally, installation of the utility infrastructure as part of the Project, as opposed to waiting to install the infrastructure later during future development on adjacent parcels, would serve to avoid or reduce the need for future disturbance within the Project rights-of-way. This approach provides for more efficient construction and reduces the potential for subsequent environmental impacts.

6.3.4 Growth Inducement

CEQA Guidelines Section 15126.2(e) requires a discussion of 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.

Overall, the Project would accommodate planned and previously approved economic or population growth and construction of housing in the surrounding environment. Section 6.4.3 discusses the applicable previously approved land use plans and infrastructure-related decisions that approved and govern the Project and development of parcels adjacent to the Project. To this end, the Project's utility and traffic capacity is sized to only meet the needs of planned development on adjacent parcels, consistent with the RMAP goals and the adopted OPL. Thus, economic or population growth, or construction of additional housing directly resulting from the Project has previously been reviewed, analyzed, and approved. The Project complies with all applicable land use and infrastructure plans, indicating that the Project would not contribute to unplanned economic or population growth, or unplanned additional housing.

The Project could also indirectly spur economic expansion and growth by providing access and utilities to parcels planned for development that occur along the Project alignment. The Project would help facilitate future development of the Community Medical Center and Paseo Pacifico developments, and continued development of Tesoro Viejo through proposed roadway construction and utilities infrastructure development. It is reasonable to assume that such development could spur significant local and regional economic growth, in keeping with goals and policies of the approved RMAP and Tesoro Viejo Specific Plan.

Such indirect growth would be subject to applicable land use regulations, approval procedures, development restrictions, entitlement requirements, and CEQA review, as applicable, and as discussed in Section 6.4.3. Therefore, the Project would remove some potential impediments to development in the surrounding environment, but substantial obstacles to that development would remain. Section 6.4.5, below, further discusses regulatory obstacles to growth.

Section 15126.2(e) also requires a discussion of projects which would remove obstacles to population growth (e.g., the establishment of an essential public service, or the provision of new access to an area).

In providing road access to areas which currently lack access and by providing essential infrastructure for the delivery of utilities such as water, sewer, natural gas, and storm drainage to parcels adjacent to the Project Site, the Project would remove existing impediments to future and ongoing development in those areas to be served by the roadway improvements and utilities. The development of these areas, and the development of roadway and utilities to support such development, is contemplated in the RMAP. Therefore, the Project is consistent with, and was contemplated in, governing land use and infrastructure plans. In addition, the Project would not remove all potential impediments to growth or development; future potential development would be subject to the regulatory framework governing land use in the area surrounding the Project.

Section 15126.2(e) also requires a discussion of the characteristics of the Project that may encourage and facilitate other activities that could directly or cumulatively significantly affect the environment. As noted, the Project would develop roadway and utilities infrastructure to serve future development of urban land uses on parcels adjacent to the Project Site consistent with the approved RMAP and approved or planned land uses for parcels adjacent to the Project Site.

The Project is consistent with infrastructure development guidelines contained within the 1995 RMAP and the specific refinements to that plan contained within County Resolution No. 2015-124 (as amended) to adopt an Official Plan Line and roadway geometrics for the Rio Mesa Boulevard alignment described above. As such, implementation of the Project would not require any precedent-setting action to be taken by the County of Madera. If the Project encourages and facilitates other activities that could significantly affect the environment, either individually or cumulatively, such activities would also be subject to the same land use and infrastructure development requirements governing and permitting the Project and would therefore not be unplanned.

6.3.5 Regulatory Obstacles to Growth

Typically, a project may have direct growth-inducing impacts if it provides public services, utilities, and roads to a previously undeveloped area. The introduction of infrastructure and services can result in growth inducing impacts by reducing development constraints for nearby areas, thereby inducing other landowners in the area to convert their properties to other uses. The Project would provide roadway access and utilities infrastructure to adjacent undeveloped parcels already identified for development in the RMAP but not yet approved, and ongoing development within the approved Tesoro Viejo Specific Plan area.

If the growth is not consistent with or accommodated by local land use plans and policies for the area affected, then the growth inducement may constitute an adverse impact. Local land use plans provide for land use development patterns and growth policies that allow for the orderly expansion of urban development supported by adequate urban public services. If a project conflicts with the local land use plans, that project could indirectly cause additional adverse environmental impacts and other public services impacts. To assess whether growth induced by a project would result in adverse environmental impact, it must be determined if that growth is inconsistent with approved and previously analyzed plans.

