Public Review Draft

CASTELLINA SPECIFIC PLAN

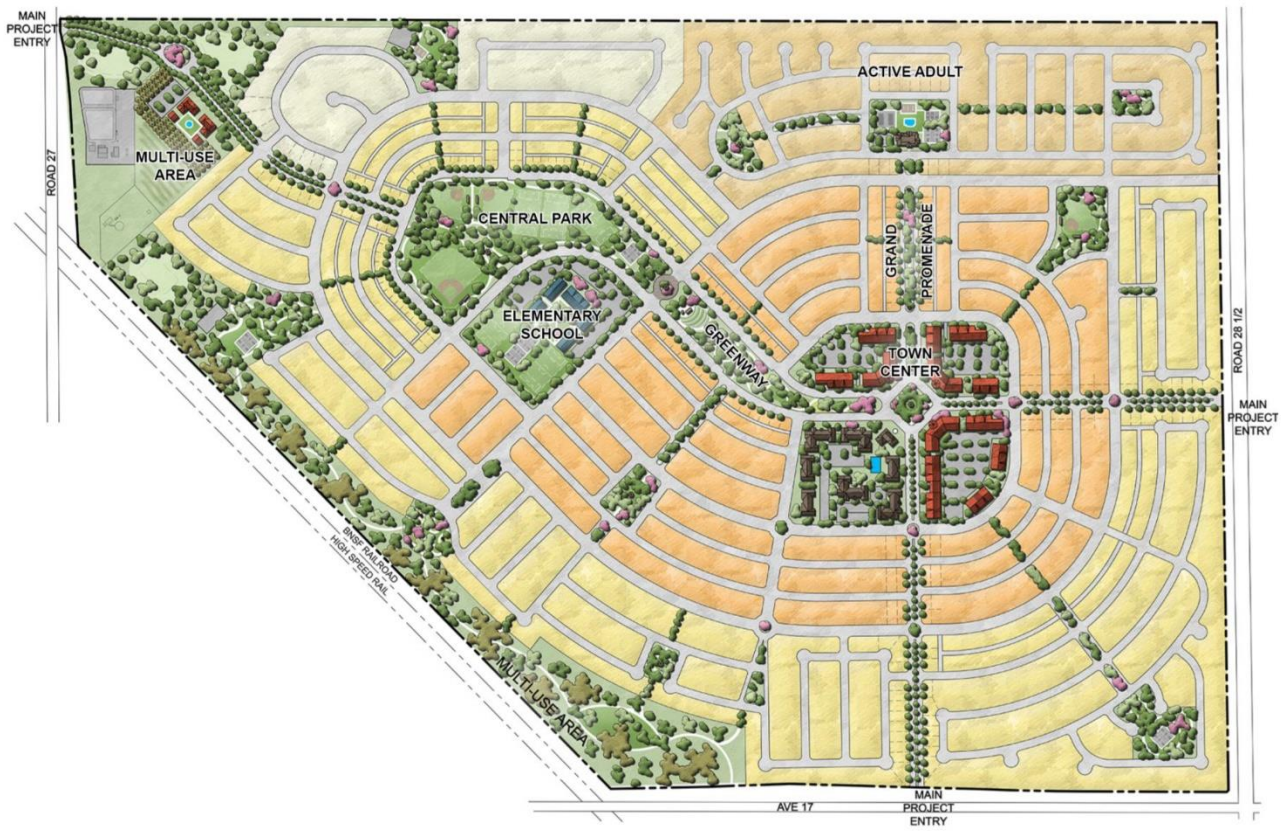
Environmental Impact Report

State Clearinghouse No. 2017041022

Prepared for
County of Madera

October 2021

ESA



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EXECUTIVE SUMMARY

ES.1 Introduction

Castellina, LLC (Project Applicant or Applicant) has requested entitlements from the County of Madera (County) that would provide for development of a master planned mixed-use community on an approximately 792-acre site in unincorporated Madera County northeast of the City of Madera. The requested entitlements require discretionary approvals by the County. In accordance with the California Environmental Quality Act (CEQA) (Public Resources Code (PRC) §§21000 et seq.), the County must conduct environmental review prior to considering approval of the requested entitlements, and the County has determined to prepare an Environmental Impact Report (EIR). This Draft EIR has been prepared to be circulated for public review and the County will prepare and consider certification of a Final EIR prior to making decisions of whether to approve the requested entitlements.

In accordance with CEQA Guidelines Section 15123, this section of this Draft Environmental Impact Report (EIR) contains a summary of the Castellina Specific Plan (proposed Program, Specific Plan Program, or Program) and the first phase of the Specific Plan (Phase 1 Project) and their environmental effects. Collectively, the proposed Program and Phase 1 Project are the proposed development (proposed Project or Project). More detailed information regarding the proposed Project and its potential environmental effects is provided in the following sections of this Draft EIR. The County of Madera is the CEQA lead agency for the proposed Project. Included in this summary is an overview of the Project location and setting, Project objectives, Project characteristics, Project approvals, Project alternatives, areas of known controversy; and a summary of the Project's impacts and mitigation measures.

ES.2 Project Location and Setting

The proposed Project is located in Madera County, in the Central Valley region of California. The Castellina Specific Plan site (Project site, Specific Plan Program site, or Program site) is located approximately one-mile north of the City of Madera, three miles east of Highway 99, and roughly 16 miles south of the City of Chowchilla. Specifically, the Specific Plan Program site is bound by the Avenue 18 alignment to the north, Road 28½ to the east, the alignment of Avenue 17 to the south, Road 27 to the west, and the Burlington Northern Santa Fe (BNSF) railroad line to the southwest.

The Specific Plan Program site is relatively flat ranging in elevation from approximately 280 feet National Geodetic Vertical Datum (NGVD) in the northwest corner to approximately 310 feet NGVD at the east end of the Specific Plan Program site. Currently, the Specific Plan Program site is used for agricultural production and contains almond and fig orchards, related agricultural support facilities (e.g., equipment storage), wells, and unimproved dirt roadways. There are five wells located within the Specific Plan Program site that draw groundwater from the Madera

groundwater basin. Based on data provided by the property owners and engineering estimates, the existing agricultural operations pump approximately 2,800 acre-feet per year (AFY) of groundwater, which is equivalent to nearly 912 million gallons per year. The Specific Plan Program site is designated as a New Growth Area (NGA) in the Madera County General Plan and has a zoning designation of Agricultural Rural Exclusive 40-Acres (ARE-40).

Similar to the Specific Plan Program site, many of the surrounding lands have been highly modified for agricultural purposes or otherwise developed as roads, individual residences, residential subdivisions, and commercial centers. Adjacent land uses to the Specific Plan Program site include rangelands to the north, orchards to the east, and rural residential land uses to the south and west (refer to Figure 2-2). Surrounding land use designations include Agricultural Exclusive (AE), Rural Residential (RR), Very Low Density Residential (VLDR), and Agricultural Residential (AR). Surrounding zoning designations include ARE-40, Agricultural Rural 5-Acre (AR-5), and Rural Residential Single Family/ Manufactured Housing Architectural Districts (RRS/MHA Districts). The extension of Avenue 17 does not presently exist and Avenue 18 terminates at Road 27. The Specific Plan Program site can be accessed via Road 27 and Road 28½ on the west and east sides, respectively.

ES.3 Project Objectives

The primary objectives for the proposed Project are to:

1. Provide a master planned community with residential and commercial of sufficient scale to permit master-planning of infrastructure, parks, open space, and public services to achieve efficiencies and synergies to create a community that can provide for the special social, recreational, and housing needs of its residents, visitors and employees
2. Provide a village and neighborhood-oriented community designed to encourage an active and healthy quality of life.
3. Plan for the inclusion of a proposed elementary school site that is integrated into the overall land plan and is readily accessible via non-vehicular pathways to residential neighborhoods and parks.
4. Provide a transportation and circulation network designed to accommodate all modes of transportation.
5. Establish a mixed-use Town Center to serve as land uses that provide an activity hub to enhance the community experience and support the residents, visitors and employees within the Specific Plan Program site.
6. Provide employment opportunities to assist in meeting Madera County's employment goals.
7. Provide a broad mix of housing to contribute to meeting the housing demand in Madera County.
8. Provide a range of housing types within the Specific Plan Program site.
9. Establish one or more Community Facilities Districts (CFD) or other similar financing mechanisms to develop and maintain the necessary infrastructure (e.g., water, sewer, storm drain, parks, open space, and roadways) to create a fiscally neutral development Program for Madera County.
10. Plan to extract no more groundwater than is recharged to the aquifer each year, consistent with Madera County goals and sound water conservation practices.

ES.4 Project Characteristics

Proposed Program

The Specific Plan Program would guide the development of up to 3,072 residential units, approximately 21 acres of commercial mixed-use, and approximately 132 acres of parks, trails, plazas, community gardens, and other open space across the 792-acre Specific Plan Program site. Residential development would be divided across five villages, including a centralized commercial mixed use Town Center. The residential villages would be designed around a framework of parks and recreation facilities to encourage a walkable community and active community interaction. Each village will be organized in a traditional modified grid roadway pattern, with a minimal number of cul-de-sacs. Development under the Specific Plan Program would also require the construction of new utilities, such as a new wastewater treatment plant (WWTP) and storm drain system, a new water supply system, and provide additional public services, including a proposed elementary school, to serve the new population.

The Specific Plan Program would accommodate a range of residential land use designations and zoning districts, consisting of very low, low-, medium-, and high-density residential uses. As further described in Chapter 2, Project Description, of this Draft EIR, residential uses would be allowed in residential and town center mixed-use land use designations and zoning districts. The aim of the overall residential structure is to locate the very low- and low-density residential lots in the western and outer areas of the Specific Plan Program, with a balance of high- and medium-density housing located centrally nearer to the Town Center and central green spaces. The density of residential units would decrease from the Town Center, where there would be attached and multi-family units, to the periphery, where there will be less dense single-family detached housing, including estate lots. Large estate lots would be located in the northwestern area of the Specific Plan Program site, oriented around such features as vineyards, a community garden, or some other appropriate amenity. The Specific Plan Program includes a Conceptual Village Structure, which is comprised of five villages, each with a mix of land uses and residential densities and its own distinctive character.

In addition to residential uses, the Specific Plan Program would provide a mix of commercial, office, retail, civic, institutional, and residential uses within the proposed Castellina Town Center Mixed-Use (C-TCMU) land use designation and zoning district. The C-TCMU land use designation and zoning district allows for up to 134,000 sf of commercial uses including retail, office, civic, and institutional.

The Specific Plan Program also includes the Castellina Park and Open Space (C-POS) land use designation and zoning district. The C-POS land use designation and zoning district allows for approximately 132 acres of parks and other open spaces on the Specific Plan Program site. The parks and open spaces, located throughout the Specific Plan Program site would serve as social gathering spaces as well as centers for recreation activities, education and community functions, and aesthetic features.

The circulation system within the Specific Plan Program site would be designed as a comprehensive road network that provides both vehicular and non-vehicular mobility throughout

the community. Vehicle access to the Specific Plan Program site would be provided by four access points; one via Road 27, one via Avenue 17, subject to the High Speed Rail Authority construction of the overpass and roadway, and two access points along Road 28½. The County of Madera and the Project Applicant are coordinating with the California High Speed Rail Authority (CHSRA) regarding the construction of Road 27 and Avenue 17 design and construction of the overpasses at the railroad tracks. Three Parkway Entry roadways would serve as the primary entrances into the Specific Plan site and would be located on Road 27 in the northwestern corner, Avenue 17 to the south, and Road 28½ to the east. Vehicle circulation within the Specific Plan Program site would be provided by an inner loop road collector between the mixed-use Town Center and medium density neighborhoods, and an outer loop collector that provides access to both low and medium density residential neighborhoods and their parks, the Active Adult community, and the elementary school. Bicycle facilities would be integrated throughout the Specific Plan Program site through Class I[1] bikeways, Class II[2] bikeways, and separated off-street multiuse paths. In addition to bicycle facilities, the Specific Plan Program site would include a network of sidewalks and pedestrian paths, such as the Grand Promenade, Town Center and Village Green, to allow for walkability and connection throughout the Specific Plan Program site. Offsite roadway improvements to the surrounding Avenue 17, Road 27, and Road 28½ could include installation of roundabouts, traffic signals, and other intersection controls.

Transit service in Madera County is currently provided by Madera County Connection. It presently provides service via three routes: Eastern Madera County- Madera; Chowchilla-Fairmead-Madera; and Eastin Arcola-Ripperdan-La Vina.

Additionally, implementation of the proposed Program would require the construction of public facilities and services to serve the land uses proposed in the Specific Plan Program site. Services include: water, wastewater, storm drainage, dry utilities, and solid waste disposal. A Water Supply Assessment (WSA), consistent with the requirements of Water Code Section 10910 et seq has been conducted and identifies that the water supplies for the Program will be sufficient to meet the Program's water demands over a 20-year horizon as discussed in Section 3.9, Hydrology and Water Quality and Section 3.16, Utilities and Service Systems in this EIR.

The Specific Plan Program includes the construction of a wastewater treatment plant (WWTP) that will be operated by a qualified entity. The Madera County General Plan goals and policies require new development to install non-potable recycled water infrastructure for irrigation of landscaped common areas where feasible and cost effective. Wastewater from the proposed WWTP would be treated to a tertiary-quality effluent level that would meet State Title 22 recycling criteria for unrestricted irrigation uses.

Gas and electric service for the proposed Program would be provided by Pacific Gas and Electric Company (PG&E). Telecommunications services would be provided by Verizon or other service provider(s) at the time of construction.

1 Class I bikeways are referred to as bicycle paths and are completely separated from the roadway.

2 Class II bikeways are referred bike lanes and provide a striped lane for one-way bike travel on a street and typically includes lane symbols and markings placed within the bike lanes.

The development of the Specific Plan Program will include several phases. Some phases may be implemented by the Applicant; however, other phases may be implemented by other applicants. The buildout of the Castellina Specific Plan is estimated to occur for approximately 15 years until sometime between 2035 and 2040.

Phase 1 Project

The Phase 1 Project would include the development of one low-density neighborhood, consisting of 67 residential units over 16.7 acres, and the one very low-density neighborhood, comprised of 50 residential units over 17.8 acres. Additionally, the Phase 1 Project includes an entry and collector roads encompassing 9.5 acres, and open space/multi-use area, and a park area encompassing 34.9 acres, and the WWTP site, water wells and facilities consisting of 17.1 acres in the northwestern corner of the Specific Plan Program site. The new Parkway Entry roadway would provide access to these two neighborhoods from Road 27. The first phase of the WWTP would be constructed along with adequately-sized stormwater storage and detention/retention basins. Recycled water produced by the WWTP will be used to irrigate parks and streetscapes constructed with the Phase 1 Project site. Remaining recycled water not used by the Phase 1 Project elements will be used to irrigate operational orchards within the remaining portions of the Specific Plan Program site. Water will be derived either from an existing well or the construction of a new well within the Specific Plan Program site.

Roadways shown within each phase would be improved and constructed per the applicable road cross sections included in the Specific Plan, Madera County Code requirements, and be approved by the Madera County Public Works Director, as applicable. This includes paving for sidewalks, paths, and travel lanes, landscaping, lane and crosswalk striping, traffic signals, roundabouts, street furnishings such as signs and benches; and all infrastructure within the right-of-way.

All utilities including water, wastewater, storm drain, recycled water, telephone, cable, electricity, and gas would be installed to all parcels prior to issuance of the appropriate permit. All utilities would be fully operational prior to building occupancy, as applicable. Connections would be constructed so that future phases can connect to previously-installed utility infrastructure.

The construction activities associated with the Phase 1 Project are anticipated to be completed within one year once initiated. The anticipated completion of the Phase 1 Project construction is approximately 2025.

ES.5 Project Approvals

Below is a list of the anticipated discretionary permits requiring approval by the County of Madera:

- Certification of the Castellina Specific Plan Final EIR, including the Findings of Fact and Mitigation Monitoring and Reporting Program and a Statement of Overriding Considerations by the Board of Supervisors is required.
- Adoption of a General Plan Amendment to allow the uses proposed within the Castellina Specific Plan is required from the Board of Supervisors.

- Adoption of the Castellina Area Plan. Approval of an Area Plan to allow the proposed land uses is required from the Board of Supervisors.
- Adoption of the Castellina Specific Plan. Approval of the proposed Specific Plan Program to allow the proposed land uses and development regulations is required from the Board of Supervisors.
- County Code, Zoning Text and Zoning Map Amendments. Approval of amendments to the County Code, Zoning Text and Zoning Map to allow the proposed Program is required from the Board of Supervisors.
- Approval of Large Lot Tentative Map. Approval of the proposed Large Lot Tentative Map is required by the Board of Supervisors.
- Approval of Development Agreement. Approval of a Development Agreement is required for the implementation of the proposed Program from the Board of Supervisors.
- Approval of Tentative Map for the Phase 1 Project. Approval of the Tentative Map for the Phase 1 Project is required from the Board of Supervisors.
- Approval of Tentative Tract Map(s). Approval of tentative tract maps from the Board of Supervisors is required.
- Approval of Water Supply Assessment. Approval of the proposed Program's Water Supply Assessment from the Board of Supervisors is required.
- Approval of Grading Permit(s). Approval of grading permits from the Public Works Department is required.
- Final Map(s) Approval and Recordation. Approval of Final Maps from the Board of Supervisors is required.
- Approval of Infrastructure Master Plan. Approval of an Infrastructure Master Plan from the Board of Supervisors is required.
- Approval of Building Permits. Approval of building permits from the Building Division is required.
- Approval of Tree Removal Permit(s). Approval of tree removal permit(s) from the Planning Department is required.
- Approval of Well Construction Permit(s). Approval of Well Construction Permits from the Environmental Health Department is required.

Other Agencies Whose Approval May Be Required

Other government agencies that may have some level of approval for one or more components of the proposed Program and/or the Phase 1 Project include:

- California Department of Fish and Wildlife – Potential approval of a Streambed Alteration Agreement pursuant to Section 1600 of the Fish and Game Code.
- California Department of Health Services – Potential approval for public water system permits and water reclamation permits.
- California Department of Transportation – Potential approval of improvements to Caltrans facilities.

- California State Water Resources Control Board – Division of Drinking Water:
  - Water System Permit prior to constructing or operating the potable water treatment plant; and
  - (in conjunction with RWQCB) authorization for on-site and off-site recycled water use through acceptance of a Title 22 Engineering Report.
- California Public Utilities Commission – Potential approval of electrical facilities proposed to serve the Project.
- Madera Unified School District – Approval for the construction of new school facilities.
- Regional Water Quality Control Board:
  - Approval of Recycled Water Use and Wastewater Treatment System;
  - National Pollution Discharge Elimination System (NPDES) stormwater permit under Section 402 of the Clean Water Act (CWA), as well as approval of Section 401 Water Quality Certification of Waiver;
  - Waste Discharge Requirement for operation of the wastewater facility; and
  - Recycled water use authorization (in coordination with the SWRCB's DDW) through acknowledgement of compliance with the State General Permit for Recycled Water (Order 2016-0068) or through the issuance of a Master Permit for recycled water use.
- San Joaquin Valley Air Pollution Control District – Approval of potential stationary operating permits.

ES.6 Project Alternatives

The No Program Alternative and two alternatives to the proposed Program are described and evaluated within Chapter 5 of this Draft EIR and are considered to represent a reasonable range of alternatives to the proposed Program. Following are the alternatives to the proposed Program.

Alternative 1: No Program/Development in Accordance with Existing Zoning. The CEQA Guidelines require EIRs to evaluate the "no project" alternative to allow decision makers to compare the impacts of approving the proposed project with the impacts of not approving the proposed project. In accordance with CEQA Guidelines section 15126.6(e)(2), "the 'no project' analysis shall discuss the existing conditions at the time the notice of preparation is published, or if no notice of preparation is published, at the time environmental analysis is commenced, as well as what would be reasonably expected to occur in the foreseeable future if the project were not approved, based on current plans and consistent with available infrastructure and community services."

For this Draft EIR, the "no project" alternative is referred to as the "No Program/Development in Accordance with Existing Zoning" alternative. This alternative is based on the development that is reasonably expected to occur in the foreseeable future if the proposed Program is not approved. Accordingly, the No Program/Development in Accordance with Existing Zoning Alternative assumes that the Castellina Specific Plan Program is not approved or implemented and that future development within the Program site occurs consistent with the existing zoning designation. Based on the existing zoning of Agricultural Rural Exclusive 40 Acres, the Program site could be

subdivided in 36-acre increments and two residences are allowed on each subdivided property. These two residences include a primary single family residence and one secondary single family residence. On the 792-acre Program site, a total of 22 36-acre parcels could be created allowing for development of 22 primary and 22 secondary residences for a total of 44 residences. Because limited residential development would be allowed to occur on the Program site, it is assumed that the Program site would continue agricultural production and the related agricultural support facilities (e.g., equipment storage), wells, and unimproved dirt roadways would remain. There are five wells located within the Specific Plan site that draw groundwater from the Madera groundwater basin for existing agricultural uses. As stated above, this alternative was selected for evaluation because the CEQA Guidelines Section 15126.6(e) requires the evaluation of a No Project Alternative which, in this case, is the No Program/Development in Accordance with Existing Zoning Alternative.

Alternative 2: Increased Employment. Alternative 2 includes the development of up to 2,984 residential units, approximately 21 acres (268,000 square feet) of commercial mixed-use, approximately 20 acres (446,000 square feet) of employment park (office/business park) and approximately 137 acres of parks, trails, plazas, community gardens, and other open space across the 792-acre site. This alternative includes slightly fewer residences and less residential population and substantially more commercial/office area and employment opportunities compared to the proposed Program. Similar to the Program, this alternative would include the construction of new utilities, such as a new wastewater treatment plant (WWTP) and storm drain system, a new water supply system, and provides additional public services, including a proposed elementary school, to serve the new population. This alternative would increase commercial, office and public uses to provide services for the future residents of the Program as well as supplement existing services for the current residential population within Madera County. Furthermore, this alternative includes a reduction of residential units that could reduce railway noise exposure to residents, reduce the need for public services and reduce the need for recreation compared to the proposed Program.

Alternative 3: Increased Active Adult Community. Alternative 3 includes a substantial increase in the number of residential units within the Active Adult Community which is an age-restricted senior community. Alternative 3 includes the development of up to 3,129 residential units, approximately 13.8 acres (165,600 square feet) of commercial retail, and approximately 94.5 acres of parks, trails, plazas, community gardens, and other open space across the 792-acre site. Although this alternative includes more residential units compared to the Program, the increase in age-restricted residential units (approximately a 1.8 percent increase) would result in a substantial decrease in residential population (approximately a 11 percent decrease) since age-restricted units are assumed to have an average of 2.0 persons per household whereas non-age restricted units are assumed to have an average of 3.7 persons per household. This alternative includes an increase in employment opportunities (approximately 20 percent increase in employees) compared to the proposed Program. Similar to the proposed Program, this alternative would include the construction of new utilities, such as a new wastewater treatment plant (WWTP) and storm drain system, a new water supply system, and provides additional public services, including a proposed elementary school, to serve the new population. This alternative

would reduce the residential population and reduce environmental impacts associated with air quality, greenhouse gas, public services, recreation, vehicle miles traveled, and energy as compared to the proposed Program.

ES.7 Areas of Known Controversy

Section 15123(b)(2) of the CEQA Guidelines requires that an EIR identify areas of controversy known to the lead agency, including issues raised by other agencies and the public. While significant issues of controversy have not been raised during the Draft EIR preparation process, the main comments submitted on the Notice of Preparation (NOP) during the public review and comment period include air emissions, hazards and hazardous materials, land use compatibility associated with the railroad, noise, public services, wastewater and water supply, cumulative impacts, and growth impacts. Environmental effects associated with each of these topics are discussed and evaluated in this EIR.

ES.8 Environmental Impacts and Mitigation Measures

This section provides a summary of impacts, mitigation measures, and level of impact after implementation of mitigation measures associated with the proposed Project, which includes analyses for the Phase 1 Project and proposed Program. Detailed analyses of these topics are included within Chapter 3 of this Draft EIR. The summary is provided by environmental issue area below in **Table ES-1**, *Summary of Environmental Impacts and Mitigation Measures*.

TABLE ES-1
SUMMARY OF ENVIRONMENTAL IMPACTS AND MITIGATION MEASURES

Impacts	Significance before Mitigation	Mitigation Measures	Significance after Mitigation
3.1 Aesthetics			
Scenic Vistas			
Impact 3.1-1a: The Phase 1 Project would result in a less than significant and less than cumulatively considerable scenic vista impact.			
Phase 1 Project	Less than Significant	No mitigation measures are required.	Less than Significant
Phase 1 Project Cumulative	Less than Significant	No mitigation measures are required.	Less than Significant
Impact 3.1-1b: The proposed Program would result in a less than significant and less than cumulatively considerable scenic vista impact.			
Program	Less than Significant	No mitigation measures are required.	Less than Significant
Program Cumulative	Less than Significant	No mitigation measures are required.	Less than Significant
Scenic Resources within a State Scenic Highway			
Impact 3.1-2a: The Phase 1 Project would have a less than significant and less than cumulatively considerable impact on scenic resources impacts including, but not limited to, trees, rock outcroppings, and historic buildings within a state scenic highway.			
Phase 1 Project	Less than Significant	No mitigation measures are required.	Less than Significant
Phase 1 Project Cumulative	Less than Significant	No mitigation measures are required.	Less than Significant
Impact 3.1-2b: The proposed Program would have a less than significant and less than cumulatively considerable impact on scenic resources impacts including, but not limited to, trees, rock outcroppings, and historic buildings within a state scenic highway.			
Program	Less than Significant	No mitigation measures are required.	Less than Significant
Program Cumulative	Less than Significant	No mitigation measures are required.	Less than Significant
Visual Character			
Impact 3.1-3a: The Phase 1 Project is located within a non-urbanized area and would result in a less than significant and less than cumulatively considerable impact on the existing visual character or quality of public views of the site and its surroundings.			
Phase 1 Project	Less than Significant	No mitigation measures are required.	Less than Significant
Phase 1 Project Cumulative	Less than Significant	No mitigation measures are required.	Less than Significant
Impact 3.1-3b: The proposed Program is located within a non-urbanized area and would result in a significant and cumulatively considerable impact on the existing visual character or quality of public views of the site and its surroundings.			
Program	Significant	**AES-1:** Prior to the issuance of a final subdivision map for each phase of the Specific Plan Program, the applicant shall prepare and submit to the County for review and approval a landscape master plan that is consistent with the landscape guidelines established in the Landscape Design Guidelines.	Significant and Unavoidable

Impacts	Significance before Mitigation	Mitigation Measures	Significance after Mitigation
Program Cumulative	Significant	Implementation of Mitigation Measure AES-1 is required.	Significant and Unavoidable
Light and Glare			
Impact 3.1-4a: The Phase 1 Project would result in a significant and cumulatively considerable light and glare impact on nighttime views in the Project area.			
Phase 1 Project	Significant	**AES-2:** Lighting systems for the proposed Phase 1 Project entry road shall include shields to direct light to the roadway surface. Vertical shields on the light fixtures shall be used to direct light away from adjacent light sensitive land uses such as the residences located west of Road 27. The shields shall prohibit light rays from the fixtures at angles above the horizontal plane. High-intensity discharge lamps, such as mercury, metal halide and high-pressure sodium lamps shall be prohibited. **AES-3:** Lighting fixtures for the proposed entry road landscaping shall include shields to direct light to the landscape and vertical shields on the light fixtures shall be used to direct light away from adjacent light sensitive land uses. High-intensity discharge lamps, such as mercury, metal halide and high-pressure sodium lamps shall be prohibited. **AES-4:** Materials used on building facades shall be non-reflective.	Less than Significant
Phase 1 Project Cumulative	Significant	Implementation of Mitigation Measures AES-2 through AES-4 is required.	Less than Significant
Impact 3.1-4b: The proposed Program would result in a significant and cumulatively considerable light and glare impact on nighttime views in the Project area.			
Program	Significant	Implementation of Mitigation Measure AES-4 is required. **AES-5:** Lighting systems for street and parking area shall include shields to direct light to the roadway surfaces and parking areas. Vertical shields on the light fixtures shall also be used to direct light away from adjacent light sensitive land uses such as the residences located south of the Program site, west of Road 27 and west of the railroad tracks. **AES-6:** Lighting systems for parks and active play areas shall provide adequate illumination for the activity; however, low intensity light fixtures and shields shall be used to minimize spillover light onto adjacent properties. **AES-7:** Lighting systems for the proposed Town Center uses (a mix of residential, commercial, civic, retail, restaurant, and office uses) shall provide shields on the light fixtures and orient the lighting system away from adjacent properties. Low intensity light fixtures shall also be used if excessive spillover light onto adjacent properties occur.	Significant and Unavoidable
Program Cumulative	Significant	Implementation of Mitigation Measures AES-4 through AES-7 is required.	Significant and Unavoidable

Impacts	Significance before Mitigation	Mitigation Measures	Significance after Mitigation
3.2 Agricultural and Forestry Resources			
Convert Farmland to Non-Agricultural Use			
Impact 3.2-1a: The Phase 1 Project would have significant and cumulatively considerable impacts from the conversion of Prime Farmland, Unique Farmland, or Farmland of Statewide Importance (Farmland) as shown on maps prepared pursuant to the Farmland Mapping and Monitoring Program of the California Resources Agency to non-agricultural use.			
Phase 1 Project	Significant	No feasible mitigation measures are available.	Significant and Unavoidable
Phase 1 Project Cumulative	Significant	No feasible mitigation measures are available.	Significant and Unavoidable
Impact 3.2-1b: The proposed Program would have significant and cumulatively considerable impacts from the conversion of Prime Farmland, Unique Farmland, or Farmland of Statewide Importance (Farmland) as shown on maps prepared pursuant to the Farmland Mapping and Monitoring Program of the California Resources Agency to non-agricultural use.			
Program	Significant	No feasible mitigation measures are available.	Significant and Unavoidable
Program Cumulative	Significant	No feasible mitigation measures are available.	Significant and Unavoidable
Conflict with Existing Zoning or Williamson Act Contract			
Impact 3.2-2a: The Phase 1 Project would have significant and cumulatively considerable impacts from conflicts with existing zoning for agricultural use, or a Williamson Act Contract.			
Phase 1 Project	Significant	No feasible mitigation measures are available.	Significant and Unavoidable
Phase 1 Project Cumulative	Significant	No feasible mitigation measures are available.	Significant and Unavoidable
Impact 3.2-2b: The proposed Program would have significant and cumulatively considerable impacts from conflicts with existing zoning for agricultural use, or a Williamson Act Contract.			
Program	Significant	No feasible mitigation measures are available.	Significant and Unavoidable
Program Cumulative	Significant	No feasible mitigation measures are available.	Significant and Unavoidable
Involve Other Changes Resulting in the Conversion to Non-Agricultural Use and Conversion to Non-Forest Use			
Impact 3.2-3a: The Phase 1 Project would involve other changes in the existing environment, due to their location or nature, that would result in the conversion of Farmland to non-agricultural use or conversion of forest land to non-forest use.			
Phase 1 Project	Significant	No feasible mitigation measures are available.	Significant and Unavoidable
Phase 1 Project Cumulative	Significant	No feasible mitigation measures are available.	Significant and Unavoidable

Impacts	Significance before Mitigation	Mitigation Measures	Significance after Mitigation
Impact 3.2-3b: The proposed Program would not involve other changes in the existing environment, due to their location or nature, that would result in the conversion of Farmland to non-agricultural use or conversion of forest land to non-forest use.			
Program	No Impact	No mitigation measures are required.	No Impact
Program Cumulative	No Impact	No mitigation measures are required.	No Impact
3.3 Air Quality			
Air Quality Plan			
Impact 3.3-1a: The Phase 1 Project would have significant and cumulatively considerable effects on implementation of the San Joaquin Valley air quality plans because the Phase 1 Project would have the potential to conflict with or obstruct implementation of the Air District's air quality plans.			
Phase 1 Project	Significant	**AQ-1:** During construction of the Phase 1 Project or an individual project within the Program, all internal combustion engines/construction equipment exceeding 50 horse power and operating on the project site shall meet Tier 4 CARB/U.S. EPA emission standards. If not already supplied with a factory equipped diesel particulate filter, all off-road diesel-powered construction equipment shall be outfitted with BACT devices certified by CARB. Any emissions control device used by the contractor shall achieve emission reductions that are no less than what could be achieved by a Level 3 diesel emissions control strategy for a similarly sized engine as defined by CARB regulations. In addition, construction equipment shall incorporate, where feasible, emissions savings technology such as hybrid drives and specific fuel economy standards. In the event that all off-road diesel-powered construction equipment cannot meet the Tier 4 engine certification, the applicant shall use alternative measures, which include, but would not be limited to, reduction in the number and/or horsepower rating of construction equipment, limiting the number of daily construction haul truck trips to and from the proposed project, using cleaner vehicle fuel, and/or limiting the number of individual construction project phases occurring simultaneously. The applicant shall demonstrate the effectiveness of such alternative measures through a technical evaluation that verifies the measures achieve emission reductions sufficient to offset the emissions of the non-Tier 4 equipment. The evaluation shall be prepared and submitted to the County for review and the County's written concurrence received prior to the use of non-Tier 4 equipment..	Less than Significant
Phase 1 Project Cumulative	Significant	Implementation of Mitigation Measure AQ-1 is required.	Less than Significant

Impacts	Significance before Mitigation	Mitigation Measures	Significance after Mitigation
Impact 3.3-1b: The proposed Program would have a significant and cumulatively considerable effects on implementation of the San Joaquin Valley air quality plans because the Program would have the potential to conflict with or obstruct implementation of the Air District's air quality plans.			
Program	Significant	Implementation of Mitigation Measure AQ-1 and GHG-1 is required. **AQ-2:** One of the following measures shall be implemented to reduce construction emissions of ROG. • Architectural coating with a VOC content of 100 g/L or less shall be used for construction of all interior residential developments; or • Architectural coating activities for no more 9,700 square feet shall occur on any given day. **AQ-3:** The following measures shall be implemented to reduce operational emissions. • No residential units shall be constructed with fireplaces/hearths. • Residents and employees shall be provided information documenting the benefits of using low VOC paints and cleaning supplies. **AQ-4:** Each applicant for an individual project within the Program shall submit an operational emissions evaluation that accounts for the implementation of Mitigation Measures GHG-1 and AQ-3 and any additional operational emission reductions proposed by the applicant. If the evaluation determines that the emissions of ROG, NOx, and/or PM10 would exceed the SJVAPCD regulatory thresholds, the applicant shall implement a Voluntary Emissions Reduction Agreement (VERA) with the SJVAPCD to reduce operational emissions of ROG, NOx, and PM10 so that the SJVAPCD regulatory thresholds are not exceeded. Emission reductions may be achieved by use of newer, low emission equipment, implementation of on-site or off-site mitigation, and/or the funding of off-site mitigation, through participation in the SJVAPCD's offsite mitigation program. Each VERA shall be reviewed and approved by the SJVAPCD prior to issuance of construction/grading permits for each individual project within the Specific Plan Program by the County of Madera. If required, the Project proponent/owner of each individual project shall submit to the County of Madera Planning Department documentation confirming compliance with the VERA prior to issuance of final discretionary approval (e.g., approval of the grading permit). Development and implementation of the VERA shall be fully funded by each applicant. With approval by SJVAPCD, the VERA may also be used to demonstrate compliance with emission reductions required by SJVAPCD's ISR Rule (Rule 9510).	Significant and Unavoidable
Program Cumulative	Significant	Implementation of Mitigation Measures AQ-1 through AQ-4 and GHG-1 is required.	Significant and Unavoidable
Cumulative Increase of Criteria Pollutant			
Impact 3.3-2a: The proposed Phase 1 Project would result in a cumulatively considerable net increase of a criteria pollutant for which the Project region is in non-attainment.			
Phase 1 Project	Significant	Implementation of Mitigation Measure AQ-1 is required.	Less than Significant
Phase 1 Project Cumulative	Significant	Implementation of Mitigation Measure AQ-1 is required.	Less than Significant

Impacts	Significance before Mitigation	Mitigation Measures	Significance after Mitigation
Impact 3.3-2b: The proposed Program would result in a cumulatively considerable net increase of a criteria pollutant for which the Project region is in non-attainment.			
Program	Significant	Implementation of Mitigation Measure AQ-1 through AQ-4 and GHG-1 is required.	Significant and Unavoidable
Program Cumulative	Significant	Implementation of Mitigation Measure AQ-1 through AQ-4 and GHG-1 is required.	Significant and Unavoidable
Sensitive Receptors			
Impact 3.3-3a: The Phase 1 Project would result in less than significant, but cumulatively considerable effects associated with the exposure of sensitive receptors to substantial pollutant concentrations.			
Phase 1 Project	Less than Significant	No mitigation measures are required.	Less than Significant
Phase 1 Project Cumulative	Significant	Implementation of Mitigation Measure AQ-1 is required.	Less than Significant
Impact 3.3-3b: The proposed Program could result in significant and cumulatively considerable effects associated with the exposure of sensitive receptors to substantial pollutant concentrations.			
Program	Significant	Implementation of Mitigation Measure AQ-1 is required.	Less than Significant
Program Cumulative	Significant	Implementation of Mitigation Measure AQ-1 is required.	Less than Significant
Other Emissions			
Impact 3.3-4a: Implementation of the Phase 1 Project could result in significant impacts from other emissions (such as those leading to odors adversely affecting a substantial number of people).			
Phase 1 Project	Significant	Implementation of Mitigation Measure GHG-1 is required. **AQ-5:** Prior to initial operation of the WWTP and prior to the operation of future upgrades of the WWTP, the applicant shall provide evidence that the WWTP design incorporates technologies for minimizing odors. The applicant shall also provide to the County and post in a location readily available to the public the name and contact information of the WWTP authorized representative to whom any complaints regarding odor from the WWTP can be directed. Odor reducing technologies that could be implemented include, but are not limited to, adding chemicals to the water, deodorizing misting systems, adjusting the treatment process, and covering the tanks or basins, and adding odor control features to all onsite facilities where fugitive odors could occur from normal activity.	Less than Significant
Phase 1 Project Cumulative	Significant	Implementation of Mitigation Measures GHG-1 and AQ-5 is required.	Less than Significant
Impact 3.3-4b: Implementation of the proposed Program could result in significant impacts from other emissions (such as those leading to odors adversely affecting a substantial number of people).			
Program	Significant	Implementation of Mitigation Measures AQ-1, AQ-3, AQ-5 and GHG-1 is required.	Less than Significant
Program Cumulative	Significant	Implementation of Mitigation Measures AQ-1, AQ-3, AQ-5 and GHG-1 is required.	Less than Significant

Impacts	Significance before Mitigation	Mitigation Measures	Significance after Mitigation
3.4 Biological Resources			
Effect on Species			
Impact 3.4-1a: The Phase 1 Project could have significant and cumulatively considerable effects on species because the Phase 1 Project could have a substantial adverse effect, either directly or through habitat modifications, on species identified as a candidate, sensitive, or special-status species in local or regional plans, policies, or regulations, or by the CDFW or USFWS.			
Phase 1 Project	Significant	**BIO-1:** Pre-construction Surveys. To avoid impacts to active burrowing owl nests, a qualified biologist shall conduct pre-construction surveys for burrowing owls. These surveys shall be conducted prior to construction within the Phase 1 Project site and prior to construction of individual project sites within the Program. The surveys shall be conducted within the development footprint and within 250 feet of the development footprint no more than 14 days prior to the onset of ground disturbance. These surveys shall be conducted in a manner consistent with the CDFW's burrowing owl survey methods. Avoidance of Active Nests During Breeding Season. If burrowing owls are detected within or immediately adjacent to the development footprint of the Phase 1 Project or an individual project within the Program site during the breeding season (February 1 through August 31), a construction-free buffer of 250 feet or as otherwise determined by a qualified biologist, shall be established around all active owl nests. The buffer area shall be enclosed with temporary fencing, and construction equipment and personnel shall not enter the enclosed setback areas. Buffers shall remain in place for the duration of the breeding season or until it has been confirmed by a qualified biologist that all chicks have fledged and are independent of their parents. After the breeding season, passive relocation of any remaining owls may take place under the conditions described below. Avoidance of Occupied Burrows During Non-breeding Season, and Passive Relocation of Resident Owls. During the non-breeding season (September 1 through January 31), any burrows occupied by resident owls in areas planned for development shall be protected by a construction-free buffer with a radius of 250 feet or as otherwise determined by a qualified biologist, around each active burrow. Passive relocation of resident owls is not recommended by CDFW where it can be avoided. If passive relocation is not avoidable, resident owls may be passively relocated according to a relocation plan prepared by a qualified biologist. **BIO-2:** Pre-construction surveys shall be conducted no less than 14 days and no more than 30 days prior to the beginning of ground disturbance, construction activities, and/or any Project activity likely to impact the San Joaquin kit fox. The primary objective is to identify kit fox habitat features (e.g., potential dens and refugia) on the Project site and evaluate their use by kit foxes. If an active kit fox den is detected within or immediately adjacent to the area of work, the USFWS shall be contacted immediately to determine the best course of action for proceeding with work. Permanent and temporary construction activities and other types of Project-related activities shall be carried out in a manner that minimizes disturbance to kit foxes, should their presence be detected on the site during pre-construction surveys. Minimization measures include, but are not limited to: restriction of Project-related	Less than Significant

Impacts	Significance before Mitigation	Mitigation Measures	Significance after Mitigation
		vehicle traffic to established roads, construction areas, and other designated areas; inspection and covering of structures (e.g., pipes), as well as installation of escape structures, to prevent the inadvertent entrapment of kit foxes; restriction of rodenticide and herbicide use; and proper disposal of food items and trash. The Sacramento field office of the USFWS and the Fresno field office of CDFW shall be notified in writing within three working days in case of the accidental death or injury to a San Joaquin kit fox during project-related activities. Notification must include the date, time, location of the incident or of the finding of a dead or injured animal, and any other pertinent information.	
Phase 1 Project Cumulative	Significant	Implementation of Mitigation Measures BIO-1 and BIO-2 is required.	Less than Significant
Impact 3.4-1b: The proposed Program could have significant and cumulatively considerable effects on species because the Specific Plan Program could have a substantial adverse effect, either directly or through habitat modifications, on species identified as a candidate, sensitive, or special-status species in local or regional plans, policies, or regulations, or by the CDFW or USFWS.			
Program	Significant	Implementation of Mitigation Measures BIO-1 and BIO-2 is required. **BIO-3:** Construction Near Eucalyptus Trees. No pre-construction avian nesting surveys are required if grading or construction activities are planned to occur during the non-breeding avian nesting season (September 1 through January 31). Pre-construction Surveys. If grading or construction activities are planned to occur within 250 feet of eucalyptus trees during the breeding avian nesting season (February 1 through August 31), a qualified biologist shall conduct pre-construction surveys of the eucalyptus trees adjacent to the site for active nests of birds of prey and migratory birds within 14 days of the onset of these activities. Establish Buffers. If nesting raptors or other migratory birds are detected in the eucalyptus trees adjacent to the site during the survey, a suitable construction-free buffer, as determined by a qualified biologist, shall be established around all active nests. The precise dimension of the buffer, which is typically up to 250 feet, would be determined at that time and may vary depending on such factors as location, species, topography, and line of sight to the construction area. The buffer area shall be enclosed with temporary fencing, and construction equipment and personnel shall not enter the enclosed area. Buffers shall remain in place for duration of the breeding season or until it has been confirmed by a qualified biologist that all chicks have fledged and are independent of their parents.	Less than Significant
Program Cumulative	Significant	Implementation of Mitigation Measures BIO-1 through BIO-3 is required.	Less than Significant
Riparian Habitat			
Impact 3.4-2a: The Phase 1 Project would have less than significant and less than cumulatively considerable effects on riparian habitat because the Phase 1 Project would not have a substantial adverse effect on riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations, or by the CDFG or USFWS.			
Phase 1 Project	Less than Significant	No mitigation measures are required.	Less than Significant
Phase 1 Project Cumulative	Less than Significant	No mitigation measures are required.	Less than Significant

Impacts	Significance before Mitigation	Mitigation Measures	Significance after Mitigation
Impact 3.4-2b: The proposed Program would have less than significant and less than cumulatively considerable effects on riparian habitat because the Specific Plan Program would not have a substantial adverse effect on riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations, or by the CDFG or USFWS.			
Program	Less than Significant	No mitigation measures are required.	Less than Significant
Program Cumulative	Less than Significant	No mitigation measures are required.	Less than Significant
Federally Protected Wetlands			
Impact 3.4-3a: The Phase 1 Project would have less than significant and less than cumulatively considerable effects on wetlands because the Project would not 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.			
Phase 1 Project	Less than Significant	No mitigation measures are required.	Less than Significant
Phase 1 Project Cumulative	Less than Significant	No mitigation measures are required.	Less than Significant
Impact 3.4-3b: The proposed Program would have less than significant and less than cumulatively considerable effects on wetlands because the Program would not 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.			
Program	Less than Significant	No mitigation measures are required.	Less than Significant
Program Cumulative	Less than Significant	No mitigation measures are required.	Less than Significant
Wildlife Corridors and Nursery Sites			
Impact 3.4-4a: The Phase 1 Project would have less than significant and less than cumulatively considerable effects on the movement of species because the Phase 1 Project would not interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites.			
Phase 1 Project	Less than Significant	No mitigation measures are required.	Less than Significant
Phase 1 Project Cumulative	Less than Significant	No mitigation measures are required.	Less than Significant
Impact 3.4-4b: The proposed Program would have less than significant and less than cumulatively considerable effects on the movement of species because the Program would not interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites.			
Program	Less than Significant	No mitigation measures are required.	Less than Significant
Program Cumulative	Less than Significant	No mitigation measures are required.	Less than Significant
Local Policies or Ordinances Protecting Biological Resources			
Impact 3.4-5a: The Phase 1 Project would have less than significant and less than cumulatively considerable effects on biological resources because the Phase 1 Project would not conflict with local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance.			
Phase 1 Project	Less than Significant	No mitigation measures are required.	Less than Significant
Phase 1 Project Cumulative	Less than Significant	No mitigation measures are required.	Less than Significant

Impacts	Significance before Mitigation	Mitigation Measures	Significance after Mitigation
Impact 3.4-5b: The proposed Program would have less than significant and less than cumulatively considerable effects on biological resources because the Program would not conflict with local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance.			
Program	Less than Significant	No mitigation measures are required.	Less than Significant
Program Cumulative	Less than Significant	No mitigation measures are required.	Less than Significant
3.5 Cultural Resources			
Historical Resources			
Impact 3.5-1a: The Phase 1 Project would have less than significant and less than cumulatively considerable effects on historical resources because the Phase 1 Project would not cause a substantial adverse change in the significance of a historical resource.			
Phase 1 Project	Less than Significant	No mitigation measures are required.	Less than Significant
Phase 1 Project Cumulative	Less than Significant	No mitigation measures are required.	Less than Significant
Impact 3.5-1b: The proposed Program could have significant and cumulatively considerable effects on historical resources because the Program could cause a substantial adverse change in the significance of a historical resource.			
Program	Significant	**CUL-1:** Prior to the issuance of individual tract maps for the portions of the proposed Specific Plan Program that contain historic-age (45 years or older) structures, a historic built environment survey shall be conducted. The historic-age structures shall be evaluated for their historic significance. The survey shall be carried out by a qualified historian or architectural historian meeting the Secretary of the Interior's Standards for Architectural History. If historic-age resources are determined to be of historic significance and the Specific Plan Program could result in potential impacts to these resources, demolition or substantial alteration of such resources shall be avoided. If avoidance of identified historic resources is deemed infeasible, the applicant of the individual tract map shall prepare a treatment plan to include, but not limited to, photographic documentation and public interpretation of the resource.	Significant and Unavoidable
Program Cumulative	Significant	Implementation of Mitigation Measure CUL-1 is required.	Significant and Unavoidable
Archaeological Resources			
Impact 3.5-2a: The Phase 1 Project could have significant and cumulatively considerable effects on archaeological resources because the Phase 1 Project could cause a substantial change in the significance of an archaeological resource.			
Phase 1 Project	Significant	**CUL-2:** Prior to the issuance of a grading permit, the project applicant shall retain a qualified archaeologist (defined as a cultural resources professional who meets the Secretary of the Interior's Professional Qualifications Standards for archaeology [U.S. Department of the Interior, 2008]) to evaluate any potential archaeological resources identified during grading or construction activities within the Phase 1 Project site. The selected qualified archaeologist shall be approved by the County of Madera. The project applicant shall submit a fully executed copy	Less than Significant

Impacts	Significance before Mitigation	Mitigation Measures	Significance after Mitigation
		of the contract to retain a County of Madera qualified/approved archaeological monitor to the County of Madera to ensure compliance with this measure. **CUL-3:** Prior to the start of ground disturbing activities associated with the Project, the qualified archaeologist (or an archaeologist working under the direct supervision of the qualified archaeologist) shall conduct cultural resources sensitivity training for all construction personnel. Construction personnel shall be informed of the types of archaeological resources that may be encountered, the proper procedures to be enacted in the event of an inadvertent discovery of archaeological resources or human remains, and safety precautions to be taken when working with archaeological monitors. The County of Madera and the project applicant shall ensure that construction personnel are made available for and attend the training and retain documentation demonstrating attendance. An Archaeological Resources Monitoring Plan shall be prepared prior to ground disturbance activities. The plan, among other topics, shall document the proposed methodology for inadvertent finds, the state law process applicable to discovered human remains, the grading activity observation process, the mitigation measures, and conditions of approval for the Project. **CUL-4:** If during grading or construction activities and if, archaeological resources are discovered within the Phase 1 Project site, work shall be halted immediately within 100 feet of the discovery and the qualified archaeologist shall be contacted to evaluate the resource. The County of Madera shall also be contacted for discoveries. The qualified archaeologist shall evaluate the resource. If the qualified archaeologist determines that the resource is not unique, and therefore not significant, grading and construction activities may continue. If the qualified archaeologist determines that the resource is unique, and therefore significant, as defined under Section 15064.5 of the CEQA Guidelines, the archaeologist shall work with the County of Madera and the applicant in developing mitigation measures including avoidance or capping, incorporation of the site in green space or data recovery excavations of the resource. All cultural resources, with the exception of human remains and Native American tribal cultural resources that are addressed in Impact 3.5-3a, collected shall be curated according to the current professional repository standards. Weekly reports shall be submitted by the qualified archaeologist to the County of Madera until all resources are collected and curated. The collections and associated records shall be transferred, including title, to a curation facility that meets the standards set forth in 36 Code of Federal Regulations (CFR) Part 79 for federal repositories. A final report shall be prepared that addresses each resource found. The final report shall be provided to the curation facility as well as to the County of Madera.	
Phase 1 Project Cumulative	Significant	Implementation of Mitigation Measures CUL-2 through CUL-4 is required.	Less than Significant

Impacts	Significance before Mitigation	Mitigation Measures	Significance after Mitigation
Impact 3.5-2b: The proposed Program could have significant and cumulatively considerable effects on archaeological resources because the Program could cause a substantial change in the significance of an archeological resource.			
Program	Significant	**CUL-5:** Prior to the issuance of individual tract maps within the Specific Plan Program site that is located outside of the Phase 1 Project site, a Phase I cultural resources survey shall be conducted. The study shall be carried out by a qualified archaeologist meeting the Secretary of the Interior's Standards for professional archaeology. The cultural resources survey study shall consist of: a cultural resources records search to be conducted at the Southern San Joaquin Valley Information Center; a Sacred Lands File search conducted by the California Native American Heritage Commission; a pedestrian cultural resources survey where deemed appropriate by the archaeologist; and recordation of all identified archaeological resources on California Department of Parks and Recreation 523 forms. **CUL-6:** If no archaeological resources are discovered during the survey of an individual tract map area, a qualified archaeologist shall be retained in accordance with Mitigation Measure CUL-2, a qualified archaeologist shall conduct a cultural resources sensitivity training for all construction personnel in accordance with Mitigation Measure CUL-3, and a qualified archaeologist shall evaluate resources discovered during grading activities and determine additional measures to be implemented. **CUL-7:** If potentially significant archaeological resources are encountered during a survey of an individual tract map area, the County shall require that the resources are evaluated for significance as an archaeological resource per CEQA, and that recommendations are made for treatment of these resources if found to be significant, in consultation with the County, applicant, and the appropriate Native American groups. Project redesign and preservation in place shall be the preferred means of mitigation to avoid impacts to significant archaeological resources. Methods of avoidance may include, but shall not be limited to, Project re-route or re-design, Project cancellation, or identification of protection measures such as capping or fencing. If avoidance is not feasible, the qualified archaeologist shall develop additional treatment measures in consultation with the County and the applicant, which may include data recovery or other appropriate measures. All significant archaeological materials recovered will be, as necessary and at the discretion of the qualified archaeologist and in consultation with local Native American groups, subject to scientific analysis, professional museum curation, and documentation according to current professional standards. **CUL-8:** If potentially significant archaeological resources are encountered during the survey of an individual tract map area, a qualified archaeologist shall be retained in accordance with Mitigation Measure CUL-2, a qualified archaeologist shall conduct a cultural resources sensitivity training for all construction personnel in accordance with Mitigation Measure CUL-3, and a qualified archaeologist shall evaluate discovered resources and determine additional measures to be implemented.	Less than Significant

Impacts	Significance before Mitigation	Mitigation Measures	Significance after Mitigation
		CUL-9: If potentially significant archaeological resources are encountered during the survey of an individual tract map area, monitoring of all ground-disturbing activities shall be conducted by a qualified archaeologist (or an archaeologist working under the direct supervision of a qualified archaeologist) for the tract map area where the potentially significant resources are encountered. A qualified archaeologist shall determine the frequency, duration and locations where archaeological monitoring shall be conducted during ground-disturbing activities.	
Program Cumulative	Significant	Implementation of Mitigation Measures CUL-5 through CUL-9 is required.	Less than Significant
Human Remains			
Impact 3.5-3a: The Phase 1 Project would have less than significant and less than cumulatively considerable effects on human remains.			
Phase 1 Project	Less than Significant	No mitigation measures are required.	Less than Significant
Phase 1 Project Cumulative	Less than Significant	No mitigation measures are required.	Less than Significant
Impact 3.5-3b: The proposed Program would have less than significant and less than cumulatively considerable effects on human remains.			
Program	Less than Significant	No mitigation measures are required.	Less than Significant
Program Cumulative	Less than Significant	No mitigation measures are required.	Less than Significant
Tribal Cultural Resources			
Impact 3.5-4a: The Phase 1 Project would have a less than significant and less than cumulatively considerable impact on a tribal cultural resource defined in Public Resources Code Section 21074.			
Phase 1 Project	Less than Significant	No mitigation measures are required.	Less than Significant
Phase 1 Project Cumulative	Less than Significant	No mitigation measures are required.	Less than Significant
Impact 3.5-4b: The proposed Program would have a less than significant and less than cumulatively considerable impact on a tribal cultural resource defined in Public Resources Code Section 21074.			
Program	Less than Significant	No mitigation measures are required.	Less than Significant
Program Cumulative	Less than Significant	No mitigation measures are required.	Less than Significant
Paleontological Resource			
Impact 3.5-5a: The Phase 1 Project could have significant and cumulatively considerable direct or indirect impacts to a unique paleontological resource or site or unique geologic feature.			
Phase 1 Project	Significant	**CUL-10:** Prior to the issuance of a grading permit for the Phase 1 Project, the Project Applicant shall retain a qualified paleontologist to conduct monitoring activities and evaluate paleontological resources if they are found during grading and construction activities within the Phase 1 Project site. The selected qualified paleontologist will be required to be approved by the County of Madera. **CUL-11:** Prior to the issuance of a grading permit, the qualified paleontologist shall prepare a Paleontological Resource Mitigation Plan (PRMP) for the Phase 1 Project and provide the PRMP to the County of Madera.	Less than Significant

Impacts	Significance before Mitigation	Mitigation Measures	Significance after Mitigation
		CUL-12: Prior to the start of ground disturbing activities associated with the Phase 1 Project, the qualified paleontologist (or a paleontologist working under the direct supervision of the qualified paleontologist) shall conduct paleontological resources sensitivity training for all construction personnel. Construction personnel shall be informed of the types of paleontological resources that may be encountered, the proper procedures to be enacted in the event of an inadvertent discovery of paleontological resources, and safety precautions to be taken when working with paleontological monitors. The County of Madera and the Project Applicant shall ensure that construction personnel are made available for and attend the training and retain documentation demonstrating attendance. **CUL-13:** During grading and construction activities within the Phase 1 Project area, full-time monitoring shall be required during ground-disturbing activities that extend to 5 feet or more below ground surface (bgs) within areas deemed to have a high paleontological resource potential. Part-time monitoring, or spot checking, shall be required during shallow ground-disturbances (i.e., less than 5 feet bgs) to determine if the underlying sensitive geologic units are being impacted by construction, and at what depth. Monitoring shall entail the visual inspection of excavated or graded areas and trench sidewalls. Based on the resources that are discovered during monitoring activities, a qualified paleontologist shall determine the frequency, duration and locations where paleontological monitoring shall be conducted during ground-disturbing activities. In the event that a paleontological resource is discovered, the monitor shall have the authority to temporarily divert the construction equipment around the find until it is assessed for scientific significance and collected. Monitoring shall include matrix screening for the presence of microfossils, the frequency of which shall be determined by the qualified paleontologist. Monitoring is largely a visual inspection of sediments; therefore, the most likely fossils to be observed will be macrofossils of vertebrates (bones, teeth, tusk) or invertebrates (shells). At the discretion of the qualified paleontologist, the monitor shall periodically screen sediments to check for the presence of microfossils that can be seen with the aid of a hand lens (i.e., microvertebrates). If micro vertebrate fossils are encountered during the screening process, then bulk matrix samples shall be taken for processing off site. For each fossiliferous horizon or paleosol, a standard sample (4.0 cubic yards or 6,000 pounds) shall be collected for subsequent wet-screening per SVP (2010) guidelines. **CUL-14:** Weekly reports of monitoring activities and resources that are discovered within the Phase 1 Project area shall be submitted by the qualified paleontologist to the County of Madera. **CUL-15:** Upon completion of fieldwork within the Phase 1 Project area, all significant fossils collected shall be prepared in a properly equipped paleontology laboratory to a point ready for curation. Preparation shall include the careful removal of excess matrix from fossil materials and stabilizing and repairing specimens, as necessary. Following laboratory work, all fossils specimens shall be identified to the lowest taxonomic level, cataloged, analyzed, and curated. The fossil specimens must be delivered to the accredited museum repository identified on the permit and receipt(s) of collections shall be submitted to the Project	

Impacts	Significance before Mitigation	Mitigation Measures	Significance after Mitigation
		Applicant with copies sent to the County of Madera. This delivery shall be made as soon as practical but no later than 60 days after all fieldwork is completed. The cost of curation is assessed by the repository and shall be the responsibility of the Project Applicant. At the conclusion of laboratory work and museum curation, a Paleontological Mitigation Report shall be prepared describing the results of the paleontological mitigation monitoring efforts associated with the project. The report shall include a summary of the field and laboratory methods, an overview of the project area geology and paleontology, a specimen inventory of all taxa recovered (if any), an analysis of fossils recovered (if any) and their scientific significance, the signed receipt of confirmation of museum deposition, and recommendations. The report shall be submitted to the designated repository and the County of Madera within 45 days following completion of monitoring and laboratory work.	
Phase 1 Project Cumulative	Significant	Implementation of mitigation measures CUL-10 through CUL-15 is required.	Less than Significant
Impact 3.5-5b: The proposed Program could have significant and cumulatively considerable direct or indirect impacts to a unique paleontological resource or site or unique geologic feature.			
Program	Significant	**CUL-16:** Prior to the issuance of a grading permit for each individual tract map where grading has the potential to impact the Quaternary Turlock Lake and Riverbank Formation, the applicant of each individual tract map shall retain a qualified paleontologist to conduct monitoring activities and evaluate paleontological resources if they are found during grading and construction activities. The selected qualified paleontologist will be required to be approved by the County of Madera. **CUL-17:** Prior to the issuance of a grading permit for each individual tract map where grading has the potential to impact the Quaternary Turlock Lake and Riverbank Formation, the qualified paleontologist shall prepare a Paleontological Resource Mitigation Plan (PRMP) and provide the PRMP to the County of Madera. **CUL-18:** Prior to the start of ground disturbing activities associated with each individual tract map where grading has the potential to impact the Quaternary Turlock Lake and Riverbank Formation, the qualified paleontologist (or a paleontologist working under the direct supervision of the qualified paleontologist) shall conduct paleontological resources sensitivity training for all construction personnel. Construction personnel shall be informed of the types of paleontological resources that may be encountered, the proper procedures to be enacted in the event of an inadvertent discovery of paleontological resources, and safety precautions to be taken when working with paleontological monitors. The County of Madera and the applicant shall ensure that construction personnel are made available for and attend the training and retain documentation demonstrating attendance. **CUL-19:** During grading and construction activities for each individual tract map where grading has the potential to impact the Quaternary Turlock Lake and Riverbank Formation, full-time monitoring shall be required. during ground-disturbing activities that extend to 5 feet or more below ground surface (bgs)	Less than Significant

Impacts	Significance before Mitigation	Mitigation Measures	Significance after Mitigation
		within areas deemed to have a high paleontological resource potential. Part-time monitoring, or spot checking, shall be required during shallow ground-disturbances (i.e., less than 5 feet bgs) in areas where the Quaternary Turlock Lake and Riverbank Formation underlies the surface soils to determine if the underlying sensitive geologic units are being impacted by construction, and at what depth. Monitoring shall entail the visual inspection of excavated or graded areas and trench sidewalls. Based on the resources that are discovered during monitoring activities, a qualified paleontologist shall determine the frequency, duration and locations where paleontological monitoring shall be conducted during ground-disturbing activities. In the event that a paleontological resource is discovered, the monitor shall have the authority to temporarily divert the construction equipment around the find until it is assessed for scientific significance and collected. Monitoring shall include matrix screening for the presence of microfossils, the frequency of which shall be determined by the qualified paleontologist. Monitoring is largely a visual inspection of sediments; therefore, the most likely fossils to be observed will be macrofossils of vertebrates (bones, teeth, tusk) or invertebrates (shells). At the discretion of the qualified paleontologist, the monitor shall periodically screen sediments to check for the presence of microfossils that can be seen with the aid of a hand lens (i.e., microvertebrates). If micro vertebrate fossils are encountered during the screening process, then bulk matrix samples shall be taken for processing off site. For each fossiliferous horizon or paleosol, a standard sample (4.0 cubic yards or 6,000 pounds) shall be collected for subsequent wet-screening per SVP (2010) guidelines. **CUL-20:** Weekly reports of monitoring activities and resources that are discovered within each individual tract map, where grading has the potential to impact the Quaternary Turlock Lake and Riverbank Formation, shall be submitted by the qualified paleontologist to the County of Madera. **CUL-21:** Upon completion of fieldwork within each individual tract map where grading has the potential to impact the Quaternary Turlock Lake and Riverbank Formation, all significant fossils collected shall be prepared in a properly equipped paleontology laboratory to a point ready for curation. Preparation shall include the careful removal of excess matrix from fossil materials and stabilizing and repairing specimens, as necessary. Following laboratory work, all fossils specimens shall be identified to the lowest taxonomic level, cataloged, analyzed, and curated. The fossil specimens must be delivered to the accredited museum repository identified on the permit and receipt(s) of collections shall be submitted to the applicant with copies sent to the County of Madera. This delivery shall be made as soon as practical but no later than 60 days after all fieldwork is completed. The cost of curation is assessed by the repository and shall be the responsibility of the applicant. At the conclusion of laboratory work and museum curation, a Paleontological Mitigation Report shall be prepared describing the results of the paleontological mitigation monitoring efforts associated with the Project. The report shall include a summary of the field and laboratory methods, an overview of the individual project site geology and paleontology, a specimen inventory of all taxa recovered (if any), an analysis of fossils recovered (if any) and their scientific	

Impacts	Significance before Mitigation	Mitigation Measures	Significance after Mitigation
		significance, the signed receipt of confirmation of museum deposition, and recommendations. The report shall be submitted to the designated repository and the County of Madera within 45 days following completion of monitoring and laboratory work.	
Program Cumulative	Significant	Implementation of Mitigation Measure CUL-16 through CUL-21 is required.	Less than Significant
3.6 Geology, Soils, and Seismicity			
Earthquakes			
Impact 3.6-1a: The Phase 1 Project would have a less than significant and less than cumulatively considerable potential to expose people or structures to adverse geologic effects, including the risk of loss, injury or death involving strong seismic ground shaking, or seismic-related ground failure, including liquefaction.			
Phase 1 Project	Less than Significant	No mitigation measures are required.	Less than Significant
Phase 1 Project Cumulative	Less than Significant	No mitigation measures are required.	Less than Significant
Impact 3.6-1b: The proposed Program would have less than significant and less than cumulatively considerable potential to expose people or structures to adverse geologic effects, including the risk of loss, injury or death involving strong seismic ground shaking, or seismic-related ground failure, including liquefaction.			
Program	Less than Significant	No mitigation measures are required.	Less than Significant
Program Cumulative	Less than Significant	No mitigation measures are required.	Less than Significant
Soil Erosion or Topsoil Loss			
Impact 3.6-2a: The Phase 1 Project would have less than significant and less than cumulatively considerable effects from soil erosion or the loss of topsoil.			
Phase 1 Project	Less than Significant	No mitigation measures are required.	Less than Significant
Phase 1 Project Cumulative	Less than Significant	No mitigation measures are required.	Less than Significant
Impact 3.6-2b: The proposed Program would have less than significant and less than cumulatively considerable effects from soil erosion or the loss of topsoil.			
Program	Less than Significant	No mitigation measures are required.	Less than Significant
Program Cumulative	Less than Significant	No mitigation measures are required.	Less than Significant
Unstable Geologic Location			
Impact 3.6-3a: The Phase 1 Project would have less than significant and less than cumulatively considerable instability effects because the Phase 1 Project would not be located on a geologic unit or soil that is unstable or that would become unstable as a result of the Phase 1 Project and potentially result in on-or off-site landslide, lateral spreading, subsidence, liquefaction, or collapse.			
Phase 1 Project	Less than Significant	No mitigation measures are required.	Less than Significant
Phase 1 Project Cumulative	Less than Significant	No mitigation measures are required.	Less than Significant

Impacts	Significance before Mitigation	Mitigation Measures	Significance after Mitigation
Impact 3.6-3b: The proposed Program would have a less than significant and less than cumulatively considerable instability effects because the Program would not be located on a geologic unit or soil that is unstable or that would become unstable as a result of the proposed program and potentially result in on-or off-site landslide, lateral spreading, subsidence, liquefaction, or collapse.			
Program	Less than Significant	No mitigation measures are required.	Less than Significant
Program Cumulative	Less than Significant	No mitigation measures are required.	Less than Significant
Expansive Soil			
Impact 3.6-4a: The Phase 1 Project would have a less than significant and less than cumulatively considerable geologic effects because the Phase 1 Project would not be located on expansive soils, as defined in Table 18-1-B of the Uniform Building Code (1994), creating substantial direct or indirect risks to life or property.			
Phase 1 Project	Less than Significant	No mitigation measures are required.	Less than Significant
Phase 1 Project Cumulative	Less than Significant	No mitigation measures are required.	Less than Significant
Impact 3.6-4b: The proposed Program would have less than significant and less than cumulatively considerable geologic effects because the structural developments under the Program would not be located on expansive soils, as defined in Table 18-1-B of the Uniform Building Code (1994), creating substantial direct or indirect risks to life or property.			
Program	Less than Significant	No mitigation measures are required.	Less than Significant
Program Cumulative	Less than Significant	No mitigation measures are required.	Less than Significant
3.7 Greenhouse Gas Emissions			
Greenhouse Gas Emissions			
Impact 3.7-1a: The Phase 1 Project could result in significant and cumulatively considerable effects associated with greenhouse gas emissions because the Project could generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment.			
Phase 1 Project and Phase 1 Project Cumulative	Significant	Implementation of Mitigation Measure AQ-2 is required. **GHG-1:** The following may be implemented to reduce GHG emissions from activities at the Phase 1 Project developments. These measures were used to quantify reduction based on SJVAPCD's required Best Performance Standards (BPS) and additional CAPCOA reduction measures. Measures beyond what are listed here may be included as additions to or substitutions for the measures indicated below such that, at a minimum, a reduction of 31 percent is achieved for the Phase 1 Project. Detailed reduction assumptions are included in Appendix G. ***A. Wastewater Treatment Operations*:** Eliminate methane emissions from the wastewater treatment operations through the use of an aerobic process. ***B. Residential Measures*** 1. **Pedestrian Oriented Measures** -The following measures are a list of some possible pedestrian oriented measures that will reduce GHG emissions. Not all potential measures are listed and not all are required as long as the overall reductions assumed in Appendix G are achieved. a. **Pedestrian Network Measure** (reductions associated with Project such as residential, commercial, and mixed-use land uses, as applicable): The Project provides a pedestrian access network that	Less than Significant

Impacts	Significance before Mitigation	Mitigation Measures	Significance after Mitigation
		internally links all uses and connects to existing external streets and pedestrian facilities. Existing facilities are defined as those facilities that are physically constructed and ready for use prior to the first 20% of the Project's occupancy permits being granted. The Project provides a pedestrian access network that internally links all uses for connecting to planned external streets and pedestrian facilities (facilities must be included pedestrian master plan or equivalent). b. **Pedestrian Barriers Minimized** (reductions associated with residential, commercial, and mixed-use land uses, as applicable): Site design and building placement minimize barriers to pedestrian access and interconnectivity. Physical barriers such as walls, berms, landscaping, and slopes between residential and non-residential uses that impede bicycle or pedestrian circulation are eliminated. Barriers to pedestrian access of neighboring facilities and sites are minimized. This measure is not meant to prevent the limited use of barriers to ensure public safety by prohibiting access to hazardous areas, etc. 2. **Exceed Title 24 Measure** (reductions associated with residential, commercial, and mixed-use land uses, as applicable). The following measures are a list of some possible pedestrian oriented measures that will reduce GHG emissions. Not all potential measures are listed and not all are required as long as the overall reductions assumed in Appendix G are achieved a. **Exceedance**: Project Exceeds Title 24 requirements by 22.5% with measures such as, but not limited to, the installation of renewable energy systems capable of generating a minimum of 2.5% of the Phase 1 Project's annual energy needs. b. **Energy Star Roof Measure** (reductions associated with residential, commercial, and mixed-use land uses): Install Energy Star labeled roof materials. Energy star qualified roof products reflect more of the sun's rays, decreasing the amount of heat transferred into a building 3. **Solar Orientation Measure** (reductions associated with residential, land uses): Orient 75 or more percent of homes and/or buildings to face either north or south (within 30 degrees of North or South). Building design includes roof overhangs that are sufficient to block the high summer sun, but not the lower winter sun, from penetrating south facing windows. Trees, other landscaping features and other buildings are sited in such a way as to maximize shade in the summer and maximize solar access to walls and windows in the winter. 4. **Electric Lawnmower Measure** (reductions associated with residential land uses): Provide a complimentary electric lawnmower to each residential buyers and install electrical outlets on the exterior of buildings that are accessible so landscaping equipment can be charged.	

Impacts	Significance before Mitigation	Mitigation Measures	Significance after Mitigation
		C. Infrastructure/Program Measures 1. **Neighborhood Electric Vehicle Access** (reductions associated with residential, commercial, and mixed-use land uses): The Project will create local "light" vehicle networks, such as NEV networks. NEVs are classified in the California Vehicle Code as a “low speed vehicle”. They are electric powered and must conform to applicable federal automobile safety standards. NEVs offer an alternative to traditional vehicle trips and can legally be used on roadways with speed limits of 35 MPH or less (unless specifically restricted). They are ideal for short trips up to 30 miles in length. To create an NEV network, the Project will implement the necessary infrastructure, including NEV parking, charging facilities, striping, signage, and educational tools. NEV routes will be implemented throughout the Project and will double as bicycle routes. Current studies show that for most trips, NEVs do not replace gas, fueled vehicles as the primary vehicle. This measures also requires the provision for electric vehicle charging for all single family homes and a minimum of 20 percent of parking for multi-family residential developments. 2. **Traffic Calming Measure** (reductions associated with residential, commercial, and mixed-use land uses): Project design includes pedestrian/bicycle safety and traffic calming measures in excess of jurisdiction requirements. Roadways are designed to reduce motor vehicle speeds and encourage pedestrian and bicycle trips by featuring traffic calming measures. Traffic calming measures include: bike lanes, center islands, closures (cul-de-sacs), diverters, education, forced turn lanes, roundabouts, speed humps, etc. 3. **Transit Demand Management Program** (reductions associated with residential, commercial, and mixed-use land uses): The Project shall implement a transit demand management (TDM) program to discourage single-occupancy vehicle trips and encourage alternative modes of transportation such as carpooling, taking transit, walking, and biking. The TDM program shall be designed to encompass the whole Program as a single program and a coordinator employed prior to the completion of the Phase 1 Project construction. The TDM program shall be accessible to all employees and residents of the development and shall include the following at a minimum: a. Carpooling encouragement b. Ride-sharing program c. Preferential carpool parking d. Flexible work schedules for carpools (non-residential only) e. Half-time transportation coordinator f. Vanpool assistance g. Bike-sharing program	

Impacts	Significance before Mitigation	Mitigation Measures	Significance after Mitigation
		h. Trip Reduction Marketing – providing information to residents and employees about the TDM program**.**	
Impact 3.7-1b: The proposed Program could result in significant and cumulatively considerable effects associated with greenhouse gas emissions because the Program could generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment.			
Program and Program Cumulative	Significant	Implementation of Mitigation Measure AQ-2 and GHG-1 is required. **GHG-2:** The following measures may be implemented to reduce GHG emissions from activities at the Program developments. These measures were used to quantify reduction based on SJVAPCD's required Best Performance Standards (BPS) and additional CAPCOA reduction measures. Measures beyond what are listed here may be included as additions to or substitutions for the measures indicated below such that, at a minimum, a reduction of 14 percent is achieved for the Program. Detailed reduction assumptions are included in Appendix G. **A. Wastewater Treatment Operations:** Eliminate methane emissions from the wastewater treatment operations through the use of an aerobic process. **B. Developed Land Use Measures** 1. **Bicycle Parking:** a. Long-term bicycle parking shall be provided at apartment complexes or condominiums that do not have garages. Project shall provide one long-term bicycle parking space for each unit without a garage. Long-term facilities shall consist of one of the following: a bicycle locker, a locked room with standard racks and access limited to bicyclists only, or a standard rack in a location that is staffed and/or monitored by video surveillance 24 hours per day. b. **Commercial/Mixed-use:** Non-residential projects shall provide adequate short-term and long-term bicycle parking facilities to meet peak season maximum demand. Short term facilities shall be provided at a minimum ratio of one bike rack space per 20 vehicle spaces. Long-term facilities shall be provided at a minimum ratio of one long-term bicycle storage space per 20 employee parking spaces. 2. **End of Trip Facilities:** Non-residential projects shall provide "end-of-trip" facilities including showers, lockers, and changing space. Facilities shall be provided in the following ratio: four clothes lockers and one shower provided for every 80 employee parking spaces. For projects with 160 or more employee parking spaces, separate locker/shower facilities are required for each gender. Parking spaces are determined by total spaces allotted in the Specific Plan Program area and not per individual uses. (End of use facilities may be shared by multiple businesses in the same building) 3. **Minimum Parking** (reductions associated with residential, commercial, and mixed-use land uses): Provide minimum amount of parking required. The County shall take into consideration the unique nature	Significant and Unavoidable

Impacts	Significance before Mitigation	Mitigation Measures	Significance after Mitigation
		and location of the development and the limited commercial/retail opportunities within the development in instituting any reduction in the number of parking spaces within the Town Center and Mixed-Use area of the Project. This measure recognizes the air quality benefit that results when facilities minimize parking needs and establishes an emission reduction value for projects that implement all available parking reductions. Once land uses are determined, the trip reduction factor associated with this measure can be determined by utilizing the Institute of Transportation Engineers (ITE) Parking generation publication70. The reduction in trips can be computed as shown below by the ratio of the difference of minimum parking required by code and ITE peak parking demand to ITE peak parking demand for the land uses multiplied by 50%. The maximum achievable trip reduction is 6%. For projects where retail space occupies 50% or more of the total built space, do not use December specific parking generation rates (from ITE). Percent Trip Reduction = 50*[(min parking required by code - ITE peak parking demand) / (ITE peak parking demand)]. 4. **Residential Density Measure** (reductions associated with residential, land uses): Residential Density with “no transit”, project provides high-density residential development. Emission reduction value is based on the high density and mixed use portion of the Project only and based on between 11 and 20 units per acre. 5. **Other Mixed Use Measures** (reductions associated with residential, land uses). All residential units are within ¼ mile of parks, schools or other civic uses. Civic uses are government facilities that provide services directly to the public (post office, city hall, courthouse, community center, etc.). 6. **Exceed Title 24.** The following measure will reduce GHG emissions in addition to those listed in Mitigation Measure GHG-1. Not all potential measures are listed and not all are required as long as the overall reductions assumed in Appendix G are achieved. a **Non Roof Surface Measure** (reductions associated with residential, commercial, and mixed-use land uses): Provide shade (within 5 years) and/or use light-colored/high-albedo materials (reflectance of at least 0.3) and/or open grid pavement for at least 30% of the site's non-roof impervious surfaces, including parking lots, walkways, plazas, etc.; OR place a minimum of 50% of parking spaces underground or covered by structured parking; OR use an open-grid pavement system (less than 50% impervious) for a minimum of 50% of the parking lot area. Unshaded parking lot areas, driveways, fire lanes, and other paved areas have a minimum albedo of .3 or greater. **C. Infrastructure/Program Measures** 1. **Pedestrian Oriented Measures**- The following measure will reduce GHG emissions in addition to those pedestrian oriented measures	

Impacts	Significance before Mitigation	Mitigation Measures	Significance after Mitigation
		identified in Mitigation Measure GHG-1. Not all potential measures are listed and not all are required as long as the overall reductions assumed in Appendix G are achieved. a **Pedestrian Pathway through Parking Measure** (reductions associated with residential, commercial, and mixed-use land uses): Provide a parking lot design that includes clearly marked and shaded pedestrian pathways between transit facilities and building entrances. Pathway must connect to all transit facilities internal or adjacent to Project site. Site plan should demonstrate how the pathways are clearly marked, shaded, and are placed between transit facilities and building entrances. 2. **Orientation toward "planned" transit, bikeway, or pedestrian corridor** (reductions associated with commercial and mixed-use land uses): Project is oriented towards planned transit, bicycle, or pedestrian corridor. Setback distance is minimized. Planned transit, bicycle or pedestrian corridor must be in the MTP, RT Master Plan, General Plan, or Community Plan. Setback distance between Project and existing or planned adjacent uses is minimized or non-existent. Setback distance between different buildings on project site is minimized. Setbacks between Project buildings and planned or existing sidewalks are minimized. Buildings are oriented towards existing or planned street frontage. Primary entrances to buildings are located along planned or existing public street frontage. Project provides bicycle access to any planned bicycle corridor(s). Project provides pedestrian access to any planned pedestrian corridor(s). 3. **School Bus Program** – the Project will work with the school district to provide school bus services in the Project area and local community, specifically with respect to the onsite elementary school.	
Conflict with Plan, Policy, or Regulation that Reduces Greenhouse Gas Emissions			
Impact 3.7-2a: The Phase 1 Project would result in significant and cumulatively considerable effects on a greenhouse gas plan because the Phase 1 Project would not further emission reductions identified within an applicable plan, policy or regulation adopted for the purpose of reducing the emissions of greenhouse gases.			
Phase 1 Project and Phase 1 Project Cumulative	Significant	Implementation of Mitigation Measure GHG-1 is required.	Less than Significant
Impact 3.7-2b: The proposed Program would result in significant and cumulatively considerable effects on a greenhouse gas plan because the Program could conflict with an applicable plan, policy or regulation adopted for the purpose of reducing the emissions of greenhouse gases.			
Program and Program Cumulative	Significant	Implementation of Mitigation Measures GHG-1 and GHG-2 is required.	Significant and Unavoidable

Impacts	Significance before Mitigation	Mitigation Measures	Significance after Mitigation
3.8 Hazards and Hazardous Materials			
Routine Use			
Impact 3.8-1a: The Phase 1 Project would result in less than significant and less than cumulatively considerable hazards to the public or the environment through the routine transport, use, or disposal of hazardous materials.			
Phase 1 Project	Less than Significant	No mitigation measures are required.	Less than Significant
Phase 1 Project Cumulative	Less than Significant	No mitigation measures are required.	Less than Significant
Impact 3.8-1b: The proposed Program would result in less than significant and less than cumulatively considerable hazards to the public or the environment through the routine transport, use, or disposal of hazardous materials.			
Program	Less than Significant	No mitigation measures are required.	Less than Significant
Program Cumulative	Less than Significant	No mitigation measures are required.	Less than Significant
Accident Conditions			
Impact 3.8-2a: The Phase 1 Project could have significant cumulatively considerable hazards to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment.			
Phase 1 Project	Significant	**HAZ-1:** Prior to the issuance of a grading permit, the applicant shall demonstrate that they have retained a qualified environmental professional to prepare and implement a site-specific Health and Safety Plan in accordance with federal OSHA regulations (29 CFR 1910.120) and Cal/OSHA regulations (8 CCR Title 8, Section 5192). The Health and Safety Plan shall be submitted to Madera County for review and approval. The Health and Safety Plan shall include all required measures to protect construction workers and the general public potentially exposed to hazardous materials by including engineering controls, monitoring, and security measures to prevent unauthorized entry to the construction area and to reduce hazards outside of the construction area. If prescribed contaminant exposure levels or the performance standards in the Health and Safety Plan are exceeded, personal protective equipment shall be required for workers, and remedial actions taken, in accordance with state and federal regulations. The plan shall include designated personnel responsible for implementation of the Health and Safety Plan. Submittal of the Health and Safety Plan to Madera County shall not be construed as approval of the adequacy of the contractor's health and safety professional, the contractor's plan, or any safety measure taken in or near the construction site. The contractor shall be solely and fully responsible for compliance with all laws, rules, and regulations applicable to health and safety during the performance of the construction work. **HAZ-2:** The applicant shall retain and consult a qualified environmental professional for excavation and removal of impacted soil that may be encountered during grading and excavation activities. A site-specific soil management plan (SMP) shall be prepared and submitted to Madera County. The SMP shall be implemented during excavation and grading activities on the onsite and offsite	Less than Significant

Impacts	Significance before Mitigation	Mitigation Measures	Significance after Mitigation
		portions of the Project to ensure that any contaminated soils are properly identified, excavated, and disposed of off-site, as follows: • The SMP shall include the Project site description, including geologic and hydrogeologic setting and the site assessment history. • The SMP shall address areas of elevated contaminants per the applicable regulatory agency guidelines (e.g., SJVAPCD, DTSC, SWRCB). The cleanup goals shall be based on a screening level evaluation and shall be used to support decisions with respect to the need for and the extent of remediation. Waste profile reports shall be prepared and provide details on the appropriate waste disposal facility for disposal of affected waste (e.g., Class I, Class II, Class III landfills). • During the Project's excavation phase, the applicant shall remove and properly dispose of impacted materials in accordance with the provisions of the SMP. If soil is stockpiled prior to disposal, it shall be managed in accordance with the Project's Storm Water Pollution Prevention Plan. If applicable, impacted soils shall be managed in accordance with SJVAPCD Rule 4651, Soil Decontamination Operations, as well as applicable requirements of DTSC and Central Valley Regional Water Quality Control Board (CVRWQCB).	
Phase 1 Project Cumulative	Significant	Implementation of Mitigation Measures HAZ-1 and HAZ-2 is required.	Less than Significant
Impact 3.8-2b: The proposed Program could have significant cumulatively considerable hazards to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment.			
Program	Significant	Implementation of Mitigation Measures HAZ-1 and HAZ-2 is required. **HAZ-3:** Prior to the issuance of a grading permit, impacted soil identified in the vicinity of the existing well pumps, waste oil drums, and the fuel ASTs in the Shop Area (Figure 3.8-2), shall be removed. Confirmation soil sampling shall be conducted after soil removal to verify the impacted soil was removed.	Less than Significant
Program Cumulative	Significant	Implementation of Mitigation Measures HAZ-1 through HAZ-3 is required.	Less than Significant
Schools			
Impact 3.8-3a: The Phase 1 Project would have less than significant and less than cumulatively considerable impacts from emitting hazardous emissions or handling hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school.			
Phase 1 Project	Less than Significant	No mitigation measures are required.	Less than Significant
Phase 1 Project Cumulative	Less than Significant	No mitigation measures are required.	Less than Significant
Impact 3.8-3b: The proposed Program could have significant and cumulatively considerable impacts from emitting hazardous emissions or handling hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school.			
Program	Significant	Implementation of Mitigation Measures HAZ-1 through HAZ-3 is required.	Less than Significant
Program Cumulative	Significant	Implementation of Mitigation Measures HAZ-1 through HAZ-3 is required.	Less than Significant

Impacts	Significance before Mitigation	Mitigation Measures	Significance after Mitigation
Hazardous Materials Site Listing			
Impact 3.8-4a: The Phase 1 Project is not located on a site which is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5 and, would result in less than significant and less than cumulatively considerable hazard impacts to the public or the environment.			
Phase 1 Project	Less than Significant	No mitigation measures are required.	Less than Significant
Phase 1 Project Cumulative	Less than Significant	No mitigation measures are required.	Less than Significant
Impact 3.8-4b: The proposed Program is not located on a site which is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5 and would result in less than significant and less than cumulatively considerable hazard impacts to the public or the environment.			
Program	Less than Significant	No mitigation measures are required.	Less than Significant
Program Cumulative	Less than Significant	No mitigation measures are required.	Less than Significant
Emergency Plans			
Impact 3.8-5a: The Phase 1 Project would not impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan, and would result in less than significant and less than cumulatively considerable emergency impacts.			
Phase 1 Project	Less than Significant	No mitigation measures are required.	Less than Significant
Phase 1 Project Cumulative	Less than Significant	No mitigation measures are required.	Less than Significant
Impact 3.8-5b: The proposed Program would not impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan, and would result in less than significant and less than cumulatively considerable emergency impacts.			
Program	Less than Significant	No mitigation measures are required.	Less than Significant
Program Cumulative	Less than Significant	No mitigation measures are required.	Less than Significant
Wildland Fires			
Impact 3.8-6a: The Phase 1 Project would have less than significant and less than cumulatively considerable impact on people or structures, either directly or indirectly, because it would not expose people or structures to a significant risk of loss, injury or death involving wildland fires.			
Phase 1 Project	Less than Significant	No mitigation measures are required.	Less than Significant
Phase 1 Project Cumulative	Less than Significant	No mitigation measures are required.	Less than Significant
Impact 3.8-6b: The proposed Program would have less than significant and less than cumulatively considerable wildfire impact on people or structures, either directly or indirectly, because it would not expose people or structures to a significant risk of loss, injury or death involving wildland fires.			
Program	Less than Significant	No mitigation measures are required.	Less than Significant
Program Cumulative	Less than Significant	No mitigation measures are required.	Less than Significant

Impacts	Significance before Mitigation	Mitigation Measures	Significance after Mitigation
3.9 Hydrology and Water Quality			
Water Quality Standards and Waste Discharge Requirements			
Impact 3.9-1a: The Phase 1 Project would have less than significant and less than cumulatively considerable water quality impacts when compared to water quality standards or waste discharge requirements and would not substantially degrade surface or ground water quality.			
Phase 1 Project	Less than Significant	No mitigation measures are required.	Less than Significant
Phase 1 Project Cumulative	Less than Significant	No mitigation measures are required.	Less than Significant
Impact 3.9-1b: The proposed Program would have less than significant and less than cumulatively considerable water quality impacts when compared to water quality standards or waste discharge requirements and would not substantially degrade surface or ground water quality.			
Program	Less than Significant	No mitigation measures are required.	Less than Significant
Program Cumulative	Less than Significant	No mitigation measures are required.	Less than Significant
Groundwater Supplies and Recharge			
Impact 3.9-2a: The Phase 1 Project would have less than significant and less than cumulatively considerable groundwater impacts due to decreases in groundwater supplies or interfering with groundwater recharge such that the Phase 1 Project may impede sustainable groundwater management of the basin.			
Phase 1 Project	Less than Significant	No mitigation measures are required.	Less than Significant
Phase 1 Project Cumulative	Less than Significant	No mitigation measures are required.	Less than Significant
Impact 3.9-2b: The proposed Program would have less than significant and less than cumulatively considerable groundwater impacts due to decreases in groundwater supplies or interfering with groundwater recharge such that the Project may impede sustainable groundwater management of the basin.			
Program	Less than Significant	No mitigation measures are required.	Less than Significant
Program Cumulative	Less than Significant	No mitigation measures are required.	Less than Significant
Drainage Patterns			
Impact 3.9-3a: The Phase 1 Project would have less than significant and less than cumulatively considerable drainage impacts due to potentially altering the existing drainage pattern of a site or area, including the alteration of the course of a stream or river or through the addition of imperious surfaces, in a manner that would: - Result in substantial erosion or siltation on- or off- site; - Substantially increase the rate or amount of surface runoff in a manner which would result in flooding on- or off- site; - Create or contribute runoff water that would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff; - Impede or redirect flood flows			
Phase 1 Project	Less than Significant	No mitigation measures are required.	Less than Significant
Phase 1 Project Cumulative	Less than Significant	No mitigation measures are required.	Less than Significant

Impacts	Significance before Mitigation	Mitigation Measures	Significance after Mitigation
Impact 3.9-3b: The proposed Program would have less than significant and less than cumulatively considerable drainage impacts due to potentially altering the existing drainage pattern of a site or area, including the alteration of the course of a stream or river or through the addition of imperious surfaces, in a manner that would: - Result in substantial erosion or siltation on- or off- site; - Substantially increase the rate or amount of surface runoff in a manner which would result in flooding on- or off- site; - Create or contribute runoff water that would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff; - Impede or redirect flood flows			
Program	Less than Significant	No mitigation measures are required.	Less than Significant
Program Cumulative	Less than Significant	No mitigation measures are required.	Less than Significant
Release of Pollutants in Flood Hazard, Tsunami, or Seiche Zones			
Impact 3.9-4a: The Phase 1 Project would have less than significant and less than cumulatively considerable impacts because the Phase 1 Project would not release substantial pollutants due to inundation within flood hazard, tsunami, or seiche zones.			
Phase 1 Project	Less than Significant	No mitigation measures are required.	Less than Significant
Phase 1 Project Cumulative	Less than Significant	No mitigation measures are required.	Less than Significant
Impact 3.9-4b: The proposed Program would have less than significant and less than cumulatively considerable impacts because the Program would not release substantial pollutants due to inundation within flood hazard, tsunami, or seiche zones.			
Program	Less than Significant	No mitigation measures are required.	Less than Significant
Program Cumulative	Less than Significant	No mitigation measures are required.	Less than Significant
Water Quality and Groundwater Plans			
Impact 3.9-5a: The Phase 1 Project would have less than significant and less than cumulatively considerable impacts on water quality plans and groundwater plans because the Phase 1 Project would not conflict with or obstruct implementation of a water quality control plan or sustainable groundwater management plan.			
Phase 1 Project	Less than Significant	No mitigation measures are required.	Less than Significant
Phase 1 Project Cumulative	Less than Significant	No mitigation measures are required.	Less than Significant
Impact 3.9-5b: The proposed Program would have less than significant and less than cumulatively considerable impacts on water quality plans and groundwater plans because the proposed Program would not conflict with or obstruct implementation of a water quality control plan or sustainable groundwater management plan.			
Program	Less than Significant	No mitigation measures are required.	Less than Significant
Program Cumulative	Less than Significant	No mitigation measures are required.	Less than Significant
3.10 Land Use and Planning			
Divide an Established Community			
Impact 3.10-1a: The Phase 1 Project would result in no individual impact and would not contribute to cumulative impacts from physically dividing an established community.			
Phase 1 Project	No Impact	No mitigation measures are required.	No Impact
Phase 1 Project Cumulative	No Impact	No mitigation measures are required.	No Impact

Impacts	Significance before Mitigation	Mitigation Measures	Significance after Mitigation
Impact 3.10-1b: The proposed Program would result in no individual impact and would not contribute to cumulative impacts from physically dividing an established community.			
Program	No Impact	No mitigation measures are required.	No Impact
Program Cumulative	No Impact	No mitigation measures are required.	No Impact
Conflict with Applicable Plans, Policies, or Regulations			
Impact 3.10-2a: The Phase 1 Project would result in less than significant and less than cumulatively considerable environmental impacts associated with a land use plan, policy, or regulation of an agency with jurisdiction over the Phase 1 Project.			
Phase 1 Project	Less than Significant	No mitigation measures are required.	Less than Significant
Phase 1 Project Cumulative	Less than Significant	No mitigation measures are required.	Less than Significant
Impact 3.10-2b: The proposed Program would result in less than significant and less than cumulatively considerable environmental impacts associated with a land use plan, policy, or regulation of an agency with jurisdiction over the program			
Program	Less than Significant	No mitigation measures are required.	Less than Significant
Program Cumulative	Less than Significant	No mitigation measures are required.	Less than Significant
3.11 Noise and Vibration			
Exceedance of Established Noise Standards			
Impact 3.11-1a: The Phase 1 Project could have significant and cumulatively considerable impacts on the generation of a substantial temporary or permanent increase in ambient noise levels in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies in the vicinity of the Project.			
Phase 1 Project	Significant	**N-1:** Prior to issuance of a grading permit and during the first week of the initial activities for each construction phase (demolition, site clearing, excavation, building erection, and mechanical equipment installation) within the Phase 1 Project site, noise monitoring shall be performed in proximity to R1 and R9 to determine noise impacts on R1 and R9. If ambient noise levels increase by more than 5.0 dBA at R1 and R9, the applicant shall install temporary sound barriers on the Phase 1 Project site to attenuate construction noise levels reaching the residences at R1 and R9. The temporary sound barriers shall attenuate onsite construction noise so that ambient noise levels do not increase more than 5.0 dBA at R1 and R9. Noise monitoring shall occur subsequent to installation of the temporary sound barriers to demonstrate that noise levels do not increase more than 5.0 dBA at R1 or R9. **N-2:** During construction, the applicant shall implement the following best management measures to reduce noise levels. • During construction, the applicant shall provide evidence to the County that all equipment, fixed or mobile, are equipped with properly operating and maintained exhaust and intake mufflers, consistent with manufacturers' standards. • Impact tools (e.g., jack hammers, pavement breakers, and rock drills) used for construction shall be hydraulically or electrically powered	Less than Significant

Impacts	Significance before Mitigation	Mitigation Measures	Significance after Mitigation
		wherever possible to avoid noise associated with compressed air exhaust from pneumatically powered tools. Where use of pneumatic tools is unavoidable, an exhaust muffler on the compressed air exhaust shall be used. External jackets on the tools themselves shall be used where feasible. Quieter procedures, such as use of drills rather than impact tools, shall be used whenever feasible. • Stationary noise sources that could affect adjacent receptors shall be located as far from adjacent receptors as possible. • Construction activities shall be limited to the hours of seven a.m. and seven p.m. Monday through Friday and nine a.m. and five p.m. on Saturdays and Sundays.	
Phase 1 Project Cumulative	Significant	Implementation of Mitigation Measures N-1 and N-2 is required.	Less than Significant
Impact 3.11-1b: The proposed Program could have significant and cumulatively considerable impacts on the generation of a substantial temporary or permanent increase in ambient noise levels in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies in the vicinity of the Program.			
Program	Significant	Implementation of Mitigation Measures N-1 and N-2 is required. **N-3:** Prior to the issuance of residential building permits within the residential areas along the railroad tracks, the Project Applicant shall demonstrate that future railway noise levels at the exterior of the proposed residences do not exceed 65 dBA L_{eq} and interior noise levels do not exceed 45 dBA L_{eq}. The projected future railway noise (combination of operational activities from Amtrak, freight trains and High Speed Rail) is 78 dBA L_{eq} at 69 feet, and the noise levels can be attenuated through a setback of at least 508 feet from the railroad tracks. Alternatively, the combination of a setback and either a soundwall, berm or both would attenuate noise levels. With a residential property setback by 251 feet, the combination of a setback of 251 feet, that could achieve an attenuation of 8 dBA, and a 5-foot sound wall along the residential property lines, that could achieve an additional attenuation of 5 dBA, would attenuate exterior noise levels by 13 dBA from 78 dBA L_{eq} to 65 dBA L_{eq}. If the projected railway activities are implemented prior to the issuance of residential building permits within the residential areas along the railroad tracks, the attenuation of the railway noise shall be based on ambient noise levels at the time of the issuance of building permits associated with the individual projects.	Significant and Unavoidable
Program Cumulative	Significant	Implementation of Mitigation Measures N-1 through N-3 is required.	Significant and Unavoidable
Generation of Vibration Levels			
Impact 3.11-2a: The Phase 1 Project would have a less than significant and less than cumulatively considerable impacts from the generation of ground-borne vibration or ground-borne noise levels			
Phase 1 Project	Significant	No mitigation measures are required.	Less than Significant
Phase 1 Project Cumulative	Significant	No mitigation measures are required.	Less than Significant

Impacts	Significance before Mitigation	Mitigation Measures	Significance after Mitigation
Impact 3.11-2b: The proposed Program could have significant and cumulatively considerable impacts from the generation of ground-borne vibration or ground-borne noise levels.			
Program	Significant	**N-4:** Prior to the issuance of a grading permit for areas within the southeast portion of the Specific Plan Program site that are within 200 feet of an existing structure, the applicant shall demonstrate that construction activities would be reduced to less than the structural damage (0.2 in/sec PPV) and human annoyance (80 VdB) thresholds. The reduction in the size of the construction equipment can reduce the vibration levels.	Less than Significant
Program Cumulative	Significant	Implementation of Mitigation Measure N-4 is required.	Less than Significant
3.12 Population and Housing			
Population Growth			
Impact 3.12-1a: The Phase 1 Project would not induce substantial unplanned population growth in the Project vicinity either directly (for example, by proposing new homes and businesses) or indirectly (for example, through extension of roads or infrastructure) and would result in less than significant and less than cumulatively considerable inducement impacts.			
Phase 1 Project	Less than Significant	No mitigation measures are required.	Less than Significant
Phase 1 Project Cumulative	Less than Significant	No mitigation measures are required.	Less than Significant
Impact 3.12-1b: The proposed Program would not induce substantial unplanned population growth in the Project vicinity either directly (for example, by proposing new homes and businesses) or indirectly (for example, through extension of roads or infrastructure) and would result in less than significant and less than cumulatively considerable inducement impacts.			
Program	Less than Significant	No mitigation measures are required.	Less than Significant
Program Cumulative	Less than Significant	No mitigation measures are required.	Less than Significant
3.13 Public Services			
Fire and Police Protection			
Impact 3.13-1a: The Phase 1 Project could have significant and cumulatively considerable physical environmental from construction activities associated with the provision of, or the need for, new or physically altered police or fire protection facilities in order to maintain acceptable service ratios, response times, or other performance objectives for fire and police services..			
Phase 1 Project	No Impact (Police Protection Services) and Significant (Fire Protection Services)	No mitigation measures are required for Police Protection, and no feasible mitigation measures have been identified for impacts associated with physical expansion of fire protection facilities.	No Impact (Police Protection Services) and Significant and Unavoidable (Fire Protection Services)
Phase 1 Project Cumulative	No Impact (Police Protection Services) and Significant (Fire Protection Services)	No mitigation measures are required for Police Protection, and no feasible mitigation measures have been identified for impacts associated with physical expansion of fire protection facilities.	No Impact (Police Protection Services) and Significant and Unavoidable (Fire Protection Services)

Impacts	Significance before Mitigation	Mitigation Measures	Significance after Mitigation
Impact 3.13-1b: The proposed Program could have significant and cumulatively considerable physical environmental impacts from construction activities associated with the provision of, or the need for, new or physically altered police or fire protection facilities in order to maintain acceptable service ratios, response times, or other performance objectives for fire and police services.			
Program	No Impact (Police Protection Services) and Significant (Fire Protection Services)	No mitigation measures are required for Police Protection, and no feasible mitigation measures have been identified for impacts associated with physical expansion of fire protection facilities.	No Impact (Police Protection Services) and Significant and Unavoidable (Fire Protection Services)
Program Cumulative	Significant (Police and Fire Protection Services)	No feasible mitigation measures have been identified for impacts associated with physical expansion of police protection or fire protection facilities.	Significant and Unavoidable (Police and Fire Protection Services)
Schools			
Impact 3.13-2a: The Phase 1 Project would have less than significant and less than cumulatively considerable physical environmental impacts from construction activities associated with the provision of, or the need for, new school facilities in order to maintain acceptable performance objectives for the school district.			
Phase 1 Project	Less than Significant	No mitigation measures are required.	Less than Significant
Phase 1 Project Cumulative	Less than Significant	No mitigation measures are required.	Less than Significant
Impact 3.13-2b: The proposed Program would have less than significant and less than cumulatively considerable physical impacts associated with the provision of, or the need for, new school facilities, the construction of which could cause environmental impacts, in order to maintain acceptable performance objectives for the school district.			
Program	Less than Significant	No mitigation measures are required.	Less than Significant
Program Cumulative	Less than Significant	No mitigation measures are required.	Less than Significant
Parks and Other Public Facilities			
Impact 3.13-3a: The Phase 1 Project would have less than significant and less than cumulatively considerable physical environmental impacts from construction activities associated with the provision of, or the need for, new or physically altered parks and other public facilities in order to maintain acceptable performance objectives for parks and recreation.			
Phase 1 Project	Less than Significant	No mitigation measures are required.	Less than Significant
Phase 1 Project Cumulative	Less than Significant	No mitigation measures are required.	Less than Significant
Impact 3.13-3b: The proposed Program could have significant and cumulatively considerable physical environmental impacts from construction activities associated with the provision of, or the need for, new or physically altered parks and other public facilities in order to maintain acceptable performance objectives for parks and other public facilities.			
Program	Significant	No feasible mitigation measures have been identified for impacts associated with physical expansion of library facilities.	Significant and Unavoidable
Program Cumulative	Significant	No feasible mitigation measures have been identified for impacts associated with physical expansion of library facilities.	Significant and Unavoidable

Impacts	Significance before Mitigation	Mitigation Measures	Significance after Mitigation
3.14 Recreation			
Increase Use of Recreational Facilities			
Impact 3.14-1a: The Phase 1 Project would have less than significant and less than cumulatively considerable park impacts from the increased use of existing neighborhood and regional parks or other recreational facilities such that substantial physical deterioration of the facility would not occur or be accelerated.			
Phase 1 Project	Less than Significant	No mitigation measures are required.	Less than Significant
Phase 1 Project Cumulative	Less than Significant	No mitigation measures are required.	Less than Significant
Impact 3.14-1b: The proposed Program would have less than significant and less than cumulatively considerable park impacts from the increased use of existing neighborhood and regional parks or other recreational facilities such that substantial physical deterioration of the facility would not occur or be accelerated.			
Program	Less than Significant	No mitigation measures are required.	Less than Significant
Program Cumulative	Less than Significant	No mitigation measures are required.	Less than Significant
Recreational Facilities Physical Effect on Environment			
Impact 3.14-2a: The Phase 1 Project would have no impact and would not contribute to cumulative impacts on recreational facilities that require construction or expansion which might have an adverse physical effect on the environment.			
Phase 1 Project	No Impact	No mitigation measures are required.	No Impact
Phase 1 Project Cumulative	No Impact	No mitigation measures are required.	No Impact
Impact 3.14-2b: The proposed Program would have no impact and would not contribute to cumulative impacts on recreational facilities that require construction or expansion which might have an adverse physical effect on the environment.			
Program	No Impact	No mitigation measures are required.	No Impact
Program Cumulative	No Impact	No mitigation measures are required.	No Impact
3.15 Transportation and Traffic			
Transportation Goals and Policies			
Impact 3.15-1a: Implementation of the Phase 1 Project would have a less than significant and less than cumulatively considerable impact on a program plan, ordinance or policy addressing the circulation system, including transit, roadway, bicycle and pedestrian facilities.			
Phase 1 Project	Less than Significant	No mitigation measures are required.	Less than Significant
Phase 1 Cumulative	Less than Significant	No mitigation measures are required.	Less than Significant
Impact 3.15-1b: Implementation of the proposed Program would have a less than significant and less than cumulatively considerable impact on a program plan, ordinance or policy addressing the circulation system, including transit, roadway, bicycle and pedestrian facilities.			
Program	Less than Significant	No mitigation measures are required.	Less than Significant
Program Cumulative	Less than Significant	No mitigation measures are required.	Less than Significant

Impacts	Significance before Mitigation	Mitigation Measures	Significance after Mitigation
Vehicle Miles Travelled – Senate Bill 375			
Impact 3.15-2a: Implementation of the Phase 1 Project could be inconsistent with CEQA Guidelines section 15064.3, subdivision (b).			
Phase 1 Project	Significant	No mitigation measures beyond the VMT reducing project design elements incorporated into the Phase 1 Project are available.	Significant and Unavoidable
Phase 1 Project Cumulative	Significant	No mitigation measures beyond the VMT reducing project design elements incorporated into the Phase 1 Project are available.	Significant and Unavoidable
Impact 3.15-2b: Implementation of the proposed Program could be inconsistent with CEQA Guidelines section 15064.3, subdivision (b).			
Program	Significant	No mitigation measures beyond the VMT reducing project design elements incorporated into the Specific Plan Program are available.	Significant and Unavoidable
Program Cumulative	Significant	No mitigation measures beyond the VMT reducing project design elements incorporated into the Specific Plan Program are available.	Significant and Unavoidable
Geometric Design Features or Incompatible Use Hazards			
Impact 3.15-3a: Construction of the Phase 1 Project would have less than significant and less than cumulatively considerable hazard impacts due to a geometric design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment).			
Phase 1 Project	Less than Significant	No mitigation measures are required.	Less than Significant
Phase 1 Project Cumulative	Less than Significant	No mitigation measures are required.	Less than Significant
Impact 3.15-3b: Construction of the proposed Program would have less than significant and less than cumulatively considerable hazard impacts due to a geometric design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment).			
Program	Less than Significant	No mitigation measures are required.	Less than Significant
Program Cumulative	Less than Significant	No mitigation measures are required.	Less than Significant
Emergency Access			
Impact 3.15-4a: The Phase 1 Project would have less than significant and less than cumulatively considerable emergency access impact.			
Phase 1 Project	Less than Significant	No mitigation measures are required.	Less than Significant
Phase 1 Cumulative	Less than Significant	No mitigation measures are required.	Less than Significant
Impact 3.15-4b: The proposed Program would have less than significant and less than cumulatively considerable emergency access impact.			
Program	Less than Significant	No mitigation measures are required.	Less than Significant
Program Cumulative	Less than Significant	No mitigation measures are required.	Less than Significant

Impacts	Significance before Mitigation	Mitigation Measures	Significance after Mitigation
3.16 Utilities, Service Systems and Energy			
Utilities Facilities			
Impact 3.16-1a: The Phase 1 Project would have a less than significant and less than cumulatively considerable physical environmental impacts from construction activities associated with the need for new or expanded water, wastewater treatment or stormwater drainage, electric power, or telecommunications facilities in order to maintain acceptable service**.**			
Phase 1 Project	Less than Significant	No mitigation measures are required.	Less than Significant
Phase 1 Project Cumulative	Less than Significant	No mitigation measures are required.	Less than Significant
Impact 3.16-1b: The proposed Program would have a less than significant and less than cumulatively considerable physical environmental impacts from construction activities associated with the need for new or expanded water, wastewater treatment or stormwater drainage, electric power, or telecommunications facilities in order to maintain acceptable service.			
Program	Less than Significant	No mitigation measures are required.	Less than Significant
Program Cumulative	Less than Significant	No mitigation measures are required.	Less than Significant
Water Supplies			
Impact 3.16-2a: The Phase 1 Project would have less than significant and less than cumulatively considerable environmental effects related to providing sufficient water supplies during normal, dry and multiple dry years.			
Phase 1 Project	Less than Significant	No mitigation measures are required.	Less than Significant
Phase 1 Project Cumulative	Less than Significant	No mitigation measures are required.	Less than Significant
Impact 3.16-2b: The proposed Program would have less than significant and less than cumulatively considerable environmental effects related to providing sufficient water supplies during normal, dry and multiple dry years.			
Program	Less than Significant	No mitigation measures are required.	Less than Significant
Program Cumulative	Less than Significant	No mitigation measures are required.	Less than Significant
Water Treatment Capacity			
Impact 3.16-3a: The Phase 1 Project would have less than significant and less than cumulatively considerable effects on wastewater treatment capacity.			
Phase 1 Project	Less than Significant	No mitigation measures are required.	Less than Significant
Phase 1 Project Cumulative	Less than Significant	No mitigation measures are required.	Less than Significant
Impact 3.16-3b: The proposed Program would have less than significant and less than cumulatively considerable effects on wastewater treatment capacity.			
Program	Less than Significant	No mitigation measures are required.	Less than Significant
Program Cumulative	Less than Significant	No mitigation measures are required.	Less than Significant
Landfill Capacity			
Impact 3.16-4a: The Phase 1 Project would have less than significant and less than cumulatively considerable impacts due to generation of solid waste in excess of State or local standards, or in excess of the capacity of local infrastructure, or impairing attainment of solid waste reduction goals.			
Phase 1 Project	Less than Significant	No mitigation measures are required.	Less than Significant

Impacts	Significance before Mitigation	Mitigation Measures	Significance after Mitigation
Phase 1 Project Cumulative	Less than Significant	No mitigation measures are required.	Less than Significant
Impact 3.16-4b: The proposed Program would have less than significant and less than cumulatively considerable effects on solid waste disposal facilities.			
Program	Less than Significant	No mitigation measures are required.	Less than Significant
Program Cumulative	Less than Significant	No mitigation measures are required.	Less than Significant
Compliance with Solid Waste Regulations and Statutes			
Impact 3.16-5a: The Phase 1 Project would have less than significant and less than cumulatively considerable effects associated with solid waste federal, State, and local management and reduction statutes and regulations.			
Phase 1 Project	Less than Significant	No mitigation measures are required.	Less than Significant
Phase 1 Project Cumulative	Less than Significant	No mitigation measures are required.	Less than Significant
Impact 3.16-5b: The proposed Program would have less than significant and less than cumulatively considerable effects associated with solid waste federal, State, and local management and reduction statutes and regulations.			
Program	Less than Significant	No mitigation measures are required.	Less than Significant
Program Cumulative	Less than Significant	No mitigation measures are required.	Less than Significant
Energy Resources			
Impact 3.16-6a: The Phase 1 Project would have less than significant and less than cumulatively considerable impacts on energy resources.			
Phase 1 Project	Less than Significant	No mitigation measures are required.	Less than Significant
Phase 1 Project Cumulative	Less than Significant	No mitigation measures are required.	Less than Significant
Impact 3.16-6b: The proposed Program would have less than significant and less than cumulatively considerable impacts on energy resources.			
Program	Less than Significant	No mitigation measures are required.	Less than Significant
Program Cumulative	Less than Significant	No mitigation measures are required.	Less than Significant
Energy Policy			
Impact 3.16-7: The Phase 1 Project and proposed Program would have less than significant and less than cumulatively considerable environmental impacts on state or local plans for renewable energy or energy efficiency.			
Phase 1 Project and Program	Less than Significant	No mitigation measures are required.	Less than Significant
Phase 1 Project and Program Cumulative	Less than Significant	No mitigation measures are required.	Less than Significant

Impacts	Significance before Mitigation	Mitigation Measures	Significance after Mitigation
4.1.1 Agriculture and Forestry Resources			
Issue 1: Would the Project conflict with existing zoning for, or cause rezoning of, forest land (as defined in Public Resources Code Section 12220(g)), timberland (as defined by Public Resources Code section 4526), or timberland zoned Timberland Production (as defined by Government Code section 51104(g))?	No Impact	No mitigation measures are required.	No Impact
Issue 2: Would the Project result in the loss of forest land or conversion of forest land to non-forest use?	No Impact	No mitigation measures are required.	No Impact
4.1.2 Biological Resources			
Issue 1: Would the Project conflict with the provisions of an adopted habitat conservation plan, natural community conservation plan, or other approved local, regional, or state habitat conservation plan?	No Impact	No mitigation measures are required.	No Impact
4.1.3 Geology, Soils, and Seismicity			
Issue 1: Would the Project expose people or structures to potential substantial adverse effects, including the risk of loss, injury, or death involving the rupture of a known earthquake fault, as delineated on the most recent Alquist-Priolo Earthquake Fault Zoning Map issued by the State Geologist for the area or based on other substantial evidence of a known fault?	Less than Significant	No mitigation measures are required.	Less than Significant
Issue 2: Would the Project expose people or structures to potential substantial adverse effects, including the risk of loss, injury, or death involving landslides?	No Impact	No mitigation measures are required.	No Impact
Issue 3: Would the Project have soils incapable of adequately supporting the use of septic tanks or alternative waste water disposal systems where sewers are not available for the disposal of waste water?	No Impact	No mitigation measures are required.	No Impact

Impacts	Significance before Mitigation	Mitigation Measures	Significance after Mitigation
4.1.4 Hazards and Hazardous Materials			
Issue 1: Would the Project be located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the Project result in a safety hazard or excessive noise for people residing or working in the Project area?	No Impact	No mitigation measures are required.	No Impact
4.1.5 Mineral Resources			
Issue 1: Would the Project result in the loss of availability of a known mineral resource that would be of value to the region and the residents of the state?	Less than Significant	No mitigation measures are required.	Less than Significant
Issue 2: Would the Project result in the loss of availability of a locally-important mineral resource recovery site delineated on a local general plan, specific plan, or other land use plan?	Less than Significant	No mitigation measures are required.	Less than Significant
4.1.6 Noise and Vibration			
Issue 1: Would the Project be 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, that would expose people residing or working in the Project area to excessive noise levels?	No Impact	No mitigation measures are required.	No Impact
4.1.7 Population and Housing			
Issue 1: Would the Project displace substantial numbers of existing people or housing, necessitating the construction of replacement housing elsewhere?	No Impact	No mitigation measures are required.	No Impact
4.1.8 Wildfire			
If located in or near state responsibility areas or lands classified as very high fire hazard severity zones, a significant impact related to wildfires would occur if the proposed Project would: **Issue 1:** Substantially impair an adopted emergency response plan or emergency evacuation plan; **Issue 2:** Due to slope, prevailing winds, and other factors, exacerbate wildfire risks, and thereby expose Project occupants to, pollutant	No Impact	No mitigation measures are required.	No Impact

Impacts	Significance before Mitigation	Mitigation Measures	Significance after Mitigation
concentrations from a wildfire or the uncontrolled spread of a wildfire; **Issue 3:** 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; or **Issue 4:** 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.			

CHAPTER 1
Introduction

This Draft Environmental Impact Report (EIR) has been prepared by the County of Madera, California (County), pursuant to the applicable provisions of the California Environmental Quality Act (CEQA) and its implementing guidelines, known as the *CEQA Guidelines* (California Code of Regulations, Title 14, Chapter 3, Sections 15000-15387). The County of Madera is the Lead Agency for this EIR (State Clearinghouse Number 2017041022), which examines the potential physical impacts to the environment as a result of the Castellina Specific Plan (proposed Program, Specific Plan Program, or Program) and the first phase of the Specific Plan (Phase 1 Project). Both the Specific Plan Program the Phase 1 Project are collectively referred to herein as the proposed Project. The Castellina Specific Plan defines a proposed master-planned community that would be located on approximately 792 acres about one-mile north of the City of Madera in unincorporated Madera County. Please refer to Chapter 2, *Project Description* for a more detailed discussion of the Specific Plan site, the Phase 1 Project site, and their location.

This EIR is a combination of a Project and a Program EIR that includes a program-level analysis of impacts that could result from implementation of the Specific Plan Program and a project-level analysis of impacts that could result from implementation of the Phase 1 Project. The Program portion of the combined Project and Program EIR is prepared in accordance with *CEQA Guidelines* Section 15168. The Project portion of the combined Project and Program EIR is prepared in accordance with *CEQA Guidelines* section 15161.

CEQA requires that before a decision can be made to approve a project (i.e., Specific Plan Program or Phase 1 Project) with potentially significant environmental impacts, an EIR must be prepared that fully describes the environmental impacts of the project and identifies feasible mitigation for significant impacts. The EIR is a public information document for use by governmental agencies and the public to identify and evaluate potential environmental consequences of a proposed project, to recommend mitigation measures to lessen or eliminate adverse impacts, and to examine feasible alternatives to the project. The information contained in this EIR is to be reviewed and considered by the governing agency prior to the ultimate decision to approve, disapprove, or modify the proposed Project.

The Program portion of the combined Project and Program EIR includes an evaluation of a series of future actions that could occur with the implementation of the Specific Plan Program. The Program portion of the combined Project and Program EIR is appropriate because these future actions are characterized as one large project related by geography and the future actions are logical parts in the chain of contemplated actions. The Project portion of the combined Project and Program EIR is appropriate because the environmental impacts of a specific development

project are evaluated, and the analysis focuses on the changes in the environment that would result from the development of the Phase 1 Project. This EIR examines the planning, construction, and operation activities associated with both the Specific Plan Program and the Phase 1 Project.

1.1 Purpose of an EIR

In accordance with *CEQA Guidelines* Section 15121(a), the purpose of an EIR is to serve as an informational document that will generally inform public agency decision makers and the public of the significant environmental effects of a project, and possible ways to minimize those significant effects. *CEQA Guidelines* Section 15151 contains the following standards for EIR adequacy:

> *An EIR should be prepared with a sufficient degree of analysis to provide decision makers with information which enables them to make a decision which intelligently takes account of environmental consequences. An evaluation of the environmental effects of a proposed project need not be exhaustive, but the sufficiency of an EIR is to be reviewed in the light of what is reasonably feasible. Disagreement among experts does not make an EIR inadequate, but the EIR should summarize the main points of disagreement among the experts. The courts have looked not for perfection but for adequacy, completeness, and a good faith effort at full disclosure.*

The purpose of the Program portion of the combined Project and Program EIR is to provide for streamlining of later environmental review of subsequent site-specific development projects undertaken pursuant to the Specific Plan Program. As described in Section 15175 of the *CEQA Guidelines,* plan level EIRs may form the basis for later decision making and may streamline the later environmental review of projects or approvals included within the project, plan or program. EIRs can be prepared for: (1) a project that consists of smaller individual projects that will be carried out in phases; (2) a general plan, general plan update, general plan element, general plan amendment, or specific plan; and/or (3) projects that will be carried out or approved pursuant to a development agreement. The proposed Program includes, among other things, plans for a general plan amendment, a specific plan, and anticipates the development of future phases of the Specific Plan. Thus, CEQA requires, and this EIR includes an evaluation of cumulative impacts, growth inducing impacts, and irreversible significant effects on the environment of subsequent projects to the greatest extent feasible.

The purpose of the Project portion of the combined Project and Program EIR is to provide an objective, full-disclosure document to inform agency decision makers and the general public of the direct and indirect environmental impacts of the construction and operational activities associated with the Phase 1 Project. The analysis addresses the physical change in the environment from the proposed activity that is subject to several discretionary approvals.

In addition, this combined Program and Project EIR also identifies and evaluates a reasonable range of alternatives to the proposed Project that have the potential to mitigate or avoid the proposed Project's potential significant environmental effects while feasibly accomplishing most of the proposed Project's basic objectives.

1.2 CEQA EIR Process

1.2.1 Notice of Preparation and Scoping Meeting

In accordance with CEQA Guidelines Section15082, on April 7, 2017, the County of Madera issued a Notice of Preparation (NOP) and Initial Study, which was sent to the State Clearinghouse, Office of Planning and Research, responsible agencies, and other interested parties. The NOP and Initial Study circulated for 31 days, until May 8, 2017. The NOP requested those agencies with regulatory authority over any aspect of the proposed project to review the issues that would be addressed within the EIR and to identify any additional relevant environmental issues that should be addressed. During the public review period for the NOP, the County of Madera held a public scoping meeting on April 20, 2017 at the County of Madera at 200 W. 4th Street, Suite 3100, Madera, California, 93637. The presentation of the public scoping meeting is provided in **Appendix A**. The intent of the scoping meeting was to provide an additional forum for public agencies and interested persons to provide oral comments regarding which environmental issues should be evaluated in the EIR. No comments were made or submitted in writing at the scoping meeting, however, one scoping meeting attendee later submitted comments via email.

Five written comment letters were received by the County, as listed in Table 1-1. The NOP and responses to the NOP (i.e., scoping comments) are included in this Draft EIR as Appendix A. A general summary of the comments is provided in **Table 1-1.**

TABLE 1-1
SUMMARY OF SCOPING COMMENTS

Commenter/Date	Summary of Environmental Issues Raised in Comment Letter	Section where Addressed
Notice of Preparation – April 7, 2017		
City of Fresno April 20, 2017	The City acknowledge that they had no comments on the NOP.	Not Applicable
California High Speed Rail Authority April 26, 2017	Based on the information presented, construction of a sound barrier by the Authority is not warranted because: 1) the Castellina Community was no in existence at the time of the Authority's EIR/EIS; and 2) Figure 3.4-21 of the Authority's EIR/EIS does not show a proposed sound barrier at the southwestern border of the Castellina Community	See Section 3.11, Noise
	It is recommended that the Castellina Community continue to coordinate with the County regarding construction of a sound barrier for the proposed Community.	See Section 3.11, Noise
State Water Resources Board May 1, 2017	Feasibility to form a new public water system verses connecting to an existing nearby water system	The feasibility of connecting to an existing water system is currently being discussed with the Madera Valley Water Company.
	Submittal of water system infrastructure designs	See Section 2, Project Description
	Submittal of a water supply permit package	The County and the Applicant will be submitting a package if a new public water system is desired.

TABLE 1-1
SUMMARY OF SCOPING COMMENTS

Commenter/Date	Summary of Environmental Issues Raised in Comment Letter	Section where Addressed
	Submittal of a Title 22 Engineering Report detailing the use of recycled water	See Section 2, Project Description
	Use of groundwater for source of water supply	See Section 2, Project Description
	The permitting agency for the public water system permits and water reclamation permits is the State Water Resources Control Board, Division of Drinking Water, Merced District Office.	See Section 2.8, Reviews and Approvals
City of Madera May 8, 2017	The project and its environmental impact report should identify whether the project site is intended to be annexed into the City limits in the future.	See Section 2, Project Description
	To the degree that the proposed project generates demand for services which would be provided by the City or within the City limits (such as regional shopping opportunities, medical facilities, schools, recreation programs and amenities, etc.) the direct and indirect impacts created by that demand should be identified and mitigation measures should be incorporated.	See Section 3.13, Public Services
	The project and its environmental impact report should identify where inconsistencies between project development standards and City standards will exist and the extent to which those inconsistencies will create conflicts or limit development future development of the surrounding land within City General Plan Village B.	See Section 3.10, Land Use
	The project should consider connection to the City's sewer and water systems. Sewer and water master plans adopted by the City in 2014 anticipate extension of urban services to the site as a logical expansion of the City's service area. The 2014 Master Plans present updated strategies for serving the project area than did previous plans. Failure to develop infrastructure which is capable of serving nearby properties outside the project boundary may limit the development potential of those properties by making the financing of backbone infrastructure infeasible. Connection to the City utilities would be consistent with County General Plan Policies 1.A.4 and 1.J.1.	See Section 3.16, Utilities
BNSF Railway May 5, 2017	What is the proposed "fence" or "barrier" along the property line?	See Section 2.5, Project Characteristics
	Is there a drainage plan and ensure that drainage is not conveyed onto the BNSF right-of-way?	See Section 2.5, Project Characteristics
	Will access onto the BNSF right-of-way be affected by the project?	Public access to the BNSF right-of-way will not be affected.
	Coordinate with the California High Speed Rail Authority regarding their overpass construction and the Castellina project entrances.	See Section 2.5, Project Characteristics
	What is proposed timeline of construction?	See Section 2.5, Project Characteristics

1.2.2 Draft EIR

This Draft EIR provides a description of the proposed Program and the Phase 1 Project, environmental setting, Program and Project impacts, and mitigation measures for impacts found to be significant as well as an analysis of proposed Project alternatives. Significance criteria have been developed for each environmental resource analyzed in this Draft EIR, and are defined for each impact analysis section. Impacts are categorized as follows:

- Significant and unavoidable;
- Potentially significant, but can be mitigated to a less-than-significant level;
- Less than significant; or
- No impact.

CEQA requires that EIRs evaluate ways of avoiding or minimizing identified environmental impacts, where feasible, through the application of mitigation measures or Project alternatives.

1.2.3 Public Review

This Draft EIR is being circulated for a minimum of 45 days in accordance with CEQA Guidelines Sections 15087 and 15105. During the review period, this Draft EIR is made available to local, state and federal agencies, and to interested organizations and individuals who may wish to review and comment on the Draft EIR. The Draft EIR is available at the County of Madera, Community and Economic Development Department, Planning Division at the address below as well as at the County of Madera website at:

> *https://www.maderacounty.com/government/community-economic-development-department/divisions/planning-division/planning-forms-and-documents/-folder-264*

Written comments should be sent to:

Jamie Bax, Deputy Director of Community & Economic Development-Planning
County of Madera
Community and Economic Development, Planning
200 W. 4th Street, Suite 3100
Madera, CA 93637
Jamie.Bax@maderacounty.com
(559) 675-7821

1.2.4 Final EIR

Comments received during the public review period in response to the Draft EIR will be included and addressed in a Response to Comments document which, together with the Draft EIR, will constitute the Final EIR. The County will then consider certification of the Final EIR (*CEQA Guidelines* Section 15090). If the EIR is certified, the County may then consider approval of the Specific Plan Program and the Phase 1 Project. Prior to approving the Specific Plan Program and the Phase 1 Project, the County must adopt a mitigation monitoring and reporting program including all adopted mitigation measures (see Section 1.2.5 below), and must adopt findings

with respect to each significant impact and adopt a statement of overriding considerations for any significant and unavoidable environmental impact identified in the Final EIR in accordance with Section 15091 of the *CEQA Guidelines*.