As described previously, the Project would accommodate land uses to be developed under the RMAP and is consistent with the Official Plan Line and design guidelines adopted by the County in Board Resolution 2015-124. The Project includes infrastructure improvements, only, and would not develop residential, commercial, or industrial uses, so any growth inducing impacts due to the Project would be indirect in nature. That is to say, the project itself would not add new residents or employees to the area but may help facilitate the planned development of housing or employment centers that could increase population and use in the areas served by the Project.

While the Project would remove existing impediments to growth by providing roadway access and utilities infrastructure for a portion of the area covered by the RMAP (i.e., the parcels adjacent to the Project Site), regulatory constraints governing future development of unapproved projects on the adjacent parcels remain. Development of land served by the Project has been previously analyzed, planned, and approved,

via the RMAP indicating that the Project complies with pre-existing land use and infrastructure development plans. In addition, future development of these parcels will require CEQA review and County approval. Whether development on these parcels achieve future approval, and the extent to which the environmental impact of such development is mitigable, is speculative at present. As noted, the prospect also exists that other parcels adjacent to the Project alignment may be proposed for development in the future.

Therefore, the Project is not expected to cause or facilitate any unplanned growth in areas served by the Project.

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7 LIST OF ACRONYMS AND ABBREVIATIONS

ACRONYM	DEFINITION
AB	Assembly Bill
AD	Anno Domini
ADD	Average Daily Demand
ADT	Average Daily Trips
AEP	Association of Environmental Planners
AIA	air impact assessment
AM	Ante meridiem
Amsl	Above mean sea level
APN	Assessor's Parcel Number
ATCM	Airborne Toxics Control Measure
ATP	Active Transportation Plan
BA	Biological assessment
Basin Plan	Water Quality Control Plan for the Sacramento River and San Joaquin River Basins
BAU	Business-as-usual
BC	Before Christ
BCC	Bird of conservation concern
BIOS	Biogeographic Information and Observation System
BLM	Bureau of Land Management
BMPs	Best Management Practices
BO	Biological Opinion
BP	Before present
BPS	Best Performance Standards
BRA	Biological Resources Assessment
CAA	Clean Air Act
CAAQS	California ambient air quality standards
CAL FIRE	California Department of Forestry and Fire Protection
CalEEMod	California Emissions Estimator Model
Caltrans	California Department of Transportation
CAPCOA	California Air Pollution Control Officers Association
CARB	California Air Resources Board
CBOC	California Burrowing Owl Consortium
CCAA	California Clean Air Act
CCR	California Code of Regulations
CDFW	California Department of Fish and Wildlife
CEQA	California Environmental Quality Act
CFR	Code of Federal Regulations
CH_4	Methane
CHRIS	California Historical Resources Information System
CI	*Coccidioides immitis*
CM	Coccidiomycosis

ACRONYM	DEFINITION
CMC	Community Medical Center
CNDDB	California Natural Diversity Database
CNEL	Community Noise Equivalent Level
CNPS	California Native Plant Society
CNRA	California Natural Resources Agency
CO	Carbon monoxide
CO_2	Carbon dioxide
CO_2e	Carbon dioxide equivalents
CRHR	California Register of Historic Resources
CRPR	California Rare Plant Rank
CTG	Control Techniques Guidance
CTR	California Toxics Rule
CTS	California tiger salamander
CVFPB	Central Valley Flood Protection Board
CVRWQCB	Central Valley Regional Water Quality Control Board
CWA	Clean Water Act
dBA	A-weighted noise levels
DEIR	Draft Environmental Impact Report
DOC	Department of Conservation
DPM	diesel particulate matter
DPS	Distinct Population Segment
DTSC	California Department of Toxic Substances Control
EA	Environmental Assessment
EB	Eastbound
EFH	Essential fish habitat
EIR	Environmental Impact Report
EO	Executive Order
ESA	Endangered Species Act
FDOT	Florida Department of Transportation
FEIR	Final Environmental Impact Report
FEMA	Federal Emergency Management Agency
FHWA	Federal Highway Administration
FR	Federal Register
FTA	Federal Transit Administration
General Plan	Madera County General Plan
GHG	Greenhouse gas
GLO	General Land Office
GSA	Groundwater Sustainability Agency
GSP	Groundwater Sustainability Plan
HCM	Highway Capacity Manual
HCP	Habitat Conservation Plan
HDR	High-Density Residential