1.2.5 Mitigation Monitoring and Reporting Plan

CEQA requires lead agencies, in conjunction with approving a project, to adopt a mitigation monitoring and reporting program for the changes to the Specific Plan Program and the Phase 1 Project which it has adopted or made a condition of approval in order to mitigate or avoid significant effects on the environment (CEQA Section 21081.6, *CEQA Guidelines* Section 15097). The mitigation monitoring and reporting program will be available to the public at the same time as the Final EIR.

CHAPTER 2
Project Description

This chapter includes a description of the Castellina Specific Plan (proposed Program) and the first phase of the Castellina Specific Plan (Phase 1 Project) that provides a basis for the environmental analysis contained in this Environmental Impact Report (EIR). Collectively, the proposed Program and Phase 1 Project are the proposed Project. Also included in this chapter are the objectives for the proposed Project and a summary of the discretionary approvals necessary to implement the proposed Project.

2.1 Introduction

Castellina, LLC (Project Applicant or Applicant) proposes the development of a master-planned community located on approximately 792 acres in Madera County (County). The Castellina Specific Plan (Specific Plan, proposed Program, Specific Plan Program or Program) would regulate and provide development guidance for the development of up to 3,072 residential units, comprised of single- and multi-family, and mixed-use residential units along with commercial mixed-uses, a proposed elementary school site, and recreational facilities, including parks, play fields, trails, plazas, community gardens, and other open space. Development of the proposed Project would occur over multiple phases, depending on market demand and the ability to provide adequate infrastructure. The proposed Project includes requests for various approvals, which include the following: General Plan Amendment; Castellina Area Plan (Area Plan); Specific Plan; Amendments to the County Zoning Code and Map (to be addressed in the Specific Plan); Large Lot Tentative Map; Development Agreement; and Tentative Map for Phase I (see **Appendix B-1** for the Specific Plan, **Appendix B-2** for the Area Plan, **Appendix B-3** for the Design Guidelines, and **Appendix B-4** for the Tentative Subdivision Map). Subsequent phases of development within the Specific Plan site will require additional approvals.

This Environmental Impact Report (EIR) has been prepared in compliance with requirements of the California Environmental Quality Act (CEQA) to address any potential environmental impacts resulting from implementation of the proposed Project. Since the design of the first phase of the proposed Project (Phase 1 Project) has been completed, this component of the proposed Project will be analyzed at a project-level in accordance with CEQA Guidelines Section 15161. Subsequent phases, including infrastructure improvements, are still conceptual and will be analyzed programmatically in this EIR in accordance with Section 15168 of the CEQA Guidelines.

2.2 Project Setting

2.2.1 Location

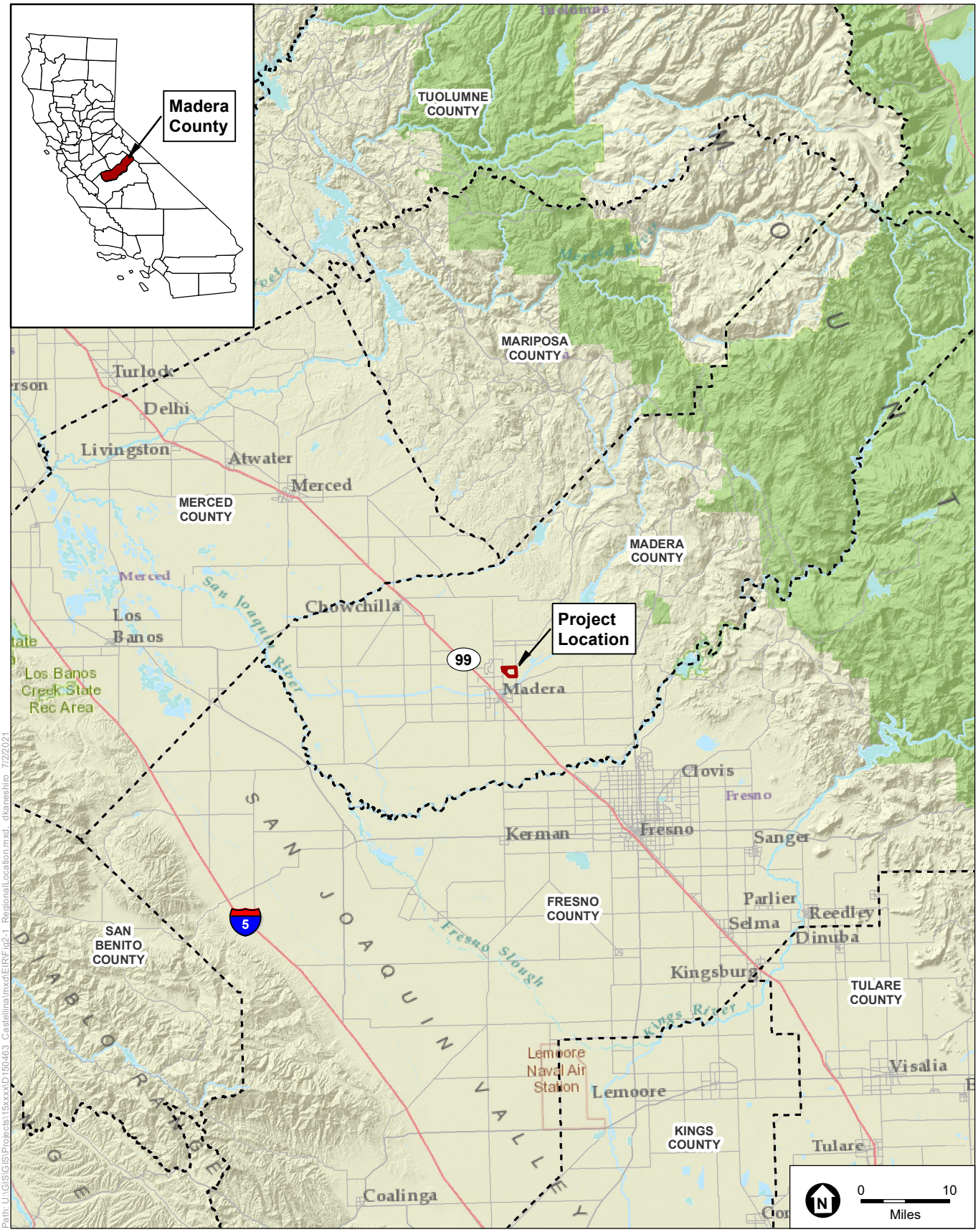
The proposed Project is located in Madera County, in the Central Valley region of California (**Figure 2-1**). The Specific Plan Program site is located approximately one-mile north of the City of Madera, three miles east of Highway 99, and roughly 16 miles south of the City of Chowchilla. Specifically, the Specific Plan Program site is bound by the Avenue 18 alignment to the north, Road 28½ to the east, the alignment of Avenue 17 to the south, Road 27 to the west, and the Burlington Northern Santa Fe (BNSF) railroad line to the southwest (**Figure 2-2**).

2.2.2 Existing Land Uses

The Specific Plan Program site is relatively flat ranging in elevation from approximately 280 feet National Geodetic Vertical Datum (NGVD) in the northwest corner to approximately 310 feet NGVD at the east end of the Specific Plan Program site. Currently, the Program site is used for agricultural production and contains almond and fig orchards, related agricultural support facilities (e.g., equipment storage), wells, and unimproved dirt roadways. There are five wells located within the Program site that draw groundwater from the Madera groundwater basin. Based on data provided by the property owners and engineering estimates, the existing agricultural operations pump approximately 2,800 acre-feet per year (AFY) of groundwater, which is equivalent to nearly 912 million gallons per year. The Program site is designated as a New Growth Area (NGA) in the County's General Plan and has a zoning designation of Agricultural Rural Exclusive 40-Acres (ARE-40).

2.2.3 Surrounding Land Uses

Similar to the Program site, many of the surrounding lands have been highly modified for agricultural purposes or otherwise developed as roads, individual residences, residential subdivisions, and commercial centers. Adjacent land uses to the Program site include rangelands to the north, orchards to the east, and rural residential land uses to the south and west (refer to Figure 2-2). Surrounding land use designations include Agricultural Exclusive (AE), Rural Residential (RR), Very Low Density Residential (VLDR), and Agricultural Residential (AR). Surrounding zoning designations include ARE-40, Agricultural Rural 5-Acre (AR-5), and Rural Residential Single Family/ Manufactured Housing Architectural Districts (RRS/MHA Districts). Avenue 17 does not presently exist along the southern boundary of the Program site between the BNSF railroad and Avenue 28½, and Avenue 18 does not exist along the northern boundary of the Program site between Avenue 27 and Avenue 28½. The Program site can be accessed via Road 27 and Road 28½ on the west and east sides, respectively (refer to Figure 2-2).



SOURCE: ESRI

County of Madera • Castellina Specific Plan • Draft EIR

Figure 2-1
Regional Location

ESA

SOURCE: ESRI

County of Madera • Castellina Specific Plan • Draft EIR

Figure 2-2
Project Vicinity

ESA

2.3 Project Objectives

The primary objectives for the proposed Project are to:

1. Provide a master planned community with residential and commercial of sufficient scale to permit master-planning of infrastructure, parks, open space, and public services to achieve efficiencies and synergies to create a community that can provide for the special social, recreational, and housing needs of its residents, visitors and employees.
2. Provide a village and neighborhood-oriented community designed to encourage an active and healthy quality of life.
3. Plan for the inclusion of a proposed elementary school site that is integrated into the overall land plan and is readily accessible via non-vehicular pathways to residential neighborhoods and parks.
4. Provide a transportation and circulation network designed to accommodate all modes of transportation.
5. Establish a mixed-use Town Center to serve as land uses that provide an activity hub to enhance the community experience and support the residents, visitors and employees within the Specific Plan Program site.
6. Provide employment opportunities to assist in meeting Madera County's employment goals.
7. Provide a broad mix of housing to contribute to meeting the housing demand in Madera County.
8. Provide a range of housing types within the Specific Plan Program site.
9. Establish one or more Community Facilities Districts (CFD) or other similar financing mechanisms to develop and maintain the necessary infrastructure (e.g., water, sewer, storm drain, parks, open space, and roadways) to create a fiscally neutral development Program for Madera County.
10. Plan to extract no more groundwater than is recharged to the aquifer each year, consistent with Madera County goals and sound water conservation practices.

2.4 Project Background

The County of Madera General Plan (General Plan) provides a broad framework for supporting future land use and development decisions within the County. As part of the General Plan's Land Use Element, the County designated "New Growth Areas" (NGAs), which are areas designated for extensive new mixed-use development for which an area plan must be prepared and adopted. The goal of a NGA is to ensure that areas are comprehensively planned and developed as well-balanced, independent communities. On February 24, 2014, the Madera County Board of Supervisors approved Resolution 2014-012, changing the land use designation of the Specific Plan Program site from Agricultural Exclusive (AE) to NGA.

2.5 Project Characteristics

The Specific Plan Program would guide the development of up to 3,072 residential units, approximately 21 acres of commercial mixed-use, and approximately 132 acres of parks, trails, plazas, community gardens, and other open space across the 792-acre Specific Plan Program site.

Residential development would be divided across five villages, including a centralized commercial mixed use Town Center. The residential villages would be designed around a framework of parks and recreation facilities to encourage a walkable community and active community interaction. Each village will be organized in a traditional modified grid roadway pattern, with a minimal number of cul-de-sacs. Due to the rural setting of the Specific Plan Program site and surrounding area, development under the Specific Plan Program would also require the construction of new utilities, such as a new wastewater treatment plant (WWTP) and storm drain system, a new water supply system, and provide additional public services, including a proposed elementary school, to serve the new population. **Figure 2-3** shows the illustrative land plan as described in the Specific Plan for the Specific Plan Program site.

2.5.1 Proposed Land Use and Zoning Designations

The Specific Plan Program includes a variety of land use designations and zoning districts, consisting of residential and commercial uses as well as open space and recreational uses. Further, the Specific Plan Program includes improvements to some off-site areas related to infrastructure improvements. A summary of proposed land uses within the 792-acre Specific Plan Program site is included in **Table 2-1**.

TABLE 2-1
SUMMARY OF PROPOSED SPECIFIC PLAN PROGRAM LAND USES

Type of Use	Gross Acres[1]	Gross Acreage Percent of Project Site	Dwelling Units per acre (du/ac) square footage (sf)	Target Net Density (du/ac)	Net Acres[2]	Units[3]
Residential	**510[4]**	**64%**		**7.5**	**395[4]**	**2,870**
Very Low Density Residential	*36*	*4%*	*2.0-4.0*	*3.0*	*30*	*90*
Low Density Residential	*230*	*29%*	*5.0-7.0*	*6.0*	*184*	*1,104*
Medium Density Residential	*148*	*19%*	*6.0-15.0*	*10.0*	*103*	*1,026*
High Density Residential	*12*	*1%*	*15.0-25.0*	*22.0*	*11*	*248*
Active Adult	*84*	*11%*	*5.0-7.0*	*6.0*	*67*	*402*
Proposed Elementary School Site	**15**	**2%**		**NA**	**NA**	**NA**
Open Space	**132**	**17%**		**NA**	**NA**	**NA**
Public Parks and Recreational Facilities	*71*	*9%*		*NA*	*NA*	*NA*
Open Space Areas	*61*	*8%*		*NA*	*NA*	*NA*
Mixed-Use	**21**	**3%**				**202**
Residential Component (Allowed)				*10*	*21*	*202*
Commercial Component				*NA*	*NA*	*NA*
Roads and Other Miscellaneous Areas	**114**	**14%**		**NA**	**NA**	**NA**
Totals	**792**	**100%**		**NA**	**NA**	**3,072**

SOURCE: Kimley Horn 2021.

1 Gross acres includes all land (including streets and rights-of-way) within a parcel designated for a particular residential type.

2 Residential net acres excludes streets and rights-of-way for Very Low, Low, and Medium Density parcels. Net acreages are derived by deducting percentage estimations of street rights-of-way from gross acres for each of these residential uses.

3 Unit quantities are derived by multiplying "Target Net Densities" by net acreages. Note that "Net" and "Gross" acreages for High Density uses are shown as equivalent, without internal local street systems. Unit counts may vary between residential categories; however, the total number of Project dwelling units may not exceed total shown.

4 Excludes Mixed-Use acreage that includes a residential component to avoid duplication

D150463.00 - Castellina SP EIR\05 Graphics-GIS-Modeling

SOURCE: Kimley Horn, 2021

County of Madera • Castellina Specific Plan • Draft EIR

Figure 2-3
Illustrative Land Plan

ESA

The Specific Plan defines land use designations applicable to the Castellina area only. In addition, the Specific Plan establishes zoning districts and provisions that will implement the land use designations. Upon approval of the Specific Plan, the County of Madera Zoning Map will be amended to identify the Program site as the Castellina Specific Plan, and the zoning as set forth in the Castellina Specific Plan would apply. Potential land uses are illustrated in the Illustrative Land Plan (Figure 2-3), and the Proposed Land Use Designations and Zoning Districts (**Figure 2-4)** are described in further detail below.

Residential Uses

The Specific Plan Program would accommodate a range of residential land use designations and zoning districts, consisting of very low, low-, medium-, and high-density residential uses. As further described below, residential uses would be allowed in residential and town center mixed-use land use designations and zoning districts. The proposed residential development could range from detached and attached single-family residences to multi-family housing. The Specific Plan Program would consist of a maximum of 3,072 dwelling units. A description of each residential land use designation and zoning district follows:

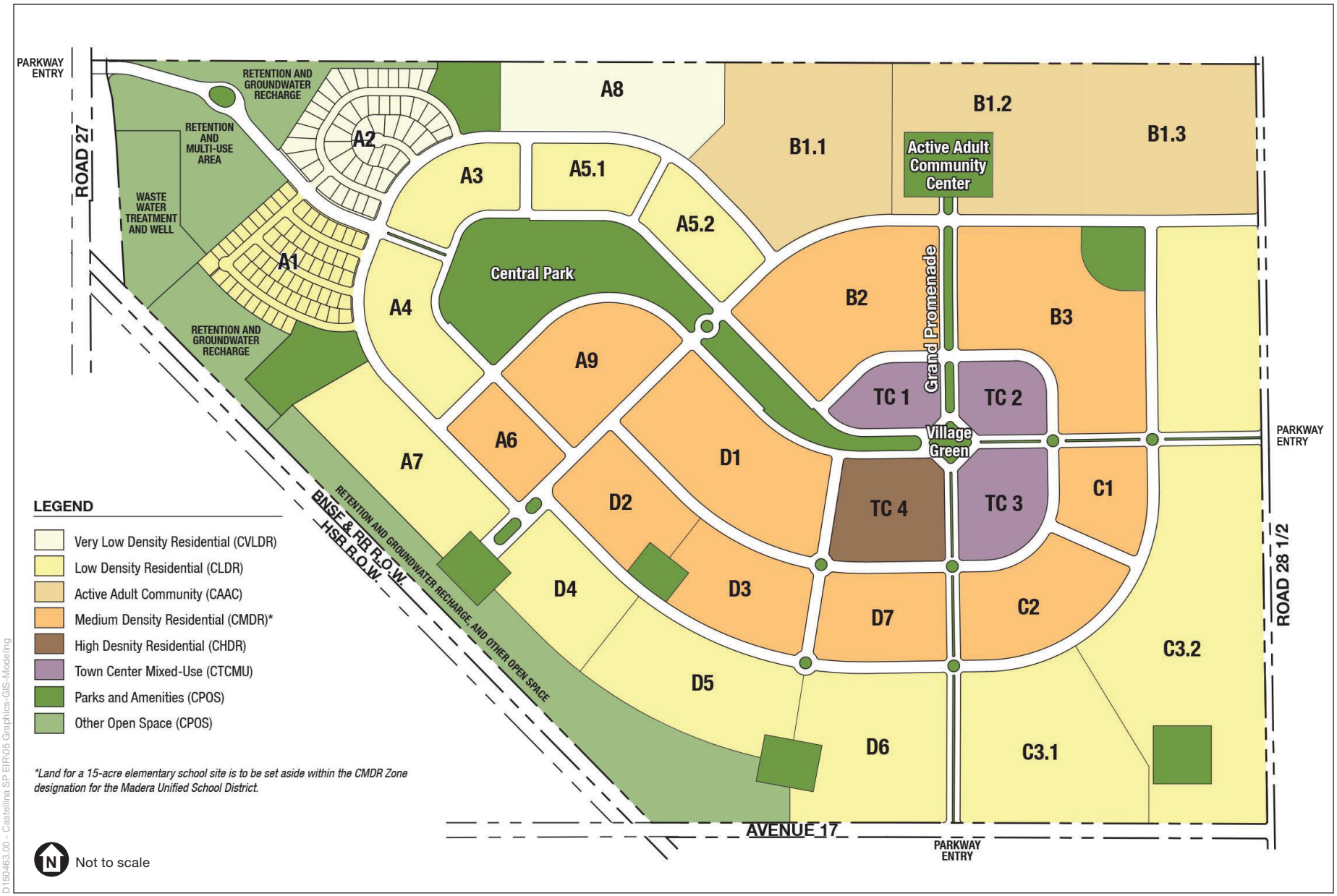
Castellina Very Low-Density Residential (CVLDR): The CVLDR land use designation and zoning district allows for detached units ranging in density from 2.0 to 4.0 dwelling units per acre (du/ac), with a target net density of 3.0 du/ac. Development under the Specific Plan would allow for the construction of 90 dwelling units on approximately 36 acres in the northwestern corner of the Specific Plan Program site.

Castellina Low-Density Residential (CLDR): The CLDR land use designation and zoning district allows for detached unit sizes ranging in net density between 5.0 to 7.0 du/ac, with a target density of 6.0 du/ac. Development under the Specific Plan would allow for the construction of 1,104 dwelling units on approximately 230 acres throughout the Specific Plan Program site.

Castellina Medium-Density Residential (CMDR): The CMDR land use designation and zoning district allows for both detached and attached units ranging in net density between 6.0 and 15 du/ac, with density target net density of 9 du/ac. Development under the Specific Plan would allow for the construction of 1,026 dwelling units on approximately 148 acres in the middle of the Specific Plan Program site.

Castellina High-Density Residential (CHDR): The CHDR land use designation/zoning district allows for attached units ranging in net density between 15.0 and 25.0 du/ac, with a target net density of 20.0 du/ac. Development under the Specific Plan would allow for the construction of up to 248 dwelling units on approximately 12 acres in the southwestern quadrant of the Town Center area.

Castellina Active Adult Community (CAAC): The CAAC land use designation and zoning district allows for detached units ranging in net density between 5.0 to 7.0 du/ac, with a target net density of 6.0 du/ac. The CAAC land use designation and zoning district would provide for the development of 402 age-restricted units on approximately 84 acres in the northeastern corner of the Specific Plan Program site. The Active Adult community would be connected to the Town Center and the Central Park via the Grand Promenade.



SOURCE: Kimley Horn, 2021

County of Madera • Castellina Specific Plan • Draft EIR

Figure 2-4
Proposed Land Use Designations and Zoning Districts

ESA

Elementary School: A 15-acre elementary school site will be made available and could be developed on one of the designated residential parcels. The school would be owned and operated by the Madera Unified School District (MUSD). The location of the school site will be determined between the school district and the project developer. Currently, the school location is proposed south of the proposed Central Park.

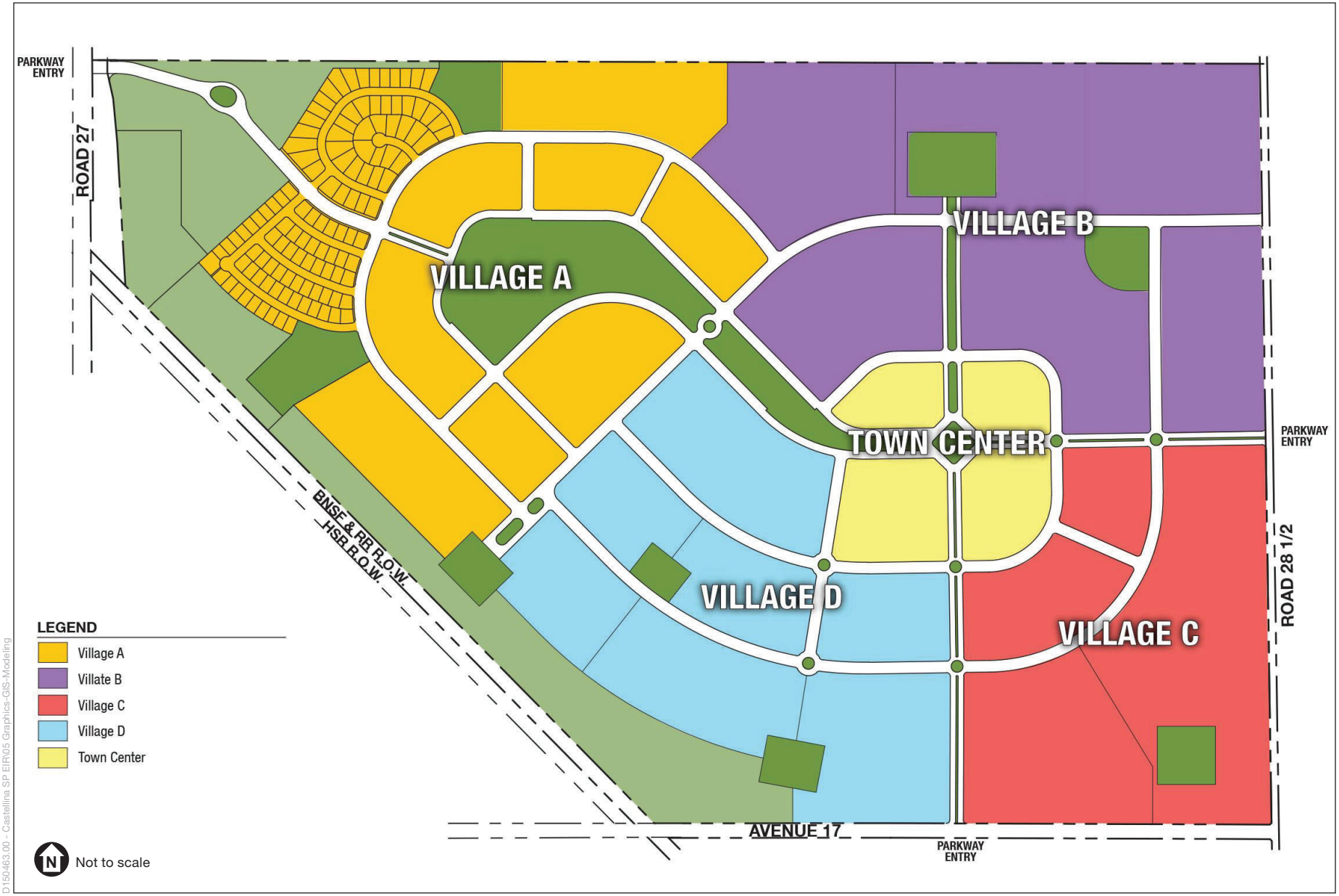
The aim of the overall residential structure is to locate the very low- and low-density residential lots in the western and outer areas of the Specific Plan Program site, with a balance of high- and medium-density housing located centrally nearer to the Town Center and central green spaces. The density of residential units would increase from the Town Center, where there would be attached and multi-family units, to the periphery, where there will be less dense single-family detached housing, including estate lots. Large estate lots would be located in the northwestern area of the Specific Plan Program site, oriented around such features as vineyards, a community garden, or some other appropriate amenity.

Village Structure

The Specific Plan includes a Village Structure, which is comprised of five villages, each with a mix of land uses and residential densities and its own distinctive character. (**Figure 2-5**). As shown in Figure 2-5, the Town Center is the central, mixed-use village with the four surrounding villages, labeled A through D starting in the northwestern corner and moving clockwise around the Specific Plan Program site. Each village would be designed around a common area such as a park, school, or community garden, and linked to the Central Park and Town Center via roads and pedestrian and bicycle pathways. Within each village, a mix of densities, housing products and lot sizes would be encouraged to create a diversity of housing types and varied streetscape. Each village would be organized in a modified grid roadway pattern, with a minimal number of cul-de-sacs.

Commercial Use

In addition to residential uses, the Specific Plan Program would provide a mix of commercial, office, retail, civic, institutional, and residential uses within the proposed Castellina Town Center Mixed-Use (CTCMU) land use designation and zoning district or multi-use area. The CTCMU land use designation and zoning district and multi-use area allows for up to 134,000 sf of commercial uses including retail, office, civic, and institutional. Additionally, as shown in Table 2-1 above, 202 residential units would be allowed in parcels designated as CTCMU with a density of up to 10.0 du/ac. Mixed-use buildings could include such uses as a public safety facility, library, community center, post office, retail shops, dining and entertainment, professional offices, and high-density residential units. Buildings would be designed for flexible use; however, no single commercial business would occupy greater than or equal to 50,000 square feet of building. The intent for this land use designation and zoning district is to create an active town center for the community that also serves as a community gathering place for events and functions. The focal point of the Town Center would be the Village Green which is surrounded on all four sides by streets designed to be periodically closed to vehicular traffic. This will allow for pedestrian-only access to accommodate community events such as a farmer's market, craft shows, festivals, special events, and civic celebrations.



SOURCE: Kimley Horn, 2021

County of Madera • Castellina Specific Plan • Draft EIR

Figure 2-5
Proposed Village Structure

ESA

Public and Quasi Public

The Specific Plan also includes the Castellina Park and Open Space (CPOS) land use designation and zoning district. The CPOS land use designation and zoning district allows for approximately 132 acres of parks and other open spaces in the Specific Plan Program site. Specific uses will be planned and designed with the appropriate facilities to meet the needs of both the community at-large, as within the Central Park, or for local residents as within the parks for individual villages. The parks and open spaces, located throughout the Specific Plan Program site would serve as social gathering spaces as well as centers for recreation activities, education and community functions, and aesthetic features. A description of the proposed parks and open spaces is below.

Central Park, Village Green and Grand Promenade

A Central Park, Village Green, and Grand Promenade combine to form the central continuous chain of connected parklands, greenway corridors, open space, and amenity features that define the heart of the community. The Specific Plan is designed around these amenities to enhance pedestrian walkability and connectivity throughout the Specific Plan Program site as well as provide areas for commercial, recreational, and special event activities. These areas would be landscaped using recycled water as a way to increase water conservation.

Central Park

The Central Park would be the largest park within the Specific Plan Program site at approximately 31 acres and ¾- to 1-mile long, extending northwest to southeast through the center of the Specific Plan Program site. The Central Park would serve as the recreational anchor of the community around which the residential villages would be arranged. The west end would have a large active recreational park with sports fields and courts, entry features, open play areas, restroom(s), a tot lot, and fitness equipment. Extending eastward would be a linear park designed for passive recreation. Activities may include trails, passive play areas, preserved remnants of the existing almond and fig orchard, sitting areas, a small amphitheater, gardens, play courts, or a dog park.

Due to its central location with convenient pedestrian access, an outdoor community amphitheater or performance area is envisioned for such features as small-scale concerts, outdoor movies, picnicking, theater performances, public talks, art and craft shows, sidewalk vending booths, and other similar activities in the Central Park. The width of this portion of the Central Park would range from 100 to 300 feet. The Central Park would be crossed only once by a roadway before meeting the Village Green, allowing unrestricted pedestrian and bicycle movement with minimal automobile interference.

Village Green

In the middle of the Town Center, which is comprised of a mix of commercial and residential uses, would be the Village Green, a diamond-shaped park and plaza. Features could possibly include a bandstand, an iconic clock tower, landscape sculptures, gardens, benches, or water features and play areas for children. Roadways surrounding the Village Green would be designed so they could be temporarily closed to vehicular traffic, allowing opportunities for community events such as farmer's markets, art and craft fairs, car shows, and holiday gatherings.

Grand Promenade

From the Town Center and Village Green, the Grand Promenade, a 50- to 60-foot wide median and central pedestrian corridor, would run northward and connect with villages and neighborhoods in the northeast quadrant of the Specific Plan Program site, including the Active Adult community. Amenities along this Grand Promenade could include a wide multi-use path, flower gardens, entry arbors, kiosks, shade trees and landscaping, sculptures, benches, and other landscape features. One-way roads on each side would define boundaries and provide vehicular and bike access between the Active Adult community and the Town Center and Village Green.

At the northern end of the Grand Promenade, the Active Adult Center would be located to support the Active Adult community. Social and recreational events would be hosted here for residents and visitors. Indoor uses may include a multi-purpose room for community events, activity meeting rooms, a fitness center, locker rooms, and administrative spaces. Outdoor uses may include a swimming pool, tennis court, bocce court, pickleball courts, and an outdoor picnic and barbeque space.

Neighborhood Parks and Community Gardens

The Specific Plan calls for a minimum of 20 acres of neighborhood parks for the overall Project. Each residential village would include a neighborhood park, which would provide a recreational focal point for the surrounding neighborhoods. At least one community garden is proposed within the multi-use open space area adjacent to or within the open area along the BNSF railroad line. The community garden(s) would also include pedestrian access to connect to the Central Park. In some cases, this pedestrian access may take the form of 20-foot wide "paseos" between homes, or as multi-use trails along roadways. The locations of the four proposed neighborhood parks (one per village) as well as the community garden (between Villages A and D near the BNSF railroad tracks) are shown as Park and Amenities within Figure 2-4 above.

Multi-Use Open Space

A multi-use open space area varying from a minimum of 250 feet-wide to over 400 feet-wide would be located between the BNSF railroad line and adjacent residential uses. The majority of this open space area will be devoted to stormwater retention, wastewater treatment plant, and recharge basins. In some areas, this open space area would wrap around the neighborhood park in Village A and around the community garden located between Villages A and D. It is anticipated that dirt excavated to create the proposed stormwater and wastewater facilities may be used as fill material to build a berm adjacent to the BNSF railroad line; this is described in greater detail below.

2.5.2 Proposed Circulation System

The circulation system within the Specific Plan Program site would be designed as a comprehensive road network that provides both vehicular and non-vehicular mobility throughout the community. Some streets would be designed for multiple modes of transportation, including walking, bicycling, or driving a local use vehicle (LUV) or automobile. Additionally, a network of interconnected pedestrian and bike pathways are proposed throughout the residential,

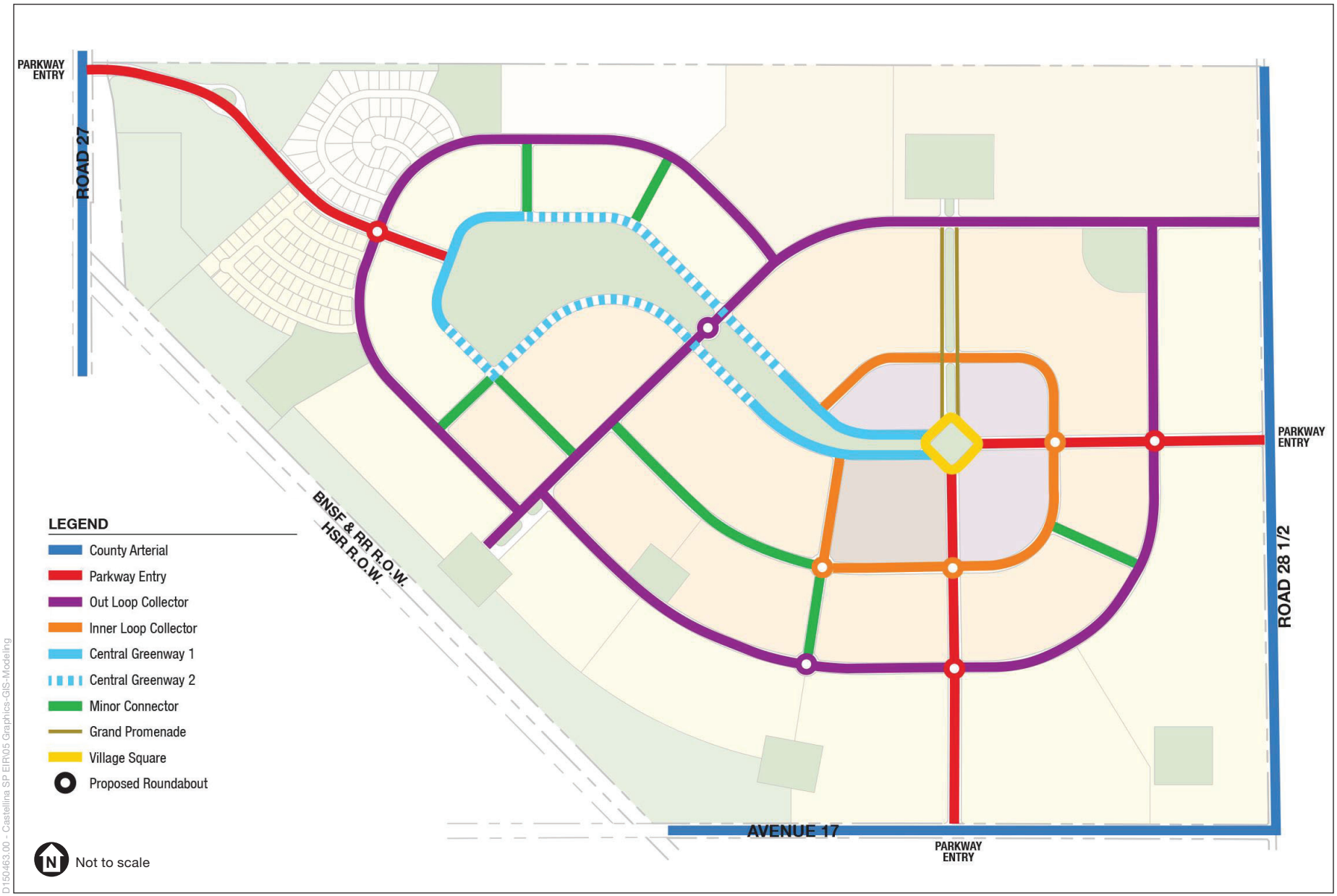
commercial, and park and open space areas to increase walkability and connectivity throughout the community.

Roadway Network

Vehicle access to the Specific Plan Program site would be provided by four access points; one via Road 27, one via Avenue 17, however, subject to the High Speed Rail Authority construction of the overpass at the BNSF railroad and roadway to Road 28½, and two access points along Road 28½ (**Figure 2-6)**. The County of Madera and the project applicant are coordinating with the California High Speed Rail Authority (CHSRA) regarding the design and construction of the overpasses at the BNSF railroad along Road 27 and Avenue 17. Three Parkway Entry roadways would serve as the primary entrances into the Specific Plan Program site and would be located on Road 27 in the northwestern corner, Avenue 17 to the south, and Road 28½ to the east. The Parkway Entry roadways would contain two travel lanes in each direction divided by a landscaped median. A bicycle/pedestrian trail would be located on one side of the Parkway Entry roadways with a pedestrian sidewalk on the opposite side. Landscaping would be provided on both sides of the Parkway Entry roadways, where combined with the landscaped median, would create a green boulevard that would be visually pleasing.

Vehicle circulation within the Specific Plan Program site would be provided by an inner loop road collector between the mixed-use Town Center and medium density neighborhoods, and an outer loop collector that provides access to both low and medium density residential neighborhoods and their parks, the Active Adult community, and the elementary school (Figure 2-6). The alignment of the loop roads is intended to provide efficient vehicle connectivity. The loop roads and the entryways would be aligned to create sight lines that reinforce a boulevard character and sense of place. The inner loop roadway would include two travel lanes, one in each direction, and parking on one side of the street. On-street Class II bicycle lanes would be located on the inner loop roadway and sidewalks would be provided on both sides of the roadway separated by a landscaped buffer. The outer loop roadway would include two travel lanes, one in each direction, divided by a center turn lane and parking on both sides of the roadway. A separated Class I multi-use trail would be located on one side of the outer loop roadway and a sidewalk on the other side. No vehicular access would be allowed on the multiuse trail. Landscaping would be planted along both sides of the outer loop roadway. In addition to the two loop roads, minor collector roadways would be built to connect the inner and outer loop roadways and to provide further internal connectivity. The minor collector roadways would contain one travel lane in each direction with parallel parking and bicycle lane located on both sides of the roadway.

Each village would include collector roads, which would be designed to maintain slower speeds and would contain two travel lanes, one in each direction. Where sufficient space and roadway geometric conditions allow, Neighborhood Entry Streets would be constructed to establish a sense of arrival at key points around the community. These would include one shared lane of travel in each direction for vehicles and bicycles, divided by a landscaped median. Signage, either in the median or landscaped strip, would be used to identify neighborhoods or project phases. Within each neighborhood, neighborhood streets and lanes would provide direct access to the residential units.



SOURCE: Kimley Horn, 2021

County of Madera • Castellina Specific Plan • Draft EIR

Figure 2-6
Proposed Roadway Network

ESA

Bicycle and Pedestrian Network

Bicycle facilities would be integrated throughout the Specific Plan Program site through Class I[1] bikeways, Class II[2] bikeways, and separated off-street multiuse paths (**Figure 2-7)**. Where bike lanes are not provided, such as along local residential streets, bicyclists and slower-moving vehicles would share the road. Multi-use bicycle/pedestrian paths are proposed to be a minimum of ten feet wide and on-street bike lanes would be a minimum of four feet wide. In addition to bicycle facilities, the Specific Plan Program site would include a network of sidewalks and pedestrian paths, such as the Grand Promenade, Town Center and Village Green, to allow for walkability and connection throughout the Program site.

Transit Service

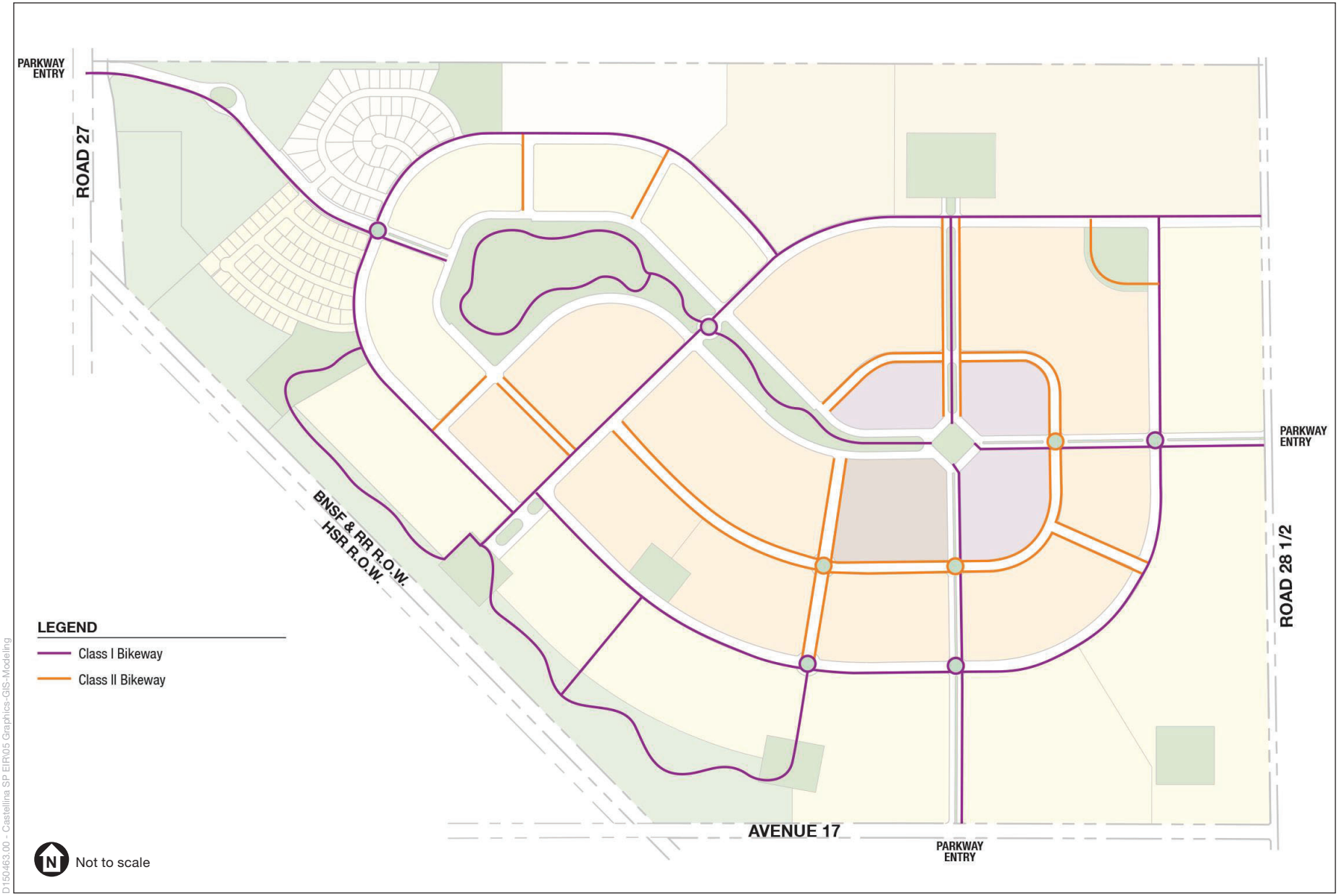
Transit service in Madera County is currently provided by Madera County Connection. It presently provides service via three routes: Eastern Madera County- Madera; Chowchilla-Fairmead-Madera; and Eastin Arcola-Ripperdan-La Vina. At least one bus stop with a bus shelter is proposed to be provided in a convenient and accessible location in the proposed Town Center. If requested, an additional bus stop with a shelter would be provided at the Active Adult Center. The location of these bus stop(s) or shelter(s) would be identified in coordination with Madera County Connection and the City of Madera Transit Services. Within a civic building or other appropriate location in the Town Center, a bulletin board would be provided for the purposes of posting bus schedules, park-and-ride facility locations, and notices of availability for alternative transportation services (e.g., airport shuttle). A bulletin board would also be located in the Active Adult Center.

2.5.3 Offsite Circulation Improvements

Offsite roadway improvements to the surrounding Avenue 17, Road 27, and Road 28½ could include installation of roundabouts, traffic signals, and other intersection controls. The first segment of the new high speed railway begins north of the Specific Plan Program site and extends southward. Construction has been authorized for the high-speed rail line which calls for the construction of new railway overpasses over Road 27 and over Avenue 17, which includes construction of Avenue 17 from the overpass to Road 28 ½. The timing and implementation of these improvements will depend on, among other factors, fair share assessment of impacts in coordination with Madera County, the City of Madera, the CHSRA, BNSF, and Caltrans.

[1] Class I bikeways are referred to as bicycle paths and are completely separated from the roadway.

[2] Class II bikeways are referred bike lanes and provide a striped lane for one-way bike travel on a street and typically includes signs placed along the roadway.



D150463.00 - Castellina SP EIR\05 Graphics-GIS-Modeling

SOURCE: Kimley Horn, 2021

County of Madera • Castellina Specific Plan • Draft EIR

Figure 2-7
Proposed Bicycle Circulation Network

ESA

2.5.4 Utilities/Infrastructure Improvements

Implementation of the proposed Project would require the construction of public facilities and services to serve the land uses proposed in the Specific Plan Program site. Services include: water, wastewater, storm drainage, dry utilities, and solid waste disposal.

Water Supply

The proposed Project would be served with a combination of potable groundwater through a combination of potable groundwater and recycled water. Potable supplies will be delivered through a looped water system with stubs to connect with each of the proposed villages and neighborhoods. A detailed hydraulic analysis will be prepared during subsequent design phases to define pressure zones and pipe sizes for domestic and fire protection flows. A Water Supply Assessment (WSA), consistent with the requirements of Water Code Section 10910 et seq has been conducted and identifies that the water supplies for the Project will be sufficient to meet the Project's water demands over a 20-year horizon as discussed in Section 3.9, Hydrology and Water Quality and Section 3.16, Utilities and Service Systems in this EIR. To limit water use, the Specific Plan includes the incorporation of water conserving features that meet the requirements of the CAL Green Code for indoor infrastructure and go beyond the State's Model Water Efficient Landscape Ordinance (MWELO) and current County of Madera water efficiency ordinance for landscape efficiency. These features include, but are not limited to:

- The use of high-efficiency appliances including high efficiency toilets, faucet aerators, on-demand water heaters or other fixtures as well as Energy Star and California Energy Commission-approved appliances.
- Landscape restrictions through the use of specific identified plant types and restrictions on residential lot landscape areas by lot classification. This includes limiting plant types to a majority of "low" or "very-low" water use and limiting the percent of residential turf to 25 percent of the landscaped area of each residential lot classification.
- Similar landscape restrictions for non-residential portions of the proposed Specific Plan Program and the use of recycled water to serve non-residential uses.

Estimates of water use are based on these and other specific considerations as detailed in the WSA. The Applicant would be responsible for construction of the water supply system within the Specific Plan Program site.

Wastewater

The Specific Plan Program site is not near a public wastewater system or non-community wastewater system, and there is no existing onsite sewage disposal system. To meet wastewater treatment and disposal needs of the proposed community, qualified entities, retained by the Applicant, would construct and operate a wastewater treatment plant (WWTP) within the Specific Plan Program site. The WWTP would include collection, treatment, disposal, and redistribution of treated reclaimed water. Wastewater would be collected and conveyed through a gravity system of pipes, supplemented by one or more lift station(s), if required, and flow to the onsite WWTP, which would be located at or near a low elevation point in the northwest corner of the

Specific Plan Program site. The wastewater network has been sized based on the conceptual land use plan, and will be refined based on more detailed design.

Facilities included as part of the WWTP would include a pumping station (as required); effluent disinfection; biosolids digestion, dewatering, and hauling; effluent pumping and storage for reuse; administration and laboratory; and electrical supply, distribution, instrumentation. The WWTP building would incorporate odor minimizing features and architectural features to screen the plant from surrounding land uses. This would include such measures as enclosing the WWTP with fencing and landscaping and designing the building consistent with the design guidelines as described in the Specific Plan. Biosolids removed during the treatment process would be transferred via truck to a local landfill or other appropriate facility for disposal. The WWTP may be built in two or more phases concurrent with build out of the proposed Project. It is anticipated that the WWTP would require approximately 16.2 acres of land.

Recycled Water Facilities

The County General Plan's goals and policies require new development to install non-potable recycled water infrastructure for irrigation of landscaped common areas where feasible and cost effective. Wastewater from the proposed WWTP would be treated to a tertiary-quality effluent level that would meet State Title 22 recycling criteria for unrestricted irrigation uses. A portion of the treated water would be used for irrigation on the Specific Plan Program site, including parks and open space areas, commercial areas, and landscaped roadway medians, while remaining portions would be conveyed offsite for agricultural irrigation use elsewhere in the area.

Stormwater Drainage System

Concurrent with phasing of the Specific Plan Program, the Applicant would be responsible for constructing the stormwater drainage system. Once the stormwater system is operational, it would be deeded to and maintained by an appropriate agency or entity. A significant portion of the stormwater drainage system within the Specific Plan Program site would be graded to drain towards the large open space area along the BNSF railroad tracks and into infiltration retention basins created as part of the Managed Aquifer Recharge program, as described in the Water Supply Assessment. The portion of the Specific Plan Program site along the railroad tracks will be approximately 10 to 16 feet lower in elevation than the elevation of the railroad tracks. As a result, the slope along the northeast side of the railroad tracks will create a barrier between the recharge basins and the railroad tracks.

Stormwater drainage would be directed through site design elements and Low Impact Development (LID), such as bioswales and bio-infiltration basins, as it enters into the drainage network. In addition, the grading and layout of portions of the system are proposed to be designed adjacent to open space and park areas. Portions of these areas are proposed to incorporate dual use park features and infiltration retention basins that would be used for retention/detention for groundwater recharge, stormwater treatment, and flood control. Sizing and specific locations of these retention/detention elements would be designed to contain up to a 100-year, 10-day storm and meet the County's groundwater goals and objectives. The Specific Plan Program may utilize deep dry-wells located within the stormwater basins, and elsewhere within the Specific Plan

Program site, to facilitate recharge of stormwater. Under most circumstances, stormwater is anticipated to be used to recharge the underlying aquifer and will not flow offsite. This feature is an important element to help the Specific Plan Program meet the County's water conservation ordinance requirements for large developments.

As phases of the Specific Plan Program are developed, the stormwater drain collection system would be constructed to its master plan configuration, with all required inlets and ultimate pipe sizes. Interim construction of temporary retention or detention basins would be allowed, as needed. These temporary basins would be designed to provide the same level of protection as the permanent facilities, but with only enough capacity to serve the area being developed.

Dry Utilities

Gas and electric service for the Specific Plan Program would be provided by Pacific Gas and Electric Company (PG&E). Telecommunications services would be provided by Verizon or other service provider(s) at the time of construction. These utilities would be expanded with the development of each phase of the Specific Plan Program. A new point of connection for the dry utility system would be extended to the Specific Plan Program site.

Solid Waste Management

A County-qualified solid waste company would be contracted to provide solid waste management services to the Specific Plan Program site. To assist in reducing solid waste generation, the Applicant would ensure that construction contractors provide recycling bins for glass, metals, paper, wood, plastic, green wastes, and cardboard during construction; and building materials would be made of recycled materials, to the greatest extent practicable.

2.5.5 Specific Plan Program Grading

All lots, roadways, and other improved areas within each phase of the Specific Plan Program are proposed to be graded sufficiently to accommodate development. A grading borrow/stockpile area may be established in a future phase area, if necessary, to accommodate design grades for the Program site. All grading activities would be required to comply with Madera County Municipal Code. All temporary borrow/stockpile areas would be treated with the erosion control measures, as appropriate. Total cut and fill will be approximately 2.1 million cubic yards of earth. Based on the estimated cut and fill quantities, buildout of the Specific Plan Program site would result in a balanced site with regard to earthwork, with no anticipation of import or export of soil.

2.5.6 Specific Plan Program Construction Timeline

The development of the Specific Plan Program will include several phases. The buildout of the Specific Plan Program is estimated to occur for approximately 15 years until approximately 2035 to 2040 depending on when initial development occurs.

2.6 Project Application Components

2.6.1 Castellina Specific Plan and Castellina Area Plan

The Specific Plan has been prepared as the policy and regulatory documents for the Specific Plan Program site to guide new development as designated by the NGA land use. Specifically, the Specific Plan includes goals, policies, programs, development standards and design guidelines to direct future development based on the Project objectives. In accordance with the County's NGA policies, the Castellina Area Plan (Area Plan) has also been prepared as part of the Specific Plan package and serves as the high-level land use plan in conjunction with the more detailed Illustrative Land Plan included in the Specific Plan. The Specific Plan and Area Plan will be considered for approval concurrently with the consideration of the certification of the EIR. Following the approval of the Area Plan and the Specific Plan, the NGA designation would be replaced by the land use and zoning designations identified in the Specific Plan and Area Plan.

2.6.2 Infrastructure Master Plan

The Infrastructure Master Plan (IMP) presents the plans and design standards for numerous infrastructure systems within the Specific Plan Program site, including but not limited to roadways, water, wastewater, and storm drainage facilities. The IMP defines and coordinates public infrastructure and its construction upon all land within the Specific Plan Program site, and provides a guide for the conditioning of land use entitlements. The IMP provides preliminary designs and standards for collector streets and roadways; water supply, storage and distribution; wastewater and sewage collection, treatment, and reclamation; storm drainage facilities and grading; and other associated community facilities. The IMP also identifies appropriate areas of the Specific Plan Program site for development of the aforementioned infrastructure facilities and improvements. The IMP is consistent with the Castellina Specific Plan Infrastructure and Public Services (Section 4 of the Specific Plan).

2.6.3 General Plan Amendment

A General Plan Amendment would be required to adopt the Castellina Area Plan which will refine the general plan policies for the proposed geographic area. These actions will be adopted by resolution.

2.6.4 Zoning Amendment and Zoning Map Amendment

A Zoning Amendment and Zoning Map Amendment would be required to identify the Program site as "Castellina Specific Plan" and establish zoning regulations applicable to the Program site. These actions would be adopted by ordinance.

2.6.5 Large Lot Tentative Map

The Specific Plan Program will include a Large Lot Tentative Map that creates individual development neighborhoods, parcels, and other large lots (see Appendix B-3). The large lots are for financing purposes, therefore the requirement for dedications and improvements will not be a condition of the large lot tentative map. The large lots will be subsequently subdivided into smaller lots upon which the proposed uses will be developed. This further subdivision will occur

through the small lot tentative subdivision map process that would occur during the phased development of the Specific Plan Program site.

2.6.6 Tentative Map for Phase I Project

The Specific Plan Program includes an initial approval of the first phase of development (Phase 1 Project) that encompasses approximately 96 acres (**Figure 2-8**) in the northwestern corner of the Specific Plan Program site within Village A (see Appendix B-3). The Phase I Project includes two parcels encompassing 34.5 acres and 117 residential lots, an entry road and collector roads encompassing approximately 9.5 acres, an open space/multi-use area encompassing 10.3 acres, and a park and detention/retention areas encompassing approximately 24.6 acres. The Phase 1 Project also includes the WWTP, water wells and facilities, consisting of 17.1 acres in the northwestern corner of the Specific Plan Program site.

2.6.7 Development Agreement

The Specific Plan Program will also include a Development Agreement that would comply with the provisions of California Government Code Sections 65864-65869.5 (the Development Agreement Statute) for the purpose of providing the developer and the County with long-term assurances of land use and to allow for flexibility in timing development. The Development Agreement would also incorporate all infrastructure plans, financing, and public service delivery provisions.

2.7 Project Phasing

Development of the Specific Plan Program would occur in phases depending on market demand and to assure that there is adequate supporting infrastructure. Construction is proposed to begin within the Phase I Project site, located in the northwestern portion of the Specific Plan Program site adjacent to Road 27. Residential uses are proposed to be constructed in earlier phases along with commensurate public and private recreational and infrastructure facilities.

2.7.1 Phase 1 Conceptual Neighborhood Plan

As shown in Figure 2-8, the Phase I Project would include the development of one low-density neighborhood, consisting of 67 residential units over 16.7 acres, and the one very low-density neighborhood, comprised of 50 residential units over 17.8 acres. Additionally, the Phase I Project includes an entry and collector roads encompassing 9.5 acres, open space/multi-use area, detention basins, and a park area encompassing 34.9 acres, and the WWTP site, water wells and facilities consisting of 17.1 acres in the northwestern portion of the Specific Plan Program site. The new Parkway Entry roadway would provide access to these two neighborhoods from Road 27. The first phase of the WWTP would be constructed along with adequately-sized stormwater storage and detention/retention basins. Recycled water produced by the WWTP will be used to irrigate parks and streetscapes constructed with the Phase I Project site. Remaining recycled water not used by the Phase I Project elements will be used to irrigate operational orchards within the remaining portions of the Specific Plan Program site. Water will be derived either from an existing well or the construction of a new well within the Specific Plan Program site.

STATISTICAL SUMMARY

	ACREAGE	UNIT COUNT
Neighborhood A1 Low Density	16.7 AC	67 Lots
Neighborhood A2 Very Low Density	17.8 AC	50 Lots
Main Entry and Collector Roads	9.5 AC	–
Open Space/Multi-Use Area	10.3 AC	–
Neighborhood Park	6.5 AC	–
Detention Areas	18.1 AC	–
Wastewater Treatment Area	16.2 AC	–
Water Wells and Facilities	0.9 AC	–
TOTAL PHASE 1	**96.0 AC**	**117 Lots**

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SOURCE: Kimley Horn, 2021

Figure 2-8
Phase 1 Project Preliminary Plan

ESA

2.7.2 Phase 1 Project Grading

All lots, roadways, and other improved areas within the Phase 1 Project site are proposed to be graded sufficiently to accommodate development. A grading borrow/stockpile area may be established within the Phase 1 Project site or may occur outside of the Phase 1 Project site but within the Specific Plan Program site, if necessary, to accommodate design grades for the Phase 1 Project. All grading activities would be required to comply with Madera County Municipal Code. All temporary borrow/stockpile areas would be treated with the applicable erosion control measures, as appropriate. Total cut and fill associated with the Phase 1 Project includes 300,000 cubic yards of cut and 300,000 cubic yards of fill. Based on the estimated cut and fill quantities, grading within the Phase 1 Project site would be balanced with regard to earthwork, with no anticipation of import or export of soil.

2.7.3 Phase 1 Project Roadways

Roadways shown within each phase would be improved and constructed per the applicable road cross sections included in the Specific Plan. This includes paving for sidewalks, paths, and travel lanes, landscaping, lane and crosswalk striping, traffic signals, roundabouts, street furnishings such as signage and benches; and all infrastructure within the right-of-way. Where roadways terminate at a phase boundary, appropriate barricades and signage, as approved by the Madera County Public Works Director, would be installed to alert roadway users of the street termination. All temporary turn-a-rounds, if necessary, would be constructed per Madera County Code requirements.

2.7.4 Phase 1 Project Utilities

All utilities including water, wastewater, storm drain, recycled water, telephone, cable, electricity, and gas would be installed to all parcels prior to issuance of the appropriate permit. All utilities would be fully operational prior to building occupancy, as applicable. Connections would be constructed so that future phases can connect to previously-installed utility infrastructure.

2.7.5 Phase 1 Project Construction Timeline

The construction activities associated with the Phase 1 Project are anticipated to be completed within one year once initiated. The anticipated completion of the Phase 1 Project construction is approximately 2025.

2.8 Reviews and Approvals

Below is a list of the anticipated discretionary permits requiring approval by the County of Madera:

- Certification of the Castellina Specific Plan Final EIR, including the Findings of Fact and Mitigation Monitoring and Reporting Program and a Statement of Overriding Considerations by the Board of Supervisors is required.
- Adoption of a General Plan Amendment to allow the uses proposed within the Castellina Specific Plan is required from the Board of Supervisors.

- Adoption of the Castellina Area Plan. Approval of an Area Plan to allow the proposed land uses is required from the Board of Supervisors.
- Adoption of the Castellina Specific Plan. Approval of the proposed Specific Plan Program to allow the proposed land uses and development regulations is required from the Board of Supervisors.
- County Code, Zoning Text and Zoning Map Amendments. Approval of amendments to the County Code, Zoning Text and Zoning Map to allow the proposed Program is required from the Board of Supervisors.
- Approval of Large Lot Tentative Map. Approval of the proposed Large Lot Tentative Map is required by the Board of Supervisors.
- Approval of Development Agreement. Approval of a Development Agreement is required for the implementation of the proposed Program from the Board of Supervisors.
- Approval of Tentative Map for the Phase 1 Project. Approval of the Tentative Map for the Phase 1 Project is required from the Board of Supervisors.
- Approval of Tentative Tract Map(s). Approval of tentative tract maps from the Board of Supervisors is required.
- Approval of Water Supply Assessment. Approval of the proposed Program's Water Supply Assessment from the Board of Supervisors is required.
- Approval of Grading Permit(s). Approval of grading permits from the Public Works Department is required.
- Final Map(s) Approval and Recordation. Approval of Final Maps from the Board of Supervisors is required.
- Approval of Infrastructure Master Plan. Approval of an Infrastructure Master Plan from the Board of Supervisors is required.
- Approval of Building Permits. Approval of building permits from the Building Division is required.
- Approval of Tree Removal Permit(s). Approval of tree removal permit(s) from the Planning Department is required.
- Approval of Well Construction Permit(s). Approval of Well Construction Permits from the Environmental Health Department is required.

2.8.1 Other Agencies Whose Approval May Be Required

Other government agencies that may have some level of approval for one or more components of the proposed Program and/or the Phase 1 Project include:

- California Department of Fish and Wildlife – Potential approval of a Streambed Alteration Agreement pursuant to Section 1600 of the Fish and Game Code.
- California Department of Health Services – Potential approval for public water system permits and water reclamation permits.
- California Department of Transportation – Potential approval of improvements to Caltrans facilities.

- California State Water Resources Control Board – Division of Drinking Water:
  - Water System Permit prior to constructing or operating the potable water treatment plant; and
  - (in conjunction with RWQCB) authorization for on-site and off-site recycled water use through acceptance of a Title 22 Engineering Report.
- California Public Utilities Commission – Potential approval of electrical facilities proposed to serve the Project.
- Madera Unified School District – Approval for the construction of new school facilities.
- Regional Water Quality Control Board:
  - Approval of Recycled Water Use and Wastewater Treatment System;
  - National Pollution Discharge Elimination System (NPDES) stormwater permit under Section 402 of the Clean Water Act (CWA), as well as approval of Section 401 Water Quality Certification of Waiver;
  - Waste Discharge Requirement for operation of the wastewater facility; and
  - Recycled water use authorization (in coordination with the SWRCB's DDW) through acknowledgement of compliance with the State General Permit for Recycled Water (Order 2016-0068) or through the issuance of a Master Permit for recycled water use.
- San Joaquin Valley Air Pollution Control District – Approval of potential stationary operating permits.

CHAPTER 3
Environmental Setting, Impacts and Mitigation Measures

This Draft Environmental Impact Report (EIR) has been prepared in accordance with CEQA (California Public Resources Code, Section 21000 et seq.), the *CEQA Guidelines* (California Code of Regulations, Title 14, Section 15000 et seq.), and the applicable rules and regulations of regional and local entities. This Draft EIR evaluates the potential environmental impacts associated with the construction and operation of the proposed Phase 1 Project and the future development that is in accordance with the Castellina Specific Plan (proposed Program). Collectively, the proposed Program and Phase 1 Project are the proposed development (proposed Project or Project). This Draft EIR is intended to serve as an informational document for the public agency decision-makers and the public regarding the proposed Phase 1 Project and proposed Program.

3.0.1 Scope of the Environmental Impact Analysis

In accordance with Section 15126 of the *CEQA Guidelines*, Chapter 3 provides an analysis of the direct and indirect, project and cumulative, environmental effects of the proposed Project with respect to existing conditions at the time the Notice of Preparation (NOP) was published (**Appendix A**). The determination of whether an impact is significant has been made based on the physical conditions established at the time the NOP was published (*CEQA Guidelines*, Section 15125(a)).

The following environmental resources are assessed in this chapter in accordance with Appendix G of the *CEQA Guidelines:*

- Aesthetics
- Agricultural and Forestry Resources
- Air Quality
- Biological Resources
- Cultural Resources and Tribal Cultural Resources
- Geology, Soils, and Seismicity
- Greenhouse Gas Emissions
- Hazards and Hazardous Materials
- Hydrology and Water Quality

- Land Use and Planning
- Noise and Vibration
- Population and Housing
- Public Services
- Recreation
- Transportation and Traffic
- Utilities, Service Systems, and Energy

Although the above environmental resources are assessed in this chapter, there are specific sub-issues of some of the above resources as well as three additional environmental resources that were found to be not significant and are addressed in Chapter 4, *Other CEQA Considerations,* Section 4.1 of this EIR. The environmental resources that included sub-issues found not significant are included within the following environmental resources: Agriculture and Forestry Resources; Biological Resources; Geology, Soils, and Seismicity; Hazards and Hazardous Materials; Noise and Vibration; and Population and Housing. Two environmental resources (Mineral Resources and Wildfire) with all sub-issues that are less than significant or no impact are also addressed in Section 4.1 of this EIR.

3.0.2 Approach to Environmental Analysis

Sections 3.1 through 3.16 of this EIR contain discussions of the environmental setting, regulatory framework, and potential impacts related to construction and operation of the proposed Project. The sections evaluate the potential environmental effects of the Phase 1 Project and proposed Program. The Phase 1 Project analysis and associated near-term cumulative analyses as well as the proposed Program analysis and associated long-term cumulative analysis estimate the impacts to each resource category before the implementation of mitigation measures. The analyses then estimate the impacts to each resource category after the implementation of mitigation measures.

The cumulative analyses were prepared in accordance with Section 15130 of the State CEQA Guidelines that requires an EIR to discuss cumulative impacts of a project when the incremental effects of a project are cumulatively considerable. “Cumulative impacts” are defined as two or more individual effects which, when considered together, are considerable or which compound or increase environmental impacts (*CEQA Guidelines* § 15355). “Cumulatively considerable” means that the incremental effects of an individual project are considerable when viewed in connection with the effects of past projects, the effects of other current projects, and the effects of probable future projects (*CEQA Guidelines* § 15065). According to Section 15130(b) of the *CEQA Guidelines*, elements considered necessary to provide an adequate discussion of cumulative impacts of a project include either: (1) list of past, present, and probable future projects producing related or cumulative impacts; or (2) a summary of projections contained in an adopted local, regional or statewide plan, or related planning document which is designed to evaluate regional or area-wide conditions.

Because this EIR is prepared as a combined Project EIR and a Program EIR, there are two general approaches that are used in this EIR to evaluation potential cumulative impacts. These approaches include the cumulative list approach for the Project EIR analysis and the summary of growth projections for the Program EIR analysis.

The cumulative analyses for the Project EIR includes a list of near-term cumulative projects that is provided in Table 3.0-1.

TABLE 3.0-1
NEAR-TERM CUMULATIVE PROJECTS

Project	Location
Color Box Addition, 7,000 square feet of covered storage	Northeast corner of Road 25 and Pecan Avenue
Ventana Specific Plan – 857 residential lots (1,000 units)	State Route 99, Hazel Avenue and Road 28 ¼
Deerpoint Group – Agriculture Nutrient/Industrial, 62,000 square feet	Northwest corner of South Pine Street and West Pecan Avenue
Napa Auto Parts – 7,000 square feet	Northeast corner of S. Gateway Drive and 10th Street
Residential – 182 lots	Southwest of W. Cleveland Avenue and North Westberry Boulevard
Braga Organic Farms – 4,500 square feet	Mitchell Court
Emily Way Apartments – 54 units	Emily Way at Joya Drive
Cottonwood Estates II – 74 single family lots	West of North Granada Drive and South of West Cleveland Avenue
Madera Travel Center – 47,341 square feet of travel center including restaurant, 80-room hotel, travel shop, tire shop, and RV/boat storage	Southeast quadrant of State Route 99 and Avenue 17 interchange
High Speed Rail – Addition of tracks along BNSF railroad line and roadway overcrossings at Road 27 and at Avenue 17	Along BNSF Rail Line
Phase 1 of Castellina – 117 residential units, wastewater treatment plant, parks/recreational areas and other open space	Southeast of Road 27 and Avenue 18

In addition to the above near-term cumulative projects, there are portions of two large developments projects that are currently under development. These include the Tesoro Viejo Specific Plan and Riverstone. Tesoro Viejo is located 13 miles southeast of the Project site along the east side of Highway 41 and encompasses 1,585 acres and includes the potential development of 5,190 dwelling units, parks and open space, and 3 million square feet of commercial, retail, office, public institutional and light industrial. Tesoro Viejo is planned to be fully construct in various phases and completed sometime after 2035. Riverstone is an approximately 2,000-acre planned community located approximately 12 miles southeast of the Project site along the west side of Highway 41 and planned to be fully constructed in various phases sometime after 2035. Riverstone includes the potential development of 6,578 units, open space and parks, and commercial, retail, schools and civic uses. These two projects are not included in the near-term cumulative list due to their substantial distance from the Project site and their limited potential to substantively contribute to cumulative effects associated with the development of the Phase 1 Project.

The cumulative analyses for the Program EIR includes a summary of projections contained in an adopted regional planning document. The growth forecast provided by the Madera County Transportation Commission was used to understand the population, housing and employment growth that would occur within Madera County and in the City of Madera. The 2035 growth projections were used because the proposed Castellina Specific Plan is expected to be fully built out sometime between 2035 and 2040. These growth projections account for future development including that associated with the Tesoro Viejo Specific Plan and Riverstone. These projections are provided in Table 3.0-2, below.

TABLE 3.0-2
LONG-TERM CUMULATIVE GROWTH

	2017	2035	Long-Term Growth Increase
County of Madera			
Population[1]	156,963	209,362	52,399
Housing Units[1]	50,125	65,241	15,116
Employment/Jobs[2]	44,067	59,832	15,765
City of Madera			
Population[1]	65,172	85,723	20,551
Housing Units[1]	17,649	21,832	4,183
Employment/Jobs[2]	19,509	20,240	731

1 See Table 3.12-4 in Section 3.12, Population and Housing in this EIR

2 Calculated from the Madera County Transportation Commission 2018 Regional Transportation Plan/Sustainable Communities Strategy. The 2017 data were based on a straight line projection using the 2010 and 2020 data.

SOURCES: Madera County Transportation Commission, 2018

3.0.3 Organization of Environmental Issue Area

Implementation of the proposed Phase 1 Project and proposed Program will result in construction and operational activities. The potential environmental issues associated with each environmental analysis that are addressed in Chapter 3 contain the following components.

Environmental Setting

This section identifies and describes the existing physical environmental conditions of the Project area and vicinity associated with each of the impact sections. According to Section 15125(a) of the *CEQA Guidelines*, an EIR must include a description of the existing physical environmental conditions in the vicinity of the proposed Project to provide the "baseline condition" against which Project-related impacts are compared. Normally, the baseline condition is the physical condition that exists when the NOP is published.

Regulatory Framework

The Regulatory Framework provides an understanding of the regulatory environment that exists prior to the implementation of the proposed Phase 1 Project and proposed Program. The regulatory framework that was used in this EIR included federal, State, regional, and local regulations and policies applicable to the Project area.

Impacts and Mitigation Measures

This section describes environmental changes to the existing physical conditions that may occur if the proposed Phase 1 Project is implemented as well as if the proposed Program is implemented, and evaluates these changes with respect to the significance criteria. This section also includes both a Phase 1 Project impact analysis and corresponding near term cumulative impact analysis as well as a proposed Program impact analysis and corresponding long-term cumulative impact analysis. Mitigation measures are identified, if determined feasible, for significant Phase 1 Project or Program impacts and cumulative impacts where the Phase 1 Project's or Program's contribution was determined to be cumulatively considerable. The mitigation measures are those measures that could avoid, minimize, or reduce an environmental impact. This section also includes a significance determination after mitigation that describes the level of impact significance remaining after mitigation measures are implemented.

Significance Criteria

Significance criteria have been developed for each environmental resource in accordance with Appendix G of the *CEQA Guidelines*. Impacts are categorized as follows:

- **Significant:** mitigation measures, if feasible, shall be recommended to reduce potential impacts;
- **Less than Significant:** mitigation measures are not required under CEQA but may be recommended; or
- **No Impact**: mitigation measures are not required

References

Sources relied upon for each environmental topic analyzed in this document are provided at the end of each section.

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3.1 Aesthetics

This section is focused on aesthetic and visual resources related to scenic vistas, scenic resources within a state scenic highway corridor, and light and glare that are within or visible from the Project area and the potential of the Phase 1 Project and the proposed Program to impact those resources.

This EIR recognizes that the assessment of whether aesthetic changes from existing conditions that would result from implementation of the proposed Project would be comparatively better (substantially improved) or worse (substantially degraded) is largely subjective. Therefore, the following analysis is focused on the factual manner in which the proposed Project could change existing visual elements, rather than analyzing aesthetic values.

3.1.1 Environmental Setting

Regional Setting

Regional views for Madera County are characterized by the broad plains of Central Valley and the Sierra Foothills. Lower level views for the region are generally rural in nature with concentrated pockets of small communities. The higher level views for the region include the edge of the Coast Mountain range to the west, Sierra Nevada range to the east, and Tehachapi Mountains to the south. The primary scenic resources in the County include the ridgelines and steep slopes of the highly visible locations, such as the mountain ranges listed above, as well as the undeveloped scenic rural areas.

Local Setting

Land uses adjacent to the Phase 1 Project site and the Specific Plan Program site include orchards to the east, rural residential areas to the south, southwest and west, the rural residential Madera Acres to the northwest, and undeveloped vacant land to the north. The Project site is bound on the west by the BNSF railway and Avenue 27 and on the east by Avenue 28 ½.

The Phase 1 Project site and the proposed Program site contain an orchard with numerous dirt roads that traverse between the orchard. The height of the trees within the orchard is approximately 5 to 20 feet depending on the crop rotation. An approximately 3,700-square foot fruit packing facility is located in the southeast quadrant of the Program site. In the center of the Program site, there is an approximately 3,100-square foot steel shop building that contains a small office and restroom facility. Immediately south of the shop building is a vacant area used for maintenance of farm equipment. There are no structures within the Phase 1 Project site area. Due to the height of the orchard trees, the existing buildings are not visible from ground-level outside the Phase 1 Project site or Program site.

Visual Resources

According to the Madera County General Plan, the visual and scenic resources include ridgelines, steep slopes and highly visible locations (Madera County, 1995a). The highly visible locations could be interpreted as distinct natural landforms such as creeks, rivers and lakes and natural vegetation such as oak woodlands, riparian vegetation and conifers within the Sierra Nevada

Mountains. As shown in the following viewpoints that illustrate the views of the areas surrounding the Phase 1 Project site and the Program site, the visual resources are limited to the distant Sierra Nevada Mountain located to the east and north. **Figure 3.1-1** provides a photograph index of the viewpoints.

Viewpoint 1 – This viewpoint is also located along Road 27 at Avenue 18 west of the northwest corner of the Phase 1 Project site (**Figure 3.1-2**). The view is to the northeast and includes the Sierra Nevada Mountains in the background, residential uses, landscape trees and open grassland in the middle ground and Road 27 in the foreground.

Viewpoint 2 – This viewpoint is also located along Road 27 at Avenue 18 west of the northwest corner of the Phase 1 Project site (**Figure 3.1-3**). The view is to the northwest and includes landscape trees that obstruct the residential uses within Madera Acres community in the background and middle ground and includes Road 27 in the foreground.

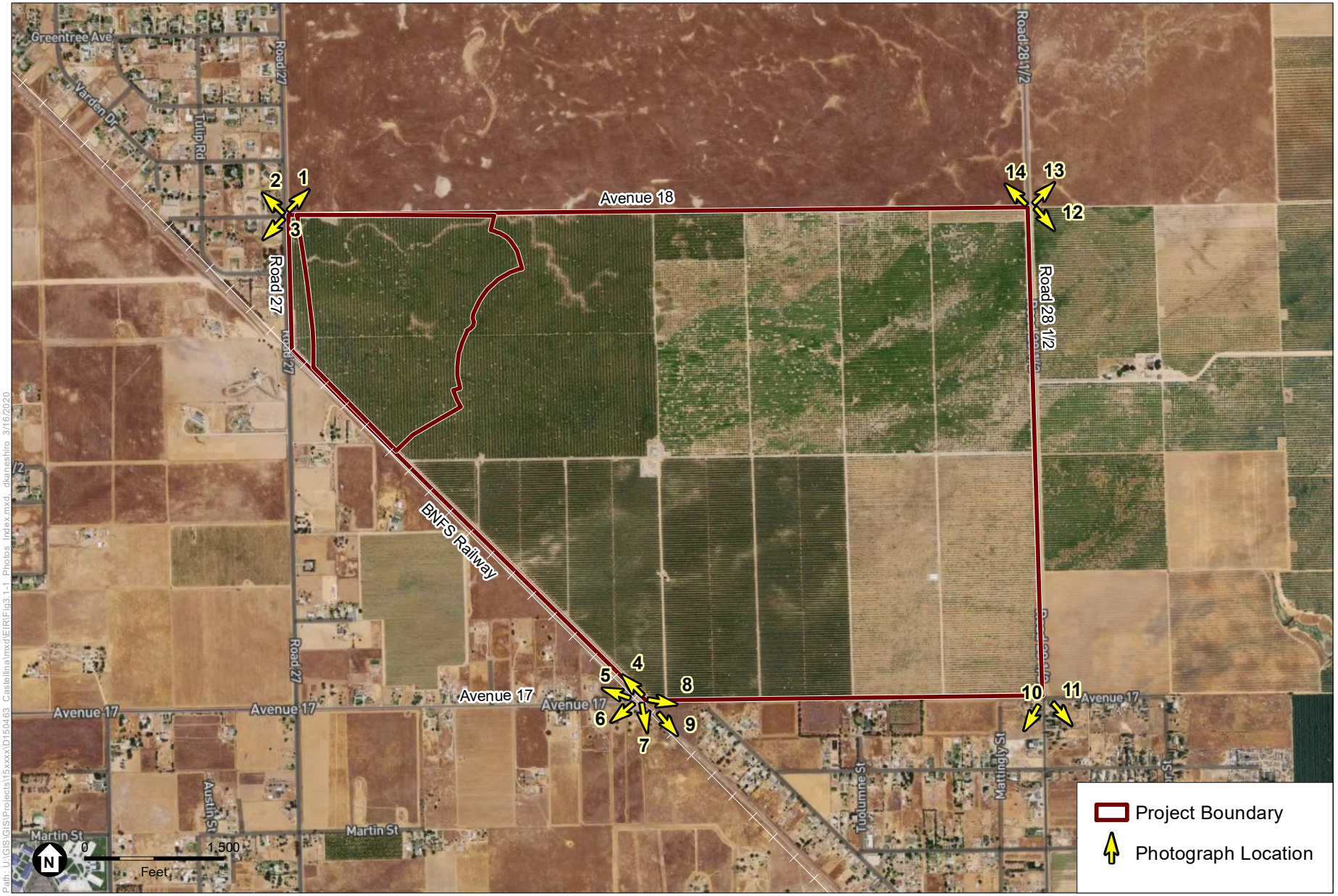
Viewpoint 3 – This viewpoint is located along Road 27 at Avenue 18 west of the northwest corner of the Phase 1 Project site (**Figure 3.1-4)**. The view is to the southwest and includes residences within the Madera Acres community in the background and middle ground and includes open areas and Avenue 18 in the foreground.

Viewpoint 4 – This viewpoint is located at the BNSF railroad tracks east of the terminus of Avenue 17 and west of the southwest corner of the Program site (**Figure 3.1-5**). The view is to the northwest and includes rural residential uses and landscape trees in the background and middle ground and includes open land, ponded stormwater, landscape trees and the BNSF railroad tracks in the foreground.

Viewpoint 5 – This viewpoint is located along Avenue 17 approximately 1,100 feet west of the BNSF railroad tracks and west of the southwest corner of the Program site (**Figure 3.1-6**). The view is to the northwest and includes rural residential uses and landscape trees in the background and middle ground and includes a residential driveway entrance and Avenue 17 in the foreground.

Viewpoint 6 – This viewpoint is located along Avenue 17 approximately 550 feet west of the BNSF railroad tracks and west of the southwest corner of the Program site (**Figure 3.1-7**). The view is to the southwest and includes rural residential uses in the background and middle ground and includes a portion of Avenue 17 and a residential driveway in the foreground.

Viewpoint 7 – This viewpoint is located at the BNSF railroad tracks east of the terminus of Avenue 17 at the southwest corner of the Program site (**Figure 3.1-8**). The view is to the south and includes background views of utility towers, rural residential uses and landscape trees in the background and includes grassland and the BNSF railroad tracks in the middle ground and foreground.



SOURCE: ESA, 2020

County of Madera • Castellina Specific Plan • Draft EIR

Figure 3.1-1
Photograph Index

ESA

D150463.00 - Castellina SP EIR\05 Graphics-GIS-Modeling\EIR Figures

SOURCE: ESA, 2020

County of Madera • Castellina Specific Plan • Draft EIR

Figure 3.1-2
Photograph 1 - Northeast View from Road 27 and Avenue 18

ESA

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SOURCE: ESA, 2020

County of Madera • Castellina Specific Plan • Draft EIR

Figure 3.1-3
Photograph 2 - Northwest View from Road 27 and Avenue 18

ESA

D150463.00 - Castellina SP EIR\05 Graphics-GIS-Modeling\EIR Figures

SOURCE: ESA, 2020

County of Madera • Castellina Specific Plan • Draft EIR

Figure 3.1-4
Photograph 3 - West View from Road 27 and Avenue 18

ESA

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SOURCE: ESA, 2020

County of Madera • Castellina Specific Plan • Draft EIR

Figure 3.1-5
Photograph 4 - Northwest View from Avenue 17 and BNSF

ESA

D150463.00 - Castellina SP EIR\05 Graphics-GIS-Modeling\EIR Figures

SOURCE: ESA, 2020

County of Madera • Castellina Specific Plan • Draft EIR

Figure 3.1-6
Photograph 5 - Northwest View from Avenue 17

ESA

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SOURCE: ESA, 2020

County of Madera • Castellina Specific Plan • Draft EIR

Figure 3.1-7
Photograph 6 - Southwest View from Avenue 17

ESA

D150463.00 - Castellina SP EIR\05 Graphics-GIS-Modeling\EIR Figures

SOURCE: ESA, 2020

County of Madera • Castellina Specific Plan • Draft EIR

Figure 3.1-8
Photograph 7 - South View along BNSF South of Avenue 17

ESA

Viewpoint 8 – This viewpoint is located at Avenue 17 adjacent to the BNSF railroad tracks at the southwest corner of the Program site (**Figure 3.1-9**). The view is to the southeast and includes rural residential uses and landscape trees in the background and middle ground and the BNSF railroad tracks in the foreground.

Viewpoint 9 – This viewpoint is located along Harper Boulevard south of Avenue 17 and east of the BNSF railroad tracks at the southwest corner of the Program site (**Figure 3.1-10**). The view is to the southeast and includes landscape trees, utility poles and Harper Boulevard in the background and middle ground and includes rural residential uses, Harper Boulevard and landscape trees within the foreground.

Viewpoint 10 – This viewpoint is also located at the corner of 28 ½ and Avenue 17 at the southeast corner of the Program site (**Figure 3.1-11**). The view is to the southwest and includes rural residential uses in the background and middle ground and includes Road 28 ½ and above ground utility poles in the foreground.

Viewpoint 11 – This viewpoint is located at the corner of 28 ½ and Avenue 17 at the southeast corner of the Program site (**Figure 3.1-12**). The view is to the southeast and includes rural residential uses in the background and middle ground and Road 28 ½ in the foreground.

Viewpoint 12 – This viewpoint is also located at the corner of Road 28 ½ and the future alignment of Avenue 18 at the northeast corner of the Program site (**Figure 3.1-13**). The view is to the southeast and includes rural residential and associated farming structures in the background, fallow agricultural land in the middle ground and Road 28 ½ in the foreground.

V**iewpoint 13** – This viewpoint is also located at the corner of Road 28 ½ and the future alignment of Avenue 18 at the northeast corner of the Program site (**Figure 3.1-14**). The view is to the northeast and includes the Sierra Mountain range in the background, undisturbed grassland in the middle ground and Road 28 ½ in the foreground.

Viewpoint 14 – This viewpoint is located at the corner of Road 28 ½ and the future alignment of Avenue 18 at the northeast corner of the Program site (**Figure 3.1-15**). The view is to the northwest and includes undisturbed grassland in the background and middle ground and includes Road 28 ½ and above ground utility poles extending along the west side of Road 28 ½ in the foreground.

As illustrated in the views at the various viewpoints surrounding the Phase 1 Project site and Program site, the Sierra Mountains are the visual resource that can be viewed from the Phase 1 Project site and the Program site as well as the surrounding areas.

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SOURCE: ESA, 2020

County of Madera • Castellina Specific Plan • Draft EIR

Figure 3.1-9
Photograph 8 - Southeast View from Avenue 17 and BNSF

ESA

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SOURCE: ESA, 2020

County of Madera • Castellina Specific Plan • Draft EIR

Figure 3.1-10
Photograph 9 - Southeast View from Harper Boulevard South of Avenue 17

ESA

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SOURCE: ESA, 2020

County of Madera • Castellina Specific Plan • Draft EIR

Figure 3.1-11
Photograph 10 - Southwest View from Road 28 ½ and Avenue 17

ESA

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SOURCE: ESA, 2020

County of Madera • Castellina Specific Plan • Draft EIR

Figure 3.1-12
Photograph 11 - Southeast View from Road 28 ½ and Avenue 17

ESA

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SOURCE: ESA, 2020

County of Madera • Castellina Specific Plan • Draft EIR

Figure 3.1-13
Photograph 12 - Southeast View from Road 28 ½ and Avenue 18

ESA

D150463.00 - Castellina SP EIR\05 Graphics-GIS-Modeling\EIR Figures

SOURCE: ESA, 2020

County of Madera • Castellina Specific Plan • Draft EIR

Figure 3.1-14
Photograph 13 - Northeast View from Road 28 ½ and Avenue 18

ESA

D150463.00 - Castellina SP EIR\05 Graphics-GIS-Modeling\EIR Figures

SOURCE: ESA, 2020

County of Madera • Castellina Specific Plan • Draft EIR

Figure 3.1-15
Photograph 14 - Northwest View from Road 28 ½ and Avenue 18

ESA

Scenic Routes and Highways

Currently, there are no officially designated State Scenic Highways, but there are two eligible State Scenic Highways located along Highway 49 and Highway 41 on the western slopes of the Sierra Nevada Mountains (Caltrans, 2019). There are no officially designated county scenic routes or highways in Madera County (Caltrans, 2019). The portions of Highway 49 and Highway 41 that are eligible are located approximately 30 miles northeast of the Phase 1 Project site and the Program site and are not visible from the Project site.

Phase 1 Project Site and Program Site

The visual setting of the Phase 1 Project site and Program site contains orchard trees typical of many areas within the floor of the Central Valley. The Project site consists of relatively flat uniform terrain, with higher topographical points to the east sloping generally to the west. Elevations range from 305 to 315 feet above mean sea level in the eastern portion of the site to 280 to 300 feet mean sea level within the western portion of the site. Both the Phase 1 Project site and Program site have relatively flat terrain.

Light and Glare

There are two primary anthropogenic sources of light: light emanating from building interiors passing through windows, and light originating from exterior sources (e.g., street lighting, building illumination, security lighting, parking lot lighting, landscape lighting, and signage). Anthropogenic sources of light can be a nuisance to adjacent residential areas, diminish the view of the clear night sky, and if uncontrolled, can cause disturbances for motorists traveling in the area. Uses such as residences are considered light sensitive, since occupants have expectations of privacy during evening hours and may be subject to disturbances by bright light sources. Light spill is typically defined as the presence of unwanted light on properties adjacent to the property being illuminated. Because the Project site is dominated by an orchard, no light emanating from building interiors passing through window or exterior lighting is present. The automobile and truck traffic associated with the orchard can increase lighting in the area during evening hours; however, the primary operations associated with the onsite orchard occurs during daytime hours. No substantive lighting occurs in the vicinity of the Project site during evening hours.

Glare is caused by the reflection of sunlight or artificial light by highly polished surfaces such as window glass or reflective materials and, to a lesser degree, from broad expanses of light-colored surfaces or vehicle headlights. Perceived glare is the unwanted and potentially objectionable sensation as observed by a person as they look directly into the light source of a luminaire. Daytime glare generation in urban areas is typically associated with buildings with exterior facades largely or entirely comprised of highly reflective glass. Glare can also be produced during evening and nighttime hours by the reflection of artificial light sources, such as automobile headlights. Glare generation is typically related to either moving vehicles or sun angles, although glare resulting from reflected sunlight can occur regularly at certain times of the year. Due to the rural character of the Project vicinity, no substantive glare occurs during daytime, evening or nighttime hours.

Sensitive Receptors

Accepted visual assessment methods, including those adopted by federal agencies, establish sensitivity levels as a measure of public concern for changes to scenic quality. Viewer sensitivity, typically divided into high, moderate, and low categories, is among the criteria employed for evaluating visual impacts and their degree of significance. The factors considered in assigning a scenic resource's sensitivity level include viewer activity (and viewers' expectations, as influenced by their activity), view frequency and duration, viewing distance, adjacent land use, types of individuals and groups of viewers, and special management or planning designation. Research on the subject suggests that certain activities tend to heighten viewer awareness of visual and scenic resources, while other activities tend to be distracting. In general, the degree of visual impact tends to be more substantial where the sensitivity of affected viewers is highest. Potentially affected viewers in the viewshed of the local vicinity include residents and motorists.

3.1.2 Regulatory Framework

State

Scenic Highway Program

Established in 1963, California's Scenic Highway Program is administered by Caltrans and is designed to preserve and protect scenic highway corridors from changes that would diminish their aesthetic value. A highway may be designated scenic depending upon how much of the natural landscape can be seen by travelers, the scenic quality of the landscape, and the extent to which development intrudes upon the traveler's enjoyment of the view. The city or county in which the highway is located must adopt a Corridor Protection Program that consists of ordinances, zoning and/or planning policies that would preserve the scenic quality of the corridor, or they must document such regulations that already exist in various portions of local codes. A highway may also be listed as "eligible" for designation as a scenic highway. As previously mentioned, there are no designated scenic highways currently in Madera County, and the nearest eligible scenic highway is located 30 miles northeast of the Project site.

Local

Madera County General Plan

The Madera County General Plan contains policies that regulate visual resources in the Project area (Madera County, 1995b). The following General Plan goals and policies for visual and scenic resources are relevant to the proposed Project.

Visual and Scenic Resource Goals

Goal 1.H: To protect the visual and scenic resources of Madera County as important quality-of-life amenities for county residents and a principal asset in the promotion of recreation and tourism.

Visual and Scenic Resource Policies

Policy 1.H.1: The County shall require that new development in scenic rural areas is planned and designed to avoid locating structures along ridgelines, on steep slopes, or in other highly visible locations, except under the following conditions:

a. such a location is necessary to avoid hazards; or

b. the proposed construction will incorporate design and screening measures to minimize the visibility of structures and graded areas.

Policy 1.H.2: The County shall require that new development incorporates sound soil conservation practices and minimizes land alterations. Land alterations should comply with the following guidelines:

a. limit cuts and fills;

b. limit grading to the smallest practical area of land;

c. limit land exposure to the shortest practical amount of time;

d. replant graded areas to ensure establishment of plant cover before the next rainy season;

e. create grading contours that blend with the natural contours on site or look like contours that would naturally occur; and

f. prohibit overgrazing.

The proposed Project is generally consistent with General Plan policies related to visual and scenic resources. The Phase 1 Project site and proposed Program site do not contain ridgelines or other highly visible areas and would not adversely affect any significant rural scenic resources (Policy 1.H.1). In addition, due to the existing expansive views of the Sierra Nevada mountains throughout the valley floor, the implementation of the Phase 1 Project and proposed Program would not substantially alter views of the distant Sierra Nevada mountains; and therefore, would result in less than significant impacts to scenic resources. In addition, the Phase 1 Project and proposed Program includes grading on the site to accommodate stormwater drainage. The proposed land alterations on the site would include an approximately 11 percent grade adjacent to the railroad tracks with the high point of the grade at the railroad track. The 11 percent grade extends to the bottom of the proposed detention basin along the railroad tracks. In addition, the Project includes an approximately 3.5 percent grade along the north-central boundary with the low point along the northern Project boundary. The proposed grade along the northern portion of the Project boundary would accommodate the proposed drainage that includes a storm drain line that would extend along the northern boundary. The remaining areas of the Project would contain relatively nominal grades of 1.5 to 2 percent. The proposed grading for the proposed Phase 1 Project and proposed Program would accommodate the proposed storm drainage plan for the site, and would not substantially alter the existing relatively flat topography of the site. Therefore, the Phase 1 Project and proposed Program would be consistent with Policy 1.H.2.

Madera County Zoning Ordinance

The Madera County Zoning Ordinance establishes zoning policies for aesthetic and visual resources (Madera County, 1995b). The Castellina Specific Plan contains zoning that would be adopted for the purpose of providing regulations for the area including maximum number of dwelling units, lot area, structure heights, setbacks of structures, outdoor lighting and parking.

3.1.3 Impacts and Mitigation Measures

Significance Criteria

The criteria used to determine the significance of impacts related to aesthetics are based on Appendix G of the *CEQA Guidelines*. Except as provided in Public Resources Code Section 21099, the proposed Phase 1 Project and Program would result in a significant impact to aesthetics if they would:

- Have a substantial adverse effect on a scenic vista (see Impact 3.1-1, below);
- Substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a state scenic highway (see Impact 3.1-2, below);
- Substantially degrade the existing visual character or quality of public views of the site and its surroundings (public views are those that are experienced from publicly accessible vantage point). If the project is in an urbanized area, would the project conflict with applicable zoning and other regulations governing scenic quality (see Impact 3.1-3, below);
- Create a new source of substantial light or glare which would adversely affect day or nighttime views in the area (see Impact 3.1-4, below).

Methodology

The significance determination for the aesthetics analysis related to scenic vistas is based on consideration of whether any scenic vistas exist within or near the Project area; and if a scenic vista exists, whether it can be viewed from public areas within or near by the Project area; and the potential for implementation of the Phase 1 Project or the Specific Plan Program to hinder views of a scenic vista or result in degradation to a scenic vista.

In regard to lighting, this analysis evaluates the change in illumination level as a result of implementation of the proposed Project and the extent to which Project lighting would increase nighttime lighting on sensitive uses. Lighting impacts would be considered significant if they increase lighting on sensitive uses (i.e., residences or public open spaces) for a substantial portion of the nighttime.

Glare is evaluated by the extent to which implementation of the proposed Project would increase glare on sensitive uses. Glare impacts would be considered significant if substantial glare from the Project affects daily operations of surrounding uses as well as motorists on roadways for a substantial portion of the day.

Impacts Discussion

Scenic Vistas

Impact 3.1-1a: The Phase 1 Project would result in a less than significant and less than cumulatively considerable scenic vista impact.

Phase 1 Project Impact Analysis

The Madera County General Plan does not designate any locations within the County as a scenic vista. However, the General Plan identifies the location of scenic resources that include ridgelines, steep slopes, and highly visible locations. The primary location of the ridgelines and steep slopes are located along the western slopes of the Sierra Nevada Mountains. Highly visible locations include the open grasslands within the valley as well as views of the lakes and rivers within the County. Because the Sierra Nevada Mountains are located at least 30 miles from the Project site, only general views of the Sierra Mountains are available and the views of specific ridgelines and steep slopes are not available. In addition, views of open grasslands north of the Project site are available from Avenue 27 and Avenue 28 ½.

The implementation of the Phase 1 Project would replace approximately 96 acres of orchards with views of residential, wastewater treatment plant and water facilities, open space, roads and landscaping. This replacement of use on the Project site would alter the visual characteristics of the Phase 1 Project site; however, less than significant impacts on the existing scenic views along Road 27 and Road 28 ½ of the open grassland would occur with the development of the proposed uses. Eastern views of the Sierra Nevada Mountains from residential uses located west of the Phase 1 Project site would be altered from the replacement of the existing orchard trees with landscape trees and urban development. Because the height of the existing orchard trees are approximately 15 to 20 feet in height, less than significant effects on the views of the distant Sierra Nevada Mountains would occur because the proposed improvements within the Phase 1 Project area include limited structures within an open space area adjacent to Road 27 and the proposed residential structures that would include maximum heights of 35 feet in elevation would be set back from Road 27 by approximately 645 feet.

Phase 1 Project Cumulative Impact Analysis

Implementation of cumulative projects identified in Table 3.0-1 would increase development within the valley portion of the County. Because there are no County designated scenic vistas, the implementation of the cumulative projects would not impact designated scenic vistas. Although there are no designated scenic vistas, the County General Plan identifies scenic resources within the County. These resources are ridgelines, steep slopes and highly visible locations. The cumulative projects are located within the valley of the County, and therefore, would not impact views of ridgelines and steep sleeps. Some of the cumulative projects are located adjacent to open grassland areas; however, these projects would not substantially affect open grassland views within the valley due to the substantial amount of open grassland and viewing opportunities within the valley. Therefore, implementation of the cumulative projects would result in less than significant impacts on scenic vistas. Because the proposed Phase 1 Project would result in less than significant impacts on scenic vistas, the Phase 1 Project would result in a less than cumulatively considerable contribution to cumulative impact to scenic vistas.

Significance Determination before Mitigation: Less than Significant

Phase 1 Project Mitigation Measures

No mitigation measures are required.

Significance Determination after Mitigation: Less than Significant

Phase 1 Project Cumulative Measures

No mitigation measures are required.

Significance Determination after Mitigation: Less than Significant

Impact 3.1-1b: The proposed Program would result in a less than significant and less than cumulatively considerable scenic vista impact.

Program Impact Analysis

Similar to the analysis provided for the proposed Phase 1 Project, the Madera County General Plan does not designate any locations within the County as a scenic vista. However, the General Plan identifies the location of scenic resources that include ridgelines, steep slopes, and highly visible locations. The primary location of the ridgelines and steep slopes are located along the western slopes of the Sierra Nevada Mountains. Highly visible locations include the open grasslands within the valley as well as views of the lakes and rivers within the County. Because the Sierra Nevada Mountains are located at least 30 miles from the Project site, only general views of the Sierra Mountains are available and the views of specific ridgelines and steep slopes are not available. In addition, views of open grasslands north of the proposed program site are available from Avenue 27 and Avenue 28 ½.

The implementation of the proposed Program would replace approximately 792 acres of orchards with views of residential, wastewater treatment plant and water facilities, open space, commercial, roads and landscaping. This replacement of use on the Project site would alter the visual characteristics of the proposed Program site; however, less than significant impacts on the existing scenic views along Road 27 and Road 28 ½ of the open grassland would occur with the development of the proposed uses. Eastern views of the Sierra Nevada Mountains from residential uses located west of the proposed Program site would be altered from the replacement of the existing orchard trees with landscape trees and urban development. Because the height of the existing orchard trees are approximately 15 to 20 feet in height, less than significant effects on the views of the distant Sierra Nevada Mountains would occur because the proposed improvements within the proposed Program would include limited structures within an open space area adjacent to Road 27 and the proposed residential structures that would include maximum heights of 35 feet in elevation would be set back from Road 27 by approximately 645 feet and the proposed residential structures east of the railroad tracks would be set back by approximately 270 feet but the ground surface would be located approximately 8 feet lower than the existing railroad tracks. Therefore, implementation of the proposed Program would result in a less than significant impact on scenic resources in the vicinity of the proposed Program.

Significance Determination before Mitigation: Less than Significant

Program Cumulative Impact Analysis

Implementation of cumulative growth in the program area, as described in Section 3.0.3, would increase development in the County and in the Program vicinity. The cumulative growth is expected to be consistent with the current land use designation within the County as well as the future growth of the City of Madera. The cumulative growth within the County could include development within the western-facing foothills of the Sierra Nevada Mountains as well as development in the southeastern portion of the County near the San Joaquin River. This cumulative growth could impact scenic vistas of ridgelines, steep slopes, the Sierra Nevada Mountains and highly visible areas such as open grasslands. These potential cumulative impacts on scenic vistas from future growth could be significant.

Because the proposed Program would result in less than significant impacts on scenic vistas due to the location of the scenic resources in relation to the proposed Program site, the implementation of the proposed Program would result in a less than cumulatively considerable contribution to cumulative scenic vista impacts.

Significance Determination before Mitigation: Less than Significant

Program Mitigation Measures

No mitigation measures are required.

Significance Determination after Mitigation: Less than Significant

Program Cumulative Measures

No mitigation measures are required.

Significance Determination after Mitigation: Less than Significant

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Scenic Resources within a State Scenic Highway

Impact 3.1-2a: The Phase 1 Project would have a less than significant and less than cumulatively considerable impact on scenic resources impacts including, but not limited to, trees, rock outcroppings, and historic buildings within a state scenic highway.

Phase 1 Project Impact Analysis

As discussed previously, there are no state scenic highways within or immediately adjacent to the Phase 1 Project site (Caltrans, 2017). The nearest eligible scenic highway is located approximately 30 miles northeast of the Phase 1 Project site. These scenic resources include the historic towns of Oakhurst and Ahwahnee, oak trees, pine forests, and distant views of hills and mountains. The implementation of the Phase 1 Project would not impact scenic resources within the eligible scenic highway because there are no views of the Phase 1 Project site from the eligible scenic highway due to the distance and vegetation between the scenic highway and the Phase 1 Project site. Therefore, the implementation of the Phase 1 Project would have no impact on scenic resources within a state scenic highway.

Although there are no impacts to scenic resources within a state scenic highway, the County of Madera General Plan was reviewed to determine the scenic resources identified within the County. These resources include ridgelines, steep slopes, and highly visible locations. The areas in the vicinity of the Phase 1 Project site as well as the surrounding area have relatively flat terrain. Therefore, there are no ridgelines and steep slopes in the Project vicinity. A highly visible location in the vicinity of the Phase 1 Project site is the open grassland located north of the site. Because the Project site currently contains an orchard with 15- to 20-foot high orchard trees, views of this area are limited to areas located north of the Phase 1 Project site. Therefore, implementation of the Phase 1 Project would result in a less than significant impact on scenic resources in the Project vicinity.

Significance Determination before Mitigation: Less than Significant

Phase 1 Project Cumulative Impact Analysis

Implementation of cumulative projects identified in Table 3.0-1 would increase development within the valley portion of the County. Some of these cumulative projects are located adjacent to highly visible locations such as open grassland and adjacent to the Fresno River; however, there are no cumulative projects in the general vicinity of the proposed Phase 1 Project that are located adjacent to ridgelines and/or steep slopes because the valley area contains relatively flat terrain. Although some of the cumulative projects are located adjacent to open grassland areas, these projects would not substantially affect open grassland views within the valley. Therefore, implementation of the cumulative projects would result in less than significant impacts on scenic resources. Because the proposed Phase 1 Project would result in less than significant impacts on scenic resources, the Phase 1 Project would result in a less than cumulatively considerable contribution to cumulative scenic resource impacts.

Significance Determination before Mitigation: Less than Significant

Phase 1 Project Mitigation Measures

No mitigation measures are required.

Significance Determination after Mitigation: Less than Significant

Phase 1 Project Cumulative Measures

No mitigation measures are required.

Significance Determination after Mitigation: Less than Significant

Impact 3.1-2b: The proposed Program would have a less than significant and less than cumulatively considerable impact on scenic resources impacts including, but not limited to, trees, rock outcroppings, and historic buildings within a state scenic highway.

Program Impact Analysis

Similar to the analysis provided for the Phase 1 Project, there are no state scenic highways within or immediately adjacent to the Program site (Caltrans, 2017). The nearest eligible scenic highway is located approximately 30 miles northeast of the proposed Program site. The implementation of

the proposed Program would have no impact on scenic resources within a state scenic highway. In addition, similar to the discussion above, there are no ridgelines and steep slopes in the vicinity of the proposed Program. A highly visible location in the vicinity of the proposed Program site is the open grassland located north of the site. Because the Program site currently contains an orchard with 15- to 20-foot high orchard trees, views of this area are limited to areas located north of the proposed Program site. Therefore, implementation of the proposed Program would result in a less than significant impact on scenic resources in the vicinity of the proposed Program.

Significance Determination before Mitigation: Less than Significant

Program Cumulative Impact Analysis

Implementation of cumulative growth in the vicinity of the Program area, as described in Section 3.0.3, would increase development in the County. The cumulative growth is expected to be consistent with the current land use designation within the County as well as the future growth of the City of Madera. The cumulative growth within the County could include development within the western-facing foothills of the Sierra Nevada Mountains as well as development in the southeastern portion of the County near the San Joaquin River. This cumulative growth would also result in the removal of open grassland within the valley portion of the County. Therefore, this cumulative growth could impact scenic vistas of ridgelines, steep slopes, the Sierra Nevada Mountains and highly visible areas such as open grasslands, lake areas and river areas. These potential cumulative impacts on scenic vistas from future growth could be significant.

The proposed Program would result in less than significant impacts on scenic vistas due to the location of the scenic resources in relation to the proposed Program site. The potential future growth north and east of the Program site would be nominal given that these areas are planned to remain in agriculture with nominal structural development. Therefore, the implementation of the proposed Program would result in a less than cumulatively considerable contribution to cumulative scenic vista impacts.

Significance Determination before Mitigation: Less than Significant

Program Mitigation Measures

No mitigation measures are required.

Significance Determination after Mitigation: Less than Significant

Program Cumulative Measures

No mitigation measures are required.

Significance Determination after Mitigation: Less than Significant

Visual Character

Impact 3.1-3a: The Phase 1 Project is located within a non-urbanized area and would result in a less than significant and less than cumulatively considerable impact on the existing visual character or quality of public views of the site and its surroundings.

Phase 1 Project Impact Analysis

The implementation of the proposed Phase 1 Project includes the removal of approximately 96 acres of orchard trees and the development of 117 homes, roadways, open space, wastewater treatment facilities and water facilities. The remaining orchard trees within the program area (approximately 700 acres) would remain. The nearest sensitive viewers to the Phase 1 Project site include residents of Madera Acres that are located west of Road 27. As shown in Photographs 2 and 3 on Figures 3.1-3 and 3.1-4 above, the residential area west of Road 27 contains mature landscape trees that include trees with heights of at least 50 feet and partially obstructing views toward the Phase 1 Project site. The proposed improvements within the Phase 1 Project area include limited structures within an open space area adjacent to Road 27 and the proposed residential structures that would include maximum heights of 35 feet in elevation would be set back from Road 27 by approximately 645 feet. The implementation of the proposed improvements would alter the visual characteristics of the Project vicinity; however, this alteration would be less than significant.

Significance Determination before Mitigation: Less than Significant

Phase 1 Project Cumulative Impact Analysis

Implementation of cumulative projects identified in Table 3.0-1 would increase development within the valley portion of the County. One cumulative project is located adjacent to the Phase 1 Project which is the construction of the high speed rail that includes a grade separation at Road 27. Because the Project vicinity includes a grade separation as part of the high speed rail project, the cumulative projects would represent a significant alteration to the visual characteristics of the Project vicinity. The implementation of the Phase 1 Project would include limited structures along Road 27 and a substantial setback from Road 27 for the proposed residential units. As a result, the proposed Phase 1 Project's contribution to the cumulative alteration of the visual characteristics of the Project vicinity would be less than cumulatively considerable.

Significance Determination before Mitigation: Less than Significant

Phase 1 Project Mitigation Measures

No mitigation measures are required.

Significance Determination after Mitigation: Less than Significant

Phase 1 Project Cumulative Measures

No mitigation measures are required.

Significance Determination after Mitigation: Less than Significant

Impact 3.1-3b: The proposed Program is located within a non-urbanized area and would result in a significant and cumulatively considerable impact on the existing visual character or quality of public views of the site and its surroundings.

Program Impact Analysis

The implementation of the proposed Program includes the removal of approximately 788 acres of orchard trees and the development of 3,072 homes, commercial, open space, roadways and wastewater treatment facilities. The nearest sensitive viewers to the Program site include residents of Madera Acres that are located west of Road 27 as well as residents that are located west, south and southeast of the Program site. Views from these residents include orchard trees on the Program site. The implementation of the proposed Program would transform the visual setting in the Program area from an agricultural setting to an urban setting. This transformation would result in a substantial alteration to the visual characteristics of the Program area, and therefore, a significant impact on the existing visual characteristics of the vicinity of the Program area would occur.

***Significance Determination before Mitigation*:** Significant

Program Cumulative Impact Analysis

Implementation of cumulative growth in the Program area, as described in Section 3.0.3, would increase development in the County and in the Program vicinity. The cumulative growth is expected to be consistent with the current land use designation within the County as well as the future growth of the City of Madera. This cumulative growth could result in the removal of current agricultural land and vacant land to implement the development of urban uses. This growth could result in a substantial alteration to the visual characteristics of the County, and therefore, a significant cumulative impact on the existing visual characteristics within the County could occur. Because the proposed Program would also result in a significant impact on the existing visual characteristics, the proposed Program would result in a considerable contribution to significant cumulative impacts on the existing visual characteristics within the County.

***Significance Determination before Mitigation*:** Significant

Program Mitigation Measures

AES-1: Prior to the issuance of a final subdivision map for each phase of the Specific Plan Program, the applicant shall prepare and submit to the County a landscape master plan that is consistent with the landscape guidelines established in the Landscape Design Guidelines.

***Significance Determination after Mitigation*:** Significant and Unavoidable

The implementation of Mitigation Measure AES-1 would reduce potential impacts on the existing visual characteristics; however, the existing significant visual impacts would remain significant and unavoidable due to the substantial conversion of the area from agriculture to urban uses.

Program Cumulative Measures

Implementation of Mitigation Measure AES-1 is required.

Significance Determination after Mitigation: Significant and Unavoidable

As stated above, the implementation of Mitigation Measure AES-1 would reduce potential impacts on the existing visual characteristics; however, the existing significant visual impacts would remain significant and unavoidable due to the substantial conversion of the area from agriculture to urban uses.

Light or Glare

Impact 3.1-4a: The Phase 1 Project would result in a significant and cumulatively considerable light and glare impact on nighttime views in the Project area.

Phase 1 Project Impact Analysis

The implementation of the proposed Phase 1 Project includes the removal of approximately 96 acres of orchard trees that do not contain lighting systems and the development of 117 homes, roadways, open space, wastewater treatment facilities, and water facilities. The remaining orchard trees that also do not contain lighting systems within the Program area (approximately 700 acres) would remain. The nearest sensitive viewers to the Phase 1 Project site include residents of Madera Acres that are located west of Road 27. The proposed improvements within the Phase 1 Project area include limited structures associated with the wastewater treatment plant proposed within an open space area adjacent to Road 27 and the proposed residential structures that would include maximum heights of 35 feet in elevation would be set back from Road 27 by approximately 645 feet. The open space area where the wastewater treatment plant structures are proposed would include low-intensity night lighting for security. Because there would only be low-intensity security lighting for the wastewater treatment plant and because the proposed residences are set back by approximately 645 feet from Road 27, lighting from the wastewater treatment plant and the proposed residences would result in less than significant lighting impacts.

The proposed Phase 1 Project also includes an entry road that would connect to Road 27. This entry road would include lighting systems (i.e., streetlights and landscape lighting) that could cause significant lighting impacts in the Project vicinity.

The proposed Phase 1 Project would increase the amount of structures that could create new sources of glare. These new sources of glare could be from materials used on building facades, signs, roadway surfaces, and motor vehicles. Potential significant glare impacts from building facades could occur depending on the materials that are used. Although potential glare impacts could occur from materials used on roadway surfaces, these potential glare impacts would be less than significant due to the nominal reflection that could occur with ground level surfaces. In addition, although increases in vehicular travel would occur with the proposed Phase 1 Project and potential glare impact could occur, glare impacts from vehicles would be less than significant.

Significance Determination before Mitigation: Significant

Phase 1 Project Cumulative Impact Analysis

Implementation of cumulative projects identified in Table 3.0-1 would increase development within the valley portion of the County. One cumulative project is located adjacent to the Phase 1 Project is the construction of the high speed rail which includes a grade separation at Road 27. With Road 27 extending above the railroad tracks, street lights that would illuminate the surface of Road 27 would be elevated and potentially increase lighting in the area and potential for light spillover. As a result, cumulative projects could result in significant lighting impacts. Because the proposed Phase 1 Project entry road would include lighting systems (i.e., streetlights and landscape lighting) that could cause significant lighting impacts in the Project vicinity, the proposed Phase 1 Project's contribution to cumulative lighting impacts would be cumulatively considerable.

Because the high speed rail project is the only near-term cumulative project in the project vicinity, the addition of the proposed railroad tracks and bridge structure is not expected to significantly increase glare. Therefore, cumulative projects would result in less than significant glare impacts. Because the proposed Phase 1 Project would also result in less than significant glare impacts, the Phase 1 Project's contribution to cumulative glare impacts would be less than cumulatively considerable.

Significance Determination before Mitigation: Significant

Phase 1 Project Mitigation Measures

AES-2: Lighting systems for the proposed Phase 1 Project entry road shall include shields to direct light to the roadway surface. Vertical shields on the light fixtures shall be used to direct light away from adjacent light sensitive land uses such as the residences located west of Road 27. The shields shall prohibit light rays from the fixtures at angles above the horizontal plane. High-intensity discharge lamps, such as mercury, metal halide and high-pressure sodium lamps shall be prohibited.

AES-3: Lighting fixtures for the proposed entry road landscaping shall include shields to direct light to the landscape and vertical shields on the light fixtures shall be used to direct light away from adjacent light sensitive land uses. High-intensity discharge lamps, such as mercury, metal halide and high-pressure sodium lamps shall be prohibited.

AES-4 Materials used on building facades shall be non-reflective.

Significance Determination after Mitigation: Less than Significant

With the incorporation of Mitigation Measures AES-2 and AES-3, the Phase 1 Project would reduce potential lighting impacts on adjacent sensitive uses. In addition, the implementation of Mitigation Measure AES-4 would reduce potential glare impacts associated with the Phase 1 Project to less than significant.

Phase 1 Project Cumulative Measures

Implementation of Mitigation Measures AES-2 through AES-4 is required.

Significance Determination after Mitigation: Less than Significant

With the incorporation of Mitigation Measures AES-2 through AES-4, the Phase 1 Project's contribution to potential cumulative light and glare impacts on adjacent sensitive uses would be reduced to less than cumulatively considerable.

Impact 3.1-4b: The proposed Program would result in a significant and cumulatively considerable light and glare impact on nighttime views in the Project area.

Program Impact Analysis

The implementation of the proposed Program includes the removal of approximately 792 acres of orchard trees and the development of 3,072 homes, commercial, open space, roadways, wastewater treatment facilities, and water facilities. This development would increase the amount of light from street lights, exterior lighting systems on private and public property, exterior lighting from buildings and vehicular headlights. This development could also increase light from new illuminated signs and lighting systems to illuminate active play areas within the parks and open space areas. The increase in light within the proposed Program area could result in light spillover onto adjacent properties as well as increase the illumination of the sky at night. This increase in light illumination in the Program area could result in a significant impact.

The proposed Program would increase the amount of structures that could create new sources of glare. These new sources of glare could be from materials used on building facades, parking lots, signs, roadway surfaces, and motor vehicles. Potential significant glare impacts from building facades could occur depending on the materials that are used. Although potential glare impacts could occur from materials used on parking lots and roadway surfaces, these potential glare impacts would be less than significant due to the nominal reflection that could occur with ground level surfaces. In addition, although increases in vehicular travel would occur with the proposed Program and potential glare impact could occur, glare impacts from vehicles would be less than significant.

Significance Determination before Mitigation: Significant

Program Cumulative Impact Analysis

Implementation of cumulative growth in the Program area would increase development in the County and in the Program vicinity. The cumulative growth is expected to be consistent with the current land use designation within the County as well as the future growth of the City of Madera. This cumulative growth would increase the amount of light from street lights, exterior lighting systems on private and public property, exterior lighting from buildings and vehicular headlights. This development could also increase light from new illuminated signs and lighting systems. The increase in light within the County and City could result in light spillover onto adjacent properties as well as increase the illumination of the sky at night. This increase in light illumination in the County and City would result in a significant cumulative lighting impact. Because the proposed Program would significantly increase light illumination in the Program area, the proposed Program's contribution to cumulative lighting impacts would be cumulatively considerable.

Cumulative growth would also increase the amount of structures that could create new sources of glare. These new sources of glare could be from materials used on building facades, parking lots,

signs, roadway surfaces, and motor vehicles. Therefore, cumulative growth could create significant glare impacts. Since the proposed Program is expected to result in significant glare impacts, the proposed Program's contribution to potential cumulative glare impacts would be cumulatively considerable.

Significance Determination before Mitigation: Significant

Program Mitigation Measures

Implementation of Mitigation Measure AES-4 is required.

AES-5: Lighting systems for street and parking area shall include shields to direct light to the roadway surfaces and parking areas. Vertical shields on the light fixtures shall also be used to direct light away from adjacent light sensitive land uses such as the residences located south of the Program site, west of Road 27 and west of the railroad tracks.

AES-6 Lighting systems for parks and active play areas shall provide adequate illumination for the activity; however, low intensity light fixtures and shields shall be used to minimize spillover light onto adjacent properties.

AES-7 Lighting systems for the proposed Town Center uses (a mix of residential, commercial, civic, retail, restaurant, and office uses) shall provide shields on the light fixtures and orient the lighting system away from adjacent properties. Low intensity light fixtures shall also be used if excessive spillover light onto adjacent properties occur.

Significance Determination after Mitigation: Significant and Unavoidable

The illumination of the sky at night will be reduced with the implementation of Mitigation Measures AES-5 through AES-7; however, potential significant illumination impacts would remain. Lighting on properties adjacent to lighting systems will be reduced to less than significant with the implementation of Mitigation Measures AES-5 through AES-7. Glare impact will also be reduced to less than significant with the implementation of Mitigation Measure AES-4.

Program Cumulative Measures

Implementation of Mitigation Measures AES-4 through AES-7 is required.

Significance Determination after Mitigation: Significant and Unavoidable

The Program's contribution to the cumulative illumination of the sky at night will be reduced with the implementation of Mitigation Measures AES-5 through AES-7; however, the Program's contribution would remain cumulatively considerable and significant. The Program's potential contribution to cumulative lighting on properties adjacent to lighting systems will be reduced to less than cumulatively considerable with the implementation of Mitigation Measures AES-5 through AES-7. Finally, the Program's contribution to potential cumulative glare impact will also be reduced to less than cumulatively considerable with the implementation of Mitigation Measure AES-4.

3.1.4 References

California Department of Transportation (Caltrans). 2019. California Scenic Highway Mapping System. Available at: http://www.dot.ca.gov/hq/LandArch/16_livability/scenic_highways/index.htm, accessed on May 9, 2019.

Madera County. 1995a. Madera County General Plan Background Report. Available at: https://www.maderacounty.com/government/community-economic-development-department/divisions/planning-division/planning-forms-and-documents/-folder-269, accessed on May 9, 2019.

Madera County. 1995b. Madera County General Plan Policy Document. Available at: https://www.maderacounty.com/government/community-economic-development-department/divisions/planning-division/planning-forms-and-documents/-folder-269, accessed on May 9, 2019.

3.2 Agriculture and Forestry Resources

This section identifies and evaluates issues related to agricultural and forestry resources in the context of the proposed Phase 1 Project and the proposed Program. It includes a description of existing land use conditions in relation to agricultural and forestry resources and an evaluation of potential impacts associated with implementation of the Project. Forestry resources are not evaluated in this section because forestry resources are not located in the vicinity of the Project as discussed below, and these resources would not be impacted with the Project. A discussion of applicable state, local and regional plans and/or programs is also included.

3.2.1 Environmental Setting

Regional

Central California is one of the world's premier growing regions and is home to some of the most productive counties in the United States. Much of the land under agricultural operations is devoted to relatively stable crops such as orchards and vineyards. The primary crops within Madera County include fruits and nuts, livestock and poultry, field crops and vegetable crops.

There are six multicounty resource areas described as major wood-producing regions within California. Madera County is located within the San Joaquin resource area (U.S. Department of Agriculture, 2015). The forestry resources within the San Joaquin resource area is located within the Sierra Nevada Mountains. The forest within the Sierra Nevada Mountains are dominated by softwood tree species groups including Douglas-fir, true firs and pines.

Local

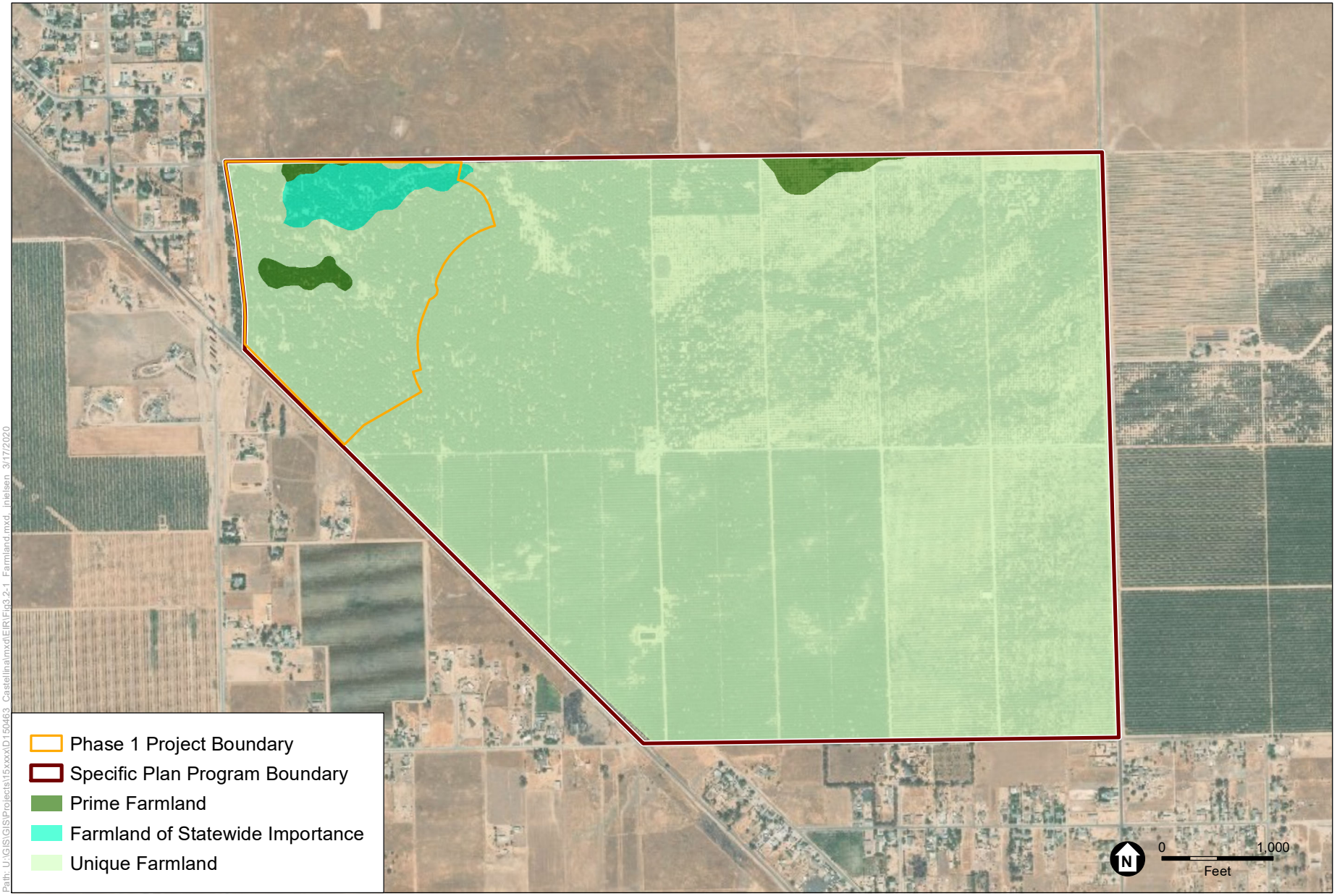
Agriculture

Based on the California Department of Conservation Farmland Mapping and Monitoring Program, approximately 43 percent of the County contains lands that are designated as important farmlands. The important farmlands include Prime Farmland (98,500 acres), Farmland of Statewide Importance (85,206 acres), Unique Farmland (180,291 acres) and Farmland of Local Importance (8,751 acres) (California Department of Conservation, 2016).

The Phase 1 Project site includes 4.8 acres of Prime Farmland, 14.3 acres of Farmland of Statewide Importance, and 76.9 acres of Unique Farmland. The Program site includes 10.0 acres of Prime Farmland, 14.6 acres of Farmland of Statewide Importance, and 767.4 acres of Unique Farmland (**Figure 3.2-1**).

Forestry

Based on a review of the California forest land map, the Phase 1 Project site and Program site are not within areas identified as forest and does not contain any forest plots (U.S. Department of Agriculture, 2016).



SOURCE: ESRI, 2020; FMMP, 2016.