ACRONYM	DEFINITION
HMMH	Harris Miller, Miller & Hanson Inc.
HRA	Health
HSC	Highway Service Commercial
IPCC	Intergovernmental Panel on Climate Change
IS	Initial Study
KDA	KD Anderson & Associates
LACMNH	Los Angeles County Museum of Natural History
LDR	Low-Density Residential
LF	Linear Feet
LI	Light Industrial
LOS	Level of service
LTS	Less than significant
MBTA	Migratory Bird Treaty Act
MCTC	Madera County Transportation Commission
MDR	Medium-Density Residential
MLD	Most Likely Descendant
MND	Mitigated Negative Declaration
MPO	Metropolitan Planning Organization
MSL	Mean sea level
MUTCD	Manual on Uniform Traffic Control Devices
N_2O	Nitrous oxide
NAAQS	National Ambient Air Quality Standards
NAHC	Native American Heritage Commission
NB	Northbound
NCCP	Natural Community Conservation Plan
NFIP	National Flood Insurance Program
NHPA	National Historic Preservation Act
NIOSH	National Institute for Occupational Safety and Health
NMFS	National Marine Fisheries Service
NO_2	Nitrogen dioxide
NOA	Notice of Availability
NOI	Notice of Intent
NOP	Notice of Preparation
NOx	Nitrous oxides
NPDES	National Pollution Discharge Elimination System
NPPA	Native Plant Protection Act
NPS	National Park Service
NRCS	Natural Resource Conservation Service
NRHP	National Register of Historic Places
NTR	National Toxics Rule
O_3	Ozone
OHP	Office of Historic Preservation

ACRONYM	DEFINITION
OHWM	Ordinary high-water mark
OPL	Official Plan Line
OPR	Office of Planning and Research
OSHA	U.S. Department of Labor Occupational Safety and Health Administration
PM	Post meridiem
PM_{10}	Course particulate matter
$PM_{2.5}$	Fine particulate matter
ppm	Parts per million
PPV	Peak particle velocity
PRC	Public Resources Code
Project	Rio Mesa Boulevard Project
RACT	Reasonably Available Control Technology
RMAP	Rio Mesa Area Plan
RMM	Remy, Moose and Manley, LLP
RMS	Root mean square
ROG	Reactive Organic Gas
RTP	2018 Regional Transportation Plan
RWQCB	Regional Water Quality Control Board
SAA	Streambed Alteration Agreement
SB	Senate Bill
SB	Southbound (Transportation chapter only)
SCH	State clearinghouse
SCS	Sustainable Communities Strategy
SFHAs	Special flood hazard areas
SGMA	Sustainable Groundwater Management Act
SIP	State Implementation Plan
SJVAB	San Joaquin Valley Air Basin
SJVAPCD	San Joaquin Valley Air Pollution Control District
SJVAQMD	San Joaquin Valley Air Quality Management District
SO_2	Sulfur dioxide
SPWN	Spawning, Reproduction, and/or Early Development, Warm
SR	State Route
SSC	Species of special concern
SSJVIC	Southern San Joaquin Valley Information Center
STC	Sound Transmission Class
SWPPP	Stormwater Pollution Prevention Plan
SWRCB	State Water Resources Control Board
TACs	Toxic air contaminants
TCRs	Tribal Cultural Resources
TIA	Traffic Impact Analysis
TMDL	Total maximum daily load
TRBL	Tricolored blackbird

ACRONYM	DEFINITION
TVSP	Tesoro Viejo Specific Plan
UCMP	University of California Museum of Paleontology
USACE	U.S. Army Corps of Engineers
USBR	U.S. Bureau of Reclamation
USC	U.S. Code
USEPA	U.S. Environmental Protection Agency
USFWS	U.S. Fish and Wildlife Service
USGS	United States Geologic Survey
VLR	Very Low Residential
VMT	Vehicle miles traveled
VOC	Volatile Organic Compounds
WB	Westbound
WBWG	Western Bat Working Group
WDRs	Waste Discharge Requirements
WEAL	Western Electro-Acoustic Laboratory, Inc.
WRCC	Western Regional Climate Center
$\mu g/m^3$	Micrograms per cubic meter

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8 LIST OF PREPARERS

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