Figure 3.2-1
Farmlands Designations

ESA

3.2.2 Regulatory Framework

Federal

Farmland Protection Policy Act

The Farmland Protection Policy Act (FPPA) was designed to minimize the impact that the Federal programs have on the unnecessary and irreversible conversion of farmland to nonagricultural uses. This act assures that to the extent possible, federal programs are administered to be compatible with state, local units of government, and private programs and policies to protect farmland. Federal agencies are required to develop and review their policies and procedures to implement the FPPA every two years. For the purposes of this act, farmland includes prime farmland, unique farmland, and land of statewide or local importance. Farmland subject to the FPPA requirements does not have to be currently used for cropland. It can be forest land, pastureland, cropland, or other land, but not water or built-up land (NRCS, 2012).

State

Farmland Mapping and Monitoring Program

The California Department of Conservation established the Farmland Mapping and Monitoring Program (FMMP) in 1982. The FMMP is a non-regulatory program and provides a consistent and impartial analysis of agricultural land use and land use changes throughout California. The FMMP produces maps and statistical data used for analyzing impacts on California's agricultural resources. Agricultural land is rated according to soil quality and irrigation status. The best quality land is called Prime Farmland with additional categories, including Farmland of Statewide Importance, Unique Farmland, and Farmland of Local Importance. The maps are updated every two years with the use of aerial photographs, a computer mapping system, public review, and field reconnaissance. The farmland mapping categories that are used for Madera County is provided below.

Prime Farmland - Farmland with the best combination of physical and chemical features able to sustain long term agricultural production. This land has the soil quality, growing season, and moisture supply needed to produce sustained high yields. Land must have been used for irrigated agricultural production at some time during the four years prior to the mapping date.

Farmland of Statewide Importance - Farmland similar to Prime Farmland but with minor shortcomings, such as greater slopes or less ability to store soil moisture. Land must have been used for irrigated agricultural production at some time during the four years prior to the mapping date.

Unique Farmland - Farmland of lesser quality soils used for the production of the state's leading agricultural crops. This land is usually irrigated, but may include non-irrigated orchards or vineyards as found in some climatic zones in California. Land must have been cropped at some time during the four years prior to the mapping date.

Farmland of Local Importance - Land of importance to the local agricultural economy as determined by each county's board of supervisors and a local advisory committee. In Madera

County, this category is defined as lands that are presently under cultivation for small grain crops, but are not irrigated. Also lands that are currently irrigated pasture, but have the potential to be cultivated for row/field crop use (California Department of Conservation, 2017).

Grazing Land - Land on which the existing vegetation is suited to the grazing of livestock. This category was developed in cooperation with the California Cattlemen's Association, University of California Cooperative Extension, and other groups interested in the extent of grazing activities.

Urban & Built-up Land - Land occupied by structures with a building density of at least 1 unit to 1.5 acres, or approximately 6 structures to a 10-acre parcel. This land is used for residential, industrial, commercial, construction, institutional, public administration, railroad and other transportation yards, cemeteries, airports, golf courses, sanitary landfills, sewage treatment, water control structures, and other developed purposes.

Other Land - Land not included in the above mapping categories. These categories include confined animal agriculture, non-agriculture and natural vegetation, semi-agricultural and rural commercial land, vacant or disturbed land, and rural residential land.

Water Area - Perennial water bodies with an extent of at least 40 acres.

Land Conservation Act of 1965 (Williamson Act)

The California Land Conservation Act of 1965 (Williamson Act) enables local governments to enter into contracts with private landowners for the purpose of restricting specific parcels of land to agricultural or related open space uses. In return, the landowners receive property tax assessments based on farming and open space uses, as opposed to full market value, thus resulting in a lower tax burden.

The Williamson Act is a voluntary program in which the owners of agricultural property enter into contracts with the County which restrict contracted land to an agricultural or open space use for at least 9 years for the Agricultural Preserve Program and 18 years for the Farmland Security Zone Program in accordance with the implementation of Assembly Bill 1265 by the Board of Supervisors (Madera County, 2017).

Based on a review of the Madera County Williamson Act (Farmland Security Zones, Agricultural Preserves, Non-Renewals) map, the Phase 1 Project site and the Program site are located within the Non-Renewals, Agricultural Preserve. Therefore, the site is not designated under a Williamson Contract (Conservation Biology Institute, 2019).

Local

Madera County General Plan

Madera County has goals and policies related to agricultural resources and forest resources within the Madera County General Plan. The agricultural policies are applicable to the Phase 1 Project and proposed Program, but the forest resources policies are not applicable since there are no forest resources on site.

Policy 5.A.1: The County shall maintain agriculturally-designated areas for agricultural uses and direct urban uses to designated new growth areas, existing communities, and/or cities.

Policy 5.A.2: The County shall discourage the conversion of prime agricultural land to urban uses unless an immediate and clear need can be demonstrated that indicates a lack of land for non-agricultural uses.

Policy 5.A.3: The County shall seek to ensure that new development and public works projects do not encourage further expansion of urban uses into designated agricultural areas.

Policy 5.A.4: The County will maintain large-parcel agricultural zoning and prohibit the subdivision of agricultural lands into parcels smaller than permitted by the zoning.

Policy 5.A.5: The County shall allow the conversion of existing agricultural land to urban uses only within designated urban and rural residential areas, new growth areas, and within city spheres of influence where designated for urban development on the General Plan *Land Use Diagram*.

Policy 5.A.9: The County shall encourage infill development in urban areas as an alternative to expanding urban boundaries into agriculturally-designated areas.

Policy 5.A.13: The County shall require development within or adjacent to designated agricultural areas to incorporate design, construction, and maintenance techniques that protect agriculture and minimize conflicts with adjacent agricultural uses.

Madera County Zoning Code

The Madera County Zoning Code provides a countywide framework of regulations that address topics such as permitted uses, conditional uses and development standards. The Phase 1 Project site as well as the entire Program site is currently designated as Agricultural Rural Exclusive – 40-acre (ARE-40) zone. The ARE-40 zone allows all kinds of agricultural uses, one single family dwelling, a dormitory or attached farm labor housing unit accommodating up to five families on parcels of 36 acres or larger, and a second single family dwelling subject to parcel size requirements and development standards.

Madera County Right to Farm Ordinance

In 1989, the Board adopted a Right-to-Farm Ordinance to address issues of incompatibility that arise when non-agricultural uses extend into or adjacent to agricultural ones. Conflicts may arise in which agricultural operations become the subject of nuisance complaints, which may result in reduced investments in farm improvements, curtailing or ceasing of operations, and overall reduction in agricultural production efficiency. The Right-to-Farm Ordinance seeks to balance the intent of Madera County to protect agricultural production and the associated rights of farm operators with the desires of non-farm operators who own or use adjacent lands. The intent of the ordinance is to reduce County loss of agricultural uses by minimizing conditions under which a

farm operation may be considered a nuisance. Conversely, property owners may request changes in zoning classifications to allow development of their land adjacent to agricultural operations.

3.2.3 Impacts and Mitigation Measures

Significance Criteria

The criteria used to determine the significance of impacts related to Agricultural and Forestry resources are based on Appendix G of the *CEQA Guidelines*. The Phase 1 Project and proposed Program would result in a significant impact to Agricultural and Forestry resources if the Phase 1 Project and proposed Program would:

- Convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance (Farmland), as shown on the maps prepared pursuant to the Farmland Mapping and Monitoring Program of the California Resources Agency, to non-agricultural use (see Impact 3.2-1, below);
- Conflict with existing zoning for agricultural use, or a Williamson Act Contract (see Impact 3.2-2, below);
- Conflict with existing zoning for, or cause rezoning of, forest land (as defined in Public Resources Code Section 12220(g)), timberland (as defined by Public Resources Code section 4526), or timberland zoned Timberland Production (as defined by Government Code section 51104(g)) (see Section 4.1.1 in Chapter 4.0, Other CEQA Considerations);
- Result in the loss of forest land or conversion of forest land to non-forest use (see Section 4.1.1 in Chapter 4.0, Other CEQA Considerations).
- Involve other changes in the existing environment which, due to their location or nature, could result in conversion of Farmland, to non-agricultural use or conversion of forest land to non-forest use (see Impact 3.2-3, below)

Methodology

Department of Conservation Important Farmland data was utilized in order to determine the most recent classification of farmland on the sites of the proposed Phase 1 Project and proposed Program. Williamson Act data was obtained from the Conservation Biology Institute who had obtained data from the Madera County Assessor's Office. In addition, state and local regulations were also reviewed for relevant goals and policies that may be applicable to the Project. The Project is analyzed for potential conversion of important farmlands, conflict with agricultural zoning designations or other changes resulting from the Project that would remove important farmlands from agricultural production.

Impacts Discussion

Convert Farmland to Non-Agricultural Use

Impact 3.2-1a: The Phase 1 Project would have significant and cumulatively considerable impacts from the conversion of Prime Farmland, Unique Farmland, or Farmland of Statewide Importance (Farmland) as shown on maps prepared pursuant to the Farmland Mapping and Monitoring Program of the California Resources Agency to non-agricultural use.

Phase 1 Project Impact Analysis

The construction and operation of the proposed Phase 1 Project would result in the removal of approximately 96 acres of land designated Prime Farmland (4.8 acres), Farmland of Statewide Importance (14.3 acres), and Unique Farmland (76.9 acres). This removal of 96 acres of Important Farmland would be converted to non-agricultural uses such as residential, commercial, public facilities, recreation, open space and other related uses. This conversion is expected to occur over an approximately one-year period and would represent a significant impact on Important Farmland.

Significance Determination before Mitigation: Significant

Phase 1 Project Cumulative Impact Analysis

The implementation of the cumulative projects identified in Table 3.0-1 would primarily be located within areas that are not designated as Important Farmland; however, there are a couple of the cumulative projects that would result in the conversion of Prime Farmland to non-agricultural uses. Therefore, implementation of the cumulative projects would result in significant cumulative impacts on Important Farmlands.

Because the implementation of the proposed Phase 1 Project would result in the removal of approximately 96 acres of Important Farmlands, the Project's contribution to the cumulative impact on Important Farmlands would be cumulatively considerable.

Significance Determination before Mitigation: Significant

Phase 1 Project Mitigation Measures

No feasible mitigation measures are available.

Significance Determination after Mitigation: Significant and Unavoidable

As identified above, there are no feasible mitigation measures available to offset the approximate 96 acres of land designated as Important Farmland on the Phase 1 Project site. This loss is consistent with the loss of agricultural land that was planned for the site with the approval of the Madera County Resolution 2014-012 to change the General Plan designation on the Phase 1 Project site from Agriculture – Exclusive to New Growth Area. This land use revision was also consistent with the City of Madera General Plan which included the Phase 1 Project site within a Village Reserve, and the City of Madera identified future development within the Phase 1 Project area as a significant and unavoidable impact on Important Farmland from the conversion of farmland to urban uses (City of Madera, 2009).

Phase 1 Project Cumulative Measures

No feasible mitigation measures are available.

Significance Determination after Mitigation: Significant and Unavoidable

As stated above, there are no feasible measures to reduce potential impacts on Important Farmlands on the Phase 1 Project site. This loss is consistent with the loss of agricultural land that was planned for the site with the approval of the Madera County Resolution 2014-012 to change the General Plan designation on the Phase 1 Project site from Agriculture – Exclusive to New Growth Area. This land use revision was also consistent with the City of Madera General Plan which also included the Phase 1 project site within a Village Reserve, and the City of Madera identified future development within the Phase 1 Project area as a significant and unavoidable impact on Important Farmland from the conversion of farmland to urban uses. The Project's contribution to cumulative impacts on Important Farmlands would be cumulatively considerable.

Impact 3.2-1b: The proposed Program would have significant and cumulatively considerable impacts from the conversion of Prime Farmland, Unique Farmland, or Farmland of Statewide Importance (Farmland) as shown on maps prepared pursuant to the Farmland Mapping and Monitoring Program of the California Resources Agency to non-agricultural use.

Program Impact Analysis

The construction and operation of the proposed Program would result in the removal of approximately 792 acres of land designated Prime Farmland (10.0 acres), Farmland of Statewide Importance (14.6 acres), and Unique Farmland (767.4 acres). This removal of 792 acres of Important Farmland that would be converted to non-agricultural uses such as residential, commercial, public facilities, recreation, open space and other related uses. This conversion is expected to occur over an approximately 15-year period. During this period, the number of Important Farmland acres that would be removed would occur as phased development of the Program site occurs. Approximately 1.3 percent of the agricultural land that would be converted to urban uses is considered to be Prime Farmland, 1.8 percent of the agricultural land would be converted to urban uses would be Farmland of Statewide Importance and 96.9 percent of the agricultural land would be converted to urban use would be Unique Farmland. The loss of 792 acres of Important Farmland would represent a significant impact on agricultural resources.

Significance Determination before Mitigation: Significant

Program Cumulative Impact Analysis

The implementation of cumulative growth in the Madera area would include the conversion of Important Farmland to non-agricultural uses. Even though the conversion would occur over many years, the loss of Important Farmland due to cumulative growth would be significant.

Because the implementation of the proposed Program would result in the removal of approximately 792 acres of Important Farmlands, the proposed Program's contribution to the cumulative impact on Important Farmlands would be cumulatively considerable.

Significance Determination before Mitigation: Significant

Program Mitigation Measures

No feasible mitigation measures are available.

Significance Determination after Mitigation: Significant and Unavoidable

As identified above, there are no feasible mitigation measures available to offset the approximate 792 acres of land designated as Important Farmland on the proposed Program site. This loss is consistent with the loss of agricultural land that was planned for the Program site with the approval of the Madera County Resolution 2014-012 to change the General Plan designation on the proposed Program site from Agriculture – Exclusive to New Growth Area. This land use revision was also consistent with the City of Madera General Plan which also included the proposed Program site within a Village Reserve area. The City of Madera provided a Statement of Overriding Considerations for the loss of Important Farmland within the Program site. The proposed Program's contribution to cumulative impacts on Important Farmlands would remain cumulatively considerable.

Program Cumulative Measures

No feasible mitigation measures are available.

Significance Determination after Mitigation: Significant and Unavoidable

As stated above, there are no feasible measures to reduce potential impacts on Important Farmlands on the proposed Program site. This loss is consistent the County of Madera General Plan designation change for the Program site in 2014 from Agriculture – Exclusive to New Growth Area. This land use revision was also consistent with the City of Madera General Plan which also included the proposed Program site within a Village Reserve. Even though the proposed Program site is planned for future urban growth, the Program's contribution to cumulative impacts on Important Farmlands would remain cumulatively considerable.

Conflict with Existing Zoning or Williamson Act Contract

Impact 3.2-2a: The Phase 1 Project would have significant and cumulatively considerable impacts from conflicts with existing zoning for agricultural use, or a Williamson Act Contract.

Phase 1 Project Impact Analysis

The implementation of the proposed Phase 1 Project would result in conflicts with the existing onsite ARE-40 zoning because the proposed 117 residential units, wastewater treatment plant, water facilities, and open space/parks uses would not be consistent with the existing zoning regulations. Therefore, the proposed Phase 1 Project would result in significant impacts on the existing zoning for agricultural use.

Based on a review of the Williamson Act contract map for Madera County, the approximately 96-acre Phase 1 Project does not include land that is currently under a Williamson Act contract

(Conservation Biology Institute, 2019). Therefore, the Phase 1 Project would result in no impacts to Williamson Act contract lands.

Significance Determination before Mitigation: Significant

Phase 1 Project Cumulative Impact Analysis

The implementation of the cumulative projects would require zone changes from agricultural uses to non-agricultural uses; however, the cumulative projects would not conflict with Williamson Act contract lands based on a review of the Madera County Williamson Act contract lands map (Conservation Biology Institute, 2019). The development of the non-agricultural uses would conflict with the agricultural zones. Therefore, implementation of the cumulative projects would result in significant cumulative impacts on land zoned for agricultural uses, and no impacts on Williamson Act contract lands.

Because the implementation of the proposed Phase 1 Project would result in the removal of approximately 96 acres of land currently zoned for agriculture, the Project's contribution to the cumulative impact on agriculturally zoned land would be cumulatively considerable. Because the proposed Phase 1 Project site and the cumulative projects do not contain Williamson Act contract lands, the Project would not contribute to impacts to Williamson Act contract lands.

Significance Determination before Mitigation: Significant

Phase 1 Project Mitigation Measures

No feasible mitigation measures are available.

Significance Determination after Mitigation: Significant and Unavoidable

As identified above, there are no feasible mitigation measures available to offset the approximate 96 acres of agricultural zoned land on the Phase 1 Project site. This loss is consistent with the loss of agricultural zoned land that was planned for the site with the approval of the Madera County Resolution 2014-012 to change the General Plan designation on the Phase 1 Project site from Agriculture – Exclusive to New Growth Area. This land use revision was also consistent with the City of Madera General Plan which also included the Phase 1 Project site within a Village Reserve area. The City of Madera provided a Statement of Overriding Considerations for the loss of agricultural zoned land. The proposed Phase 1 Project's contribution to cumulative impacts on agricultural zoned land would remain cumulatively considerable.

Phase 1 Project Cumulative Measures

No feasible mitigation measures are available.

Significance Determination after Mitigation: Significant and Unavoidable

As stated above, there are no feasible measures to reduce potential impacts on agricultural zoned land on the Project site. This loss is consistent with the loss of agricultural zoned land that was planned for the site by the County of Madera and the City of Madera. Even though the site is

planned for future urban growth, the Phase 1 Project's contribution to cumulative impacts on agricultural zoned land would remain cumulatively considerable.

Impact 3.2-2b: The proposed Program would have significant and cumulatively considerable impacts from conflicts with existing zoning for agricultural use, or a Williamson Act Contract.

Program Impact Analysis

The implementation of the proposed Program would result in conflicts with the existing onsite ARE-40 zoning because the proposed residential units, commercial, proposed wastewater treatment plant, water facilities, and open space/parks uses would not be consistent with the existing zoning regulations. Therefore, the proposed Program would result in significant impacts on the existing zoning for agricultural use.

Based on a review of the Williamson Act contract map for Madera County, the approximately 792-acre proposed Program does not include land that is currently under a Williamson Act contract (Conservation Biology Institute, 2019). Therefore, the proposed Program would result in no impacts to Williamson Act contract lands.

Significance Determination before Mitigation: Significant

Program Cumulative Impact Analysis

The implementation of the cumulative growth would require zone changes from agricultural uses to non-agricultural uses, and the cumulative growth would conflict with Williamson Act contract lands based on a review of the Madera County Williamson Act contract lands map (Conservation Biology Institute, 2019). The development resulting from cumulative growth of the non-agricultural uses would conflict with the agricultural zones. Therefore, implementation of the cumulative growth would result in significant cumulative impacts on land zoned for agricultural uses and significant cumulative impacts on Williamson Act contract lands.

Because the implementation of the proposed Program would result in the removal of approximately 792 acres of land currently zoned for agriculture, the Project's contribution to the cumulative impact on agriculturally zoned land would be cumulatively considerable. Because the proposed Program site does not contain Williamson Act contract lands, the Program would not contribute to cumulative impacts to Williamson Act contract lands.

***Significance Determination before Mitigation*:** Significant

Program Mitigation Measures

No feasible mitigation measures are available.

Significance Determination after Mitigation: Significant and Unavoidable

As identified above, there are no feasible mitigation measures available to offset the approximate 792 acres of agricultural zoned land on the Program site. This loss is consistent with the loss of agricultural zoned land that was planned for the site with the approval of the Madera County

Resolution 2014-012 to change the General Plan designation on the Program site from Agriculture – Exclusive to New Growth Area. This land use revision was also consistent with the City of Madera General Plan which also included the Program site within a Village Reserve. The City of Madera provided a Statement of Overriding Considerations for the loss of agricultural zoned land. The proposed Program's contribution to cumulative impacts on agricultural zoned land would remain cumulatively considerable.

Program Cumulative Measures

No feasible mitigation measures are available.

Significance Determination after Mitigation: Significant and Unavoidable

As stated above, there are no feasible measures to reduce potential impacts on agricultural zoned land on the Program site. This loss is consistent with the loss of agricultural zoned land that was planned for the site by the County of Madera and the City of Madera. Even though the site is planned for future urban growth, the Program's contribution to cumulative impacts on agricultural zoned land would remain cumulatively considerable.

Involve Other Changes Resulting in the Conversion to Non-Agricultural use and Conversion to Non-Forest Use

Impact 3.2-3a: The Phase 1 Project would involve other changes in the existing environment, due to their location or nature, that would result in the conversion of Farmland to non-agricultural use or conversion of forest land to non-forest use.

Phase 1 Project Impact Analysis

The implementation of the proposed Phase 1 Project would result in the development of the approximately 96-acre Project site. Improvements that are anticipated to occur that are outside of the Phase 1 Project site include utility improvements and a fire access road. The utility improvements would occur within the existing right-of-way for Road 27 and would not impact farmland. The fire access road would be primarily located along an existing dirt access road that extends from Road 28 ½ within the Specific Plan Program area. There is approximately 0.5 acres of farmland that would be removed to connect the existing dirt access road to the Phase 1 Project site. The removal of the additional 0.5 acre of agricultural use would result in the conversion of farmland to non-agricultural use. This conversion would be considered a significant impact.

In addition, as stated previously, the Phase 1 Project area does not contain forest land. Therefore, the proposed Phase 1 Project would not involve other changes in the existing environment that would result in the conversion of forest land to a non-forest use.

Significance Determination before Mitigation: Significant

Phase 1 Project Cumulative Impact Analysis

The implementation of the cumulative projects would result in development that could result in the conversion of farmland to non-agricultural uses on their specific sites; however, similar to the

proposed Phase 1 Project, these cumulative projects are expected to implement improvements outside of their individual sites; but these improvements are anticipated to occur within existing roadway rights-of-way. Therefore, the cumulative projects would not involve other changes in the existing environment that would result in the conversion of farmland to non-agricultural use.

Because the Phase 1 Project would result in the removal of approximately 0.5 acre of farmland outside the Phase 1 Project site with the implementation of the offsite fire access road, the Phase 1 Project's contribution of conversion impacts of farmland to non-agricultural use would be cumulatively considerable.

In addition, as stated previously, the forest land is located east of the Project site near the foothills of the Sierra Nevada Mountains. Therefore, the cumulative projects would not involve other changes in the existing environment that would result in the conversion of forest land to a non-forest use. Because the Phase 1 Project would not involve other changes to resulting in the conversion of forest land to non-forest use, the Project would not contribute to cumulative forest land conversion impacts.

Significance Determination before Mitigation: Significant

Phase 1 Project Mitigation Measures

No feasible mitigation measures are available.

Significance Determination after Mitigation: Significant and Unavoidable

As stated above, there are no feasible measures to reduce potential impacts on farmland conversion from the implementation of the Phase 1 Project. This loss is consistent with the loss of agricultural land that was planned for the site with the approval of the Madera County Resolution 2014-012 to change the General Plan designation on the Program area from Agriculture – Exclusive to New Growth Area. This land use revision was also consistent with the City of Madera General Plan which also included the Program area within a Village Reserve, and the City of Madera identified future development within the Program area as a significant and unavoidable impact on the conversion of farmland to urban uses. Because the Phase 1 Project would require the conversion of approximately 0.5 acre of farmland to non-farmland for the implementation of a fire access road within the Program site, the Project's farmland conversion impact would remain significant and unavoidable.

Phase 1 Project Cumulative Measures

No feasible mitigation measures are available.

Significance Determination after Mitigation: Significant and Unavoidable

As stated above, there are no feasible measures to reduce potential impacts on farmland conversion from the implementation of the Phase 1 Project. This loss is consistent with the loss of agricultural land that was planned for the site with the approval of the Madera County Resolution 2014-012 to change the General Plan designation on the Program area from Agriculture – Exclusive to New Growth Area. This land use revision was also consistent with the City of Madera General Plan

which also included the Program area within a Village Reserve, and the City of Madera identified future development within the Program area as a significant and unavoidable impact on the conversion of farmland to urban uses. Because the Phase 1 Project would require the conversion of approximately 0.5 acre of farmland to non-farmland for the implementation of a fire access road within the Program site, the Project's contribution to cumulative impacts on the conversion of farmland to non-agricultural use would be cumulatively considerable.

Impact 3.2-3b: The proposed Program would not involve other changes in the existing environment, due to their location or nature, that would result in the conversion of Farmland to non-agricultural use or conversion of forest land to non-forest use.

Program Impact Analysis

The implementation of the proposed Program would result in the development of the approximately 792-acre Project site. Improvements that are anticipated to occur that are outside of the Project site include utility improvements; however, these utility improvements would occur within the existing rights-of-way for Road 27, Avenue 17 and Road 28 ½. No additional improvements outside an existing roadway rights-of-way would occur with the proposed Program. Therefore, the Program would not involve other changes in the existing environment that would result in the conversion of farmland to non-agricultural use. In addition, as stated previously, the Program site does not contain forest land, and therefore, the proposed Program would not involve other changes in the existing environment that would result in the conversion of forest land to a non-forest use.

Significance Determination before Mitigation: No Impact

Program Cumulative Impact Analysis

The implementation of the cumulative growth would result in development that could result in the conversion of farmland to non-agricultural uses. This conversion could occur on individual sites as well as offsite locations in areas where regional improvements may be required to accommodate future growth. Therefore, cumulative growth could involve other changes in the existing environment that could result in significant environmental impacts due to the conversion of farmland to non-agricultural use. Because the proposed Program would not involve other changes in the existing environment that would result in the conversion of farmland to non-agricultural use, the proposed Program would not contribute to the potential significant cumulative impacts involving other changes in the existing environment due to the conversion of farmland to non-agricultural use.

In addition, as stated previously, the forest land is located east of the Project site near the foothills of the Sierra Nevada Mountains. Therefore, the cumulative growth in the vicinity of the proposed Program would not involve other changes in the existing environment that would result in the conversion of forest land to a non-forest use. As a result, cumulative growth would not result in other changes in the existing environment due to the conversion of forest land to non-forest land. Because the proposed Program and cumulative growth would not involve other changes in the existing environment due to the conversion of forest land to non-forest land, the proposed Program would result in no cumulative impact.

Significance Determination before Mitigation: No Impact

Program Mitigation Measures

No mitigation measures are required.

Significance Determination after Mitigation: No Impact

Program Cumulative Measures

No mitigation measures are required.

Significance Determination after Mitigation: No Impact

3.2.4 References

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3.3 Air Quality

This section addresses air emissions generated by construction and operation of the Project. The analysis also addresses consistency of the Project with air quality policies set forth within the San Joaquin Valley Air Pollution Control District (SJVAPCD), and the County of Madera. The analysis of Project-generated air emissions focuses on whether the Project would cause an exceedance of an ambient air quality standard or a SJVAPCD significance threshold. Details regarding the air quality analysis are provided in **Appendix C** of this Draft EIR. The detailed appendices in Appendix C include:

- **C-1** – Air Quality Analysis Assumptions, Calculations, and Modeling Data
- **C-2** – Health Risk Assessment Assumptions, Calculations, and Modeling Data
- **C-3** – Health Effects Analysis Assumptions, Calculations, and Modeling Data
- **C-4** – Transportation Analysis Report

3.3.1 Environmental Setting

Existing Conditions

Regional Context

The plan area is located in the San Joaquin Valley Air Basin (SJVAB) The SJVAB is the second largest air basin by area in California, representing 16 percent of California's geographic area. Fresno, Western and Central Kern, Kings, Madera, Merced, San Joaquin, Stanislaus, and Tulare counties are all within the SJVAB. The SJVAB is approximately 250 miles long and 35 miles wide. It is bordered to the east by the Sierra Nevada Mountains, the Coast Ranges to the west, Tehachapi Mountains to the south and the Sacramento Valley to the north. The bowl shaped topography inhibits pollutant movement out of the valley (SJVAPCD 2015). The SJVAPCD has jurisdiction over the entire SJVAB. Cities under the jurisdiction of the SJVAPCD include Chowchilla, Stockton, Modesto, Merced, Madera, Fresno, Hanford, Visalia, and Bakersfield (SJVAPCD 2015). The ambient concentrations of air pollutants are determined by the amount of emissions released by sources and the atmosphere's ability to transport and dilute such emissions. Natural factors that affect transport and dilution include terrain, wind, atmospheric stability, and sunlight. Therefore, existing air quality conditions in the area are determined by such natural factors as topography, meteorology, and climate, in addition to the amount of emissions released by existing air pollutant sources (SJVAPCD 2015).

The SJVAB is part of a Mediterranean Climate Zone characterized by sparse rainfall occurring mainly in the winter. Maximum temperatures often exceed 100 ^{O}F in the valley. Wind in the SJVAB typically blows from the northwest especially during the summer. The winter results in periods of stagnation where winds are very weak again trapping pollutants in the valley (SJVAPCD 2015).

Criteria Pollutants

Certain air pollutants have been recognized to cause notable health problems and consequential damage to the environment either directly or in reaction with other pollutants, due to their presence in elevated concentrations in the atmosphere. Such pollutants have been identified and regulated as part of the overall endeavor to prevent further deterioration and facilitate improvement in air quality. The following pollutants are regulated by the United States Environmental Protection Agency (USEPA) and are subject to emissions control requirements adopted by Federal, State and local regulatory agencies. These pollutants are referred to as "criteria air pollutants" as a result of the specific standards, or criteria, which have been adopted for them. The National Ambient Air Quality Standards (NAAQS) and California Ambient Air Quality Standards (CAAQS) for each of the monitored pollutants are summarized in **Table 3.3-1,** Ambient Air Quality Standards. The NAAQS and CAAQS have been set at levels considered safe to protect public health, including the health of sensitive populations such as asthmatics, children, and the elderly with a margin of safety; and to protect public welfare, including protection against decreased visibility and damage to animals, crops, vegetation, and buildings. A brief description of the health effects of these criteria air pollutants are provided below.

Ozone (O3): Ozone is a secondary pollutant formed by the chemical reaction of volatile organic compounds (VOCs) and nitrogen oxides (NOx) in the presence of sunlight under favorable meteorological conditions, such as high temperature and stagnation episodes. Ozone concentrations are generally highest during the summer months, when direct sunlight, light wind, and warm temperature conditions are favorable.

According to the USEPA, ozone can cause the muscles in the airways to constrict potentially leading to wheezing and shortness of breath (USEPA, 2019a). Ozone can make it more difficult to breathe deeply and vigorously; cause shortness of breath and pain when taking a deep breath; cause coughing and sore or scratchy throat; inflame and damage the airways; aggravate lung diseases such as asthma, emphysema and chronic bronchitis; increase the frequency of asthma attacks; make the lungs more susceptible to infection; continue to damage the lungs even when the symptoms have disappeared; and cause chronic obstructive pulmonary disease (USEPA, 2019a).

Long-term exposure to ozone is linked to aggravation of asthma, and is likely to be one of many causes of asthma development and long-term exposures to higher concentrations of ozone may also be linked to permanent lung damage, such as abnormal lung development in children (USEPA, 2019a). According to CARB, inhalation of ozone causes inflammation and irritation of the tissues lining human airways, causing and worsening a variety of symptoms and exposure to ozone can reduce the volume of air that the lungs breathe in and cause shortness of breath (CARB, 2018a).

TABLE 3.3-1
AMBIENT AIR QUALITY STANDARDS

Pollutant	Average Time	California Standards[a]		National Standards[b]		
		Concentration[c]	Method[d]	Primary[c,e]	Secondary[c,f]	Method[g]
O_3[h]	1 Hour	0.09 ppm (180 µg/m3)	Ultraviolet Photometry	—	Same as Primary Standard	Ultraviolet Photometry
	8 Hour	0.070 ppm (137 µg/m3)		0.070 ppm (137 µg/m3)		
NO_2[i]	1 Hour	0.18 ppm (339 µg/m3)	Gas Phase Chemi-luminescence	100 ppb (188 µg/m3)	None	Gas Phase Chemi-luminescence
	Annual Arithmetic Mean	0.030 ppm (57 µg/m3)		53 ppb (100 µg/m3)	Same as Primary Standard	
CO	1 Hour	20 ppm (23 mg/m3)	Non-Dispersive Infrared Photometry (NDIR)	35 ppm (40 mg/m3)	None	Non-Dispersive Infrared Photometry (NDIR)
	8 Hour	9.0 ppm (10mg/m3)		9 ppm (10 mg/m3)		
	8 Hour (Lake Tahoe)	6 ppm (7 mg/m3)		—	—	
SO_2[j]	1 Hour	0.25 ppm (655 µg/m3)	Ultraviolet Fluorescence	75 ppb (196 µg/m3)	—	Ultraviolet Fluorescence; Spectrophotometry (Pararosaniline Method)9
	3 Hour	—		—	0.5 ppm (1300 µg/m3)	
	24 Hour	0.04 ppm (105 µg/m3)		0.14 ppm (for certain areas)j	—	
	Annual Arithmetic Mean	—		0.030 ppm (for certain areas) j	—	
PM_{10}[k]	24 Hour	50 µg/m3	Gravimetric or Beta Attenuation	150 µg/m3	Same as Primary Standard	Inertial Separation and Gravimetric Analysis
	Annual Arithmetic Mean	20 µg/m3		—		
$PM_{2.5}$[k]	24 Hour	No Separate State Standard		35 µg/m3	Same as Primary Standard	Inertial Separation and Gravimetric Analysis
	Annual Arithmetic Mean	12 µg/m3	Gravimetric or Beta Attenuation	12.0 µg/m3 k	15 µg/m3	

Pollutant	Average Time	California Standards[a]		National Standards[b]		
		Concentration[c]	Method[d]	Primary[c,e]	Secondary[c,f]	Method[g]
Lead[l,m]	30 Day Average	1.5 µg/m3	Atomic Absorption	—	—	High Volume Sampler and Atomic Absorption
	Calendar Quarter	—		1.5 µg/m3 (for certain areas)m	Same as Primary Standard	
	Rolling 3-Month Average m	--		0.15 µg/m3		
Visibility Reducing Particles[n]	8 Hour	Extinction coefficient of 0.23 per kilometer — visibility of ten miles or more (0.07 — 30 miles or more for Lake Tahoe) due to particles when relative humidity is less than 70 percent. Method: Beta Attenuation and Transmittance through Filter Tape.		No Federal Standards		
Sulfates (SO_4)	24 Hour	25 µg/m3	Ion Chromatography			
Hydrogen Sulfide	1 Hour	0.03 ppm (42 µg/m3)	Ultraviolet Fluorescence			
Vinyl Chloride[l]	24 Hour	0.01 ppm (26 µg/m3)	Gas Chromatography			

a California standards for ozone, carbon monoxide (except 8-hour Lake Tahoe), sulfur dioxide (1 and 24 hour), nitrogen dioxide, and particulate matter (PM10, PM2.5, and visibility reducing particles), are values that are not to be exceeded. All others are not to be equaled or exceeded. California ambient air quality standards are listed in the Table of Standards in Section 70200 of Title 17 of the California Code of Regulations.

b National standards (other than ozone, particulate matter, and those based on annual arithmetic mean) are not to be exceeded more than once a year. The ozone standard is attained when the fourth highest 8-hour concentration measured at each site in a year, averaged over three years, is equal to or less than the standard. For PM10, the 24-hour standard is attained when the expected number of days per calendar year with a 24-hour average concentration above 150 micrograms/per cubic meter (µg/m3) is equal to or less than one. For PM2.5, the 24-hour standard is attained when 98 percent of the daily concentrations, averaged over three years, are equal to or less than the standard.

c Concentration expressed first in units in which it was promulgated. Equivalent units given in parentheses are based upon a reference temperature of 25°C and a reference pressure of 760 torr (a standard atmospheric pressure unit). Most measurements of air quality are to be corrected to a reference temperature of 25°C and a reference pressure of 760 torr; ppm in this table refers to ppm by volume, or micromoles of pollutant per mole of gas.

d Any equivalent procedure which can be shown to the satisfaction of the California Air Resources Board to give equivalent results at or near the level of the air quality standard may be used.

e National Primary Standards: The levels of air quality necessary, with an adequate margin of safety to protect the public health.

f National Secondary Standards: The levels of air quality necessary to protect the public welfare from any known or anticipated adverse effects of a pollutant.

g Reference method as described by the USEPA. An “equivalent method” of measurement may be used but must have a “consistent relationship to the reference method” and must be approved by the USEPA.

h On October 1, 2015, the national 8-hour ozone primary and secondary standards were lowered from 0.075 to 0.070 ppm.

i To attain the 1-hour national standard, the 3-year average of the annual 98th percentile of the 1-hour daily maximum concentrations at each site must not exceed 100 ppb.

j On June 2, 2010, a new 1-hour SO2 standard was established and the existing 24-hour and annual primary standards were revoked. To attain the 1-hour national standard, the 3-year average of the annual 99th percentile of the 1-hour daily maximum concentrations at each site must not exceed 75 ppb. The 1971 SO2 national standards (24-hour and annual) remain in effect until one year after an area is designated for the 2010 standard, except that in areas designated non-attainment for the 1971 standards, the 1971 standards remain in effect until implementation plans to attain or maintain the 2010 standards are approved.

k On December 14, 2012, the national annual PM2.5 primary standard was lowered from 15 µg/m3 to 12.0 µg/m3.

Pollutant	Average Time	California Standards[a]		National Standards[b]		
		Concentration[c]	Method[d]	Primary[c,e]	Secondary[c,f]	Method[g]

l The California Air Resources Board has identified lead and vinyl chloride as 'toxic air contaminants' with no threshold level of exposure for adverse health effects determined. These actions allow for the implementation of control measures at levels below the ambient concentrations specified for these pollutants.

m The national standard for lead was revised on October 15, 2008 to a rolling 3-month average. The 1978 lead standard (1.5 µg/m3 as a quarterly average) remains in effect until one year after an area is designated for the 2008 standard, except that in areas designated non-attainment for the 1978 standard, the 1978 standard remains in effect until implementation plans to attain or maintain the 2008 standard are approved.

n In 1989, the California Air Resources Board converted both the general statewide 10-mile visibility standard and the Lake Tahoe 30-mile visibility standard to instrumental equivalents, which are "extinction of 0.23 per kilometer" and "extinction of 0.07 per kilometer" for the statewide and Lake Tahoe Air Basin standards, respectively.

SOURCE: CARB 2015

The USEPA states that people most at risk from breathing air containing ozone include people with asthma, children, older adults, and people who are active outdoors, especially outdoor workers (USEPA, 2019a). Children are at greatest risk from exposure to ozone because their lungs are still developing and they are more likely to be active outdoors when ozone levels are high, which increases their exposure (USEPA, 2019a). According to CARB, studies show that children are no more or less likely to suffer harmful effects than adults; however, children and teens may be more susceptible to ozone and other pollutants because they spend nearly twice as much time outdoors and engaged in vigorous activities compared to adults (CARB, 2018a). Children breathe more rapidly than adults and inhale more pollution per pound of their body weight than adults and are less likely than adults to notice their own symptoms and avoid harmful exposures (CARB, 2018a). Further research may be able to better distinguish between health effects in children and adults (CARB, 2018a).

Volatile Organic Compounds (VOCs): VOCs are organic chemical compounds of carbon and are not "criteria" pollutants themselves; however, they contribute with NOx to form ozone, and are regulated to prevent the formation of ozone (USEPA, 2017a). According to CARB, some VOCs are highly reactive and play a critical role in the formation of ozone, other VOCs have adverse health effects, and in some cases, VOCs can be both highly reactive and have adverse health effects (CARB, 2016a). VOCs are typically formed from combustion of fuels and/or released through evaporation of organic liquids, internal combustion associated with motor vehicle usage, and consumer products (e.g. architectural coatings, etc.) (CARB, 2016a).

Nitrogen Dioxide (NO_2): NOx is a term that refers to a group of compounds containing nitrogen and oxygen. The primary compounds of air quality concern include NO_2 and nitric oxide (NO). Ambient air quality standards have been promulgated for NO_2, which is a reddish-brown, reactive gas (CARB, ND1). The principle form of NOx produced by combustion is NO, but NO reacts quickly in the atmosphere to form NO_2, creating the mixture of NO and NO_2 referred to as NOx. Major sources of NOx include emissions from cars, trucks and buses, power plants, and off-road equipment. The terms NOx and NO_2 are sometimes used interchangeably. However, the term NOx is typically used when discussing emissions, usually from combustion-related activities, and the term NO_2 is typically used when discussing ambient air quality standards. Where NOx emissions are discussed in the context of the thresholds of significance or impact analyses, the discussions are based on the conservative assumption that all NOx emissions would oxidize in the atmosphere to form NO_2. According to the USEPA, short-term exposures to NO_2 can potentially aggravate respiratory diseases, particularly asthma, leading to respiratory symptoms (such as coughing, wheezing or difficulty breathing), hospital admissions and visits to emergency rooms while longer exposures to elevated concentrations of NO_2 may contribute to the development of asthma and potentially increase susceptibility to respiratory infections (USEPA, ND1). According to CARB, controlled human exposure studies that show that NO_2 exposure can intensify responses to allergens in allergic asthmatics (CARB, ND1). In addition, a number of epidemiological studies have demonstrated associations between NO_2 exposure and premature death, cardiopulmonary effects, decreased lung function growth in children, respiratory symptoms, emergency room visits for asthma, and intensified allergic responses (CARB, ND1). Infants and children are particularly at risk from exposure to NO_2 because they have disproportionately higher exposure to NO_2 than

adults due to their greater breathing rate for their body weight and their typically greater outdoor exposure duration while in adults, the greatest risk is to people who have chronic respiratory diseases, such as asthma and chronic obstructive pulmonary disease (CARB, ND1). CARB states that much of the information on distribution in air, human exposure and dose, and health effects is specifically for NO_2 and there is only limited information for NO and NOx, as well as large uncertainty in relating health effects to NO or NOx exposure (CARB, ND1).

Carbon Monoxide (CO): CO is primarily emitted from combustion processes and motor vehicles due to the incomplete combustion of fuel, such as natural gas, gasoline, or wood, with the majority of outdoor CO emissions from mobile sources (CARB, ND2). According to the USEPA, breathing air with a high concentration of CO reduces the amount of oxygen that can be transported in the blood stream to critical organs like the heart and brain and at very high levels, which are possible indoors or in other enclosed environments, CO can cause dizziness, confusion, unconsciousness and death (USEPA, 2016). Very high levels of CO are not likely to occur outdoors; however, when CO levels are elevated outdoors, they can be of particular concern for people with some types of heart disease since these people already have a reduced ability for getting oxygenated blood to their hearts and are especially vulnerable to the effects of CO when exercising or under increased stress (USEPA 2016). In these situations, short-term exposure to elevated CO may result in reduced oxygen to the heart accompanied by chest pain also known as angina (USEPA 2016). According to CARB, the most common effects of CO exposure are fatigue, headaches, confusion, and dizziness due to inadequate oxygen delivery to the brain (CARB, ND2). For people with cardiovascular disease, short-term CO exposure can further reduce their body's already compromised ability to respond to the increased oxygen demands of exercise, exertion, or stress; inadequate oxygen delivery to the heart muscle leads to chest pain and decreased exercise tolerance (CARB, ND2). Unborn babies, infants, elderly people, and people with anemia or with a history of heart or respiratory disease are most likely to experience health effects with exposure to elevated levels of CO (CARB, ND2).

Sulfur Dioxide (SO_2): According to the USEPA, the largest source of SO_2 emissions in the atmosphere is the burning of fossil fuels by power plants and other industrial facilities while smaller sources of SO_2 emission include industrial processes such as extracting metal from ore; natural sources such as volcanoes; and locomotives, ships and other vehicle and heavy equipment that burn fuel with a high sulfur content (USEPA, 2018a). In 2006, California phased-in the ultra-low-sulfur diesel regulation limiting vehicle diesel fuel to a sulfur content not exceeding 15 parts per million, down from the previous requirement of 500 parts per million, substantially reducing emissions of sulfur from diesel combustion (CARB, 2004a). According to the USEPA, short-term exposures to SO_2 can harm the human respiratory system and make breathing difficult (USEPA, 2018a). According to CARB, health effects at levels near the State one-hour standard are those of asthma exacerbation, including bronchoconstriction accompanied by symptoms of respiratory irritation such as wheezing, shortness of breath and chest tightness, especially during exercise or physical activity and exposure at elevated levels of SO_2 (above 1 ppm) results in increased incidence of pulmonary symptoms and disease, decreased pulmonary function, and increased risk of mortality (CARB, ND3). Children, the elderly, and those with asthma, cardiovascular disease,

or chronic lung disease (such as bronchitis or emphysema) are most likely to experience the adverse effects of SO_2 (CARB, ND3; USEPA, 2018a).

Particulate Matter (PM10 and PM2.5): Particulate matter air pollution is a mixture of solid particles and liquid droplets found in the air (USEPA, 2018b). Some particles, such as dust, dirt, soot, or smoke, are large or dark enough to be seen with the naked eye while other particles are so small they can only be detected using an electron microscope (USEPA, 2018b). Particles are defined by their diameter for air quality regulatory purposes: inhalable particles with diameters that are generally 10 micrometers and smaller (PM10); and fine inhalable particles with diameters that are generally 2.5 micrometers and smaller (PM2.5) (USEPA, 2018b). Thus, PM2.5 comprises a portion or a subset of PM10. Sources of PM10 emissions include dust from construction sites, landfills and agriculture, wildfires and brush/waste burning, industrial sources, and wind-blown dust from open lands (CARB, 2017). Sources of PM2.5 emissions include combustion of gasoline, oil, diesel fuel, or wood (CARB, 2017). PM10 and PM2.5 may be either directly emitted from sources (primary particles) or formed in the atmosphere through chemical reactions of gases (secondary particles) such as SO2, NOx, and certain organic compounds (CARB, 2017). According to CARB, both PM10 and PM2.5 can be inhaled, with some depositing throughout the airways; PM10 is more likely to deposit on the surfaces of the larger airways of the upper region of the lung while PM2.5 is more likely to travel into and deposit on the surface of the deeper parts of the lung, which can induce tissue damage, and lung inflammation (CARB, 2017). Short-term (up to 24 hours of duration) exposure to PM10 has been associated primarily with worsening of respiratory diseases, including asthma and chronic obstructive pulmonary disease, leading to hospitalization and emergency department visits (CARB, 2017). The effects of long-term (months or years) exposure to PM10 are less clear, although studies suggest a link between long-term PM10 exposure and respiratory mortality. The International Agency for Research on Cancer published a review in 2015 that concluded that particulate matter in outdoor air pollution causes lung cancer (CARB, 2017). Short-term exposure to PM2.5 has been associated with premature mortality, increased hospital admissions for heart or lung causes, acute and chronic bronchitis, asthma attacks, emergency room visits, respiratory symptoms, and restricted activity days and long-term exposure to PM2.5 has been linked to premature death, particularly in people who have chronic heart or lung diseases, and reduced lung function growth in children (CARB, 2017). According to CARB, populations most likely to experience adverse health effects with exposure to PM10 and PM2.5 include older adults with chronic heart or lung disease, children, and asthmatics and children and infants are more susceptible to harm from inhaling pollutants such as PM10 and PM2.5 compared to healthy adults because they inhale more air per pound of body weight than do adults, spend more time outdoors, and have developing immune systems (CARB, 2017).

Lead (Pb): Major sources of lead emissions include ore and metals processing, piston-engine aircraft operating on leaded aviation fuel, waste incinerators, utilities, and lead-acid battery manufacturers (USEPA, 2017b). In the past, leaded gasoline was a major source of lead emissions; however, the removal of lead from gasoline has resulted in a decrease of lead in the air by 98 percent between 1980 and 2014 (USEPA, 2017b). Lead can adversely affect the nervous system, kidney function, immune system, reproductive and developmental systems and the cardiovascular system, and affects the oxygen carrying capacity of blood (USEPA, 2017b). The

lead effects most commonly encountered in current populations are neurological effects in children, such as behavioral problems and reduced intelligence, anemia, and liver or kidney damage (CARB, ND4). Excessive lead exposure in adults can cause reproductive problems in men and women, high blood pressure, kidney disease, digestive problems, nerve disorders, memory and concentration problems, and muscle and joint pain (CARB, ND4).

Air Toxics

Toxic Air Contaminants: Toxic air contaminants (TACs) are generally defined as those contaminants that are known or suspected to cause serious health problems, but do not have a corresponding ambient air quality standard. TACs are also defined as an air pollutant that may increase a person's risk of developing cancer and/or other serious health effects; however, the emission of a toxic chemical does not automatically create a health hazard. Other factors, such as the amount of the chemical, its toxicity, how it is released into the air, the weather, and the terrain, all influence whether the emission could be hazardous to human health. TACs are emitted by a variety of industrial processes such as petroleum refining, electric utility and chrome plating operations, commercial operations such as gasoline stations and dry cleaners, and motor vehicle exhaust and may exist as PM10 and PM2.5 or as vapors (gases). TACs include metals, other particles, gases absorbed by particles, and certain vapors from fuels and other sources.

The emission of toxic substances into the air can be damaging to human health and to the environment. Human exposure to these pollutants at sufficient concentrations and durations can result in cancer, poisoning, and rapid onset of sickness, such as nausea or difficulty in breathing. Other less measurable effects include immunological, neurological, reproductive, developmental, and respiratory problems. Pollutants deposited onto soil or into lakes and streams affect ecological systems and eventually human health through consumption of contaminated food. The carcinogenic potential of TACs is a particular public health concern because many scientists currently believe that there is no "safe" level of exposure to carcinogens. Any exposure to a carcinogen poses some risk of contracting cancer.

The public's exposure to TACs is a significant public health issue in California. The Air Toxics "Hotspots" Information and Assessment Act is a State law requiring facilities to report emissions of TACs to air districts. The program is designated to quantify the amounts of potentially hazardous air pollutants released, the location of the release, the concentrations to which the public is exposed, and the resulting health risks. The State Air Toxics Program (Assembly Bill 2588) identified over 200 TACs, including the 188 TACs identified in the Clean Air Act (CAA). The USEPA has assessed this expansive list of toxics and identified 21 TACs as Mobile Source Air Toxics (MSATs). MSATs are compounds emitted from highway vehicles and non-road equipment. Some toxic compounds are present in fuel and are emitted to the air when the fuel evaporates or passes through the engine unburned. Other toxics are emitted from the incomplete combustion of fuels or as secondary combustion products. Metal air toxics also result from engine wear or from impurities in oil or gasoline. USEPA also extracted a subset of these 21 MSAT compounds that it now labels as the six priority MSATs: benzene, formaldehyde, acetaldehyde, diesel particulate matter/diesel exhaust organic gases, acrolein, and 1,3-butadiene. While these six MSATs are considered the priority transportation toxics, USEPA stresses that the lists are subject to change and may be adjusted in future rules.

Diesel Particulate Matter: According to the 2006 California Almanac of Emissions and Air Quality, the majority of the estimated health risks from TACs can be attributed to relatively few compounds, the most important being particulate matter from the exhaust of diesel-fueled engines, i.e., diesel particulate matter (DPM). DPM differs from other TACs in that it is not a single substance, but rather a complex mixture of hundreds of substances.

Diesel exhaust is composed of two phases, gas and particle, and both phases contribute to the health risk. The gas phase is composed of many of the urban hazardous air pollutants, such as acetaldehyde, acrolein, benzene, 1,3-butadiene, formaldehyde and polycyclic aromatic hydrocarbons. The particle phase is also composed of many different types of particles by size or composition. Fine and ultra-fine diesel particulates are of the greatest health concern, and may be composed of elemental carbon with adsorbed compounds such as organic compounds, sulfate, nitrate, metals and other trace elements. Diesel exhaust is emitted from a broad range of diesel engines; the on road diesel engines of trucks, buses and cars and the off-road diesel engines that include locomotives, marine vessels and heavy duty equipment. Although DPM is emitted by diesel-fueled internal combustion engines, the composition of the emissions varies depending on engine type, operating conditions, fuel composition, lubricating oil, and whether an emission control system is present.

The most common exposure to DPM is breathing the air that contains diesel exhaust. The fine and ultra-fine particles are respirable (similar to PM2.5), which means that they can avoid many of the human respiratory system defense mechanisms and enter deeply into the lung. Exposure to DPM comes from both on-road and off-road engine exhaust that is either directly emitted from the engines or lingering in the atmosphere.

Diesel exhaust causes health effects from both short-term or acute exposures, and long-term chronic exposures. The type and severity of health effects depends upon several factors including the amount of chemical exposure and the duration of exposure. Individuals also react differently to different levels of exposure. There is limited information on exposure to just DPM but there is enough evidence to indicate that inhalation exposure to diesel exhaust causes acute and chronic health effects.

Acute exposure to diesel exhaust may cause irritation to the eyes, nose, throat and lungs, some neurological effects such as lightheadedness. Acute exposure may also elicit a cough or nausea as well as exacerbate asthma. Chronic exposure to diesel PM in experimental animal inhalation studies have shown a range of dose-dependent lung inflammation and cellular changes in the lung and immunological effects. Based upon human and laboratory studies, there is considerable evidence that diesel exhaust is a likely carcinogen. Human epidemiological studies demonstrate an association between diesel exhaust exposure and increased lung cancer rates in occupational settings.

Local Air Quality

Existing Criteria Pollutants Levels at Nearby Monitoring Stations

The SJVAPCD currently operates thirty-six monitoring stations throughout the SJVAB. The closest monitoring station to the site is the Madera-28261 Avenue 14 Station located at 28261 Avenue 14 approximately three miles south of the proposed Specific Plan Program site. This

Station monitors for Ozone, PM10, and PM2.5. The only other station in Madera County is the Madera-Pump Yard located at Rd. 29 ½ No. of Avenue 8 approximately nine miles south of the proposed Specific Plan Program site. This station only monitors for ozone and Nitrogen Dioxide. Carbon Monoxide and Sulfur Dioxide are not monitored in the SJVAB, therefore, these criteria pollutants are not included in the data summary. The historical ambient air data for monitored criteria pollutants from these two stations are shown in **Table 3.3-2** for the three most recent years (2016 through 2018). Pollutant concentrations vary from year to year based on weather conditions and the changes to land use patterns. As shown, there were days that ozone, PM10 and PM2.5 exceeded the CAAQS and/or NAAQS standards, while NO_2 was below the CAAQS and/or NAAQS standards.

TABLE 3.3-2
AMBIENT AIR QUALITY DATA

Pollutant/Standard [a]	2016	2017	2018
O_3 (1-hour)[b]			
Maximum Concentration (ppm)	0.097	0.101	0.097
Days > CAAQS (0.09 ppm)	2	3	2
O_3 (8-hour)[b]			
Maximum Concentration (ppm)	0.089	0.092	0.083
4th High 8-hour Concentration (ppm)	0.085	0.085	0.077
Days > CAAQS (0.070 ppm)	43	29	17
Days > NAAQS (0.070 ppm)	40	27	14
NO_2 (1-hour)[c]			
Maximum Concentration (CAAQS 0.18 ppm)	0.034	0.046	0.046
98th Percentile Concentration (NAAQS 0.1 ppm)	0.027	0.031	0.033
NO_2 (Annual)			
Annual Arithmetic Mean (CAAQS 0.030 ppm)	0.005	0.006	0.006
PM10 (24-hour)[b]			
Maximum Concentration (µg/m^3)	122.7	149.5	*
Est. Days > CAAQS (50 µg/m^3)	*	*	*
Est. Days > NAAQS (150 µg/m^3)	0	0	*
PM10 (Annual Average)			
Annual Arithmetic Mean (20 µg/m^3)	30.3	35.3	*
PM2.5 (24-hour)[b]			
Maximum Concentration (µg/m^3)	47.7	70.6	81.7
98th Percentile Concentration (µg/m^3)	35.7	45.8	50.2
Est. Days > NAAQS (35 µg/m^3)	9	16	23
PM2.5 (Annual)			
Annual Arithmetic Mean (CAAQS/NAAQS 12 µg/m^3)	12.1	*	*

[a] ppm = parts per million; µg/m^3 = micrograms per cubic meter

[b] Values for O_3, PM10 and PM2.5, are from Madera-28621 Avenue 14 air monitoring station.

[c] Values for NO^2 are from the Madera-Pump Yard air monitoring station.

* Data not available

SOURCES: CARB, 2019.

Both CARB and USEPA use this type of monitoring data to designate areas according to their attainment status for criteria air pollutants. The purpose of these designations is to identify the areas with air quality problems and thereby initiate planning efforts for improvement. The three basic designation categories are nonattainment, attainment, and unclassified. Unclassified is used in an area that cannot be classified on the basis of available information as meeting or not meeting the standards. In addition, the California designations include a subcategory of nonattainment-transitional, which is given to nonattainment areas that are progressing and nearing attainment. The SJVAB is currently classified as a federal nonattainment area for Ozone and PM2.5 and is a nonattainment area at the state level for Ozone, PM10 and PM2.5. The current attainment status for the SJVAB are provided in **Table 3.3-3**.

TABLE 3.3-3
AIR BASIN ATTAINMENT STATUS

	Attainment Status	
Pollutant	**California Standards**	**Federal Standards**
SCCAB		
Ozone	Nonattainment/Severe	Extreme Nonattainment
CO	Attainment/Unclassified	Attainment/Unclassified
NO2	Attainment	Attainment/Unclassified
SO2	Attainment	Attainment/Unclassified
PM10	Nonattainment	Attainment
PM2.5	Nonattainment	Nonattainment
Lead	Attainment	No Designation

SOURCE: SJVAPCD, 2012

Existing/Baseline Project Site Emissions

The Project site is currently used for agricultural production and contains almond and fig orchards, related agricultural support facilities (e.g., equipment storage), wells, and unimproved dirt roadways. There are five wells located within the Specific Plan Program site that draw groundwater from the Madera groundwater basin. Based on data provided by the property owners and engineering estimates, the existing agricultural operations pump approximately 2,800 acre-feet per year (AFY) of groundwater, which is equivalent to nearly 912 million gallons. The Specific Plan area is designated as a New Growth Area (NGA) in the County's General Plan and has a zoning designation of Agricultural Rural Exclusive 40-Acres (ARE-40).

Agricultural equipment and pump operations result in air pollutant emissions that are part of the existing conditions, and those emissions would cease to occur with implementation of the Project. For the purposes of this analysis, the emissions from the proposed Project are considered to be all new emissions, and no offset or reduction is applied to the Project emissions to account for the reduction in agricultural emissions. Therefore, emissions from the existing agricultural operations were not, and do not need to be, quantified for this analysis.

Sensitive Receptors and Locations

Certain population groups, such as children, elderly, and acutely and chronically ill persons (especially those with cardio-respiratory diseases), are considered more sensitive to the potential effects of air pollution than others. Sensitive receptors are defined as any residence including private homes, condominiums, apartments, and living quarters, schools, preschools, daycare centers and health facilities such as hospitals or retirement and nursing homes. Impacts were evaluated for the following at sensitive receptor locations:

- The single family residences to the west across Road 27, approximately 150 feet from the northwest portion of the site.
- The single family residences to the southwest of the site, approximately 350 feet and across the railroad tracks.
- The single family residences adjacent to the southern site boundary and across the future alignment of Avenue 17.
- The single family residences east of the site approximately 800 feet across Road 28 ½.
- Future residents living onsite in the "Project" site while construction occurs within future phases of the Specific Plan Program site.

All other air quality sensitive receptors are located at greater distances from the Project site, and would be less impacted by Project emissions. Impacts are quantified for the sensitive receptors listed above.

3.3.2 Regulatory Framework

The Project site is located in Madera County and within the Basin. Air quality in the Project area is regulated by USEPA, CARB, and SJVAPCD. The Madera County General Plan also contains an Air Quality Element that establishes a policy foundation to implement local air quality improvement measures and provides a framework for coordination of air quality planning efforts with surrounding jurisdictions.

Federal

United States Environmental Protection Agency

USEPA has been charged with implementing national air quality programs. USEPA's air quality mandates are drawn primarily from the federal CAA, which was enacted in 1970, and amended in 1990. The CAA requires USEPA to establish National Ambient Air Quality Standards (NAAQS). USEPA has established primary and secondary NAAQS for the following "criteria air pollutants": ozone, CO, NO_2, SO_2, PM_{10}, $PM_{2.5}$, and lead. Table 3.3-1 above shows the NAAQS for these pollutants.

The CAA also requires each state to prepare an air quality control plan for areas not in attainment of NAAQS referred to as a state implementation plan (SIP). The CAA Amendments of 1990 (CAAA) added requirements for states with nonattainment areas to revise their SIPs to incorporate additional control measures to reduce air pollution. The SIP is modified periodically to reflect the latest emissions inventories, planning documents, and rules and regulations of the air

basins, as reported by their jurisdictional agencies. USEPA is responsible for reviewing all SIPs to determine whether they conform to the mandates of the CAA and its amendments, and to determine whether implementing the SIPs will achieve air quality goals. If USEPA determines a SIP to be inadequate, a federal implementation plan that imposes additional control measures may be prepared for the nonattainment area. If an approvable SIP is not submitted or implemented within the mandated time frame, sanctions may be applied to transportation funding and stationary sources of air pollution in the air basin.

USEPA also has regulatory and enforcement jurisdiction over emission sources beyond state waters (outer continental shelf), and those that are under the exclusive authority of the federal government, such as aircraft, locomotives, and interstate trucking. USEPA's primary role at the state level is to oversee state air quality programs. USEPA sets federal vehicle and stationary source emissions standards and provides research and guidance in air pollution programs.

State

California Clean Air Act

The California Clean Air Act (CCAA), signed into law in 1988, requires all areas of the State to achieve and maintain the CAAQS by the earliest practical date. The CAAQS are established to protect the health of the most sensitive groups and apply to the same criteria air pollutants as the federal Clean Air Act and also includes State-identified criteria air pollutants, which are sulfates, visibility-reducing particles, hydrogen sulfide, and vinyl chloride. Table 3.3-1, provided above, shows the CAAQS currently in effect for each of the federally identified criteria air pollutants, as well as, state recognized pollutants, such as sulfates, visibility-reducing particles, hydrogen sulfide, and vinyl chloride.

Mobile Source Regulations

Mobile sources are a significant contributor to the air pollution in California. CARB has established exhaust emission standards for automobiles, which are more stringent than the federal emissions standards.

Through its Mobile Sources Program, CARB has developed programs and policies to reduce emissions from on-road heavy-duty diesel vehicles. Specifically, the On-Road Heavy-Duty Diesel Vehicle Regulation requires diesel trucks and buses that operate in the State to be upgraded to reduce emissions. By January 1, 2023, nearly all vehicles must have engines certified to 2010 model year engines or equivalent.

The Innovative Clean Transit Program (ICT) sets emissions reduction standards for new public transit vehicles and requires major transit agencies to only purchase zero emission buses after 2029. The Solid Waste Collection Vehicle Regulation requires solid waste collection vehicles and heavy diesel-fueled on-road single engine cranes to be upgraded. The Rule for On-Road Heavy-Duty Diesel-Fueled Public and Utility Fleets requires fleets to install emission control devices on vehicles or purchase vehicles that run on alternative fuels or use advanced technologies to achieve emissions requirements by specified implementation dates. CARB also established an In-Use Off-

Road Diesel-Fueled Fleets Regulation to impose limits on idling and require fleets to retrofit or replace older engines.

California Air Resources Board On-Road and Off-Road Vehicle Rules

In 2004, CARB adopted an Airborne Toxic Control Measure (ATCM) to limit heavy-duty diesel motor vehicle idling in order to reduce public exposure to diesel PM and other TACs. The measure applies to diesel-fueled commercial vehicles with gross vehicle weight ratings greater than 10,000 pounds that are licensed to operate on highways, regardless of where they are registered. This measure does not allow diesel-fueled commercial vehicles to idle for more than 5 minutes at any given time.

In 2008, CARB approved the Truck and Bus Regulation to reduce NO_X, PM10, and PM2.5 emissions from existing diesel vehicles operating in California. The requirements were amended in December 2010 and apply to nearly all diesel fueled trucks and busses with a gross vehicle weight rating greater than 14,000 pounds. For the largest trucks in the fleet (i.e., those with a gross vehicle weight rating greater than 26,000 pounds), there are two methods to comply with the requirements. The first method is for the fleet owner to retrofit or replace engines, starting with the oldest engine model year, to meet 2010 engine standards, or better. This is phased over eight years, starting in 2015 and would be fully implemented by 2023, meaning that all trucks operating in the State subject to this option would need to meet or exceed the 2010 engine emission standards for NO_X and PM by 2023. The second option, if chosen, requires fleet owners, starting in 2012, to retrofit a portion of their fleet with diesel particulate filters achieving at least 85 percent removal efficiency, so that by January 1, 2016, their entire fleet is equipped with diesel particulate filters. However, diesel particulate filters do not typically lower NO_X emissions. Thus, fleet owners choosing the second method must still comply with the 2010 engine emission standards for their trucks and busses by 2020. Beginning January 1, 2020, this requirement will be enforced by the California Department of Motor Vehicles (DMV). In 2017, Senate Bill 1 (SB1), the Road Repair and Accountability Act of 2017, authorized the DMV to check that vehicles are compliant with, or exempt from CARB's Truck and Bus Regulation. If a vehicle is not compliant with the rule, DMV will no longer register that vehicle starting January 1, 2020.

In addition to limiting exhaust from idling trucks, CARB promulgated emission standards for off-road diesel construction equipment of greater than 25 horsepower such as bulldozers, loaders, backhoes and forklifts, as well as many other self-propelled off-road diesel vehicles. The regulation aims to reduce emissions by installation of diesel soot filters and encouraging the retirement, replacement, or repower of older, dirtier engines with newer emission controlled models. Implementation is staggered based on fleet size (which is the total of all off-road horsepower under common ownership or control), with the largest fleets to begin compliance by January 1, 2014. Each fleet must demonstrate compliance through one of two methods. The first option is to calculate and maintain fleet average emissions targets, which encourages the retirement or repowering of older equipment and rewards the introduction of newer cleaner units into the fleet. The second option is to meet the Best Available Control Technology (BACT) requirements by turning over or installing Verified Diesel Emission Control Strategies (e.g.,

engine retrofits) on a certain percentage of its total fleet horsepower. The compliance schedule requires that BACT turn overs or retrofits be fully implemented by 2023 in all equipment in large and medium fleets and across 100 percent of small fleets by 2028.

Sustainable Communities and Climate Protection Act of 2008 (SB 375)

SB 375 directs CARB to set regional targets for reducing greenhouse gas emissions from cars and light trucks (OPR, 2011). As part of the transportation planning process, each region's Metropolitan Planning Organization (MPO) is responsible for preparing a Sustainable Communities Strategies (SCS) that integrates transportation, land-use, and housing policies to plan for achievement of the emissions target for their region. Specifically, SB 375 focuses on reducing VMT and encouraging more compact, complete, and efficient communities. Further, SB 375 established CEQA streamlining and relevant exemptions for projects that are determined to be consistent with the land use assumptions and other relevant policies of an adopted SCS.

Regional

San Joaquin Valley Air Pollution Control District

Criteria Air Pollutants

SJVAPCD attains and maintains air quality conditions in the SJVAB through a comprehensive program of planning, regulation, enforcement, technical innovation, and promotion of the understanding of air quality issues. The clean air strategy of SJVAPCD includes preparation of plans for attainment of ambient air quality standards, adoption and enforcement of rules and regulations concerning sources of air pollution, and issuance of permits for stationary sources of air pollution. SJVAPCD also inspects stationary sources of air pollution and responds to citizen complaints; monitors ambient air quality and meteorological conditions; and implements programs and regulations required by the federal Clean Air Act, CAAA, and CCAA.

The SJVAPCD has developed the following plans to attain and maintain the State and Federal standards:

1. The 2018 Plan for the 1997, 2006, and 2012 PM2.5 Standard.
2. The 2016 Plan for the 2008 8-hr Ozone Standard.
3. The 2013 Plan for the Revoked 1-hour Ozone Standard.
4. The 2004 Revisions to the Carbon Monoxide Maintenance Plan.

SJVAPCD Rules and Regulations

All projects within the SJVAB are subject to SJVAPCD rules and regulations in effect at the time of construction. Specific rules applicable to the construction anticipated under the proposed Project would include the following:

Rule 4101 – Visible Emissions. A person shall not discharge into the atmosphere from any single source of emission whatsoever, any air contaminant, other than uncombined water vapor,

for a period or periods aggregating more than three (3) minutes in any one (1) hour which is (SJVPACD, 2005):

1. As dark or darker in shade as that designated as No. 1 on the Ringelmann Chart, as published by the United States Bureau of Mines.
2. Of such opacity as to obscure an observer's view to a degree equal to or greater than the smoke described in Section 5.1 of this rule.

Rule 4102 – Nuisance. A person shall not discharge from any source whatsoever such quantities of air contaminants or other materials which cause injury, detriment, nuisance or annoyance to any considerable number of persons or to the public or which endanger the comfort, repose, health or safety of any such person or the public or which cause or have a natural tendency to cause injury or damage to business or property (SJVAPCD, 1992).

Rule 4601 – Architectural Coatings. Limits volatile organic compound emissions from architectural coatings.

Rule 4641 – Cutback, Slow Cure, and Emulsified Asphalt Paving and Maintenance Operations. Limits VOC emissions by restricting the application and manufacturing of certain types of asphalt for paving and maintenance operations.

Rule 4901 – Wood Burning Fireplaces and Wood Burning Heaters. The rule limits emissions of CO and PM from wood burning fireplaces, wood burning heaters and outdoor wood burning devices.

Rule 9510 – Indirect Source Review. Reduces NOx and PM10 emissions through placing reduction requirements on applicable development projects including onsite mitigation, offsite SJVAPCD administered projects, or a combination of the two.

Regulation VIII – Fugitive PM10 Prohibitions. Reduce ambient concentrations of fine particulate matter (PM10) by requiring actions to prevent, reduce or mitigate anthropogenic fugitive dust emissions.

The Rules contained in this Regulation have been developed pursuant to United States Environmental Protection Agency guidance for Serious PM10 Nonattainment Areas. The rules are applicable to specified anthropogenic fugitive dust sources. Fugitive dust contains PM10 and particles larger than PM10. Controlling fugitive dust emissions when visible emissions are detected will not prevent all PM10 emissions, but will substantially reduce PM10 emissions (SJVAPCD, 2004).

Local

Madera County General Plan

Goals and policies from the Madera County General Plan that are relevant to the Air Quality analysis include:

Air Quality

AQ Policy A1.2.1: Facilitate efforts that increase the public's understanding of the linkage between land use, transportation, water and energy use and air pollution. Efforts should include informing the public of measures that can be taken and resources that are available to improve air quality and reduce potential climate change impacts.

AQ 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.

AQ Policy C1.1.2: Assess and mitigate project greenhouse gas/climate change impacts using analysis methods and significance thresholds as defined or recommended by the SJVAPCD, MCTC or California Air Resources Board (ARB) depending on the type of project involved.

AQ Policy C1.1.3: Ensure that air quality and climate change impacts identified during CEQA review are minimized and consistently and fairly mitigated at a minimum, to levels as required by CEQA.

AQ Policy C1.1.5 Assess and reduce the air quality and potential climate change impacts of new development projects that may be insignificant by themselves but, taken together, may be cumulatively significant for the County as a whole.

AQ Policy C1.1.8 Actively work with project sponsors to maximize their participation in Voluntary Emission Reduction Agreements (VERA) with the SJVAPCD that fulfill the requirements of CEQA and Rule 9510 and provide emission reductions at least as large as those required by Rule 9510. The VERA process provides an opportunity for the County to identify local air emission reduction projects and expand the County's active participation in the project selection process.

AQ Policy D2.1.1 Request project sponsors to demonstrate that all feasible TCMs and other measures have been incorporated into project designs which increase the effective capacity of the existing road network prior to seeking approval to construct additional roadway capacity, such as additional lanes or new highways.

AQ Policy D2.1.3 Encourage and support private sector employer based trip reduction programs such as alternative work schedules, rideshare matching, and transit subsidies.

AQ Policy F1.1.1 Locate residential development projects and projects categorized as sensitive receptors an adequate distance from existing and potential sources of

hazardous emissions such as major transportation corridors, industrial sites, and hazardous material locations in accordance with the provisions of ARB's Air Quality and Land Use Handbook.

AQ Policy F1.1.2 Locate new air pollution point sources such as, but not limited to industrial, manufacturing, and processing facilities an adequate distance from residential areas and other sensitive receptors in accordance with the provisions of ARB's Air Quality Land Use Handbook.

AQ 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.

Transportation and Circulation

2.A.1. The County shall encourage, where appropriate, development of an integrated, multi-modal transportation system that offers attractive choices among modes including pedestrian ways, public transportation, roadways, bikeways, rail, and aviation.

2.A.5. The County shall require that land use form and transportation systems in designated new growth areas be designed to provide residents and employees with the opportunity to accomplish many of their trips within the new growth area by walking, bicycling, and using transit.

2.A.7. The County shall support public and private efforts where appropriate to provide alternative choices to single occupant driving.

2.B.6. The County shall ensure the installation of signals, signs, lighting, and other traffic safety and operation improvements necessary for the safe and efficient movement of automobiles, trucks, farm equipment, bicyclists, and pedestrians.

2.B.7. The County shall encourage large private developments (e.g., office parks, apartment complexes, retail centers) to provide internal complete streets that connect to the existing roadway system.

2.B.8. The County shall require that plans for road improvements give maximum consideration to the preservation of existing landscaping to the extent that it will be consistent with road system safety.

2.B.9. The County shall require that all medians on local streets be landscaped. Landscaping shall not interfere with public safety. The developer, in cooperation with the County, shall provide a mechanism for landscaping maintenance.

2.C.7. The County shall require existing and new streets and roads to be dedicated, widened, and constructed according to the roadway design and access standards generally defined in Part I of this Policy Document. Exceptions to these standards may be necessary, but should be kept to a minimum. Exceptions shall be permitted only upon determination by the County Public

	Works Director that safe and adequate public access and circulation are preserved where such exceptions are permitted.
2.C.8.	The County shall ensure that through traffic is accommodated in a manner that discourages the use of neighborhood roadways, particularly local streets. This through traffic, including through truck traffic, shall be directed to appropriate routes in order to maintain public safety and local quality of life. Where feasible, the County shall seek to develop alternate routes around urban centers to accommodate through-traffic.
2.A.26.	The County shall require that new nonresidential development provide for off-street parking, either on-site or through contributions to consolidated lots or structures, particularly where these facilities are located in or near residential areas.
2.A.27.	The County shall ensure that new automobile parking facilities are designed to facilitate safe and convenient pedestrian access, including clearly defined corridors and walkways connecting parking areas with buildings.
2E.4.	New bikeways should be linked with other bikeways, bicycle rest stops, and parks to provide safe and continuous routes.
2E.6.	The County shall require that bikeways recommended in the Bicycle Master Plan be developed when roadway projects are constructed and when street frontage improvements are required of new development.
2E.9.	The County shall require that sidewalks in unincorporated communities be developed at sufficient width to accommodate pedestrians in accordance with the Americans with Disabilities Act.
2E.12.	The County shall require developers to finance and install pedestrian walkways, equestrian trails, and multi-purpose paths in new development, as appropriate.
2E.13.	The County shall encourage bicycle storage facilities (i.e., bicycle racks, lockers) at all new major transportation terminals and employment centers.

3.3.3 Impacts and Mitigation Measures

Significance Criteria

The criteria used to determine the significance of air quality impacts are based on Appendix G of the *CEQA Guidelines*. The proposed Phase 1 Project and Specific Plan Program would have a significant effect on air quality if it would:

- Conflict with or obstruct implementation of the applicable air quality plan (see Impact 3.3-1, below);
- Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is non-attainment under an applicable federal or state ambient air quality standard (see Impact 3.3-2, below);

- Expose sensitive receptors to substantial pollutant concentrations (see Impact 3.3-3, below);
- Result in other emissions (such as those leading to odors adversely affecting a substantial number of people (see Impact 3.3-4, below).

The CEQA Guidelines (Section 15064.7) provide that, when available, the significance criteria established by the applicable air quality management district or air pollution control district may be relied upon to make determinations of significance. The potential air quality impacts of the Project are, therefore, evaluated according to thresholds developed by SJVAPCD (SJVAPCD, 2015a). **Table 3.3-4** identifies the Air Quality Significance.

TABLE 3.3-4
REGIONAL AIR QUALITY SIGNIFICANCE THRESHOLDS

	Mass Daily Thresholds[a] (tons/yr)	
Pollutant	**Construction**	**Operations**
Oxides of Nitrogen (NO_X)	10	10
Reactive Organic Gases (ROG)	10	10
Respirable Particulate Matter (PM10)	15	15
Fine Particulate Matter (PM2.5)	15	15
Oxides of Sulfur (SO_X)	27	27
Carbon Monoxide (CO)	100	100
TACs (including carcinogens and non-carcinogens)	Maximum Incremental Cancer Risk ≥ 10 in 1 million people Chronic & Acute Hazard Index ≥ 1.0 (project increment)	

NOTE: As the proposed Project would not involve the development of any major lead emissions sources, lead emissions would not be analyzed further in this report.

SOURCE: SJVAPCD, 2015a.

In addition to regional emissions criteria, the SJVAPCD has also established criteria to determine whether construction and operational activities would create significant adverse cumulative and localized air quality impacts on nearby sensitive receptors. These criteria are Ambient Air Quality thresholds by which a project would be considered to have a significant impact if its emissions are predicted to cause or contribute to a violation of an ambient air quality standard by exceeding any of the CAAQS, NAAQS or Significant Impact Level (SIL) (**Table 3.3-5**). The SIL is the project specific concentration that would result in a significant impact where a project specific plus ambient concentration exceeds the applicable AAQS (SJVAPCD, 2014). For a cumulative analysis, the SJVAPCD has an Ambient Air Quality Analysis Screening Tool such that if the emissions from onsite activities increase by more than 100 pounds per day, impacts may be cumulatively considerable. If the screening analysis is exceeded, then an ambient air quality analysis (AAQA) is suggested for the cumulative analysis. Similar to the localized impact analysis, a Health Effects Analysis (HEA) uses the NAAQS and SIL thresholds to determine the potential for adverse health effects to local residents.

TABLE 3.3-5
CAAQS, NAAQS AND SIGNIFICANT IMPACT LEVELS

Pollutant	Averaging Period	CAAQS	NAAQS	SIL
Nitrogen Oxide (NO_2)	1-hr	0.18 ppm (339 μg/m^3)	0.1 ppm (188 μg/m^3)	(0.004 ppm) 7.5 μg/m^3
Nitrogen Oxide (NO_2)	Annual	0.030 ppm (57 μg/m^3)	0.053 ppm (100 μg/m^3)	(0.0005 ppm) 1 μg/m^3
Carbon Monoxide	1-hr	20 ppm (23,000 μg/m^3)	35 (40,000 μg/m^3)	(1.75 ppm) 2000 μg/m^3
Carbon Monoxide	8-hr	9 ppm (10,000 μg/m^3)	9 (10,000 μg/m^3)	(0.44 ppm) 500 μg/m^3
Particulate Matter (PM10)	24-hr	50 μg/m^3	150 μg/m^3	5 μg/m^3
Particulate Matter (PM10) – Fugitive	24-hr			10.4 μg/m^3
Particulate Matter (PM10)	Annual	20 μg/m^3	--	1 μg/m^3
Particulate Matter (PM10) – Fugitive	Annual			2.08 μg/m^3
Fine Particulate Matter (PM2.5)	24-hr	––	35 μg/m^3	1.2 μg/m^3
Fine Particulate Matter (PM2.5) - Fugitive	24-h4			2.5 μg/m^3
Fine Particulate Matter (PM2.5)	Annual	12 μg/m^3	12 μg/m^3	0.2 μg/m^3
Fine Particulate Matter (PM2.5) - Fugitive	Annual			0.63 μg/m^3

NOTE: conversion of μg/m^3 to ppm for AAQS and ppm to μg/m^3 for SIL provided for ease of threshold comparisons. Conversions are parenthetical.

SOURCE: CARB, 2015; SJVAPCD. 2014.

For the purposes of analyzing CO hotspots, intersections are considered to have the potential to result in a CO hotspot if the Level of Service (LOS) on one or more streets or at one or more intersections in the plan will be reduced to LOS E or F, or, for intersections or roadways already operating at LOS F, congestion would substantially worsen. For intersections where the LOS worsens, the daily traffic through the intersection is used to determine the potential for CO hotspots.

Methodology

Project-related air quality impacts fall into two categories: short-term impacts due to construction, and long-term impacts due to operations. First, during construction (short-term), the proposed Project would affect local particulate concentrations primarily due to fugitive dust sources and diesel exhaust. Under operations (long-term), the proposed Project would result in an increase in emissions primarily due to motor vehicle trips. Other sources include minor area sources, such as landscaping and use of consumer products.

Construction

Criteria Pollutant Emissions

Construction emissions for the proposed Project were estimated using the most recent version of the California Emissions Estimator Model (CalEEMod), version 2016.3.2, and California

Emissions Factor Model (EMFAC), as applicable. Modeling was based on project-specific data, where available. Where Project-specific information was not available default model settings and/or reasonable assumptions based on other similar projects were used to estimate criteria pollutant emissions. Modeling assumptions, calculations, and output files are provided in Appendix C-1.

The proposed Specific Plan Program is evaluated at a program-level and the initial Phase 1 Project is evaluated at a project-level. The Phase 1 Project includes 117 single family residential units, a 6.5-acre park, a wastewater treatment facility and water facilities, and open space. The Castellina Specific Plan Program is intended to be built out over an approximately fifteen-year period between 2024 and sometime between 2035 and 2040, with the Phase 1 Project built out over approximately one year beginning construction in approximately 2024 and full occupation in approximately 2025. To be conservative, the analysis included an assumption that after completion of the Phase 1 Project, a maximum 15 percent of the final buildout of the Specific Plan Program site would be constructed in any one year. An additional conservative assumption is the use of the year 2020 for modeling purposes as construction equipment becomes more efficient in subsequent years.

Because the proposed Specific Plan Program would not be constructed as one large development, but provides for numerous smaller projects, there could be more than one project occurring at the same time during the year and therefore increasing the amount of equipment used. As a conservative estimate of emissions, annual emissions are presented as 2 times the annual emissions for grading, building construction, and architectural coating for the initial project phase (Phase 1 Project) and 4 times the annual emissions for the subsequent build-out. This conservatively assumes that 2 one- year-long projects occur at the same time during the initial project phase and 4 one-year-long projects occur at the same time during the remaining buildout years. Even if less than fifteen percent is built in any one year during the remaining buildout years, it is possible that similar construction schedules could be used for the projects based on development size and acreage.

Criteria pollutant emissions as estimated are compared to the SJVAPCD's construction thresholds. Where emissions are determined to exceed regulatory thresholds, mitigation is provided to reduce these emissions.

Odors

Odor impacts are determined qualitatively based on the nature of construction activities and the proximity to offsite receptors.

Toxic Air Contaminants

To assess the risk of potential health risk impacts (cancer, or other acute or chronic conditions) related to TACs exposure from airborne emissions during Project construction, a refined quantitative HRA was prepared. The HRA evaluated the potential for increased health risks for off-site sensitive receptors due to Project related construction activities, and onsite receptors located in the Project phase with respect to the remainder of development. Detailed parameters and calculations for HRA are provided in Appendix C-2.

The greatest potential for TAC emissions during Project construction would be related to DPM emissions associated with heavy-duty equipment during excavation and grading activities, building construction, paving and architectural coating. Construction activities associated with the Project would be sporadic, transitory, and short term in nature. The construction HRA was performed in accordance with the revised OEHHA Air Toxics Hot Spots Program Guidance Manual for Preparation of Health Risk Assessments (OEHHA Guidance) (OEHHA, 2015). The analysis incorporates the estimated construction emissions and dispersion modeling using the USEPA American Meteorological Society/Environmental Protection Agency (AMS/EPA) Regulatory Model (AERMOD) with meteorological data from the closest SJVAPCD meteorological monitoring station.

For this risk assessment, AERMOD dispersion model output was converted into specific cancer risks and non-cancer chronic health hazard impacts. Health impacts addressed construction DPM emissions and the effects on nearby and onsite sensitive uses (residential). Detailed AERMOD dispersion modeling and HRA calculations are included in Appendix C-2.

Cumulative Impacts

According to the SJVAPCD's guidance, if the mitigated project exceeds the regional thresholds for any criteria pollutant, then the project emissions should be considered cumulatively considerable. Even if the project is less than significant with respect to all regional thresholds, it could still be cumulatively considerable if it violates any of the AAQS. To determine if a project has the potential to exceed any of the AAQS, onsite emissions from construction activities are compared to a 100 pounds per day screening threshold for each criteria pollutant. If the threshold is not exceeded, the project is determined to be less than cumulatively considerable. If the threshold is exceeded, then an ambient air quality analysis is performed and compared to the EPA's NAAQS standards. An ambient air quality analysis uses dispersion modeling to determine if the emissions that increase from Project construction would contribute to a violation of the ambient air quality standards and result in a cumulatively considerable impact (SJVAPCD, 2015). Currently the EPA has set NAAQS standards for NO2, SO2, PM10, PM2.5 and CO for the ambient air quality analysis for health effects. There are no NAAQS for ROG that has been established by the EPA, and therefore, ROG is not considered as part of an ambient air quality analysis for health effects.

Operation

Criteria Pollutant Emissions

CalEEMod and EMFAC2017 were also used to estimate operational emissions from Project build out, assumed to occur in 2035. For on-road vehicles, the trip generation rates provided in the Transportation Analysis Report provided in Appendix C-4 (Kimley Horn, 2021) were used. Water demand was taken from the Project specific water supply assessment (Tully & Young, 2018), and energy use was adjusted to take into account compliance with 2019 Title 24 requirements. Otherwise CalEEMod defaults were used to estimate criteria pollutant emissions. Appendix C-1 provides detailed CalEEMod information and model results for determining criteria pollutant emissions.

Criteria pollutant emissions as estimated are compared to the SJVAPCD's operational thresholds. Where emissions are determined to exceed regulatory thresholds, mitigation is provided to reduce these emissions.

CO Hotspots

Localized areas where ambient concentrations of CO exceed state and/or federal standards are termed CO hotspots. Emissions of CO are produced in greatest quantities from motor vehicle combustion and are usually concentrated at or near ground level because they do not readily disperse into the atmosphere, particularly under cool, stable (i.e., low or no wind) atmospheric conditions. Carbon monoxide decreased dramatically in the SJVAB with the introduction of the catalytic converter in 1975. No exceedances of CO have been recorded at monitoring stations in the SJVAB for some time and the SJVAB is currently designated as a CO attainment area for both the CAAQS and NAAQS. The SJVAB has been in attainment for so long that CO monitoring at the majority of sites has been discontinued. The analysis used the Transportation Analysis Report (Kimley Horn, 2021) to evaluate the Project for the potential for CO hotspots. For intersections that do not experience a decrease in LOS to E or F, or, if already operating at LOS F, do not significantly worsen, the intersection is not considered to have the potential to result in a CO hotspot.

For intersections where LOS worsens, a qualitative analysis associated with traffic levels was used to determine significance. As discussed in Section 3.3.1 Local Air Quality, CO levels are not currently monitored in the SJVAB and CO is in attainment for both CAAQS and NAAQS. Additionally, CO levels have decreased dramatically in the SJVAB with the introduction of the catalytic converter in 1975. Thus, it is not expected that CO levels at Specific Plan Program-impacted intersections would rise to the level of an exceedance of these standards. Monitoring for CO within the SJVAB ceased in 2012. As of the 2004 Revision to the California State Implementation Plan for Carbon Monoxide (2004 SIP), the Attainment Level for CO within Fresno County was 9.4 ppm and the monitored value in 2003 was 4.3 ppm, or 54 percent below attainment levels and a horizon year reduction of 62 percent below the Attainment level (CARB, 2004b). State-wide emissions trends show CO reducing overall from 23,630 tons per day in 1993 to an estimated 8,800 tons per day in 2018 with on-road mobile source emissions reducing from 17,230 tons per day to 2,850 tons per day respectively. Emissions in Fresno County (the closest monitored area to the Castellina Specific Plan Program site) are anticipated to be reduced from 627 tons per day in 1993 to 244 tons per day in 2018 (CARB, 2004b). The analysis shows that the Fresno area will be able to maintain the CO standard even with the projected 84 percent increase in vehicle miles traveled (CARB, 2004b). Typically, the CAA requires maintenance plans to identify contingency measure to offset an unexpected increase in emissions to ensure that the standards are maintained. However, as part of the 1996 Plan, the EPA approved California's approach with respect to not providing contingency measures for CO as the measures in the 1996 Plan "would provide sufficient reductions in future years to guarantee an ample margin of safety to ensure maintenance." (CARB, 2004b).

Additionally, CO modeling was conducted by an air district in Southern California during preparation of its air quality management plan (AQMP) to determine if CO hotspots would occur. The modeling was conducted by the South Coast Air Quality Management District (SCAQMD)

within the South Coast Basin. The SCAQMD conducted CO modeling for the 2003 AQMP for the four worst-case intersections in the South Coast Air Basin: (1) Wilshire Boulevard and Veteran Avenue; (2) Sunset Boulevard and Highland Avenue; (3) La Cienega Boulevard and Century Boulevard; and (4) Long Beach Boulevard and Imperial Highway. In the 2003 AQMP, SCAQMD notes that the intersection of Wilshire Boulevard and Veteran Avenue is the most congested intersection in Los Angeles County, with an average daily traffic volume of approximately 100,000 vehicles per day. This intersection is located near the on- and off-ramps to Interstate 405 in West Los Angeles. The evidence provided in the 2003 AQMP (Table 4-10 of Appendix V) shows that the peak modeled CO concentration due to vehicle emissions at these four intersections was 4.6 ppm (1-hour average) and 3.2 (8-hour average) at Wilshire Boulevard and Veteran Avenue. When added to the existing background CO concentrations, the screening values would be 7.6 ppm (1-hour average) and 6.2 ppm (8-hour average). Because of the urban nature of the Los Angeles County, the pollutant emissions at intersections will disperse slower than those of more rural settings such as Madera County. Therefore, concentrations at intersections in the vicinity of the Specific Plan Program have less of a potential to result in local exceedances from added traffic congestion.

SJVAPCD has not conducted quantified modeling for intersection analysis. However, as the 2004 SIP demonstrated continued area-wide reductions despite an 84 percent increase in vehicle miles traveled, and SCAQMD's has demonstrated that intersections with 100,000 vehicles per day would not cause an exceedance of the AAQS, a screening threshold of 100,000 vehicles per day is used to determine potential for CO hotspots. If the number of vehicles at an intersection exceeds the 100,000 vehicle per day screening level, CALINE4 is used to determine if the concentrations at the affected intersections, when combined with existing background levels, have the potential to exceed regulatory thresholds.

Toxic Air Contaminants

The analysis of toxic air contaminants (TACs) is qualitatively based on the type of development anticipated to occur within the plan area, an assessment of future development's adherence to existing County General Plan policies and SJVAPCD regulations. It is not anticipated that the nature of the community development would result in the development of stationary emissions sources beyond a potential for a boiler or back-up generator, which are regulated by SJVAPCD, and therefore, would not exceed regulatory thresholds.

Odors

Odor impacts are determined qualitatively based on the nature of the community plan land uses (including the wastewater treatment plant) and the proximity to existing offsite sources.

Cumulative Impacts

According to the SJVAPCD's guidance, if a proposed project exceeds the regional thresholds for any criteria pollutant after application of mitigation, then the project's contribution to cumulative air quality impacts would be cumulatively considerable. Even if the project is less than significant with respect to all regional thresholds, it could still be cumulatively considerable if it violates any of the AAQS. To determine if a project has the potential to exceed any of the AAQS, onsite emissions from operational activities are compared to a 100 pounds per day screening threshold

for each criteria pollutant. If the threshold is not exceeded, the project is determined to be less than cumulatively considerable. If the threshold is exceeded, then an ambient air quality analysis is performed and compared to the EPA's NAAQS standards. An ambient air quality analysis uses dispersion modeling to determine if the emission increases from Project construction would contribute to a violation of the ambient air quality standards and therefore result in a cumulatively considerable impact (SJVAPCD, 2015). Currently the EPA has set NAAQS standards for NO_2, SO_2, PM10, PM2.5 and CO for the ambient air quality analysis for health effects. There are no NAAQS for ROG that has been established by the EPA, and therefore, ROG is not considered as part of an ambient air quality analysis for health effects.

Health Effect Assessment (HEA)

In *Sierra Club v. County of Fresno* (S219783) (Sierra Club) the Supreme Court held that CEQA requires lead agencies to either (i) make a "reasonable effort" to substantively connect the estimated amount of a given air pollutant a project will produce and the health effects associated with that pollutant, or (ii) explain why such an analysis is infeasible (6 Cal.5th at 1165-66). However, the Court also clarified that that CEQA "does not mandate" that EIRs include "an in-depth risk assessment" that provides "a detailed comprehensive analysis … to evaluate and predict the dispersion of hazardous substances in the environment and the potential for exposure of human populations and to assess and quantify both the individual and population wide health risks associated with those levels of exposure." (Sierra Club, 2018; page 23).

USEPA and CARB have established AAQS at levels above which concentrations could be harmful to human health and welfare, with an adequate margin of safety. Further, California air districts, like SJVAPCD, have established emission-based thresholds that provide project-level estimates of criteria air pollutant quantities that air basins can accommodate without affecting the attainment dates for the AAQS, and therefore, providing indicators of significance for regional and localized air quality impacts from both construction and operation of projects. SJVAPCD thresholds take into account that the SJVAB is a distinct geographic area that has critical air pollution problems for which AAQS have been established to protect human health and welfare (SJVAPCD, 2016).

Typically, the health effect of a particular criteria pollutant is analyzed by air districts on a regional scale based on how close the area is to attaining the NAAQS. As shown by the attainment plan emissions data, it takes a large amount of additional precursor emissions to demonstrate a modeled increase in ambient levels over an entire region. Because air districts' attainment plans and supporting air model tools are regional in nature, they are not typically used to evaluate the impacts to ambient concentrations of criteria air pollutants, or to correlate those impacts to the potential resultant impacts to public health effects, from an individual project. The complex nature of criteria air pollutant dispersion and the complex atmospheric chemistry that occurs (especially in the case of ozone and fine particulate matter) limits the usefulness of applying the available models to predict health effects at a project-level. Therefore, correlating a project's criteria air pollutant emissions to specific health effects, particularly with respect to ozone, is speculative.

Generally, models that correlate criteria air pollutant concentrations with specific health effects focus on regulatory decision-making that will apply throughout an entire air basin or region. These models focus on the region-wide health effects of pollutants so that regulators can assess the costs and benefits of adopting a proposed regulation that applies to an entire category of air pollutant sources, rather than the health effects related to emissions from a specific proposed project or source. Because of the scale of these analyses, any one project is likely to have only very small incremental effects which may be difficult to differentiate from the effects of air pollutant concentrations in an entire air basin. In addition, such modeling efforts are costly, and the value of a project-specific analysis may be modest in relation to that cost. Furthermore, the results, while costly to produce, may not be particularly useful. For regional pollutants, it is difficult to trace a particular project's criteria air pollutant emissions to a specific health effect. Moreover, the modeled results may be misleading because the margin of error in such modeling is large enough that, even if the modeled results report a given health effect, the model is sufficiently imprecise that the actual effect may differ from the reported results; that is, the modeled results suggest precision, when in fact available models cannot be that precise on a project level.

Writing as amicus curiae in *Sierra Club,* the SJVAPCD explained that "[r]unning the photochemical grid model used for predicting ozone attainment with emissions solely from one project would thus not be likely to yield valid information given the relative scale involved" (SJVAPCD, 2015b). Ozone is not directly emitted into the air, but is instead formed as ozone precursors undergo complex chemical reactions through sunlight exposure (SJVAPCD, 2015b). Given the complex nature of this process, and the fact that ozone can be transported by wind over long distances, "a specific tonnage amount of NO_X or ROGs emitted in a particular area does not equate to a particular concentration of ozone in that area" (SJVAPCD, 2015b). For this reason, the photochemical analysis for ozone is done on a regional scale, and it is inappropriate to analyze ozone impacts at a local or project-level basis because a localized analysis would at most be speculative, and at worst be misleading. Speculative analysis is not required by CEQA (CEQA, 1988). The SJVAPCD stated that even a project with criteria pollutant emissions above its CEQA thresholds does not necessarily cause localized human health effects as, even with relatively high levels of emissions, the SJVAPCD cannot determine "whether and to what extent emissions from an individual project directly impact human health in a particular area" (SJVAPCD, 2015b). The SCAQMD also, as amicus curiae in *Sierra Club,* made similar points, reiterating that "an agency should not be required to perform analyses that do not produce reliable or meaningful results" (SCAQMD, 2015). SCAQMD agrees that it is very difficult to quantify health effects with regard to ozone, opining that the only possible means of successfully doing so is for a project so large that emissions would essentially amount to *all* regional increases (SCAQMD, 2015). With regard to particulate matter, the SCAQMD noted that while the CARB has created a methodology to predict expected mortality from large amount of $PM_{2.5}$, the primary author of the methodology has reported that it "may yield unreliable results due to various uncertainties" and CARB staff has been directed by its Governing Board to reassess and improve it, which factor "also counsels against setting any hard-and-fast rule" about conducting this type of analysis (SCAQMD, 2015). SCAQMD agrees that it is very difficult to quantify health effects, opining that the only possible means of successfully doing so is for a project so large that

emissions would essentially equate to levels comparable to all combined regional emission increases (SCAQMD, 2015). Because the proposed Specific Plan Program does not emit that magnitude of daily emissions, the usage of photochemical modeling to determine specific health effects of this individual Project is not warranted.

The mass emissions thresholds developed by the SJVAPCD and used by CEQA lead agencies throughout the SJVAPCD to determine potential significance of Project-related regional changes in the environment are not directly indicative of exceedances of applicable ambient air standards. Meteorology, the presence of sunlight, and other complex chemical factors all combine to determine the ultimate concentration and location of ozone or PM. The effects on ground-level ambient concentrations of pollutants that may be breathed by people are also influenced by the spatial and temporal patterns of the emission sources. In other words, the effect on ozone and PM concentrations from a given mass of pollutants emitted in one location may vary from the effect if that same mass of pollutants was emitted in an entirely different location in the SJVAB. The same effect may be observed when the daily and seasonal variation of emissions is taken into account. Regional-scale photochemical modeling, typically performed only for NAAQS attainment demonstration and rule promulgation, account for these changes in the spatial, temporal, and chemical nature of regional emissions.

SJVAPCD attainment plans indicate the existing level of regional pollutants and the levels that are needed to meet AAQS through photochemical modeling. These inventories indicate the daily emissions levels that are necessary to limit health effects of the region to levels that are considered appropriate for protecting human health. The most recent EPA-approved SJVAPCD emissions inventory shows ROG emissions at 337.3 tons per day and NOx emissions at 339.6 tons per day for the baseline year of 2012. In 2031, forecasted emissions associated with SJVAPCD are 296.7 tons per day and NOx emissions at 131.9 tons per day, a reduction of 40.6 and 207.7 tons per day, respectfully. SJVAPCD's Ozone Attainment Plan shows that reducing the baseline 2012 NOx and ROG emissions by 41 tons per day and 208 tons per day respectively, would reduce ozone levels at the Madera -28261 Avenue 14 station from 84.7 to 65 ppb (20 ppb) and at the Madera-Pump Yard from 79.3 to 61 (19 ppb) (SJVAPCD, 2016). As seen by the forecasted reductions, it requires 10 to 100s of tons per day to noticeably change the concentrations observed by the monitoring stations, and thereby, noticeably effect the concentration of ozone and other criteria pollutants.

For further comparison, the most recent EPA-approved SCAQMD basin wide emissions inventory shows VOC emissions at 162.4 tons per day and NOx emissions at 293.1 tons per day for the baseline year of 2012 (SCAQMD, 2017). SCAQMD's AQMP shows that reducing the baseline 2008 NOx and VOC emissions by 432 tons per day and 187 tons per day respectively, would only reduce ozone levels at the monitor stations with the greatest ozone concentrations by 9 parts per billion (ppb) (SCAQMD, 2013). Additionally, SCAQMD modeling that accounts for increases in emissions due to new or modified sources within the SCAQMD between 2010 and 2030 show an increase of 6,620 pounds per day of NOx and 89,947 pounds per day of VOC. The results of this analysis show that this level of daily pollutant increase would only increase ozone concentrations in the SCAB by 2.6 ppb and less than 1 ppb of NO_2 (SCAQMD, 2011).

Nonetheless, it is recognized, for example, that health effects from ozone are correlated with increases in the ambient level of ozone in the air that a person breathes (USEPA, 2016). Thus, to correlate the Project-related change in regional concentrations to the potential for increased regional health effects, the emissions associated with the Project were quantified, and modeled Project concentrations combined with background concentrations were compared to the NAAQS. As ozone is a secondary pollutant, the emissions of the primary pollutants associated with its formation (NOx and ROG) were quantified for the Project. NAAQS are established to protect the public and the environment. As discussed in SJVAPCD District Rule 2201 AAQA Modeling, "An air quality standard defines the maximum amount of a pollutant that can be present in outdoor air without harm to public health, vegetation or wildlife." (SJVAPCD, 2014). The NAAQS contain primary and secondary standards for the criteria pollutants. The exceedance of a primary standard is considered to place the public at risk. Therefore, the HEA is focused on the potential for Project emissions to increase ambient background concentrations above the NAAQS.

In order to determine the potential health effects of NOx, CO, PM10 and PM2.5, mass emission rates from operation of the Project were distributed spatially and temporally. The dispersion of these pollutants was predicted using the AERMOD model to determine concentrations of Project emissions associated with onsite area source, roadway, and construction emissions. CALINE4 was used to determine concentrations at the 10 most congested Project-related intersections. CALINE4 is a dispersion model used for predicting air pollutant concentrations near intersections and roadways. Four scenarios were modeled for the Project including: unmitigated operational emissions at full buildout; mitigated operational emissions at full buildout; unmitigated construction emissions and 85 percent of operational buildout emissions; and mitigated construction emissions plus 85 percent of operational buildout emissions. For construction, the worst-case construction phase was applied to the whole year as a conservative estimate of emissions. These scenarios were chosen to ensure the worst-case scenario was accounted for as well as to provide the effects of Project implemented mitigation.

CALINE4 was run for each of the pollutants at each of the 10 worst case intersections. Intersections were chosen based on the Project-specific traffic report (see Appendix C-4), which analyzed the Project with cumulative traffic for the intersections within the study area. Concentrations were modeled at four to six receptors adjacent to each intersection depending on the intersection layout. CALINE4 analyzes air emissions from traffic volumes at the modeled intersections and does not include air emissions generated from other emission sources such as stationary sources located adjacent to the intersections. Therefore, in order to determine a cumulative impact of Project specific emissions on receptors, the concentrations from CALINE4 were then combined with the air emissions associated with the onsite emission sources within the Specific Plan Program site that were derived from the AERMOD modeling results for the Specific Plan Program for these intersections.

AERMOD modeled concentrations at other receptors, in addition to those receptors included in the CALINE4 modeling, including receptors located within the Phase 1 Project site and offsite within 1,000 feet from the Project boundaries. AERMOD was used to determine concentrations of Project emissions at each receptor location. Total concentrations were then added to the background concentrations and compared to the applicable NAAQS.

Consistent with SJVAPCD methodology (SJVAPCD, 2014), AERMOD modeling runs for each pollutant were conducted using a normalized emission rate of 1 gram/second for each source and Project-specific emissions were quantified outside of AERMOD. Averaging periods for each of the pollutants are included in Table 3.3-5. Concentrations from each source were then summed for each receptor to provide total concentration at each receptor for each pollutant and averaging period. For receptors that are associated with the 10 worst intersections, the concentrations from CALINE4 were also included in the concentration totals. Total Project concentrations were then added to the corresponding 3-year average of the highest ambient concentrations between 2016 and 2018 (see Table 3.3-2) and total ambient and Project concentrations were compared to the appropriate NAAQS as detailed in Table 3.3-1.

If the Project plus ambient concentrations are below the NAAQS, then the Project would be considered to not pose a significant health effect. If the total concentration exceeds the NAAQS, the maximum concentration is compared to its corresponding SIL (see Table 3.3-5) as detailed in the SJVAPCD's AAQS Guidance (SJVAPCD, 2014). If the Project does not exceed the appropriate SIL then the Project would not result in significant health effects. Detailed assumptions and calculations are included in Appendix C-3.

There is no annual NAAQS for PM10. Additionally, the ambient background concentrations for PM2.5 are above the NAAQS. Background concentration are 66.1 $\mu g/m^3$ for 24hr and 12.8 $\mu g/m^3$ for annual, with NAAQS of 35 $\mu g/m^3$ for 24 hr, and 12 $\mu g/m^3$ for annual. Therefore, the Project or Program's contributions to health effects would be analyzed using the SIL thresholds.

Impacts Discussion

Air Quality Plan

Impact 3.3-1a: The Phase 1 Project would have significant and cumulatively considerable effects on implementation of the San Joaquin Valley air quality plans because the Phase 1 Project would have the potential to conflict with or obstruct implementation of the Air District's air quality plans.

Phase 1 Project Analysis

As detailed in Impact 3.3-2a below (Table 3.3-6), the proposed Project would exceed NOx emissions for construction prior to mitigation, therefore, the proposed Project would be potentially significant and could conflict with the implementation of the applicable air quality management plans.

With respect to operational activities, Impact 3.3-2a details the emissions estimates for the Phase 1 Project. As shown in Tables 3.3-7, operational emissions for the Phase 1 Project would not exceed regulatory thresholds. Therefore, the operational activities associated with the Phase 1 Project would not conflict with the implementation of the applicable air quality management plans.

Significance Determination before Mitigation: Significant

Phase 1 Project Cumulative Impact Analysis

According to the SJVAPCD's guidance, if a proposed project exceeds the regional thresholds for any criteria pollutant after application of mitigation, then the project's contribution to cumulative air quality impacts would be cumulatively considerable. As shown in Table 3.3-8, the Phase 1 Project's unmitigated construction emissions would exceed SJVAPCD's 100 lbs/day screening level for CO and NOx, therefore, the impact from the Phase 1 Project would be cumulatively considerable for construction without mitigation.

As shown in Table 3.3-9, the Phase 1 Project's unmitigated operational emissions would not exceed SJVAPCD's 100 lbs/day screening level, therefore, the impact from the Phase 1 Project would be less than cumulatively considerable for operation.

Significance Determination before Mitigation: Significant

Phase 1 Project Mitigation Measures

AQ-1: During construction of the Phase 1 Project or an individual project within the Program, all internal combustion engines/construction equipment exceeding 50 horse power and operating on the Project site shall meet Tier 4 CARB/U.S. EPA emission standards. If not already supplied with a factory equipped diesel particulate filter, all off-road diesel-powered construction equipment shall be outfitted with BACT devices certified by CARB. Any emissions control device used by the contractor shall achieve emission reductions that are no less than what could be achieved by a Level 3 diesel emissions control strategy for a similarly sized engine as defined by CARB regulations. In addition, construction equipment shall incorporate, where feasible, emissions savings technology such as hybrid drives and specific fuel economy standards. In the event that all off-road diesel-powered construction equipment cannot meet the Tier 4 engine certification, the applicant shall use alternative measures, which include, but would not be limited to, reduction in the number and/or horsepower rating of construction equipment, limiting the number of daily construction haul truck trips to and from the proposed Project, using cleaner vehicle fuel, and/or limiting the number of individual construction Project phases occurring simultaneously. The applicant shall demonstrate the effectiveness of such alternative measures through a technical evaluation that verifies the measures achieve emission reductions sufficient to offset the emissions of the non-Tier 4 equipment. The evaluation shall be prepared and submitted to the County for review and the County's written concurrence received prior to the use of non-Tier 4 equipment.

Significance Determination after Mitigation: Less than Significant

As identified under Impact 3.3-2a below (Table 3.3-10), with the implementation of Mitigation Measure AQ-1, emissions of NOx would be reduced to below the regulatory thresholds, and therefore, construction activities would not conflict with the implementation of the applicable air quality plans. The Phase 1 Project would be in compliance with the SJVAPCD air quality plans, and therefore, would result in less than significant impacts.

Phase 1 Project Cumulative Measures

Implementation of Mitigation Measure AQ-1 is required.

Significance Determination after Mitigation: Less than Significant

As detailed under Impact 3.3-2a below (Table 3.3-11), daily construction activities are reduced to below the 100 lbs/day screening level for the criteria pollutant that is in non-attainment (NOx) and therefore, would be in compliance with the SJVAPCD air quality plans.

Impact 3.3-1b: The proposed Program would have a significant and cumulatively considerable effects on implementation of the San Joaquin Valley air quality plans because the Program would have the potential to conflict with or obstruct implementation of the Air District's air quality plans.

Program Impact Analysis

As detailed in Impact 3.3-2b below (Table 3.3-12), the proposed Program would exceed ROG and NOx emissions for construction prior to mitigation, therefore, the proposed Program would be significant and could conflict with the implementation of the applicable air quality management plans.

With respect to operational activities, Impact 3.3-2b details the emissions estimates for the proposed Program. As shown in Table 3.3-13, operational emissions for the proposed Program would exceed regulatory thresholds for ROG, NOx, CO, and PM10. Therefore, the operation of the proposed Program at buildout would be potentially significant and could conflict with the implementation of the applicable air quality management plans.

Significance Determination before Mitigation: Significant

Program Cumulative Impact Analysis

As shown in Table 3.3-16, the proposed Program's unmitigated construction emissions would exceed SJVAPCD's 100 lbs/day screening level for ROG, NOx and CO, therefore, the impact from the proposed Program would be cumulatively considerable. Additionally, as shown in Table 3.3-17, operational emissions would exceed 100 lbs/day for ROG, NOx, CO, and PM10. Therefore, the proposed Program would be potentially cumulatively considerable for construction and operational emissions.

Significance Determination before Mitigation: Significant

Program Mitigation Measures

Implementation of Mitigation Measures AQ-1 and GHG-1 is required.

AQ-2: One of the following measures shall be implemented to reduce construction emissions of ROG.

- Architectural coating with a VOC content of 100 g/L or less shall be used for construction of all interior residential developments; or
- Architectural coating activities for no more 9,700 square feet shall occur on any given day.

AQ-3: The following measures shall be implemented to reduce operational emissions.

- No residential units shall be constructed with fireplaces/hearths.
- Residents and employees shall be provided information documenting the benefits of using low VOC paints and cleaning supplies.

AQ-4: Each applicant for an individual project within the Program shall submit an operational emissions evaluation that accounts for the implementation of Mitigation Measures GHG-1 and AQ-3 and any additional operational emission reductions proposed by the applicant. If the evaluation determines that the emissions of ROG, NOx, and/or PM10 would exceed the SJVAPCD regulatory thresholds, the applicant shall implement a Voluntary Emissions Reduction Agreement (VERA) with the SJVAPCD to reduce operational emissions of ROG, NOx, and PM10 so that the SJVAPCD regulatory thresholds are not exceeded.

Emission reductions may be achieved by use of newer, low emission equipment, implementation of on-site or off-site mitigation, and/or the funding of off-site mitigation, through participation in the SJVAPCD's offsite mitigation program. Each VERA shall be reviewed and approved by the SJVAPCD prior to issuance of construction/grading permits for each individual project within the Specific Plan Program by the County of Madera. If required, the Project proponent/owner of each individual project shall submit to the County of Madera Planning Department documentation confirming compliance with the VERA prior to issuance of final discretionary approval (e.g., approval of the grading permit). Development and implementation of the VERA shall be fully funded by each applicant. With approval by SJVAPCD, the VERA may also be used to demonstrate compliance with emission reductions required by SJVAPCD's ISR Rule (Rule 9510).

Significance Determination after Mitigation: Significant and Unavoidable

As identified under Impact 3.2b below (Table 3.3-18), daily construction activities are reduced to below regulatory thresholds with implementation of Mitigation Measure AQ-1. Therefore, construction activities associated with the Program would be in compliance with the SJVAPCD air quality plans.

As shown in Table 3.3-19, with implementation of Mitigation Measures AQ-3, AQ-4 and GHG-1, operational emissions of CO would reduce below regulatory levels and emissions of ROG, NOx and PM10 would be reduced; however, these emissions would continue to exceed regulatory levels. The implementation of AQ-4 would reduce operational emissions of the criteria pollutants. Each individual project within the Specific Plan Program would enter into the Voluntary Emissions Reduction Agreement (VERA) if the individual project exceeds the SJVAPCD regional significance threshold. Each individual project that exceeds the thresholds would offset its emissions to the threshold level. Because the number and size of individual projects within the Specific Plan Program are not known at this time, the reduction of emissions through the use of VERA cannot be quantified. Furthermore, since each individual project could include emissions up to the regional significance thresholds, the combined emissions of all individual projects within the Specific Plan Program are assumed to exceed the regional significance thresholds. For

this analysis, it is assumed that the regional significance thresholds would be exceeded for ROG, NOx and PM10. Therefore, operational activities associated with the proposed Program would conflict with the implementation of the applicable air quality management plans. The operational activities associated with the proposed Program would result in a significant impact.

Program Cumulative Measures

Implementation of Mitigation Measures AQ-1, AQ-2, AQ-3, AQ-4 and GHG-1 is required.

Significance Determination after Mitigation: Significant and Unavoidable

As identified under Impact 3.2b below (Table 3.3-18), daily construction activities are reduced to below regulatory thresholds with implementation of Mitigation Measure AQ-1 and AQ-2. However, even if pollutant emissions are reduced to below regulatory thresholds, a project still has the potential to be cumulatively considerable if it exceeds the AAQS. As shown in Table 3.3-20, with implementation of Mitigation Measure AQ-1 and AQ-2, daily construction emissions of criteria air pollutants and ozone precursors associated with the Program's worst-case construction scenario would be reduced to below SJVAPCD's screening levels for NOx and ROG. Mitigated daily CO emissions would be slightly increased by implementation of Mitigation Measure AQ-1 and would exceed the SJVAPCD's 100 lb/day screening level, and therefore, dispersion modeling was conducted. Dispersion modeling results in CO emissions substantially below the AAQS thresholds as identified in Table 3.3-20. Therefore, Program cumulative construction air emissions impacts after mitigation would be less than cumulatively considerable.

As shown in Table 3.3-19, with implementation of Mitigation Measures AQ-3, AQ-4, and GHG-1, operational emissions of CO would reduce below regulatory levels and emissions of ROG, NOx and PM10 would be reduced; however, these emissions would continue to exceed regulatory levels. The implementation of AQ-4 would reduce operational emissions of the criteria pollutants. Each individual project within the Specific Plan Program would enter into the Voluntary Emissions Reduction Agreement (VERA) if the individual project exceeds the SJVAPCD regional significance threshold. Each individual project that exceeds the thresholds would offset its emissions to the threshold level. Because the number and size of individual projects within the Specific Plan Program are not known at this time, the reduction of emissions through the use of VERA cannot be quantified. Furthermore, since each individual project could include emissions up to the regional significance thresholds, the combined emissions of all individual projects within the Specific Plan Program are assumed to exceed the regional significance thresholds. For this analysis, it is assumed that the regional significance thresholds for operational emissions of ROG, NOx and PM10 would be exceeded and considered cumulatively considerable. Therefore, cumulative operational activities associated with the proposed Program would conflict with the implementation of the applicable air quality management plans. The operational activities associated with the proposed Program would result in a significant impact, and the Program's contribution to cumulative operational emissions of ROG, NOx and PM10 would be cumulatively considerable.

Cumulative Increase of Criteria Pollutant

Impact 3.3-2a: The proposed Phase 1 Project would result in a cumulatively considerable net increase of a criteria pollutant for which the Project region is in non-attainment.

Ozone, NO_2, VOC, PM10, and PM2.5 are pollutants of concern, as the San Joaquin Valley Air Basin has been designated as a nonattainment area for federal Ozone, and PM2.5 and is a nonattainment area at the state level for Ozone, PM10 and PM2.5, as shown in Table 3.3-3.

Phase 1 Project Impact Analysis

Construction

Construction activities associated with the Phase 1 Project would generate pollutant emissions from the following construction activities: (1) grading, and excavation; (2) construction workers traveling to and from the Project site; (3) delivery and hauling of construction supplies and debris to and from the Project site; (4) fuel combustion by on-site construction equipment; (5) building construction, application of architectural coatings, and paving. These construction activities would temporarily create emissions of dust, fumes, equipment exhaust, and other air contaminants. The amount of emissions generated on a daily basis would vary, depending on the intensity and types of construction activities occurring simultaneously at the time.

Construction emissions are considered short-term and temporary, but have the potential to represent a significant impact with respect to air quality. Particulate matter (i.e., PM_{10} and $PM_{2.5}$) are among the pollutants of greatest localized concern with respect to construction activities. Particulate emissions from construction activities can lead to adverse health effects and nuisance concerns, such as reduced visibility and soiling of exposed surfaces. Particulate emissions can result from a variety of construction activities, including excavation, grading, demolition, vehicle travel on paved and unpaved surfaces, and vehicle and equipment exhaust. Construction emissions of PM can vary greatly depending on the level of activity, the specific operations taking place, the number and types of equipment operated, local soil conditions, weather conditions, and the amount of earth disturbance.

Emissions of ozone precursors ROG and NOx are primarily generated from mobile sources and vary as a function of vehicle trips per day associated with debris hauling, delivery of construction materials, vendor trips, worker commute trips, and the types and number of heavy-duty, off-road equipment used and the intensity and frequency of their operation. A large portion of construction-related ROG emissions also result from the application of architectural coatings and vary depending on the amount of coatings applied each day.

It is mandatory for all construction projects in the SJVAB to comply with SJVAPCD Regulation VIII for controlling fugitive dust. Incorporating Regulation VIII into the Project would reduce regional PM_{10} and $PM_{2.5}$ emissions from construction activities. Specific Regulation VIII control requirements include, but are not limited to, applying water in sufficient quantities to prevent the generation of visible dust plumes, applying soil binders to uncovered areas, reestablishing ground cover as quickly as possible, utilizing a wheel washing system to remove bulk material from tires and vehicle undercarriages before vehicles exit the Project site, covering all trucks hauling soil with a fabric cover and maintaining a freeboard height of 12 inches, and maintaining effective

cover over exposed areas. Compliance with Regulation VIII was accounted for in the construction emissions modeling.

Table 3.3-6 summarizes the modeled peak emissions of criteria air pollutants and ozone precursors associated with the Phase 1 Project's worst-case construction scenario. The construction schedule was adjusted to assume the Phase 1 Project would last approximately one year. Default CalEEMod construction equipment was used for each construction sub phase and as discussed in the methodology section above, it is assumed that up to two development projects would be underway at any time during the year.

TABLE 3.3-6
UNMITIGATED REGIONAL PHASE 1 PROJECT CONSTRUCTION EMISSIONS

Construction Year	Estimated Maximum Emissions					
	ROG	NO_X	CO	SO_2	PM_{10}	$PM_{2.5}$
Regional Project Impacts (tons/year)						
Site Preparation	<1	1	1	<1	<1	<1
Grading	1	8	5	<1	1	1
Building Construction	1	6	6	<1	1	0
Paving	<1	1	1	<1	<1	<1
Architectural Coating	4	<1	1	<1	<1	<1
Max Annual Emissions	6	**16**	13	<1	2	1
Regional Significance Threshold	*10*	***10***	*100*	*27*	*15*	*15*
Significant Impact?	No	**Yes**	No	No	No	No

SOURCE: ESA, 2019; Appendix C-1

As shown in Table 3.3-6, the maximum annual construction emissions generated by the Phase 1 Project's worst-case construction scenario would exceed SJVAPCD's regional significance threshold NOx but not for any other criteria pollutants. Therefore, construction emissions would have the potential to result in significant regional impacts.

Operation

Operation of the Phase 1 Project would result in long-term regional emissions of criteria air pollutants and ozone precursors associated with area sources, such as natural gas consumption, landscaping, applications of architectural coatings, and consumer products, in addition to operational mobile emissions. According to the Transportation Analysis Report (Appendix C-4) prepared for the Phase 1 Project, development of the Phase 1 Project would result in an increase in 1,114 daily vehicle trips.

Modeled operations emissions are presented in **Table 3.3-7**. As shown, the Phase 1 Project would result in long-term regional emissions of criteria pollutants that would not exceed the SJVAPCD's applicable thresholds. Therefore, operational emissions for the Phase 1 Project would result in less than significant impacts.

TABLE 3.3-7
PROPOSED PHASE 1 PROJECT UNMITIGATED OPERATIONAL EMISSIONS

Emissions Source	Estimated Emissions					
	ROG	NO_X	CO	SO_2	PM_{10}	$PM_{2.5}$
Regional Phase 1 Project Impacts (tons/year)						
Area Sources	*1*	*<1*	*1*	*<1*	*<1*	*<1*
Energy Sources	*<1*	*<1*	*<1*	*<1*	*<1*	*<1*
Mobile Sources	*1*	*3*	*5*	*<1*	*1*	*<1*
Stationary	*<1*	*<1*	*<1*	*<1*	*<1*	*<1*
Total Emissions	***2***	***3***	***7***	***<1***	***1***	***<1***
Regional Significance Threshold	**10**	**10**	**100**	**27**	**15**	**15**
Significant Impact?	*No*	*No*	*No*	*No*	*No*	*No*

SOURCE: ESA, 2019; Appendix C-1

Health Effect Assessment – Regional Effects

Potential health effects from exposure to CO include fatigue, headaches, confusion, and dizziness due to inadequate oxygen delivery to the brain, and at extremely high levels, asphyxiation. Short-term exposures to NO_2 can potentially lead to respiratory symptoms (such as coughing, wheezing or difficulty breathing), and at extreme levels result in hospitalization. Short-term exposure to PM10 has been associated primarily with worsening of respiratory diseases, including asthma and chronic obstructive pulmonary disease while short-term exposure to PM2.5 has been associated with premature mortality, increased hospital admissions for heart or lung causes, acute and chronic bronchitis, and asthma attacks. Additional information on potential health effects are discussed in Section 3.3.1 above.

NAAQS for criteria pollutants are widely recognized as adequately health protective. For example, OSHA has established the permissible level for daily employee exposure to CO at 50 ppm 8-hour average, while the USEPA has established an ambient standard of 9 ppm 8-hour average, not to be exceeded once per year. Clearly the NAAQS is highly conservative as compared to OSHA's health protective standard.

The Phase 1 Project is a portion of the total buildout of the Castellina Specific Plan Program. As health effects are associated with daily emissions, and emissions from the Phase 1 Project are less than those of the total Program, the Program was analyzed as a worst case potential for resulting in health effects to local residents. As detailed under the Program discussion below, the Program emissions from the full operational buildout and from 85 percent of operational buildout plus construction would not result in adverse health effects to local residents. Because the Phase 1 Project's construction emissions would be less on a daily and annual basis to that of the Program development and the operational emissions of the Phase 1 Project would be a small portion of the Program emissions, the Phase I Project impacts would be less than that of the Program. Therefore, because the Program emissions would not result in adverse health effects, the Phase 1 Project emissions would also not result in adverse health effects to local residents.

Significance Determination before Mitigation: Significant

Phase 1 Project Cumulative Impact Analysis

Based on SJVAPCD's cumulative air quality impact methodology, if a project is determined to exceed regional thresholds for construction or operation, the project would be determined to contribute considerably to this cumulative air impact. If a project does not exceed regional thresholds, it could still be a cumulative air impact if it exceeds the AAQS. SJVAPCD methodology states that criteria pollutants that exceed 100 pounds per day require dispersion modeling to ensure that the AAQS are not violated, and therefore, are not contributing to a cumulative impact.

As shown in **Table 3.3-8**, the Phase 1 Project's unmitigated construction emissions would exceed 100 pounds per day for NOx. Therefore, with respect to AAQS, the Phase 1 Project would be potentially cumulatively considerable.

TABLE 3.3-8
UNMITIGATED CUMULATIVE PHASE 1 PROJECT CONSTRUCTION EMISSIONS

Construction Year	Estimated Maximum Emissions					
	ROG	NO_X	CO	SO_2	PM_{10}	$PM_{2.5}$
Cumulative Project Impacts (lbs/day)						
Total Daily Emissions	68	217	167	0	31	18
Cumulative Threshold	100	**100**	**100**	100	100	100
Significant Impact	No	**Yes**	**Yes**	No	No	No

SOURCE: ESA, 2019; Appendix C-1

Note that this impact analysis only assesses criteria pollutants for which the SJVAB is in non-attainment (ROG, NOx, PM10, and PM2.5). Although Table 3.3-8 identifies that the Phase 1 Project would exceed the cumulative threshold for CO, impacts associated with CO as well as SOx are discussed in Impact 3.3-4a *Other Emissions*.

As shown in **Table 3.3-9**, the Phase 1 Project's unmitigated operational emissions would not exceed 100 pounds per day for any of the criteria pollutants. Therefore, operation of the Phase 1 Project would not exceed the AAQS, and the Phase 1 Project's increases in criteria pollutants would be less than cumulatively considerable.

TABLE 3.3-9
UNMITIGATED CUMULATIVE PHASE 1 PROJECT OPERATIONAL EMISSIONS

Emissions Source	Estimated Emissions					
	ROG	NO_X	CO	SO_2	PM_{10}	$PM_{2.5}$
Cumulative Phase 1 Project Impacts (lbs/day)						
Total Daily Emissions	10	17	37	<1	7	2
Cumulative Threshold	***100***	***100***	***100***	***100***	***100***	***100***
Significant Impact	***No***	***No***	***No***	***No***	***No***	***No***

SOURCE: ESA, 2019; Appendix C-1

With respect to health effects, the Phase 1 Project is a portion of the total buildout of the Specific Plan Program. As health effects are associated with daily emissions and emissions from the Phase 1 Project are less than those of the Program, the Program was analyzed as a worst case potential for resulting in health effects to local populations. As detailed under the Program discussion below, the modeled emissions and corresponding concentrations are below the AAQS (with existing ambient background) and below the SIL's, for those where background levels currently exceed the AAQS or there is no AAQS threshold, for all pollutants of concern. Therefore, while there is the potential for additional growth in the air basin that could result in combined exceedances of the AAQS for criteria pollutants, the health effects to local residents from the proposed Program (see Impact 3.3-2b) would be less than cumulatively considerable and therefore, the health effects to local residents from the less intensive Phase 1 Project would also be less than cumulatively considerable.

Significance Determination before Mitigation: Significant

Phase 1 Project and Cumulative Mitigation Measures:

Implementation of Mitigation Measure AQ-1 is required.

Significance Determination after Mitigation (Phase 1 Project and Cumulative): Less than Significant

Implementation of mitigation measure AQ-1 will reduce the emissions of criteria pollutants, including NOx. **Table 3.3-10** summarizes the modeled mitigated peak annual and daily emissions of criteria air pollutants and ozone precursors associated with the Project's worst-case construction scenario. As shown, the mitigated construction emissions generated by the Phase 1 Project's worst-case construction scenario would be reduced to below SJVAPCD's significance thresholds for NOx. Therefore, mitigated construction impacts would be less than significant.

TABLE 3.3-10
MITIGATED REGIONAL PHASE 1 PROJECT CONSTRUCTION EMISSIONS

Construction Year	Estimated Maximum Daily Emissions					
	ROG	NO_X	CO	SO_2	PM_{10}	$PM_{2.5}$
Site Preparation	<1	<1	1	<1	<1	<1
Grading	<1	1	5	<1	1	<1
Building Construction	<1	2	6	<1	1	<1
Paving	<1	<1	1	<1	<1	<1
Architectural Coating	4	<1	1	<1	<1	<1
Max Daily Emissions	5	**3**	14	<1	2	1
Regional Significance Threshold	*10*	***10***	*100*	*27*	*15*	*15*
Significant Impact?	No	**No**	No	No	No	No

SOURCE: ESA, 2019; Appendix C-1

As shown in **Table 3.3-11**, the Phase 1 Project's cumulative mitigated construction emissions would not exceed 100 pounds per day for any of the criteria pollutants that are in non-attainment within the SJVAB. Therefore, with mitigation, construction of the Phase 1 Project would not exceed the AAQS, and the Phase 1 Project's increases in criteria pollutants would be less than cumulatively considerable. Note that this impact analysis only assesses criteria pollutants for which the SJVAB is in non-attainment (ROG, NOx, PM10, and PM2.5). Impacts associated with CO and SO_2 are discussed in Impact 3.3-4a *Other Emissions*.

TABLE 3.3-11
MITIGATED CUMULATIVE PHASE 1 PROJECT CONSTRUCTION EMISSIONS

Construction Year	Estimated Maximum Daily Emissions					
	ROG	NO_X	CO	SO_2	PM_{10}	$PM_{2.5}$
Cumulative Project Impacts Screening (lbs/day)						
Total Daily Emissions	53	34	173	<1	22	9
Cumulative Threshold	***100***	***100***	***100***	***100***	***100***	***100***
Significant Impact	***No***	***No***	***Yes***	***No***	***No***	***No***
Ambient Air Quality Analysis ($\mu g/m^3$)						
			AAQS			
	Project PPM/ $\mu g/m^3$	Total PPM	CAAQS (ppm)	NAAQS (ppm)	SIL ($\mu g/m^3$)	Exceed Threshold
1-hour concentration (CO)	0.178/ 334	3.12	20	20	2000	No
8-hour concentration (CO)	0.066/ 125	2.12	9	9	500	No

SOURCE: ESA, 2019; Appendix C-1

Impact 3.3-2b: The proposed Program would result in a cumulatively considerable net increase of a criteria pollutant for which the Project region is in non-attainment.

Program Impact Analysis

Construction

The construction schedule was adjusted to assume the proposed Program would extend for an additional fourteen years with up to four individual developments completed during any given year subsequent to the construction of the Phase 1 Project. Default CalEEMod construction equipment was used for each construction sub-phase, and as discussed in more detail in the Methodology section, it is assumed that up to four individual developments would be underway at any time during the year.

Table 3.3-12 summarizes the modeled peak emissions of criteria air pollutants and ozone precursors associated with the Program's worst-case construction scenario. As shown, the maximum annual construction emissions generated by the Program's worst-case construction scenario would exceed SJVAPCD's regional significance thresholds for ROG and NOx but not for any other criteria pollutants. Therefore, construction emissions would have the potential to result in significant regional impacts.

TABLE 3.3-12
UNMITIGATED REGIONAL PROGRAM CONSTRUCTION EMISSIONS

Construction Year	Estimated Maximum Emissions					
	ROG	NO_X	CO	SO_2	PM_{10}	$PM_{2.5}$
Regional Project Impacts (tons/year)						
Site Preparation	<1	5	3	<1	1	1
Grading	1	16	10	<1	2	1
Building Construction	1	12	12	<1	2	1
Paving	<1	3	3	<1	<1	<1
Architectural Coating	8	1	1	<1	<1	<1
Demolition	<1	<1	<1	<1	<1	<1
Max Annual Emissions	**12**	**36**	30	<1	5	3
Regional Significance Threshold	***10***	***10***	*100*	*27*	*15*	*15*
Significant Impact?	**Yes**	**Yes**	No	No	No	No

SOURCE: ESA, 2019; Appendix C-1

Operation

Operation of the Specific Plan Program at buildout would result in long-term regional emissions of criteria air pollutants and ozone precursors associated with area sources, such as natural gas consumption, landscaping, applications of architectural coatings, and consumer products, in addition to operational mobile emissions. According to the Transportation Analysis Report (Appendix C-4)

prepared for the Specific Plan Program, development of the Specific Plan Program would result in an increase of 28,960 daily vehicle trips. This analysis used a worst-case of 30,275 daily vehicle trips.

Modeled operations emissions are presented in **Table 3.3-13**. As shown, the Program would result in long-term regional emissions of criteria pollutants that would exceed the SJVAPCD's applicable thresholds for ROG, NOx, and PM10. Therefore, operational emissions for the Program would result in potentially significant impacts.

Note that this impact analysis only assesses criteria pollutants for which the SJVAB is in non-attainment (ROG, NOx, PM10, and PM2.5). Impacts associated with CO and SO_2 are discussed in Impact 3.3-4b *Other Emissions*.

TABLE 3.3-13
UNMITIGATED REGIONAL PROGRAM OPERATIONAL EMISSIONS

Emissions Source	Estimated Emissions					
	ROG	NO_X	CO	SO_2	PM_{10}	$PM_{2.5}$
Regional Project Impacts (tons/year)						
Area Sources	*26*	*1*	*24*	*<1*	*<1*	*<1*
Energy Sources	*<1*	*3*	*1*	*<1*	*<1*	*<1*
Mobile Sources	*8*	*37*	*76*	*<1*	*30*	*8*
Stationary	*<1*	*<1*	*<1*	*<1*	*<1*	*<1*
Total Emissions	***34***	***42***	***101***	***<1***	***30***	***8***
Regional Significance Threshold	**10**	**10**	**100**	**27**	**15**	**15**
Significant Impact?	***Yes***	***Yes***	***Yes***	*No*	***Yes***	*No*

SOURCE: ESA, 2019; Appendix C-1

Health Effect Assessment – Regional Effects

Impact 3.3-2b concludes that during construction, the proposed Program would emit criteria air pollutants (ROG and NOx) in an amount that exceeds the mass emission threshold that is recommended for these pollutants by the SJVAPCD. The analysis therefore concludes that, for this reason, the proposed Program emissions are potentially significant with respect to these criteria air pollutants. The types of adverse health effects known to occur as a result of exposure to these pollutants and the potential secondary formed ozone have been discussed in Section 3.3.1 *Criteria Pollutants*, above, and summarized under the Phase 1 Project HEA discussion under 3.3-2a above.

Heretofore, air districts and CEQA lead agencies within California regarded this analysis as sufficient disclosure of the adverse impacts of a project's criteria air pollutant emissions. In December 2018, however, the California Supreme Court issued a decision holding that, in order to be adequate, an EIR must contain a further discussion that correlates the specific health effects that will occur as a result of a project's significant criteria air pollutant emissions, or explain why such a further discussion is infeasible (Sierra Club, 2018). As discussed in detail in the methodology section, the Supreme Court's decision presents significant challenges. There may, in

time, be ways to perform this analysis with greater precision or accuracy. At this juncture, however, the following analysis reflects a good faith attempt to address the Supreme Court's direction. In reviewing this analysis, the reader is cautioned to bear in mind its limitations and qualifications, as described in the methodology section above.

The proposed Program criteria air pollutant emissions would contribute to regional health effects. As described above, emissions from the proposed Program are expected at levels in excess of SJVAPCD thresholds for ROG and NOx emissions during construction. While based on the status of an air basin level of attainment of the health-based NAAQS, emissions in excess of the SJVAPCD emission thresholds from one project does not mean the air basin would experience measurably higher ground level concentrations, or more frequent occurrences of ground level concentrations in exceedance of standards, or delay timely attainment of a particular NAAQS. The effect on ambient concentrations of emissions from one project, which in turn may influence air pollutant-based health effects, can only be determined through dispersion modeling. The following analysis is provided for information purposes, to determine the extent the criteria air pollutant emissions from the proposed Program would result in changes in the concentration of criteria air pollutants in the atmosphere.

Concentrations for NO_2, CO, PM10 and PM2.5 were quantified for four scenarios associated with buildout of the proposed Program. ROG does not have an associated NAAQS or SIL. SOx emissions for the Program level construction is approximately 1 pound per day and for operational emissions is approximately 2 pounds per day. As detailed above, ozone is not directly emitted into the air, but is instead formed through chemical reactions. Given that this formation is not immediate and ozone and ozone precursors travel, it is inappropriate to analyze ozone impacts at a local or project-level basis because a localized analysis would at most be speculative, and at worst be misleading. Given the minimal emissions associated with SOx and the lack of an NAAQS or SIL for ROG, and the inappropriateness of including ozone health effects at the local level, these pollutants were not included as part of the Health Effect Analysis. Additionally, ozone is a secondary pollutant that is formed from chemical reactions of NO_2, ROG and PM, where ozone formation cannot be modeled using a simple dispersion model that is applicable to modeling project level concentrations. Therefore, the potential for increases in health effects from ozone are based on the potential increase in its precursor pollutant emissions for which NAAQS have been established.

Four scenarios were modeled for the proposed Program including: unmitigated operation at full Program buildout; mitigated operation at full Program buildout; unmitigated construction of the proposed Program and 85 percent of operational Program buildout; and mitigated construction of the proposed Program and 85 percent of operational Program buildout. **Table 3.3-14** and **Table 3.3-15** present the maximum results for the unmitigated scenarios for each criteria pollutant.

TABLE 3.3-14
HEALTH EFFECT ANALYSIS - UNMITIGATED PROGRAM CONSTRUCTION + 85% PROGRAM BUILDOUT

Pollutant	Averaging Time, units	Concentration			Standard/ Threshold	Total Impact Exceeds Threshold?[b]
		Program	Ambient	Total[a]		
NAAQS Analysis						
Nitrogen Dioxide	1 hour, ppm	0.017	0.042	0.052	0.100	No
	Annual, ppm	0.0006	0.0057	0.0063	0.053	No
Carbon Monoxide	1 hour, ppm	0.02	2.94	2.96	35	No
	8 hour, ppm	0.007	2.06	2.07	9	No
PM10	24 hour, μg/m^3	1.04	136.10	137.14	150	No
	Annual, μg/m^3	0.32	33	-	-	-
PM2.5	24 hour, μg/m^3	0.67	66.10	66.77	35	Yes
	Annual, μg/m^3	0.21	12.77	12.98	12	Yes
Significant Impact Level Analysis						
PM10	Annual - Exhaust, μg/m^3	0.125	-	0.125	11	No
	Annual - Fugitive, μg/m^3	0.196	-	0.196	2.08	No
PM2.5	24 hour- Exhaust, μg/m^3	0.251	-	0.251	1.2	No
	24 hour - Fugitive, μg/m^3	0.421	-	0.421	2.5	No
	Annual - Exhaust, μg/m^3	0.124	-	0.124	0.2	No
	Annual - Fugitive, μg/m^3	0.108	-	0.108	0.63	No

NOTES:

μg/m^3 = micrograms per cubic meter (a concentration unit)

ppm = parts per million

Because there is no annual NAAQS for PM10, the significance impact level analysis is conducted for PM10 and the SJVAPCD's Significant Impact Level (SIL) is used as the significance threshold.

[a] Totals may not add exactly due to rounding.

[b] If the Project plus ambient concentrations are below the NAAQS, then the Project would be considered to not pose a substantial health effect. If the total concentration exceeds the NAAQS, the maximum concentration is compared to its corresponding SIL. If the Project does not exceed the appropriate SIL then the Project would not result in substantial health effects.

SOURCE: ESA, 2020; Appendix C-3

TABLE 3.3-15
HEALTH EFFECT ANALYSIS - UNMITIGATED PROGRAM FULL BUILDOUT

Pollutant	Averaging Time, units	Concentration			Standard/ Threshold	Total Impact Exceeds Threshold?[b]
		Program	Ambient	Total[a]		
NAAQS Analysis						
Nitrogen Dioxide	1 hour, ppm	<0.001	0.042	0.042	0.100	No
	Annual, ppm	<0.001	0.0057	0.0057	0.053	No
Carbon Monoxide	1 hour, ppm	<0.001	2.94	2.94	35	No
	8 hour, ppm	<0.001	2.06	2.06	9	No

Pollutant	Averaging Time, units	Concentration			Standard/ Threshold	Total Impact Exceeds Threshold?[b]
		Program	Ambient	Total[a]		
PM10	24 hour, μg/m³	0.01	136.10	136.11	150	No
	Annual, μg/m³	0.07	33	-	-	-
PM2.5	24 hour, μg/m³	0.009	66.10	66.11	35	Yes
	Annual, μg/m³	0.07	12.77	12.84	12	Yes
Significant Impact Level Analysis						
PM10	Annual - Exhaust, μg/m³	0.071	-	0.071	11	No
	Annual - Fugitive, μg/m³	-	-	-	2.08	No
PM2.5	24 hour- Exhaust, μg/m³	0.009	-	0.009	1.2	No
	24 hour - Fugitive, μg/m³	-	-	-	2.5	No
	Annual - Exhaust, μg/m³	0.070	-	0.070	0.2	No
	Annual - Fugitive, μg/m³	-	-	-	0.63	No

NOTES:

μg/m³ = micrograms per cubic meter (a concentration unit)

ppm = parts per million

Because there is no annual NAAQS for PM10, the significance impact level analysis is conducted for PM10 and the SJVAPCD's Significant Impact Level (SIL) is used as the significance threshold.

[a] Totals may not add exactly due to rounding.

[b] If the Project plus ambient concentrations are below the NAAQS, then the Project would be considered to not pose a substantial health effect. If the total concentration exceeds the NAAQS, the maximum concentration is compared to its corresponding SIL. If the Project does not exceed the appropriate SIL then the Project would not result in substantial health effects.

SOURCE: ESA, 2020; Appendix C-3

As shown, nearby ground level concentrations of NO_2, CO, and PM10 (24-hour averaging period) resulting from the combination of ambient sources and Program-related emissions are below applicable NAAQS. Ground level concentrations of directly emitted pollutants such as NO_2, CO, and PM10 diminish markedly with distance from the source, and these levels represent the predicted maximum impacts from Project emissions. Therefore, with the localized emissions below the health-protective ambient concentration thresholds, the direct emissions from localized construction and operation are not expected to cause or contribute to identifiable adverse health effects.

There is no annual NAAQS for PM10, therefore the SIL was used for the health effect determination. The results for PM2.5 are above the NAAQS because the ambient background (66.1 μg/m³ for 24hr and 12.8 μg/m³ for annual) are above the corresponding NAAQS (35 μg/m³ for 24 hr, and 12 μg/m³ for annual); therefore, the Program development's contribution was analyzed using the SIL thresholds. As shown, the Program concentrations are substantially below the SIL values, and therefore, would not cause or contribute to identifiable health effects.

Significance Determination before Mitigation: Significant

Program Cumulative Impact Analysis

In addition to regional criteria pollutant significance thresholds, SJVAPCD methodology states that criteria pollutants that exceed 100 pounds per day for construction and operational activities

require dispersion modeling to ensure that the AAQS are not violated, and therefore, are not contributing to a cumulative impact.

As shown in **Table 3.3-16**, the Cumulative Program's unmitigated construction emissions would exceed 100 pounds per day for ROG and NOx. Therefore, with respect to AAQS, the proposed Program's air quality impact would be cumulatively considerable. Note that this impact analysis only assesses criteria pollutants for which the SJVAB is in non-attainment (ROG, NOx, PM10, and PM2.5). Impacts associated with CO and SO_2 are discussed in Impact 3.3-4b *Other Emissions*.

TABLE 3.3-16
UNMITIGATED CUMULATIVE PROGRAM CONSTRUCTION EMISSIONS

Construction Year	Estimated Maximum Emissions					
	ROG	NO_X	CO	SO_2	PM_{10}	$PM_{2.5}$
Cumulative Project Impacts (lbs/day)						
Total Daily Emissions	**138**	**444**	**366**	1	51	29
Cumulative Threshold	**100**	**100**	**100**	100	100	100
Significant Impact	**Yes**	**Yes**	**Yes**	No	No	No

SOURCE: ESA, 2019; Appendix C-1

As shown in **Table 3.3-17**, the Cumulative Program's unmitigated operational emissions would exceed 100 pounds per day for ROG, NOx, and PM10. Therefore, with respect to AAQS, the proposed Program's impact on air quality would be cumulatively considerable. Note that this impact analysis only assesses criteria pollutants for which the SJVAB is in non-attainment (ROG, NOx, PM10, and PM2.5). Impacts associated with CO and SO_2 are discussed in Impact 3.3-4b *Other Emissions*.

TABLE 3.3-17
UNMITIGATED CUMULATIVE PROGRAM OPERATIONAL EMISSIONS

Emissions Source	Estimated Emissions					
	ROG	NO_X	CO	SO_2	PM_{10}	$PM_{2.5}$
Cumulative Project Impacts (lbs/day)						
Total Daily Emissions	**187**	**230**	**555**	2	**165**	46
Cumulative Threshold	**100**	**100**	**100**	100	**100**	100
Significant Impact	**Yes**	**Yes**	**Yes**	No	**Yes**	No

SOURCE: ESA, 2019; Appendix C-1

With respect to health effects, there is the potential for additional growth in the SJVAB that could result in combined exceedances of the NAAQS for criteria pollutants, and thereby, increased health effects. As discussed in detail under the Program Impact Analysis above, the impacts from the

Program by itself would not result in a significant cumulative contribution with respect to health effects. This is because the Program concentrations are below the NAAQS (with existing background) and below the SIL's for those where background levels currently exceed the NAAQS.

Significance Determination before Mitigation: Significant

Program and Cumulative Mitigation Measures

Implementation of Mitigation Measure AQ-1, AQ-2, AQ-3, AQ-4 and GHG-1 is required.

Significance Determination after Mitigation (Program and Cumulative): Significant and Unavoidable

Implementation of Mitigation Measure AQ-1 will reduce construction emissions of criteria pollutants, including ROG and NOx. **Table 3.3-18** summarizes the modeled mitigated peak annual and daily emissions of criteria air pollutants and ozone precursors associated with the Program's worst-case construction scenario. As shown, the mitigated construction emissions generated by the Program's worst-case construction scenario would be reduced to below SJVAPCD's significance thresholds for ROG and NOx.

TABLE 3.3-18
MITIGATED REGIONAL PROGRAM CONSTRUCTION EMISSIONS

Construction Year	Estimated Maximum Daily Emissions					
	ROG	NO_X	CO	SO_2	PM_{10}	$PM_{2.5}$
Site Preparation	<1	<1	3	<1	1	<1
Grading	0	1	10	<1	1	<1
Building Construction	1	5	12	<1	1	<1
Paving	<1	<1	4	<1	<1	<1
Architectural Coating	8	<1	1	<1	<1	<1
Demolition	<1	<1	<1	<1	<1	<1
Max Daily Emissions	9	7	31	<1	4	1
Regional Significance Threshold	*10*	*10*	*100*	*27*	*15*	*15*
Significant Impact?	No	No	No	No	No	No

SOURCE: ESA, 2019; Appendix C-1

Implementation of Mitigation Measures AQ-3, and GHG-1 would reduce operational emissions from the proposed Program but not to less than significant levels as shown in **Table 3.3-19**. Because detailed operational characteristics associated with the proposed Program has not been fully defined, emissions may be reduced as more detailed operational characteristics of the proposed Program are established and implemented. Additionally, Mitigation Measure GHG-1 includes only minimum reductions based on the voluntary nature of some of the measures and the unknown compliance with the measures. The implementation of AQ-4 would further reduce operational emissions of the criteria pollutants. Each individual project within the Specific Plan Program would

enter into the Voluntary Emissions Reduction Agreement (VERA) if the individual project exceeds the SJVAPCD regional significance threshold. Each individual project that exceeds the thresholds would offset its emissions to the threshold level. Because the number and size of individual projects within the Specific Plan Program are not known at this time, the reduction of emissions through the use of VERA cannot be quantified. Furthermore, since each individual project could include emissions up to the regional significance thresholds, the combined emissions of all individual projects within the Specific Plan Program are assumed to exceed the regional significance thresholds. For this analysis, it is assumed that the regional significance thresholds would be exceeded for ROG, NOx and PM10. Note that this impact analysis only assesses criteria pollutants for which the SJVAB is in non-attainment (ROG, NOx, PM10, and PM2.5). Impacts associated with CO and SOx are discussed in Impact 3.3-4b *Other Emissions*.

TABLE 3.3-19
MITIGATED REGIONAL PROGRAM OPERATIONAL EMISSIONS

	Estimated Emissions					
Emissions Source	**ROG**	**NO_X**	**CO**	**SO_2**	**PM_{10} (Exhaust/Fugitive)**	**$PM_{2.5}$**
Regional Program Impacts (tons/year) with AQ-3 and GHG-1 Implementation						
Area Sources	*24*	*<1*	*18*	*<1*	*<1*	*<1*
Energy Sources	*<1*	*3*	*1*	*<1*	*<1*	*<1*
Mobile Sources	*8*	*36*	*73*	*<1*	*29*	*8*
Stationary	*<1*	*<1*	*<1*	*<1*	*<1*	*<1*
Total Emissions	***32***	***39***	***93***	***<1***	***29***	***8***
Regional Significance Threshold	**10**	**10**	**100**	**27**	**15**	**15**
Significant Impact?	***Yes***	***Yes***	*No*	*No*	***Yes***	*No*

The Specific Plan Program includes the implementation of AQ-4 (VERA) by each individual project to reduce each project's emissions to less than the regional significance thresholds, as applicable; however, since the number and size of each individual project is not known at this time, the emissions reductions cannot be quantified.

SOURCE: ESA, 2019; Appendix C-1

As identified in Table 3.3-18, daily construction activities are reduced to below regulatory thresholds with implementation of Mitigation Measure AQ-1. However, even if pollutant emissions are reduced to below regulatory thresholds, a project still has the potential to be cumulatively considerable if it exceeds the AAQS. In addition to regional criteria pollutant significance thresholds, SJVAPCD methodology states that criteria pollutants that exceed 100 pounds per day require dispersion modeling to ensure that the AAQS are not violated, and therefore are not contributing to a cumulative impact. As shown in **Table 3.3-20**, the Cumulative Program's mitigated emissions would exceed 100 pounds per day CO with the implementation of mitigation measures AQ-1 and AQ-2. Based on the methodology to determine if there is a significant air quality concentration impact, the AAQS thresholds would need to be exceeded and if they are, then the concentration emissions are compared to the SIL threshold. If the SIL threshold is exceeded, then a significant impact would occur. As shown in Table 3.3-20, the CO concentrations would exceed the NAAQS threshold, but not the SIL threshold. Therefore, the

Program's operational CO emissions would result in a less than significant cumulative concentration impact. Therefore, air emission concentration impacts resulting in potential health effects would be less than cumulatively considerable. Note that this impact analysis only assesses criteria pollutants for which the SJVAB is in non-attainment (ROG, NOx, PM10, and PM2.5). Impacts associated with CO and SOx are discussed in Impact 3.3-4b *Other Emissions*.

TABLE 3.3-20
MITIGATED CUMULATIVE PROGRAM CONSTRUCTION EMISSIONS

Construction Year	Estimated Maximum Daily Emissions					
	ROG	NO_X	CO	SO_2	PM_{10}	$PM_{2.5}$
Cumulative Program Impacts (lbs/day) with AQ-1 and AQ-2						
Total Daily Emissions	**84**	**71**	**387**	**1**	**32**	**12**
Cumulative Threshold	***100***	***100***	***100***	***100***	***100***	***100***
Significant Impact	***No***	***No***	***Yes***	***No***	***No***	***No***

The Specific Plan Program includes the implementation of AQ-4 (VERA) by each individual project to reduce each project's emissions to less than the regional significance thresholds, as applicable; however, since the number and size of each individual project is not known at this time, the emissions reductions cannot be quantified.

Ambient Air Quality Analysis (µg/m³)

			AAQS			
	Project PPM/ µg/m³	Total PPM	CAAQS (ppm)	NAAQS (ppm)	SIL (µg/m³)	Exceed Threshold
1-hour concentration (CO)	0.434/ 816	3.37	20	20	2000	No
8-hour concentration (CO)	0.162/ 305	2.22	9	9	500	No

NOTES:

µg/m³ = micrograms per cubic meter (a concentration unit)

ppm = parts per million

An Ambient Air Quality Analysis is only performed for CO because a concentration threshold for ROG has not been established under the NAAQS or SIL.

SOURCE: ESA, 2019; Appendix C-1

As shown in Table 3.3-19, with implementation of Mitigation Measures AQ-2 AQ-3, Q-4, and GHG-1, operational emissions of CO would be reduced to below regulatory levels and emissions of, ROG, NOx and PM10 would be reduced; however, these emissions would continue to exceed regulatory levels. As operational emissions would exceed SJVAPCD regulatory thresholds, operational emissions would be considered cumulatively considerable. Therefore, cumulative operational activities associated with the proposed Program would result in a cumulatively considerable net increase of a criteria pollutant for which the project region is in non-attainment. The operational activities associated with the proposed Program would result in a significant impact.

The proposed Phase 1 Project would not result in a cumulatively considerable net increase of a criteria pollutant for which the Project region is in non-attainment.

While mitigation is not required to reduce health effects to below significance thresholds, the implementation of mitigation measure AQ-1 would also reduce the potential health effects from construction activities associated with the Phase 1 Project and the proposed Program. **Table 3.3-21** and **Table 3.3-22** present the potential health effects from the proposed Program with the implementation of mitigation measure AQ-1. As with the unmitigated scenario, implementation of the mitigated Program would not cause or contribute to identifiable adverse health effects.

TABLE 3.3-21
HEALTH EFFECT ANALYSIS - MITIGATED PROGRAM CONSTRUCTION + 85% PROGRAM BUILDOUT

Pollutant	Averaging Time, units	Concentration[a]			Standard/ Threshold	Total Impact Exceeds Threshold?[b]
		Program	Ambient	Total[a]		
NAAQS Analysis						
Nitrogen Dioxide	1 hour, ppm	0.001	0.042	0.044	0.100	No
	Annual, ppm	<0.001	0.0057	0.0057	0.053	No
Carbon Monoxide	1 hour, ppm	0.02	2.94	2.96	35	No
	8 hour, ppm	0.006	2.06	2.07	9	No
PM10	24 hour, μg/m^3	0.798	136.10	136.90	150	No
	Annual, μg/m^3	0.201	33	-	-	-
PM2.5	24 hour, μg/m^3	0.44	66.10	66.54	35	Yes
	Annual, μg/m^3	0.16	12.77	12.93	12	Yes
Significant Impact Level Analysis						
PM10	Annual - Exhaust, μg/m^3	0.075	-	0.075	11	No
	Annual - Fugitive, μg/m^3	0.0196	-	0.0196	2.08	No
PM2.5	24 hour- Exhaust, μg/m^3	0.021	-	0.021	1.2	No
	24 hour - Fugitive, μg/m^3	0.421	-	0.421	2.5	No
	Annual - Exhaust, μg/m^3	0.074	-	0.074	0.2	No
	Annual - Fugitive, μg/m^3	0.108	-	0.108	0.63	No

NOTES:

μg/m^3 = micrograms per cubic meter (a concentration unit)

ppm = parts per million

Because there is no annual NAAQS for PM10, the significance impact level analysis is conducted for PM10 and the SJVAPCD's Significant Impact Level (SIL) is used as the significance threshold.

[a] Totals may not add exactly due to rounding.

[b] If the Project plus ambient concentrations are below the NAAQS, then the Project would be considered to not pose a substantial health effect. If the total concentration exceeds the NAAQS, the maximum concentration is compared to its corresponding SIL. If the Project does not exceed the appropriate SIL then the Project would not result in substantial health effects.

SOURCE: ESA 2020; Appendix C-3

TABLE 3.3-22
HEALTH EFFECT ANALYSIS - MITIGATED FULL PROGRAM BUILDOUT

Pollutant	Averaging Time, units	Concentration[a]			Standard/ Threshold	Total Impact Exceeds Threshold?[b]
		Program	Ambient	Total[a]		
NAAQS Analysis						
Nitrogen Dioxide	1 hour, ppm	<0.001	0.042	0.042	0.100	No
	Annual, ppm	<0.001	0.0057	0.0057	0.053	No
Carbon Monoxide	1 hour, ppm	<0.001	2.94	2.94	35	No
	8 hour, ppm	<0.001	2.06	2.05	9	No
PM10	24 hour, μg/m^3	0.011	136.10	136.10	150	No
	Annual, μg/m^3	0.071	33	-	-	-
PM2.5	24 hour, μg/m^3	0.009	66.10	66.11	35	Yes
	Annual, μg/m^3	0.07	12.77	12.84	12	Yes
Significant Impact Level Analysis						
PM10	Annual - Exhaust, μg/m^3	0.071	-	0.071	11	No
	Annual - Fugitive, μg/m^3	-	-	-	2.08	No
PM2.5	24 hour- Exhaust, μg/m^3	0.009	-	0.009	1.2	No
	24 hour - Fugitive, μg/m^3	-	-	-	2.5	No
	Annual - Exhaust, μg/m^3	0.070	-	0.070	0.2	No
	Annual - Fugitive, μg/m^3	-	-	-	0.63	No

NOTES:

μg/m^3 = micrograms per cubic meter (a concentration unit)

ppm = parts per million

Because there is no annual NAAQS for PM10, the significance impact level analysis is conducted for PM10 and the SJVAPCD's Significant Impact Level (SIL) is used as the significance threshold.

[a] Totals may not add exactly due to rounding.

[b] If the Project plus ambient concentrations are below the NAAQS, then the Project would be considered to not pose a substantial health effect. If the total concentration exceeds the NAAQS, the maximum concentration is compared to its corresponding SIL. If the Project does not exceed the appropriate SIL then the Project would not result in substantial health effects.

SOURCE: ESA 2020; Appendix C-3

Sensitive Receptors

Impact 3.3-3a: The Phase 1 Project would result in less than significant, but cumulatively considerable effects associated with the exposure of sensitive receptors to substantial pollutant concentrations.

Phase 1 Project Impact Analysis

CO Hotspots

A total of 29 local intersections were analyzed as part of the proposed Project's Transportation Analysis Report (TAR) (Kimley Horn, 2021) (See Appendix C-4), for Existing plus Phase 1 Project scenario. The TAR indicates that none of the intersections under the Existing plus Phase 1 Project scenario would result in either a decrease in LOS to E or F or a worsening of an intersection already operating at LOS F. All roadway segments would operate at LOS D or better

with the proposed Phase 1 Project, except intersection #27 State Route 145 and Tozer Street which currently operates at LOS E and would remain at LOS of E after the implementation of the Phase 1 Project. Because none of the intersections exceed the LOS thresholds, the Phase 1 Project would result in a less than significant impact for CO emissions.

Toxic Air Contaminants

Construction

Project construction would result in short-term emissions of diesel PM, which is a TAC. Diesel PM poses a carcinogenic health risk that is measured using an exposure period of 70 years. The exhaust of off-road heavy-duty diesel equipment would emit diesel PM during site grading; paving; installation of utilities, materials transport and handling; building construction; and other miscellaneous activities.

The dose to which receptors are exposed is the primary factor used to determine health risk (i.e., the potential exposure to TACs to be compared to applicable standards). Dose is a function of the concentration of a substance or substances in the environment and the duration of exposure to the substance. Dose is positively correlated with time, meaning that a longer exposure period would result in a higher exposure level for the maximally exposed individual. Thus, the risks estimated for a maximally exposed individual are higher if a fixed exposure occurs over a longer period of time. According to OEHHA, carcinogenic health risk assessments, which determine the exposure of sensitive receptors to TAC emissions, should be based on a 70-year exposure period; however, such assessments should be limited to the period or duration of activities associated with a Project.

Risk was calculated for the offsite residential receptors within 1,000 feet of the Phase 1 Project site. There are no school receptors within this 1,000-foot radius. There would be no risk to onsite receptors because construction of the Phase 1 Project would be completed prior to occupation of the site. AERMOD was used to quantify concentrations at the offsite receptors. Health risk calculations were performed using a spreadsheet tool consistent with the OEHHA guidance. The spreadsheet tool incorporates the algorithms, equations, and a variable described above as well as in the OEHHA guidance, and incorporates the results of the AERMOD dispersion model. Detailed risk assessment is included as Appendix C-2.

Table 3.3-23, *Maximum Unmitigated Incremental Increase in Risk from Phase 1 Project Construction*, summarizes the carcinogenic risk and non-carcinogenic risk for the maximum impacted sensitive receptors. As shown, the maximum incremental increase in cancer risk will be up to approximately 5-in-one million for construction risk for offsite residential receptors. Risk for residential receptors will not exceed the SJVAPCD significance threshold of 10-in-one million, and therefore, impacts would be less than significant. The chronic health risk from construction of the Phase 1 Project is 0.05 for offsite receptors, well below the significance threshold of 1.0. The maximum exposed offsite residential receptor is located west of Road 27 and south of Tremaine Avenue.

TABLE 3.3-23
MAXIMUM UNMITIGATED INCREMENTAL INCREASE IN RISK FROM PHASE 1 PROJECT CONSTRUCTION

Sensitive Receptor	Maximum Cancer Risk (#-in-one million) [a]	Chronic Risk Hazard Index (HI)
Offsite	5	0.05
Onsite	0	0.00
Significance Threshold	10	1.0
Exceeds Threshold?	No	No

[a] Cancer risk values are based on estimated exposure over the duration of construction activities. The Construction risk was calculated assuming a child was in utero at the beginning of Poject construction and would be exposed throughout all of the construction activities.

SOURCE: ESA, 2019. (See Appendix C-2)

The process of assessing health risks and impacts includes a degree of uncertainty. The level of uncertainty is dependent on the availability of data and the extent to which assumptions are relied upon in cases where the data are incomplete or unknown. All HRAs rely upon scientific studies in order to reduce the level of uncertainty; however, it is not possible to completely eliminate uncertainty from the analysis. Where assumptions are used to substitute for incomplete or unknown data, it is standard practice in performing HRAs to error on the side of health protection in order to avoid underestimating or underreporting the risk to the public by assessing risk on the most sensitive populations, such as children and the elderly. Based on the data used for the cancer risk and chronic health risk, construction activities associated with the Phase 1 Project would not exceed SJVAPCD thresholds, and therefore, would result in less than significant impacts.

Operation

Typical sources of acutely and chronically hazardous TACs include industrial manufacturing processes, warehouses, and dry cleaning facilities that use perchloroethylene. The Phase 1 Project would not include any of these potential sources, although minimal emissions may result from the use of consumer products.

Additionally, while emergency back-up generators would be required for the wastewater treatment plant, these generators would be permitted by SJVAPCD, and therefore, would necessarily be below levels that would result in potential health impacts to on and off-site receptors. As such, the operation of a generator at the Phase 1 Project site would not expose surrounding sensitive receptors to substantial pollutant or TAC emissions. This impact would be less than significant.

Health Effects Assessment

The Phase 1 Project is a portion of the total buildout of the Castellina development. As health effects are associated with daily emissions and emissions from the Phase 1 Project are less than those of the Program level, the Program level was analyzed as a worst case potential for resulting in health effects to local residents. As detailed under the Program discussion below, the Program level emissions from the full operational buildout and from 85 percent of operational buildout plus construction would not result in an adverse health effect. Because the Phase 1 Project's construction emissions would be less on a daily and annual basis than that of the Program

development and the operational emissions of the Phase 1 Project would be a small portion of the Program emissions, the Phase I Project impacts would be less than that of the Program. Therefore, the Phase 1 Project level development, as with the full buildout scenarios, would not result in a health effect for local residents.

Significance Determination before Mitigation: Less than Significant

Phase 1 Project Cumulative Impact Analysis

CO Hotspots

A total of 29 local intersections were analyzed within the Transportation Analysis Report (TAR) (Kimley Horn, 2021) prepared for the proposed Phase 1 Project (See Appendix C-4), for the Near Term 2020 plus Phase 1 Project. The TAR indicates that one of the intersections in the 2020 plus Phase 1 Project scenario would result in either a decrease in LOS to E or F or a worsening of an intersection already operating at LOS F. In the 2020 Plus Phase 1 Project scenario, intersection #8, SR99 NB on-ramp (west)/ Avenue 17, would operate at LOS F prior to the implementation of the Phase 1 Project. With added Phase 1 Project traffic, the delay at that intersection significantly increases. Based on SJVAPCD's methodology, Intersection #8 has the potential to result in a CO hotspot.

As discussed in Section 3.3.1 Local Air Quality, CO are not currently monitored in the SJVAB and CO is in attainment for both CAAQS and NAAQS. Thus, it is not expected that CO levels at Phase 1 Project LOS-impacted intersections would rise to the level of an exceedance of these standards. Based on the TAR, of the studied intersections that are predicted to worsen LOS under future operational year plus Program conditions (the proposed Program would generate substantially greater amount of traffic compared to the Phase 1 Project), SR99 NB on-ramp (west)/ Avenue 17 would have daily volumes of approximately 10,100 vehicles per day, which is less than the 100,000 vehicles per day screening level. As a result, CO concentrations are not expected to exceed CAAQS or NAAQS. Thus, this comparison demonstrates that the increase in Phase 1 Project traffic, without mitigation, would not contribute considerably to the formation of CO hotspots, and therefore the Phase 1 Project would result in less than significant impacts with respect to CO hotspots.

Toxic Air Contaminants

Construction

Considering health risk is cumulative in nature, cumulative risk was calculated for the onsite residential receptors of the Phase 1 Project and offsite residential receptors within 1,000 feet of the Phase 1 Project site. Cumulative risk is the combined impacts from the effects of the Phase 1 Project construction and the Program construction. There are no school receptors within this 1,000-foot radius of the Project site, and the proposed school within the Specific Plan Program area would be drawing students from both the residential developments within the Phase 1 Project and Program areas. Health risk for residential receptors would be greater than the health risks for children attending the school because the health risks for children attending the proposed school would involve fewer hours of risk exposure compared to the risk exposure for children at their residence. Therefore, risk to the children at their residences would be greater than the risk to

students at the school, and thus, risk to children at the proposed school was not evaluated. A detailed risk assessment is included as Appendix C-2.

Table 3.3-24, *Maximum Unmitigated Incremental Increase in Risk – Phase 1 Project Cumulative*, summarizes the carcinogenic risk and non-carcinogenic risk for the maximum impacted sensitive receptors. As shown, the maximum incremental increase in cancer risk will be up to approximately 34-in-one million for construction risk for offsite residential receptors and 26-in-one million for onsite receptors. Risk for residential receptors will exceed the SJVAPCD significance threshold of 10-in-one million, and therefore, impacts would be potentially significant.

TABLE 3.3-24
MAXIMUM UNMITIGATED INCREMENTAL INCREASE IN RISK – PHASE 1 PROJECT CUMULATIVE[a]

Sensitive Receptor	Maximum Cancer Risk (#-in-one million) [b]	Chronic Risk Hazard Index (HI)
Offsite	**34.3**	0.05
Onsite	**25.5**	0.04
Significance Threshold	10	1.0
Exceeds Threshold?	**Yes**	No

[a] Cumulative risk in this scenario includes total risk associated with construction of both the Phase 1 Project as well as the Program.

[b] Cancer risk values are based on estimated exposure over the duration of construction activities. The Construction risk was calculated assuming a child was in utero at the beginning of Project construction and would be exposed throughout all of the construction activities.

SOURCE: ESA, 2019. (See Appendix C-2)

The chronic health risk from construction of the Phase 1 Project is 0.05 for offsite and 0.04 for onsite residential receptors, well below the significance threshold of 1. The maximum exposed offsite residential receptor is located directly across Avenue 17 adjacent to Mattingly St. The maximum exposed onsite receptor would be the future receptors in the southeastern portion of the Phase 1 Project area that would be closest to the remainder of the Program development area because construction activities could occur to both the northeast and south of the future residential receptor.

Localized Air Quality Impacts – TACs Operation

Typical sources of acutely and chronically hazardous TACs include industrial manufacturing processes, warehouses, and dry cleaning facilities that use perchloroethylene. The Phase 1 Project would not include any of these potential sources, although minimal emissions may result from the use of consumer products.

Additionally, while emergency back-up generators would be required for the wastewater treatment plant, these generators would be permitted by SJVAPCD, and therefore, would necessarily be below levels that would result in potential health impacts to on and off-site receptors. As such, the operation of a generator at the Phase 1 Project site would not expose surrounding sensitive receptors to substantial pollutant or TAC emissions. This impact would be less than significant.

Health Effects Assessment

The health effect assessment is a study of the Phase 1 Project's impacts on local health. The Phase 1 Project is a portion of the total buildout of the Castellina Specific Plan. As health effects are associated with daily emissions, and emissions from the Phase 1 Project are less than those of the Specific Plan Program, the Specific Plan Program was analyzed as a worst case health effects potential to local residents. As detailed under the Program discussion below, the modeled emissions and corresponding concentrations are below the NAAQS (with existing ambient background) and below the SIL's for those where background levels currently exceed the NAAQS for all pollutants of concern. Therefore, while there is the potential for additional growth in the air basin that could result in combined exceedances of the NAAQS for criteria pollutants, the impacts from the Castellina Specific Plan Program alone would not result in a significant cumulative contribution and, therefore, the Phase 1 Project (which is only a portion of the total Program emissions) would result in a less than cumulatively significant contribution and less than cumulatively considerable health effects to local residents.

Significance Determination before Mitigation: Significant

Phase 1 Project Mitigation Measures

No mitigation measures are required.

Significance Determination after Mitigation: Less than Significant

Phase 1 Project Cumulative Measures

Implementation of Mitigation Measures AQ-1 is required.

Significance Determination after Mitigation: Less than Significant

Table 3.3-25, *Maximum Mitigated Incremental Increase in Risk – Phase 1 Project Cumulative*, summarizes the carcinogenic risk and non-carcinogenic risk for the maximum impacted sensitive receptors with the implementation of mitigation measure AQ-1. As shown, the maximum incremental increase in cancer risk will be reduced to approximately 2-in-one million for construction risk for offsite residential receptors and 2-in-one million for onsite receptors. Risk for residential receptors will not exceed the SJVAPCD significance threshold of 10-in-one million, and therefore, impacts would be less than significant. The location of the maximum exposed receptors would not change.

TABLE 3.3-25
MAXIMUM MITIGATED INCREMENTAL INCREASE IN RISK - CUMULATIVE

Sensitive Receptor	Maximum Cancer Risk (#-in-one million) [a]	Chronic Risk Hazard Index (HI)
Offsite	**2.2**	<0.01
Onsite	**1.6**	<0.01
Significance Threshold	10	1.0
Exceeds Threshold?	**No**	No

[a] Cancer risk values are based on estimated exposure over the duration of construction activities. The Construction risk was calculated assuming a child was in utero at the beginning of Project construction and would be exposed throughout all of the construction activities.

SOURCE: ESA, 2019. (See Appendix C-2)

Impact 3.3-3b: The proposed Program could result in significant and cumulatively considerable effects associated with the exposure of sensitive receptors to substantial pollutant concentrations.

Program Impact Analysis

CO Hotspots

A total of 29 local intersections were analyzed within the Transportation Analysis Report (TAR) (Kimley Horn, 2021) (See Appendix C-4)) prepared for the proposed Phase 1 Project and proposed Program, for the Existing plus Buildout conditions. The TAR indicates that nine of the intersections would result in either a decrease in LOS to E or F or a worsening of an intersection already operating at LOS of F. Based on SJVAPCD's methodology, these intersections have the potential to result in a CO hotspot. The nine intersections are as follows:

1. Intersection #1: Road 27 and Avenue 18 (decrease from B to F),
5. Intersection #4: Road 28 ½ and Avenue 17 (decrease from B to F),
6. Intersection #5: Road 27 and Avenue 17 (decrease from C to F /from B to F [AM/PM]),
7. Intersection #10: SR 99 SB off-ramp (decrease from B to F),
8. Intersection #12: Ellis Street and Lake Street (decrease from C to F /from B to F [AM/PM]),
9. Intersection #14: Sherwood Way and Lake Street (Decrease from C to F),
10. Intersection #25: Raymond Road and Cleveland Avenue (Decrease from B to F),
11. Intersection #27: SR 145 (Yosemite Ave) and Elm Street (Decrease from E to F), and
12. Intersection #29: Avenue 17 and Airport Drive, (Decrease from C to E).

As discussed in Section 3.3.1 *Local Air Quality*, CO emissions are not currently monitored in the SJVAB, and CO is in attainment for both CAAQS and NAAQS. Thus, it is not expected that CO levels at Phase 1 Project-impacted intersections would rise to the level of an exceedance of these standards. Based on the TAR, of the studied intersections that are predicted to worsen LOS under future operational year plus Program conditions, the intersection with the maximum potential peak traffic, #27 State Route 145 at Tozer Street would have peak volumes of approximately 35,640 vehicles per day, which is less than the 100,000 vehicles per day screening level. As a

result, CO concentrations are not expected to exceed CAAQS or NAAQS. Thus, this comparison demonstrates that the increase in Program traffic, without mitigation, would not contribute considerably to the formation of CO hotspots. Therefore, the proposed Program would result in less than significant impacts with respect to CO hotspots.

Toxic Air Contaminants

Construction

Risk was calculated for the offsite residential receptors within 1,000 feet of the Specific Plan Program site and onsite residents within the Phase 1 Project as discussed above.

There are no existing school receptors within this 1,000-foot radius of the Project site, and the proposed onsite school is not addressed as there are no schools within the proposed Phase 1 Project. Risk to onsite receptors in the proposed Program phase, including the proposed school would be less than those reported for receptors analyzed on the proposed Phase 1 Project site as receptors located in the Program area will be exposed to less construction emissions as construction activities continue through buildout of the Program. Detailed risk assessment is included as Appendix C-2.

Table 3.3-26, *Maximum Unmitigated Incremental Increase in Risk from Program Construction*, summarizes the carcinogenic risk and non-carcinogenic risk for the maximum impacted sensitive receptors. As shown, the maximum incremental increase in cancer risk will be up to approximately 34-in-one million for construction risk for offsite residential receptors, and up to 26-in-one million for onsite receptors. Risk for residential receptors will exceed the SJVAPCD significance threshold of 10-in-one million, and therefore, impacts would be potentially significant. The chronic health risk from construction of the Project is 0.05 for offsite receptors and 0.04 for onsite receptors, well below the significance threshold of 1. The maximum exposed offsite residential receptor is located directly across Avenue 17 adjacent to Mattingly St. The maximum exposed onsite receptor would be the receptors in the northern portion of the site closest to the Program development where Program development can occur to both the north and south of the receptor.

TABLE 3.3-26
MAXIMUM UNMITIGATED INCREMENTAL INCREASE IN RISK FROM PROGRAM CONSTRUCTION

Sensitive Receptor	Maximum Cancer Risk (#-in-one million) [a]	Chronic Risk Hazard Index (HI)
Offsite	**33.9**	0.05
Onsite	**25.5**	0.04
Significance Threshold	10	1.0
Exceeds Threshold?	**Yes**	No

[a] Cancer risk values are based on estimated exposure over the duration of construction activities. The Construction risk was calculated assuming a child was in utero at the beginning of Project construction and would be exposed throughout all of the construction activities.

SOURCE: ESA, 2019. (See Appendix C-2)

The process of assessing health risks and impacts includes a degree of uncertainty. The level of uncertainty is dependent on the availability of data and the extent to which assumptions are relied upon in cases where the data are incomplete or unknown. All HRAs rely upon scientific studies in order to reduce the level of uncertainty; however, it is not possible to completely eliminate uncertainty from the analysis. Where assumptions are used to substitute for incomplete or unknown data, it is standard practice in performing HRAs to error on the side of health protection in order to avoid underestimating or underreporting the risk to the public by assessing risk on the most sensitive populations, such as children and the elderly. As shown in Table 3.3-26, the proposed Program would result in less than significant chronic health risk impacts and significant cancer risk impacts during construction activities.

Operation

Typical sources of acutely and chronically hazardous TACs include industrial manufacturing processes, and warehouses. The proposed Program development has a potential to include a dry cleaning facility within the Mixed Use designation adjacent to the proposed Village Green, however new dry cleaning facilities are not permitted to use perchloroethylene and therefore are not considered TAC sources. The mixed use would allow residences within the same building as commercial uses.

Additionally, it is not anticipated emergency back-up generators or other TAC sources would be required for the proposed Program site development. However, if generators or other TAC sources would be included, these sources would be permitted by SJVAPCD, and therefore, would necessarily be below levels that would result in potential health impacts to on and off-site receptors. As such, the operation of a generator at the Project site would not expose surrounding sensitive receptors to substantial pollutant or TAC emissions. This impact would be less than significant.

Health Effects Analysis

There are potential health effects from exposure to NO_2, CO, and PM as detailed in Section 3.3.1 *Criteria Pollutants*, above, and summarized under the Phase 1 Project HEA discussion under 3.3-2a above. Nonetheless, NAAQS for these pollutants are widely recognized as adequately health protective. For example, OSHA has established the permissible level for daily employee exposure to CO at 50 ppm 8-hour average, while the USEPA has established an ambient standard of 9 ppm 8-hour average, not to be exceeded once per year. Clearly the NAAQS is highly conservative as compared to OSHA's health protective standard. As shown in Tables 3.3-14 and 3.3-15, concentrations of CO and NO_2 resulting from the combination of ambient sources, and Project-related emissions are below applicable NAAQS or SIL. Therefore, with the proposed Program localized emissions below the health-protective ambient concentration thresholds, the direct emissions from localized construction and operation would not be expected to cause or contribute to identifiable health effects.

As discussed above, NO_x and PM contribute to the formation of secondary ozone and particulate matter (indirection emissions), the accumulation of which can happen at greater distances from the source. Thus, potential health effects from these pollutants are most appropriately evaluated at the regional level. Please see the discussion above in Impact 3.2-2b, regarding the HEA for ozone and PM which was prepared for informational purposes. Localized construction and operational

emissions are not only relatively much smaller (e.g., only fractions of the proposed Program's regional operational emissions), but also are localized and short term in nature; correspondingly, health effects associated with localized construction and operational emissions are expected to be smaller than those regional health effects that were disclosed in Impact 3.3-2b, above.

Significance Determination before Mitigation: Significant

Program Cumulative Impact Analysis

CO Hotspots

A total of 29 local intersections were analyzed as part of the proposed Program's Transportation Analysis Report (TAR) (Kimley Horn, 2021) (See Appendix C-4), for the Cumulative plus buildout conditions. The TAR indicates that fourteen of the intersections would result in either a decrease in LOS to E or F or a worsening of an intersection already operating at LOS of F. Based on SJVAPCD's methodology, these intersections have the potential to result in a CO hotspot. The fourteen intersections are as follows:

1. Intersection #1: Road 27 and Avenue 18 (decrease from B to F),
13. Intersection #4: Road 28 ½ and Avenue 17 (decrease from B to F),
14. Intersection #5: Road 27 and Avenue 17 (decrease from C to F /from B to F [AM/PM],
15. Intersection #6: Road 26/Avenue 17 (decrease from C to E),
16. Intersection #7: Melba Drive East and Avenue 17 (decrease from C to F),
17. Intersection #12: Ellis Street and Lake Street (decrease from B to E),
18. Intersection #13: Adell Street and Lake Street (decrease from B to E),
19. Intersection #14: Sherwood Way and Lake Street (decrease from C to E/from B to F [AM/PM]),
20. Intersection #16: Country Club Drive and Cleveland Avenue (decrease from B to F),
21. Intersection #17: North Gateway Drive and Cleveland Avenue (decrease from E to F),
22. Intersection # 21: Gateway Drive and SR 145 (Yosemite Avenue) (worsening delay for intersection with LOS of F)
23. Intersection #25: Raymond Road and Cleveland Avenue (decrease from C to F),
24. Intersection #27: SR 145 (Yosemite Ave) and Elm Street ((worsening delay for intersection with LOS of F), and
25. Intersection #29: Avenue 17 and Airport Drive (decrease from E to F).

As detailed under the Program Impact Analysis above, the daily traffic for the studied intersections that are predicted to worsen LOS under cumulative plus Program conditions are compared to a threshold of 100,000 vehicles per day to qualitatively assess the potential for generating a CO hotspot. Based on the TAR, of the studied intersections that are predicted to worsen LOS under future operational year plus Program conditions, the intersection with the maximum potential peak traffic, #27 State Route 145 at Tozer Street would have peak volumes of approximately 46,670 vehicles per day, which is less than the 100,000 vehicles per day. As a result, CO concentrations are not expected to exceed CAAQS or NAAQS. Thus, this comparison

demonstrates that the increase in Program traffic, without mitigation, would not contribute considerably to the formation of CO hotspots. The Program's increases in CO emissions would result in less than cumulatively considerable impacts.

Toxic Air Contaminants

Considering health risk is cumulative in nature, cumulative construction risk for the Program development would be identical to the cumulative risk for the Specific Plan Program site. As shown in Table 3.3-24 above, the maximum incremental increase in cancer risk will be up to approximately 34.3-in-one million for construction risk for offsite residential receptors and 25.5-in-one million for onsite receptors. Risk for residential receptors will exceed the SJVAPCD significance threshold of 10-in-one million, and therefore, impacts would be potentially significant. The chronic health risk from construction of the Project is 0.05 for offsite and 0.04 for onsite residential receptors, well below the significance threshold of 1.

With respect to operational risk, the operation of generators at the wastewater treatment facility site would not expose surrounding sensitive receptors to substantial pollutant or TAC emissions. This impact would be less than significant.

Health Effects Analysis

The health effect is a study of the Program's impacts on local concentrations of pollutants that are recognized as contributing to potential health effects. While there is the potential for additional growth in the SJVAB that could result in combined exceedances of the NAAQS for criteria pollutants, the impacts from the Program by itself would not result in a significant cumulative contribution. This is because the Program concentrations are below the NAAQS (with existing background) and below the SIL's for those where background levels currently exceed the NAAQS.

Significance Determination before Mitigation: Significant

Program and Program Cumulative Mitigation Measures

Implementation of mitigation measure AQ-1 is required.

Significance Determination after Mitigation: Less than Significant

Table 3.3-25, *Maximum Mitigated Incremental Increase in Risk – Program Cumulative*, summarizes the carcinogenic risk and non-carcinogenic risk for the maximum impacted sensitive receptors with the implementation of mitigation measure AQ-1. As shown, the maximum incremental increase in cancer risk will be reduced to approximately 2-in-one million for construction risk for offsite residential receptors and 2-in-one million for onsite receptors. Risk for residential receptors will not exceed the SJVAPCD significance threshold of 10-in-one million, and therefore, Program impacts would be less than cumulatively considerable. The location of the maximum exposed receptors would not change.

Other Emissions

Impact 3.3-4a: Implementation of the Phase 1 Project could result in significant impacts from other emissions (such as those leading to odors adversely affecting a substantial number of people).

Phase 1 Project Impact Analysis

Construction

Odors

Potential sources that may emit odors during construction activities include the use of architectural coatings and solvents. SJVAPCD Rule 4601 (Architectural Coatings) limits the amount of VOCs from architectural coatings and solvents. According to the GAMAQI, construction equipment is not a typical source of odors. Odors from the combustion of diesel fuel would be minimized by complying with the CARB ATCM that limits diesel-fueled commercial vehicle idling to 5 minutes at any given location, which was adopted in 2004. The Phase 1 Project would also comply with SJVAPCD Rule 4102 (Nuisance), which prohibits the emissions of nuisance air contaminants or odorous compounds. Through adherence with mandatory compliance with SJVAPCD Rules and State measures, construction activities and materials would not create objectionable odors. Construction of the Phase 1 Project's uses would not be expected to generate nuisance odors at nearby air quality sensitive receptors. Impacts with respect to odors would be less than significant.

Regional Emissions

As shown in Table 3.3-6, the maximum annual construction emissions generated by the Phase 1 Project's worst-case construction scenario would not exceed SJVAPCD's regional significance threshold for pollutants in which the SJVAB is in attainment (CO and SO_2). Therefore, the Phase 1 Project construction emissions would result in less than significant regional impacts.

Operations

Odors

According to the GAMAQI, land uses associated with odor complaints typically include wastewater treatment plants, food processing plants, chemical plants, asphalt batch plants, composting facilities, refineries, sanitary landfills, transfer stations, feed/dairy lots, painting/coating operations (e.g. auto body shops), rendering plants, and fiberglass molding. The Phase 1 Project also includes various trash receptacles. On-site trash receptacles used by the Phase 1 Project would be covered and properly maintained to prevent adverse odors. With proper housekeeping practices, trash receptacles would be maintained in a manner that promotes odor control.

As the Phase 1 Project would involve a wastewater treatment facility, the Phase 1 Project would have the potential to introduce an odor source. Odors associated with wastewater treatment plants is most often associated with hydrogen sulfide, a by-product of decomposition. The GAMAQI uses a screening distance of 2 miles between wastewater treatment facilities and potential receptors. As the facility would be within 2 miles of existing and new residences, there is the potential to result in adverse odor impacts from the proposed uses. Impacts with respect to odors would be potentially significant.

Regional Emissions

Modeled operations emissions are presented in Table 3.3-7. As shown, the Project would result in long-term regional emissions of criteria pollutants that would not exceed the SJVAPCD's applicable thresholds for attainment pollutants. Therefore, operational emissions would not have the potential to result in significant regional impacts with respect to CO and SO_2.

Significance Determination before Mitigation: Significant

Phase 1 Project Cumulative Impact Analysis

Odors

According to the SJVAPCD's guidance, a project that is found to not have a significant impact at the project level would also not result in a cumulatively considerable impact. Therefore, as detailed under the Phase 1 Project analysis above, impacts associated with odors would have the potential to result in cumulatively considerable impacts from the operation of the proposed wastewater treatment plant. Odor impacts during construction activities are expected to be less than cumulatively considerable.

Regional Emissions

Based on SJVAPCD's cumulative air quality impact methodology, if a project is determined to exceed regional thresholds for construction or operation, the project would be determined to contribute considerably to this cumulative air impact. If a project does not exceed regional thresholds, it could still be cumulative if it exceeds the AAQS. SJVAPCD methodology states that criteria pollutants that exceed 100 pounds per day require dispersion modeling to ensure that the AAQS are not violated, and therefore, are not contributing to a cumulative impact.

As shown in Table 3.3-8, the Phase 1 Project Cumulative unmitigated construction emissions would exceed 100 pounds per day for CO. Therefore, with respect to AAQS, the Phase 1 Project would be potentially cumulatively considerable.

As shown in Table 3.3-9, the Phase 1 Project Cumulative unmitigated operational emissions would not exceed 100 pounds per day for any of the criteria pollutants. Therefore, with respect to operation of the Phase 1 Project Cumulative AAQS, the air emission increases during operation of the Phase 1 Project would be less than cumulatively considerable.

Significance Determination before Mitigation: Significant

Phase 1 Project Mitigation Measures

Implementation of mitigation measure GHG-1 is required.

AQ-5: Prior to initial operation of the WWTP and prior to the operation of future upgrades of the WWTP, the applicant shall provide evidence that the WWTP design incorporates technologies for minimizing odors. The applicant shall also provide to the County and post in a location readily available to the public the name and contact information of the WWTP authorized representative to whom any complaints regarding odor from the WWTP can be directed. Odor reducing technologies that could be implemented include, but are not limited to, adding chemicals to the water, deodorizing misting systems, adjusting the treatment

process, and covering the tanks or basins, and adding odor control features to all onsite facilities where fugitive odors could occur from normal activity.

Significance Determination after Mitigation: Less than Significant

Implementation of mitigation measure GHG-1 and AQ-5 would minimize the potential for odors associated with the wastewater treatment plant to affect a substantial number of people, and provides a direct contact for when unintentional odor releases occur due to unforeseen circumstances such as equipment breakdowns. Therefore, with the implementation of mitigation measures GHG-1 and AQ-5, Phase 1 Project operational impacts would be less than significant.

Phase 1 Project Cumulative Measures

Implementation of mitigation measure GHG-1 and AQ-5 is required.

Significance Determination after Mitigation: Less than Significant

The mitigated construction emissions generated by the Project's worst-case construction scenario would exceed the SJVAPCD's 100 lb/day threshold for CO and therefore dispersion modeling was conducted. Dispersion modeling results in emissions substantially below the AAQS thresholds as identified in Table 3.3-11. Therefore, mitigated construction impacts would be less than significant.

Implementation of mitigation measure GHG-1 and AQ-5 would minimize the potential for odors associated with the wastewater treatment plant to affect a substantial number of people, and provides a direct contact for when unintentional odor releases occur due to unforeseen circumstances such as equipment breakdowns. Therefore, with the implementation of mitigation measures GHG-1 and AQ-5, Phase 1 Project Cumulative operational odor impacts would be less than cumulatively considerable.

Impact 3.3-4b: Implementation of the proposed Program could result in significant impacts from other emissions (such as those leading to odors adversely affecting a substantial number of people).

Program Impact Analysis

Construction

Odors

Potential sources that may emit odors during construction activities include the use of architectural coatings and solvents. SJVAPCD Rule 4601 (Architectural Coatings) limits the amount of VOCs from architectural coatings and solvents. According to the GAMAQI, construction equipment is not a typical source of odors. Odors from the combustion of diesel fuel would be minimized by complying with the CARB ATCM that limits diesel-fueled commercial vehicle idling to 5 minutes at any given location, which was adopted in 2004. The Proposed Program would also comply with SJVAPCD Rule 4102 (Nuisance), which prohibits the emissions of nuisance air contaminants or odorous compounds. Through adherence with mandatory compliance with SJVAPCD Rules and State measures, construction activities and materials would not create objectionable odors. Construction of the Proposed Program's uses

would not be expected to generate nuisance odors at nearby air quality sensitive receptors. Impacts with respect to odors would be less than significant.

Regional Emissions

Table 3.3-12 summarizes the modeled peak emissions of attainment criteria air pollutants (CO and SO_2). As shown, the maximum annual construction emissions generated by the Program's worst-case construction scenario would not exceed SJVAPCD's regional significance thresholds for attainment pollutants. Therefore, the Program's construction emissions would be less than significant.

Operations

Odors

According to the GAMAQI, land uses associated with odor complaints typically include wastewater treatment plants, food processing plants, chemical plants, asphalt batch plants, composting facilities, refineries, sanitary landfills, transfer stations, feed/dairy lots, painting/coating operations (e.g. auto body shops), rendering plants, and fiberglass molding. The Program also includes various trash receptacles. On-site trash receptacles used by the proposed Project would be covered and properly maintained to prevent adverse odors. With proper housekeeping practices, trash receptacles would be maintained in a manner that promotes odor control.

As the proposed Program would involve upgrades to the existing wastewater treatment facility, the proposed Program would have the potential to introduce an odor source. Odors associated with wastewater treatment plants is most often associated with hydrogen sulfide, a by-product of decomposition. As the facility would be within 2 miles of existing and new residences, there is the potential to result in adverse odor impacts are anticipated from the uses. Impacts with respect to odors would be potentially significant.

Regional Emissions

Modeled operations emissions are presented in Table 3.3-13. As shown, the Program would result in long-term regional emissions of criteria pollutants that would exceed the SJVAPCD's applicable thresholds for CO. Therefore, operational emissions for the Program would result in potentially significant impacts.

Significance Determination before Mitigation: Significant

Program Cumulative Impact Analysis

Odors

According to the SJVAPCD's guidance, a project that is found to not have a significant impact at the project level would also not result in a cumulatively considerable impact. Therefore, as detailed under the Program analysis above, impacts associated with odors would have the potential to result in cumulatively considerable impacts due to the improvements to the wastewater treatment plant.

Regional Emissions

In addition to not exceeding regional criteria pollutant significance thresholds, SJVAPCD methodology states that criteria pollutants that exceed 100 pounds per day for construction and

operation require dispersion modeling to ensure that the AAQS are not violated, and therefore, are not contributing to a cumulative impact.

As shown in Tables 3.3-16 and 3.3-17, the Proposed Program's unmitigated construction and operational emissions would exceed 100 pounds per day for CO. Therefore, with respect to AAQS, the Proposed Program would potentially be cumulatively considerable.

Significance Determination before Mitigation: Significant

Program Mitigation Measures

Implementation of Mitigation Measures AQ-1, AQ-3, AQ-5, and GHG-1 is required.

Significance Determination after Mitigation: Less than significant.

Implementation of mitigation measure AQ-5 and GHG-1 would minimize the potential for odors associated with the wastewater treatment plant to affect a substantial number of people, and provides a direct contact for when unintentional odor releases occur due to unforeseen circumstances such as equipment breakdowns. Therefore, mitigated operational impacts would be less than cumulatively considerable.

Implementation of Mitigation Measures AQ-1 would reduce Program construction emissions for CO below the SJVAPCD regulatory thresholds and SO_2 emissions would be further reduced, as seen in Table 3.3-18. Therefore, construction impacts would be less than significant.

Implementation of Mitigation Measures AQ-3 and GHG-1 would reduce operational emissions from CO to below regulatory thresholds and SO_2 emissions would be further reduced, as shown in Table 3.3-19. Therefore, the operational Program would be less than significant.

Program Cumulative Measures

Implementation of mitigation measures AQ-1, AQ-3, AQ-5 and GHG-1 is required.

Significance Determination after Mitigation: Less than Significant.

Implementation of mitigation measure GHG-1 and AQ-5 would minimize the potential for odors associated with the wastewater treatment plant to affect a substantial number of people, and provides a direct contact for when unintentional odor releases occur due to unforeseen circumstances such as equipment breakdowns. Therefore, mitigated operational impacts would be less than cumulatively considerable.

Daily CO emissions would exceed the SJVAPCD's 100 lbs/day threshold for construction activities and therefore dispersion modeling was conducted as discussed under Impact 3.3-2(b) above. Dispersion modeling results in emissions substantially below the AAQS thresholds as identified in Table 3.3-20. Therefore, mitigated construction impacts (with implementation of AQ-1) would be less than cumulatively considerable.

As shown in Table 3.3-19, with implementation of Mitigation Measures AQ-3, AQ-4, and GHG-1, operational emissions of CO would reduce below regulatory levels. However, even if pollutant emissions are reduced to below regulatory thresholds, a project still has the potential to be cumulatively considerable if it exceeds the AAQS. SJVAPCD methodology states that criteria pollutants that exceed 100 pounds per day require dispersion modeling to ensure that the AAQS are not violated, and therefore are not contributing to a cumulative impact. As shown in **Table 3.3-27**, *Mitigated Cumulative Program CO and SO_2 Operational Emissions*, the Cumulative Program's mitigated emissions would exceed 100 pounds per day of CO with the implementation of mitigation measures AQ-3. As the 100 pounds per day screening level is exceeded an Ambient Air Quality Analysis for CO was conducted. As shown in Table 3.3-27, the Ambient Air Quality Analysis shows that CO emissions would not exceed the respective AAQS or SIL levels. Therefore, operational CO emissions would be less than cumulatively considerable.

TABLE 3.3-27
MITIGATED CUMULATIVE PROGRAM CO AND SO_2 OPERATIONAL EMISSIONS

Construction Year	Estimated Maximum Daily Emissions	
	CO	**SO_2**
Cumulative Program Impacts (lbs/day) with AQ-1 and AQ-2		
Total Daily Emissions	**509**	**2**
Cumulative Threshold	***100***	***100***
Significant Impact	***Yes***	***No***
The Specific Plan Program includes the implementation of AQ-3 (VERA) by each individual project to reduce each project's emissions to less than the regional significance thresholds, as applicable; however, since the number and size of each individual project is not known at this time, the emissions reductions cannot be quantified.		

Ambient Air Quality Analysis ($\mu g/m^3$)

			AAQS			
	Project PPM/ $\mu g/m^3$	**Total PPM**	**CAAQS (ppm)**	**NAAQS (ppm)**	**SIL ($\mu g/m^3$)**	**Exceed Threshold**
1-hour concentration (CO)	<0.001/ 0.023	2.94	20	20	2000	No
8-hour concentration (CO)	<0.001/ 0.078	2.06	9	9	500	No

NOTES:

$\mu g/m^3$ = micrograms per cubic meter (a concentration unit)

ppm = parts per million

An Ambient Air Quality Analysis is only performed for CO because a concentration threshold for ROG has not been established under the NAAQS or SIL.

SOURCE: ESA, 2019; Appendix C-1

3.3.4 References

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3.4 Biological Resources

This section describes and evaluates potential impacts to biological resources that could result from implementation of the Project. Existing biological conditions within the Project site, applicable policies, ordinances, and regulations, potential environmental impacts, and mitigation measures, where appropriate, are described. The primary sources of information used in this section include the following reports and letters prepared by Live Oak Associates, Inc. (LOA) and correspondence from U.S. Army Corps of Engineers (USACE) as listed below. These reports and letters are provided in **Appendix D** of this EIR.

- Report - *Herman Property/Castellina Biological Evaluation, Madera County, California*, prepared on February 27, 2017 (herein referred to as the "Biological Evaluation") (**Appendix D-1**).
- Letter – Habitat assessments for California tiger salamander and vernal pool fairy shrimp on the Herman property in Madera County, California, prepared on June 12, 2019 (**Appendix D-2**).
- Letter – Results of the Protocol Level Branchiopod Wet Season Survey and California Tiger Salamander Evaluation for the Herman Property, Madera County, California, prepared June 29, 2007 (**Appendix D-3**).
- Letter - Summary of correspondence with the U.S. Fish and Wildlife Service for the Herman property in Madera, California, prepared on March 6, 2017 (**Appendix D-4**).
- Report - Investigation of Potential Waters of the United States Herman Property/Castellina Madera County, California, prepared on February 23, 2017 (**Appendix D-5**).

In addition, this section includes information from the following letter.

- Letter responding to October 26, 2018 request for an approved jurisdictional determination for the Herman Property Site, provided by Department of the Army, U.S. Army Corps of Engineers, prepared on September 9, 2019 (Appendix D-4).
- Letter - *Comments on Branchiopod and Salamander Surveys at Herman Property and Additional Site Description, Madera County, California*, provided by U.S. Fish and Wildlife Service on October 29, 2007 (Appendix D-3).

3.4.1 Environmental Setting

The Project site is located approximately one-mile north of the City of Madera and three miles east of Highway 99. The Project site is generally flat with elevations ranging from approximately 280 feet in the northwest corner to approximately 310 feet at the east end of the Project site. Surrounding land uses include rangelands, orchards and residences (LOA, 2017a).

Biotic Habitats

The entire Project site consists of an active almond and fig orchard and associated infrastructure, including outbuildings, dirt roads, irrigation ponds, and wells; refer to **Figure 3.4-1**. A list of the vascular plant species observed on the Project site and the terrestrial vertebrates using, or potentially using, the Project site are provided in Appendices B and C, respectively, of the Biological Evaluation (Appendix D-1).

D150463.00 - Castellina SP EIR\05 Graphics-GIS-Modeling\EIR Figures

SOURCE: Live Oak Associates, Inc., 2017

County of Madera • Castellina Specific Plan • Draft EIR

Figure 3.4-1
Biotic Habitats

ESA

The Project site has been an orchard since 1978, when it was originally planted with figs. The orchard has been gradually replaced with new figs or almonds, with the most recent replacement occurring between 2005 and 2010. At the time of the 2016 field surveys, the sole crops were almonds and figs. At the time the Project site was converted from grasslands and the associated seasonal wetlands, the soils would have been deep-ripped to break up any subsurface hardpan that may have been present.

The northern half of the Project site consists of a mature almond orchard (*Prunus amygdalus*) in the western half and a mature fig (*Ficus carica*) orchard in the eastern half. Portions of the mature orchard trees in the northern half of the property were uprooted and stacked in large piles during the 2006 survey. The southern half of the Project site consists primarily of an almond orchard that was planted within the last 10 years, with a small area in the east supporting a young fig orchard. Mature orchard trees were removed from the southern half of the property in 2006, with deep ripping occurring following the tree removal. This area was then replanted in September 2006. The entire property is typically tilled five to six times a year.

Understory vegetation was sparse due to ongoing agricultural management. Vegetation was generally limited to the base of the orchard trees and between tree rows. Grass species observed were generally non-native annual species, including soft chess (*Bromus hordeaceus*), ripgut brome (*Bromus diandrus*), foxtail barley (*Hordeum murinum*), and rattail fescue (*Festuca myuros*). Forbs observed included doveweed (*Croton setiger*), willow herb (*Epilobium brachycarpum*), black mustard (*Brassica nigra*), cheeseweed (*Malva parviflora*), prickly lettuce (*Lactuca serriola*), common groundsel (*Senecio vulgaris*), and whitestem filaree (*Erodium moschatum*).

Young pomegranates (*Punica granatum*) are planted along the Project site's entire border. A row of eucalyptus (*Eucalyptus globulus*) trees occurs immediately offsite along the southern boundary of the property.

In the northern part of the Project site, two seasonal, irrigated wetlands occur within swale segments that are a relic of the Project site's historical topography. It holds irrigation water through much of the summer growing season and supports weedy vegetation that includes tall umbrella sedge (*Cyperus eragrostis*), common knotweed (*Polygonum aviculare* ssp. *depressum*), and barnyard grass (*Echinochloa crus-galli*). Other depressional areas of the orchard where irrigation water pools supported grass species such as Bermuda grass (*Cynodon dactylon*), barnyard grass, rabbitsfoot grass (*Polypogon monospeliensis*), feather windmill grass (*Chloris virgata*), and sprangletop (*Leptochloa fusca*), which are all species commonly found in disturbed wetlands, and non-native forbs such as hyssop loosestrife (*Lythrum hyssopifolium*).

Two irrigation ponds are present on the Project site that were constructed in the last 10 years, one in the almond orchard in the southwest part of the Project site, and one in the fig orchard near the center of the Project site. The pond in the almond orchard was generally devoid of vegetation, while the pond in the fig orchard supported vegetation similar to the understory vegetation in the surrounding orchard. In 2016, an additional irrigation pond in the southwest part of the Project site was constructed and is currently devoid of vegetation.

Two large sheds are located on the Project site. These are large, metal open structures with no evidence of use by local wildlife (e.g., bats and birds).

The orchards provide low habitat value for local wildlife species due to the limited understory vegetation and continuous ground disturbance resulting from agricultural practices. These factors constrain the amount of cover and available prey base that might occur on the Project site. However, rangelands are located immediately to the north of the Project site, so terrestrial wildlife occurring in these lands could access the Project site.

Amphibians would be restricted on the Project site; however, it is possible that species breeding in the pools of the rangeland located immediately to the north of the Project site could be in burrows along the boundary of the Project site. American bullfrogs (*Lithobates catesbeiana*) were present at the two initial irrigation ponds, and bullfrog tadpoles were observed in a puddle in the northern part of the Project site.

Reptiles that may occasionally occur on the Project site include species such as the western fence lizard (*Sceloporus occidentalis*), common kingsnake (*Lampropeltis getula*), and gopher snake (*Pituophis melanoleucus*).

A number of avian species are expected to move through the Project site regularly. Raptors were observed flying over the Project site during the December 2006 and March 2016 surveys conducted by LOA which included the turkey vulture (*Cathartes aura*) and red-tailed hawk (*Buteo jamaicensis*), and barn owl (*Tyto alba*) boxes have been installed around the property. Passerine species occurring on the Project site include the black phoebe (*Sayornis nigricans*), western scrub-jay (*Aphelocoma californica*), house finch (*Carpodacus mexicanus*), American crow (*Corvus brachyrhynchos*), American robin (*Turdus migratorius*), and northern mockingbird (*Mimus polyglottos*). Other birds seen on the Project site include the mourning dove (*Zenaida macroura*) northern flicker (*Colaptes auratus*). Avian species, particularly raptors, are unlikely to nest in the fig or almond trees of the Project site. However, birds could establish nests in the eucalyptus trees along the southern boundary of property.

Burrows belonging to small mammals common in the area, such as California ground squirrels (*Spermophilus beecheyi*), deer mice (*Peromyscus maniculatus*), and California meadow vole (*Microtus californicus*) were observed onsite. Common mammalian predators attracted to these small mammals would likely be limited to coyotes (*Canis latrans*) and red foxes (*Vulpes vulpes*), as these species are well adapted to human disturbance. A coyote was observed fleeing from a large brush pile on the Project site during the December 2006 survey (LOA, 2017a).

Movement Corridors

Wildlife movement corridors are areas where regional wildlife populations regularly and predictably move during dispersal or migration. Movement corridors in California are typically associated with ridgelines, valleys, rivers and creeks supporting riparian vegetation. With increasing encroachment of humans on wildlife habitats, it has become important to establish and maintain linkages, or movement corridors, for animals to be able to access locations containing different biotic resources that are essential to maintaining their life cycles.

The importance of an area as a movement corridor depends on the species in question and its consistent use patterns. Animal movements generally can be divided into three major behavioral categories: (1) Movements within a home range or territory, (2) Movements during migration; and (3) Movements during dispersal.

While no detailed study of animal movements has been conducted for the Project site, knowledge of the Project site, its habitats, and the ecology of the species potentially occurring onsite permits sufficient predictions about the types of movements occurring in the region and whether or not proposed development would constitute a significant impact to animal movements (LOA, 2017a).

Special Status Species

Several species of plants and animals within the state of California have low populations, limited distributions, or both. Such species may be considered rare and are vulnerable to extirpation as the state's human population grows and the habitats these species occupy are converted to agricultural, urban, and other uses. State and federal laws have provided the California Department of Fish and Wildlife (CDFW) and the U.S. Fish and Wildlife Service (USFWS) with a mechanism for conserving and protecting the diversity of plant and animal species native to the state. A number of native plants and animals have been formally designated as threatened or endangered under state and federal endangered species legislation. Others have been designated as candidates for such listing. Still others have been designated as species of special concern by the CDFW. The CDFW and California Native Plant Society (CNPS) have developed their own set of lists (i.e., California Rare Plant Ranks, or CRPR) of native plants considered rare, threatened, or endangered. Collectively, these plants and animals are referred to as "special status species."

A number of special status plants and animals occur in the Project site's vicinity. These species and their potential to occur in the study area are listed in **Table 3.4-1** below. Sources of information for this table included Wildlife, Volumes I, II, and III (Zeiner et al. 1988a, 1988b, and 1988c), California Natural Diversity Data Base (CDFW 2016a), *Endangered and Threatened Wildlife and Plants* (USFWS 2015), *State and federally listed endangered, threatened, and rare plants of California* (CDFW 2016b), *State and federally listed endangered and threatened animals of California* (CDFW 2016c), and the California Native Plant Society's *Inventory of Rare and Endangered Vascular Plants of California* (CNPS 2017). This information was used to evaluate the potential for special status plant and animal species to occur on the Project site. Other factors considered in this evaluation include the ability of the habitats occurring onsite to support the species, geographical distance of the Project site from known populations or occurrences of the species, and ability of the species to travel from areas of known populations or occurrences to the Project site.

TABLE 3.4-1
SPECIAL STATUS SPECIES THAT COULD OCCUR IN THE PROJECT VICINITY

Common and scientific names	Status	General habitat description and blooming period	*Occurrence in the study area
PLANTS (adapted from CDFW 2017a, b and CNPS 2017) Species Listed as Threatened or Endangered under the State and/or Federal Endangered Species Act			
Succulent owl's-clover *Castilleja campestris* ssp. *succulenta*	FT, CE, CRPR 1B	Habitat: Vernal pools. Elevation: 50-750 meters. Blooms: April–May. Life form: Annual herb.	Absent. Vernal pools are absent from the site.
San Joaquin Valley Orcutt grass *Orcuttia inaequalis*	FT, CE, CRPR 1B	Habitat: Vernal pools. Elevation: 10-755 meters. Blooms: April–September. Life form: Annual herb.	Absent. Vernal pools are absent from the site.
Hairy Orcutt grass *Orcuttia pilosa*	FE, CE, CRPR 1B	Habitat: Vernal pools. Elevation: 46-200 meters. Blooms: May–September. Life form: Annual herb.	Absent. Vernal pools are absent from the site.
Greene's tuctoria*Tuctoria greenei*	FE, CR, CRPR 1B	Habitat: Vernal pools. Elevation: 30-1070 meters. Blooms: May–September. Life form: Annual herb.	Absent. Vernal pools are absent from the site.
PLANTS (adapted from CDFW 2017 a, b, and CNPS 2017) Other special status plants listed by CNPS			
Heartscale *Atriplex cordulata* var. *cordulata*	CRPR 1B	Habitat: Alkaline flats and scalds in chenopod scrub valley and foothill grassland, and meadows of the Central Valley, usually in sandy soils. Elevation: 0-560 meters. Blooms: April–October. Life form: Annual herb.	Absent. Alkaline habitat is absent from the site. The site is an active orchard and is subject to regular anthropogenic disturbances. Any suitable habitat that may have historically occurred onsite is no longer present.
Lesser saltscale *Atriplex minuscula*	CRPR 1B	Habitat: Alkali sink and grassland in sandy, alkaline soils of chenopod scrub, playas, and valley and foothill grassland. Elevation: 15-200 meters. Blooms: May–October. Life form: Annual herb.	Absent. Alkaline habitat is absent from the site. The site is an active orchard and is subject to regular anthropogenic disturbances. Any suitable habitat that may have historically occurred onsite is no longer present.
Vernal pool smallscale *Atriplex persistens*	CRPR 1B	Habitat: Alkaline vernal pools. Elevation: 10-115 meters. Blooms: June–October. Life form: Annual herb.	Absent. Vernal pools are absent from the site.
Subtle orache *Atriplex subtilis*	CRPR 1B	Habitat: Alkaline soils of valley and foothill grasslands. Elevation: 40-100 meters. Blooms: June–October. Life form: Annual herb.	Absent. Alkaline habitat is absent from the site. The site is an active orchard and is subject to regular anthropogenic disturbances. Any suitable habitat that may have historically occurred onsite is no longer present.

Common and scientific names	Status	General habitat description and blooming period	*Occurrence in the study area
Hoover's calycadenia *Calycadenia hooveri*	CRPR 1B	Habitat: Cismontane woodland and valley and foothill grassland on exposed, rocky, or barren soils. Elevation: 65-300 meters. Blooms: July–September. Life form: Annual herb.	Absent. Suitable habitat is absent from the site.
Beaked clarkia *Clarkia rostrata*	CRPR 1B	Habitat: Cismontane woodland and valley and foothill grassland on north- facing slopes and sometimes on sandstone. Elevation: 60-500 meters. Blooms: April–May. Life form: Annual herb.	Absent. Suitable habitat is absent from the site.
Sierra clarkia *Clarkia virgata*	CRPR 4	Habitat: Cismontane woodland and lower montane coniferous forest. Elevation: 400-1615 meters. Blooms: May–August. Life form: Annual herb.	Absent. Suitable habitat is absent from the site.
Ewan's larkspur *Delphinium hansenii* ssp. *ewanianum*	CRPR 4	Habitat: Cismontane woodland and valley and foothill grassland on rocky soils. Elevation: 60-600 meters. Blooms: March–May. Life form: Perennial herb.	Absent. Alkaline habitat is absent from the site. The site is an active orchard and is subject to regular anthropogenic disturbances. Any suitable habitat that may have historically occurred onsite is no longer present.
Recurved larkspur *Delphinium recurvatum*	CRPR 1B	Habitat: Chenopod scrub, cismontane woodland, and valley and foothill grassland on alkaline soils. Elevation: 3-790 meters. Blooms: March–June. Life form: Perennial herb.	Absent. Alkaline habitat is absent from the site. The site is an active orchard and is subject to regular anthropogenic disturbances. Any suitable habitat that may have historically occurred onsite is no longer present.
Spiny-sepaled button-celery *Eryngium spinosepalum*	CRPR 1B	Habitat: Vernal pools and valley and foothill grasslands. Elevation: 80-975 meters. Blooms: April–June. Life form: Annual/perennial herb.	Absent. Vernal pools are absent from the site. The site is an active orchard and is subject to regular anthropogenic disturbances. Any suitable habitat that may have historically occurred onsite is no longer present.
Madera leptosiphon *Leptosiphon serrulatus*	CRPR 1B	Habitat: Cismontane woodland and lower montane coniferous forest on dry slopes, often on decomposed granite. Elevation: 300-1300 meters. Blooms: April–May. Life form: Annual herb.	Absent. Suitable habitat is absent from the site.
Shining navarretia *Navarretia nigelliformis* ssp. *radians*	CRPR 1B	Habitat: Cismontane woodland, valley and foothill grasslands, and vernal pools. Sometimes occurs in clay soils. Elevation: 76-1000 meters. Blooms: April–July. Life form: Annual herb.	Absent. Vernal pools are absent from the site. The site is an active orchard and is subject to regular anthropogenic disturbances. Any suitable habitat that may have historically occurred onsite is no longer present.

Common and scientific names	Status	General habitat description and blooming period	*Occurrence in the study area
Merced phacelia *Phacelia ciliata* var. *opaca*	CRPR 3	Habitat: Adobe or clay soils of valley floors, open hills, or alkaline flats. Elevation: 60-150 meters. Blooms: February–May. Life form: Annual herb.	Absent. Alkaline habitat is absent from the site. The site is an active orchard and is subject to regular anthropogenic disturbances. Any suitable habitat that may have historically occurred onsite is no longer present.
California alkali grass *Puccinellia simplex*	CRPR 1B	Habitat: Meadows and seeps, chenopod scrub, valley and foothill grasslands, vernal pools. Occurs in alkaline or vernally mesic soils of sinks, flats, and lake margins. Elevation: 2-930 meters. Blooms: March–May. Life form: Annual herb.	Absent. Alkaline habitat and vernal pools are absent from the site. The site is an active orchard and is subject to regular anthropogenic disturbances. Any suitable habitat that may have historically occurred onsite is no longer present.
ANIMALS (adapted from CDFW 2017a, c and USFWS 2015) Species Listed as Threatened or Endangered under the State and/or Federal Endangered Species Act			
Vernal pool fairy shrimp *Branchinecta lynchi*	FT	Vernal pools of California's Central Valley.	Absent. Low-lying areas of the site that pooled water were surveyed at protocol levels for vernal pool branchiopods from February to May 2007. No vernal pool branchiopods were detected. In October 2007, the USFWS issued a "no take" letter concurring with LOA's finding that the site does not constitute habitat for the species (USFWS 2007). The nearest recorded observation is approximately 0.7 miles to the south of the site (CNDDB 2017).
Vernal pool tadpole shrimp *Lepidurus packardi*	FE	Deep vernal pools containing clear to highly turbid water in unplowed grasslands of the Central Valley.	Absent. Vernal pools are absent from the site. Low-lying areas of the site that pooled water were surveyed at protocol levels for vernal pool branchiopods from February to May 2007. No vernal pool branchiopods were detected. In October 2007, the USFWS issued a "no take" letter concurring with LOA's finding that the site does not constitute habitat for the species (USFWS 2007). The nearest recorded observation of VPTS is more than 15 miles from the site (CNDDB 2017).
Valley elderberry longhorn beetle *Desmocerus californicus dimorphus*	FT	Mature elderberry shrubs of California's Central Valley and Sierra Foothills.	Absent. Elderberry shrubs are absent from the site.
California tiger salamander *Ambystoma californiense*	FT, CT, CSC	Breeds in vernal pools and stock ponds of central California. Adults aestivate in grassland habitats adjacent to breeding sites.	Unlikely. Breeding habitat is absent from the site. Marginal aestivation habitat is present in the form of a few burrows along the site's boundaries. Potential breeding habitat exists on adjacent rangelands to the north and northeast of the site, but any CTS occurring on these lands would be likely to aestivate on the same lands rather than on the subject property. In October 2007, the USFWS issued a "no take" letter concurring with LOA's finding that the site does not constitute breeding habitat and only marginal aestivation habitat for the species (USFWS 2007). The nearest documented occurrence of this species is at a pond approximately 2.8 miles northwest of the site (CNDDB 2017).

Common and scientific names	Status	General habitat description and blooming period	*Occurrence in the study area
Blunt-nosed leopard lizard *Gambelia sila*	FE, CE, CP	Frequents grasslands, alkali meadows and chenopod scrub of the San Joaquin Valley from Merced south to Kern County. Seeks cover in mammal burrows.	Absent. Suitable habitat for this species has either been highly disturbed or eliminated as a result of agricultural activities. The nearest recorded observation is approximately 7.5 miles to the southwest of the site (CNDDB 2017).
Swainson's hawk (nesting) *Buteo swainsoni*	CT	Breeds in stands with few trees in juniper-sage flats, riparian areas, and in oak savannah. Requires adjacent suitable foraging areas such as grasslands or alfalfa fields supporting rodent populations.	Unlikely. Foraging habitat is limited on the site. Breeding habitat for Swainson's hawk is not present on the site. However, as the nearest recorded observation of Swainson's hawk is approximately 4 miles south of the site (CNDDB 2017), Swainson's hawks may be expected to fly over the site from time to time or forage on the adjacent rangelands north of the site.
Bald eagle (nesting & nonbreeding/wintering) *Haliaeetus leucocephalus*	CE, CP	Breeding habitat is usually within 4 km of a water source in a tall tree or cliffs; roosting in large numbers in winter is common.	Unlikely. Suitable breeding and foraging habitat is not present on the site. However, as the nearest recorded observation of the bald eagle is approximately 14.5 miles to the northeast of the site (CNDDB 2017), bald eagles may be expected to occasionally fly over the site.
Fresno kangaroo rat *Dipodomys nitratoides exilis*	FE, CE	Chenopod scrub, alkali sink, and open grassland habitats in western Fresno County on gentle slopes with friable, sandy-loam soils.	Absent. Suitable habitat for this species is absent from the site. The nearest recorded observations for Fresno kangaroo rat are more than 18 miles southeast of the site from 1934 and earlier.
San Joaquin kit fox *Vulpes macrotis mutica*	FE, CT	Frequents desert alkali scrub and annual grasslands and may forage in adjacent agricultural habitats. Utilizes enlarged (4 to 10 inches in diameter) ground squirrel burrows as denning habitat.	Unlikely. The few burrows onsite do not provide adequate potential denning habitat. The site occurs on the edge of the known range of this species. There are no documented occurrences of this species within ten miles of the site and the nearest documented occurrence of the SJKF is approximately 13 miles to the southwest of the site (CNDDB 2017). In addition, the orchard habitat of the site is not suitable habitat for the SJKF. Therefore, it is highly unlikely that SJKF occur onsite, although it is not possible to rule out a dispersing individual traversing the site.
ANIMALS (adapted from CDFW 2017a, c and USFWS 2015) California Species of Special Concern and Protected Species			
Western spadefoot *Spea hammondii*	CSC	Primarily occurs in grasslands, but also occurs in valley and foothill hardwood woodlands. Requires vernal pools or other temporary wetlands for breeding.	Unlikely. Breeding habitat is absent from the site. Marginal aestivation habitat is present in the form of a few burrows along the site's boundaries. Potential breeding habitat exists on adjacent rangelands to the north and northeast of the site, but any spadefoot occurring on those lands would be likely to aestivate on the same lands rather than on the site. The nearest documented occurrence of this species is more than 5.5 miles to the north of the site (CNDDB 2017).

Common and scientific names	Status	General habitat description and blooming period	*Occurrence in the study area
Western pond turtle *Actinemys marmorata*	CSC	Open, slow-moving water of rivers and creeks of central California with rocks and logs for basking.	Unlikely. Two irrigation ponds were built on the site in 2009 and 2014. However, western pond turtles are unlikely to access the site due to the lack of nearby, permanent watercourses that could serve as a movement corridor to the site. Aquatic features on adjacent lands are only seasonally wet. The nearest documented occurrence of WPT is more than 3 miles north of the site (CNDDB 2017).
Coast horned lizard *Phrynosoma blainvillii*	CSC	Grasslands, scrublands, oak woodlands, etc. of central California. Common in sandy washes with scattered shrubs.	Absent. The site does not support suitable habitat for this species. The nearest documented occurrence of this species is more than 3 miles from the site (CNDDB 2017).
Golden eagle *Aquila chrysaetos*	CP	Typically frequents rolling foothills, mountain areas, woodland areas, sage- juniper flats, and desert habitats.	Unlikely. Suitable breeding habitat is absent from the site. The site would not be considered suitable foraging habitat for this species. However, this species may occasionally fly over the site. The nearest documented occurrence of this species is more than 10 miles from the site (CNDDB 2017).
Burrowing owl *Athene cunicularia*	CSC	Open, dry grasslands, deserts and ruderal areas. Requires suitable burrows. This species is often associated with California ground squirrels.	Possible. Orchards are generally not suitable habitat for the BUOW. However, suitable breeding habitat in the form of ground squirrel burrows is present but limited onsite and is mostly concentrated along the northern boundary. Rangelands to the north of the site and roadsides may also support potentially suitable habitat for the BUOW. The nearest documented occurrence of this species is approximately 5.5 miles to the east of the site (CNDDB 2017).
Tricolored blackbird *Agelaius tricolor*	CSC	Breeds near fresh water, primarily emergent wetlands, with tall thickets. Forages in nearby grassland and cropland habitats.	Unlikely. Breeding habitat is absent from the site, as the irrigation basins are well managed. This species may occasionally forage on or fly over the site. The nearest documented occurrence of this species is more than 10 miles from the site (CNDDB 2017).
Pallid bat *Antrozous pallidus*	CSC	Roosts in rocky outcrops, cliffs, and crevices with access to open habitats for foraging. May also roost in caves, mines, hollow trees and buildings.	Unlikely. Foraging habitat is present on the site. However, roosting habitat is absent. The nearest documented occurrence of this species is more than 3 miles from the site (CNDDB 2017).
American badger *Taxidea taxus*	CSC	Found in drier open stages of most shrub, forest and grassland habitats with friable soils. Also found on edges of agricultural lands.	Unlikely. The site provides poor habitat for this species due to its orchard operations, but rangelands to the north and northeast support suitable habitat for the badger. Therefore, the badger can be expected to occasionally move through the site. The nearest documented occurrence of this species is approximately 6 miles to the southeast of the site (CNDDB 2017).

Common and scientific names	Status	General habitat description and blooming period	*Occurrence in the study area

*Explanation of Occurrence Designations and Status Codes

Present: Species observed on the sites at time of field surveys or during recent past.

Likely: Species not observed on the site, but it may reasonably be expected to occur there on a regular basis. Possible: Species not observed on the sites, but it could occur there from time to time.

Unlikely: Species not observed on the sites, and would not be expected to occur there except, perhaps, as a transient. Absent: Species not observed on the sites, and precluded from occurring there because habitat requirements not met.

STATUS CODES

FE	Federally Endangered	CE	California Endangered
FT	Federally Threatened	CT	California Threatened
FPE	Federally Endangered (Proposed)	CR	California Rare
FC	Federal Candidate	CP	California Protected
		CTC	California Threatened (Candidate)
		CSC	California Species of Special Concern
CRPR	California Rare Plant Rank		
1A	Plants Presumed Extinct in California	3	Plants about which we need more information – a review list
1B	Plants Rare, Threatened, or Endangered in California and elsewhere	4	Plants of limited distribution – a watch list
2	Plants Rare, Threatened, or Endangered in California, but more common elsewhere		

SOURCE: Herman Property/Castellina Biological Evaluation Madera County, California, prepared by Live Oak Associates, Inc., dated February 27, 2017.

A search of published accounts for all relevant special status plant and animal species was conducted for the Kismet and Madera USGS 7.5-minute quadrangles in which the Project site occurs and for the ten surrounding quadrangles (Bonita Ranch, Berenda, Le Grand, Raynor Creek, Raymond, Daulton, Gregg, Herndon, Biola, and Gravelly Ford) using the CNDDB (LOA, 2017a).

A total of 18 special-status plant species and 17 special-status animal species occur within the Project vicinity. Based on a review of the species habitat requirement and the characteristics of the Project site, all of the special-status plant species are absent from the Project site and all of the special-status animal species, except for one, the burrowing owl, are either absent or unlikely to occur on the Project site because no suitable breeding and/or no or limited foraging habitat is present on the Project site.

Burrowing Owl. One special-status animal species, the burrowing owl (*Athene cunicularia*), has a potential to occur on the Project site. Burrowing owl species were not observed on the Project site, but due to the existing Project site characteristics, it may be reasonably expected to occur on the Project site on a regular basis. Although orchards are generally not suitable habitat for the burrowing owl, suitable breeding habitat in the form of ground squirrel burrows is present but limited onsite and is mostly concentrated along the northern boundary. Rangelands to the north of the Project site and roadsides may also support potentially suitable habitat for the burrowing owl. The nearest documented occurrence of this species is approximately 5.5 miles to the east of the Project site (LOA, 2017a).

California Tiger Salamander and Vernal Pool Fairy Shrimp Habitat. A habitat assessment was completed of the Project site and surrounding areas by LOA for the California tiger salamander (*Ambystoma californiense*) and for the vernal pool fairy shrimp (*Branchinecta lynchi*). The purpose of the assessment was to determine if conditions on the Project site or immediately surrounding lands have changed in a manner that would possibly change the assessment of

California tiger salamander and vernal pool fairy shrimp occurrence on the Project site that was conducted in 2007 by LOA, and the USFWS (2007) and again by LOA in 2017. In October 2007, the USFWS issued a "no take" letter concurring with LOA finding that 1) the Project site does not constitute breeding habitat and only marginal aestivation habitat for California tiger salamander and 2) the Project site does not constitute habitat for vernal pool branchipods. The renewed assessments follow the occurrence of California tiger salamanders and vernal pool fairy shrimp discovered in 2016 and 2017 during surveys of the high-speed train alignment adjacent to and across the western end of the Project site, along Road 27 and the Burlington Northern Santa Fe (BNSF) Railway.

According to the California Natural Diversity Database (CNDDB), two occurrences from 2016 and 2017 surveys of the California tiger salamander were documented along the BNSF Railway during construction monitoring within the high-speed train alignment. One occurrence was located near the southwest corner of the Project site along the railroad, where two adults and juveniles were found and relocated (CNDDB occurrence #1250). The second occurrence was located approximately 0.5 miles south of the Project site along the railroad where hundreds of larvae were observed (CNDDB #1259).

Two occurrences of vernal pool fairy shrimp near the Project site were also reported to the CNDDB as a result of construction monitoring within the high-speed train alignment. Vernal pool fairy shrimp were detected in January 2017 near the southwest corner of the Project site, near, or possibly in the same location, where the California tiger salamanders were detected (CNDDB occurrence #907). The other occurrence is also from 2017, less than 0.5 miles west of the Project site (CNDDB occurrence #902).

Land uses on the Project site and the surrounding lands to the north, east, and south were found to be unchanged from previous years. However, approximately 100 feet of the western edge of the Project site has experienced recent impacts from the high-speed train including orchard tree removal, grading, installation of California tiger salamander fencing, and installation of a culvert beneath Road 27. These impacts from the high-speed train construction extend along the Road 27 alignment southwest of the Project site.

California tiger salamander. The habitat assessment for the California tiger salamander was completed on April 25, 2019, at which time the perimeter of the Project site and portions of the adjacent areas (i.e., the railroad track corridor along a portion of the Project site's western edge) were surveyed. The survey focused on the distribution of small mammal burrows and California ground squirrels (*Otospermophilus beecheyi*) on and adjacent to the Project site. The Pacific treefrog (*Hyla regilla*) larvae was observed in several ponds along the railroad track corridor. These ponds are presumed to be California tiger salamander breeding ponds. Several potential California tiger salamander breeding ponds were also present in the adjacent field along and near the northern edge of the Project site, and California ground squirrel and Botta's pocket gopher (*Thomomys bottae*) burrows were observed along and near the northern fence line. A colony of California ground squirrels was observed in the woody debris pile on the adjacent property near the southeast corner. On the Project site, ground squirrel burrows were present but limited onsite and were mostly concentrated along the northern boundary.

Although the fully developed orchards on the Project site are not habitat for California tiger salamanders, the presence of any small mammal burrows on the Project site could potentially provide suitable aestivation habitat for any juvenile and adult California tiger salamanders from surrounding breeding habitats located off-site. This is especially true for any juvenile salamanders that disperse away from breeding pond sites with the onset of the winter rainy season. Otherwise, there is no reason for salamanders to attempt to utilize the Project site.

Vernal pool fairy shrimp. On April 24, 2019, a driving survey of the Project site and the offsite 2017 vernal pool fairy shrimp occurrence southwest of the Project site was conducted. Occasional areas of interest were investigated on foot. Based on the coordinates provided in the CNDDB, the location of the CNDDB occurrence #907 is southwest of the intersection of the existing BNSF railway and Road 27, approximately 215 feet southwest of the Project site. Investigation of this location found the area to be highly disturbed from high speed train construction activities. Ponded areas at this location, visible on historical aerial imagery and the approximate location of the 2017 vernal pool fairy shrimp occurrence, no longer exist. The area has been graded and is located within the high speed train construction zone. Standing water was observed along the northeast side of the existing railway, between the railway and the fence line to the Project site. While not visible during the survey due to no access of the high speed train construction area, ponded water on the southwest side of the railway is presumed to persist as aerial images show this area supporting a similar inundation regime as the ponded area north of the railway (LOA, 2019).

San Joaquin kit fox. The limited burrows located on the Project Site do not provide adequate potential denning habitat and the orchard habitat is not suitable. The Project site occurs on the edge of the known range of this species and the nearest documented occurrence of the San Joaquin kit fox was approximately 13 miles to the southwest of the Project site (CNDDB 2017). At most, a dispersing individual may move through the site to access more suitable habitat in the region, but this is expected to be an extremely rare event (LOA, 2017a).

Jurisdictional Waters

Jurisdictional waters include rivers, creeks, and drainages that have a defined bed and bank and that, at the very least, carry ephemeral flows. Jurisdictional waters also include lakes, ponds, reservoirs, and wetlands. Such waters may be subject to the regulatory authority of the U.S. Army Corps of Engineers (USACE), the California Department of Fish and Wildlife (CDFW), and the California Regional Water Quality Control Board (RWQCB).

The Project site is located in an area of the San Joaquin Valley that historically was dominated by hummocky terrain supporting numerous vernal pool complexes. Historic aerial photography clearly indicates that the site consisted of a mosaic of grassland and vernal pool/vernal swale habitats, not unlike the property bordering the site to the north. Prior to its conversion to an orchard in 1978, the soils of the site would have been deep-ripped to break up any subsurface hardpan that may have been present. While deep ripping and subsequent discing has smoothed out the minor topography associated with vernal pools and the interconnecting swales, the property has retained some of its rolling terrain. A few discontinuous swales and low-lying areas at various locations of the site are all that remain of the site's natural topography. Numerous shallow depressions within the orchard capture irrigation runoff during the summer, and these

depressions are sometimes characterized by algal mats and/or weedy vegetation that either includes or is made up of wetland indicator species. The soils of such areas, however, are not typically hydric (LOA, 2017a).

A formal wetland delineation and waters of the U.S. analysis was completed for the Project site and submitted to the USACE for verification on October 26, 2018. According to the letter from the USACE dated September 9, 2019, approximately 0.56 acres of aquatic resources, consisting of 0.56 acres of seasonal wetlands, are present within the Project site. The 0.56-acre of aquatic resources identified as SW-1 (0.45 acres) and NW-1 (0.11 acres) on **Figure 3.4-2** have no apparent interstate or foreign commerce connection. As such, these aquatic resources are not currently regulated by the USACE. Therefore, SW-1 and NW-1 would both be considered a water of the State subject to the RWQCB's jurisdiction (USACE, 2019).

3.4.2 Regulatory Framework

Federal

The Federal Endangered Species Act (FESA) was established to protect wildlife species and habitats from extinction and diminishment. The FESA is administered by the USFWS and applies to federally listed species and habitat occupied by the federally listed species. FESA Section 9 forbids acts that directly or indirectly harm listed species. Specifically, Section 9 identified prohibited acts related to endangered species, and all persons, including federal, state, and local governments, from taking listed fish and wildlife species, except as specified under the provisions for exceptions (16 U.S.C. § 1538). The term 'take' is defined as to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect, or to attempt to engage in any such activity (16 U.S.C. 1532[18]).

Migratory Bird Treaty Act

The Migratory Bird Treaty Act (MBTA) of 1918, as amended, (16 USC §§ 703-712) is designed to protect birds that migrate and cross state lines to provide management of migratory birds at a federal level. The MBTA prohibits the kill or transport of native migratory birds, or any part, nest, or egg of such bird unless allowed by another regulation adopted in accordance with the MBTA.

Bald and Golden Eagle Protection Act

The bald eagle and golden eagle are federally protected under the Bald and Golden Eagle Protection Act (16 USC §§ 668–668d). Under the act, it is illegal to take, possess, sell, purchase, barter, offer to sell or purchase or barter, transport, export, or import at any time or in any manner a bald or golden eagle, alive or dead; or any part, nest or egg of these eagles unless authorized by the Secretary of the Interior. Violations are subject to fines and/or imprisonment for up to one year. Active nest sites are also protected from disturbance during the breeding season.

D150463.00 - Castellina SP EIR\05 Graphics-GIS-Modeling\EIR Figures

SOURCE: Live Oak Associates, Inc., 2016

County of Madera • Castellina Specific Plan • Draft EIR

Figure 3.4-2
Delineation of Wetlands

ESA

Section 404 Clean Water Act

Section 404 of the Clean Water Act (CWA) (33 USC § 1344) gives the U.S. Corps of Engineers (USACE) authority to dredge or fill material into waters of the U.S., including wetlands. The term "wetlands" signifies 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. Under normal circumstances, the definition of wetlands requires three wetland identification parameters be present: wetland hydrology, hydric soils, and hydrophytic vegetation. Examples of wetlands may include freshwater marsh, seasonal wetlands, and vernal pool complexes that are adjacent to perennial waters of the U.S.

"Other waters of the U.S." refers to those hydric features that are regulated by the CWA but are not defined as wetlands (33 CFR 328.4). Examples of other waters of the U.S. may include rivers, creeks, ponds, and lakes. Swales are typically not considered waters of the U.S.

Section 401 Clean Water Act

Under Section 401 of the CWA (33 USC § 1341), the Regional Water Quality Control Board (RWQCB) must certify that actions receiving authorization under Section 404 of the CWA also meet state water quality standards. The RWQCB also regulates waters of the state under the Porter-Cologne Water Quality Control Act (Porter Cologne Act) (Cal. Water Code §§ 13000 et seq.). The RWQCB requires projects to avoid impacts to wetlands if feasible and requires that projects do not result in a net loss of wetland acreage or a net loss of wetland function and values. The RWQCB typically requires compensatory mitigation for impacts to wetlands and/or waters of the state. The RWQCB also has jurisdiction over waters deemed 'isolated' or not subject to Section 404 jurisdiction under the Solid Waste Agency of Northern Cook County (SWANCC) decision. Dredging, filling, or excavation of isolated waters constitutes a discharge of waste to waters of the state, and prospective dischargers are required to obtain authorization through an Order of Waste Discharge or waiver thereof from the RWQCB and comply with other requirements of Porter-Cologne Act.

Executive Order 13112 – Invasive Species

This executive order directs all federal agencies to refrain from authorizing, funding, or carrying out actions or projects that may spread invasive species. The order further directs federal agencies to prevent the introduction of invasive species, control and monitor existing invasive species populations, restore native species to invaded ecosystems, research and development prevention and control methods for invasive species, and promote public education on invasive species.

Fish and Wildlife Coordination Act of 1958

The Fish and Wildlife Coordination Act (16 USC §§ 661-666c) requires that whenever any body of water is proposed or authorized to be impounded, diverted, or otherwise controlled or modified, the lead federal agency must consult with the USFWS, the state agency responsible for fish and wildlife management, and the National Marine Fisheries Service. Section 662(b) of the act requires the lead federal agency to consider the recommendations of the USFWS and other

agencies. The recommendations may include proposed measures to mitigate or compensate for potential damages to wildlife and fisheries associated with a modification of a waterway.

Executive Order 11990 Protection of Wetlands

Executive Order 11990 requires federal agencies to provide leadership and take action to minimize destruction, loss, or degradation of wetlands and to preserve and enhance the natural qualities of these lands. Federal agencies are required to avoid understanding or providing support for new construction located in wetlands unless (1) no practicable alternative exists and (2) all practical measures have been taken to minimize harm to wetlands.

State

California Endangered Species Act

The California Endangered Species Act (CESA) is similar in many ways to the FESA. CESA is administered by the CDFW. CESA provides a process for CDFW to list species as threatened or endangered in response to a citizen petition or by its own initiative (Fish and Game Code § 2070 et seq.). Section 2080 of CESA prohibits the take of species listed as threatened or endangered pursuant to the Act (Fish and Game Code § 2080). Section 2081 allows CDFW to authorize take prohibited under Section 2080 provided that: (1) the taking is incidental to an otherwise lawful activity; (2) the taking will be minimized and fully mitigated; (3) the applicant ensures adequate funding for minimization and mitigation; and (4) the authorization will not jeopardize the continued existence of listed species (Fish and Game Code § 2081).

Porter-Cologne Water Quality Control Act

Under the Porter-Cologne Water Quality Control Act, waters of the state fall under the jurisdiction of the appropriate RWQCB. Under the act, the RWQCB must prepare and periodically update water quality control basin plans. Each basin plan sets forth water quality standards for surface water and groundwater, as well as actions to control nonpoint and point sources of pollution to achieve and maintain these standards. Projects that affect wetlands or waters must meet waste discharge requirements of the RWQCB, which may be issued in addition to a water quality certification or waiver under Section 401 of the CWA.

California Department of Fish and Game Code

Protection of Nests and Eggs

Section 3503 of the California Fish and Game Code (CFGC) states that it is unlawful to take, possess, or needlessly destroy the nest or eggs of any bird. Section 3503.5 specifically states that it is unlawful to take, possess, or destroy any raptors (i.e., species in the orders Falconiformes and Strigiformes), including its nests or eggs. Typical violations of these codes include destruction of active nests resulting from removal of vegetation in which the nests are located. Violation of Section 3503.5 could also include failure of active raptor nests resulting from disturbance of nesting pairs by nearby project construction. This statute does not provide for the issuance of any type of incidental take permit.

Section 3513 of the CFGC upholds the MBTA by prohibiting any take or possession of birds that are designated by the MBTA as migratory nongame birds except as allowed by federal rules and regulations promulgated pursuant to the MBTA.

Protection of Animal Species Including Bats

Section 2000 and 4150 of the California Fish and Game Code states that it unlawful to take or possess a number of species, including bats, without a license or permit as required by Section 3007. Additionally, Title 14 of the California Code of Regulations states it is unlawful to harass, herd, or drive a number of species, including bats. To harass is defined as "an intentional act which disrupts an animal's normal behavior patterns, which includes, but is not limited to, breeding, feeding or sheltering."

California Native Plant Protection Act

The Native Plant Protection Act (NPPA) (Cal. Fish and Game Code §§ 1900-1913) was enacted in 1977 and allows the Fish and Game Commission to designate plants as rare or endangered. There are 64 species, subspecies, and varieties of plants that are protected as rare under the NPPA. The NPPA prohibits take of endangered or rare native plants, but includes some exceptions for agricultural and nursery operations; emergencies; and after properly notifying CDFW for vegetation removal from canals, roads, and other sites, changes in land use, and in certain other situations. Individual landowners are required to notify the CDFW at least 10 days in advance of changing land uses to allow the CDFW to salvage any rare or endangered native plant material.

Streambed Alteration Agreement

CDFW regulates activities that would interfere with the natural flow of, or substantially alter, the channel, bed, or bank of a lake, river, or stream. These activities are regulated under the California Fish and Game Code Sections 1600-1616. Requirements to protect the integrity of biological resources and water quality are often conditions of streambed alteration agreements. Requirements may include avoidance or minimization of the use of heavy equipment, limitations on work periods to avoid impacts on wildlife and fisheries resources, and measures to restore degraded sites or compensate for permanent habitat losses.

All diversions, obstructions, or changes to the natural flow or bed, channel, or bank of any river, stream, or lake in California that supports wildlife resources are subject to regulation by CDFW under Section 1602 of the California Fish and Game Code. A stream is defined as a body of water that flows at least periodically or intermittently through a bed or channel that has banks and supports fish or other aquatic life. This definition includes watercourses with a surface or subsurface flow that supports or has supported riparian vegetation. CDFW's jurisdiction within altered or artificial waterways is based on the value of those waterways to fish and wildlife. A CDFW streambed alteration agreement must be obtained for any project that would result in an impact on a river, stream, or lake.

Natural Community Conservation Planning Act

The Natural Community Conservation Planning (NCCP) Act, Sections 2800-2840 of the CFGC, authorized the preparation of NCCPs to protect natural communities and species while allowing a reasonable amount of economic development. There are no NCCP areas in the vicinity of the Project site.

CEQA Guidelines, Section 15380

Although threatened and endangered species are protected by specific federal and state statutes, CEQA Guidelines Section 15380(b) provides that a species not listed on the federal or state list of protected species may be considered rare or endangered if the species can be shown to meet certain specified criteria. These criteria have been modeled after the definition in FESA and the section of the California Fish and Game Code dealing with rare or endangered plants or animals. This section was included in CEQA primarily to deal with situations in which a public agency is reviewing a project that may have a significant effect on, for example, a candidate species that has not been listed by either USFWS or CDFW. Thus, CEQA provides an agency with the ability to protect a species from the potential impacts of a project until the respective government agencies have an opportunity to designate the species as protected, if warranted. CEQA also calls for the protection of other locally or regionally significant resources, including natural communities. Although natural communities do not, at present, have legal protection of any kind, CEQA calls for an assessment of whether any such resources would be affected, and requires findings of significance if there would be substantial losses. California species of special concern (SSC) and natural communities listed by CNDDB as sensitive are considered by CDFW to be significant resources and fall under the CEQA Guidelines for addressing impacts. Local planning documents such as general plans often identify these resources as well.

During CEQA review, public agencies must evaluate and disclose impacts to the 220 plant species protected under CESA and the NPPA, and in most cases must mitigate all significant impacts to these species to less than significant. In addition, during the CEQA process, public agencies must also address plant species that may not be listed under CESA or the NPPA, but that may nevertheless meet the definition of rare or endangered provided in CEQA. CDFW works in collaboration with the CNPS and with botanical experts throughout the state to maintain an Inventory of Rare and Endangered Plants, and the similar Special Vascular Plants, Bryophytes, and Lichens List. Species on these lists may meet the CEQA definition of rare or endangered. As the trustee agency for the wildlife of California, which includes plants, ecological communities and the habitat upon which they depend, CDFW advises public agencies during the CEQA process to help ensure that the actions they approve do not significantly impact such resources. CDFW often advises that plant species with an appropriate California Rare Plant Rank (List 1 and 2) in the Inventory be properly analyzed by the lead agency during project review to ensure compliance with CEQA.

Local

Madera County General Plan

The General Plan includes the following policies that are applicable to the proposed Project to address effects of prospective development on biological resources. The policies specifically

address the protection of sensitive vegetation communities, special-status species, native trees, and wetlands. A consistency evaluation is provided in **Table 3.4-2**.

TABLE 3.4-2
MADERA COUNTY GENERAL PLAN CONSISTENCY ANALYSIS – BIOLOGICAL RESOURCES

General Plan Goals and Policies	Consistency Determination	Analysis
Section 5, Agricultural and Natural Resources		
D. Wetland and Riparian Areas		
Goal 5.D: To protect wetland communities and related riparian areas throughout Madera County as valuable resources.	Consistent.	A formal wetland delineation and waters of the U.S. analysis was completed for the Project site and submitted to the USACE for verification on October 26, 2018. According to the letter from the USACE dated September 9, 2019, approximately 0.56 acres of aquatic resources, consisting of 0.56 acres of seasonal wetlands, are present within the Project site. These seasonal wetlands have no apparent interstate or foreign commerce connection. As such, these seasonal wetlands are not currently regulated by the USACE and are considered a water of the State subject to the RWQCB's jurisdiction (USACE, 2019). The seasonal wetlands have minimal value as a wetland habitat and does not support hydrophytic plants or wildlife species typical of such habitats that naturally occur in the region (LOA, 2017a). Further, according to the Biological Evaluation, riparian habitats are absent from the Project site (LOA, 2017a).
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	Consistent.	Refer to Goal 5.D response.
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.	Consistent.	Refer to Goal 5.D response.
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.	Consistent.	Refer to Goal 5.D response.
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.	Consistent.	Refer to Goal 5.D response.

General Plan Goals and Policies	Consistency Determination	Analysis
Section 5, Agricultural and Natural Resources		
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.	Consistent.	Refer to Goal 5.D response.
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.	Consistent.	Refer to Goal 5.D response.
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.	Consistent.	Refer to Goal 5.D response.
E. Fish and Wildlife Habitat		
Goal 5.E: To protect, restore, and enhance habitats that support fish and wildlife species so as to maintain populations at viable levels.	Consistent.	As shown above in Table 3.4-1, a total of 17 special-status animal species occur, or once occurred, regionally. Most special status animal species known to occur in the region would not be affected by the Project due to the absence of suitable habitat from the Project area or surrounding lands and/or because of the site's distance to known populations. Agricultural activities have altered the site's landscape, rendering it unsuitable for many of these special status animal species (LOA, 2017a). Implementation of Mitigation Measures BIO-1 and BIO-2 would reduce potentially significant impacts to burrowing owls and the San Joaquin kit fox, respectively, to less than significant. Implementation of Mitigation Measure BIO-3 would reduce potentially significant impacts to migratory birds and other birds of prey to less than significant.
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.	Consistent.	Refer to Goal 5.E response. The Project site would not be expected to facilitate regional movements of wildlife in a disproportionate way as to function as a movement corridor because animals would have to travel through miles of marginal to poor habitat (i.e., agricultural fields and orchards) to reach the Project site, which itself holds little habitat value, and urban development to the west and south serves as a barrier to regional wildlife movements. Wildlife would move through all portions of the Project site, as they would also do on surrounding lands, and any animals reaching the Project site from the more open lands to the north and east would be expected to disperse back in these directions. Many migratory species that now pass through the Project site are neo-tropical migrant birds that are likely to pass through and over the Phase 1 Project area, even when developed. (LOA, 2017a).

General Plan Goals and Policies	Consistency Determination	Analysis
Section 5, Agricultural and Natural Resources		
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.	Consistent.	Refer to Goal 5.E response.
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.	Consistent.	Refer to Goal 5.E response.
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.	Consistent.	Refer to Goal 5.E response.
Policy 5.E.5. The County shall support the maintenance of suitable habitats for all indigenous species of wildlife through maintenance of habitat diversity.	Consistent.	Refer to Goal 5.E response.
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.	Consistent.	Refer to Goal 5.E response.
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.	Consistent.	Refer to Goal 5.E response. Mitigation Measure BIO-2 would reduce potentially significant impacts to the San Joaquin kit fox to less than significant.
F. Vegetation		
Goal 5.F: To preserve and protect the valuable vegetation resources of Madera County.	Consistent.	Refer to Goal 5.E response.

3.4.3 Impacts and Mitigation Measures

Significance Criteria

The criteria used to determine the level of significance of impacts to biological resources are based on Appendix G of the *CEQA Guidelines*. The Phase 1 Project and proposed Program would have a significant 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 the CDFW or USFWS (see Impact 3.4-1, below);
- Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations, or by the CDFW or USFWS (see Impact 3.4-2, below);

- 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 (see Impact 3.4-3, below);
- 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 (see Impact 3.4-4, below);
- Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance (see Impact 3.4-5, below); or
- Conflict with the provisions of an adopted habitat conservation plan, natural community conservation plan, or other approved local, regional, or state habitat conservation plan (see Section 4.1.2 in Chapter 4.0, Other CEQA Considerations).

Methodology

Future development within the Project area would result in a potential direct, indirect, temporary, and permanent impact to biological resources. A direct impact would be a modification, disturbance, or destruction of biological resources that would result from Project-related activities, such as the removal of habitat. An indirect impact would be an impact to protected plant and wildlife species or habitat from Project-related development that has the potential to indirectly affect the species or habitat, such as the introduction of invasive plant species or increased noise levels. Temporary impacts would be impacts that are considered to be reversible and temporary in nature, such as noise generated during construction. Permanent impacts are impacts that are considered to be irreversible.

Impacts Discussion

Effect on Species

Impact 3.4-1a: The Phase 1 Project could have significant and cumulatively considerable effects on species because the Phase 1 Project could have a substantial adverse effect, either directly or through habitat modifications, on species identified as a candidate, sensitive, or special-status species in local or regional plans, policies, or regulations, or by the CDFW or USFWS.

Phase 1 Project Impact Analysis

Loss of Habitat for Special Status Plants

As indicated above in Table 3.4-1, a total of 18 special-status plant species could occur within the Phase 1 Project vicinity. Based on a review of the species habitat requirements and the characteristics of the Phase 1 Project area, all of the special-status plant species are absent from the Phase 1 Project area (LOA, 2017a). Therefore, no significant considerable environmental effects, nor cumulatively considerable environmental effects on special status plant species would occur as no special status plant species are present within the Phase 1 Project area. As such, impacts would be less than significant.

Loss of Habitat for Special Status Animals

As shown above in Table 3.4-1, a total of 17 special-status animal species occur, or once occurred, regionally. Most special status animal species known to occur in the region would not

be affected by the Phase 1 Project due to the absence of suitable habitat from the Phase 1 Project area or surrounding lands and/or because of the site's distance to known populations. Agricultural activities have altered the site's landscape, rendering it unsuitable for many of these special status animal species. Species that are absent from or unlikely to occur within the Phase 1 Project area include the vernal pool tadpole shrimp, valley elderberry longhorn beetle, western spadefoot, western pond turtle, blunt-nosed leopard lizard, coast horned lizard, Fresno kangaroo rat, and American badger. The pallid bad and most special status avian species (i.e., Swainson's hawk, bald eagle, golden eagle, and tricolored blackbird) would be unlikely to occur onsite incidental to their home range and migratory movements as the Phase 1 Project area does not provide optimal foraging, breeding, or roosting habitat (LOA, 2017a). Therefore, implementation of the Phase 1 Project would result in a less than significant impact to habitat for these species.

Burrowing Owl. The burrowing owl has the potential to occur within the Phase 1 Project area. Burrowing owl species were not observed within the Phase 1 Project area, but due to the existing Project site characteristics, it may be reasonably expected to occur within the Phase 1 Project area. The nearest documented occurrence of this species is over approximately 5.5 miles to the east of the Phase 1 Project area. The Phase 1 Project area provides limited and poor foraging habitat due to the lack of open habitat on the site. Although orchards are generally not suitable habitat for the burrowing owl, suitable breeding habitat in the form of ground squirrel burrows is present but limited onsite and is mostly concentrated along the northern boundary fence line. Rangelands to the north of Phase 1 Project area and roadsides may also support potentially suitable habitat for the burrowing owl (LOA, 2017a).

Although a portion of the Phase 1 Project area extends along the northern fence line adjacent to the range land to the north, the Phase 1 Project would not result in the loss of foraging habitat and would result in a minimal reduction of potential nesting habitat. However, if a burrowing owl were to nest within the Phase 1 Project area prior to the start of construction, construction activities could result in the abandonment of active nests or direct mortality resulting in a significant and cumulatively considerable environmental effect on the burrowing owl. As such, construction activities of the Phase 1 Project could result in a potentially significant impact (LOA, 2017a).

California tiger salamander. The Project site does not constitute California tiger salamander breeding habitat and only marginal aestivation habitat in the few areas where small mammal burrows exist along the northern boundary fence line (LOA, 2019). Implementation of the Phase 1 Project would result in a less than significant impact to habitat for the California tiger salamander.

Vernal pool fairy shrimp. The location of the 2017 vernal pool fairy shrimp occurrence southwest of the Phase 1 Project area has been altered such that conditions suitable for fairy shrimp no longer exist at that location. This area was found to be highly disturbed from high speed train construction activities. Standing water was observed along the northeast side of the existing railway, between the railway and the fence line to the Phase 1 Project area. While not visible during the survey due to no access of the high speed train construction area, ponded water on the southwest side of the railway is presumed to persist as aerial images show this area supporting a similar inundation regime as the ponded area north of the railway. In the unlikely event that vernal pool fairy shrimp occur here, there is no hydrologic connectivity between these pools and the

Phase 1 Project area, with the southern pool further separated from the Phase 1 Project area by the raised bed of the railway (LOA, 2019). Implementation of the Phase 1 Project would result in a less than significant impact to habitat for the vernal pool fairy shrimp.

San Joaquin kit fox. Given the lack of recent occurrences in the region, it is highly unlikely that the San Joaquin kit fox would occur within the Phase 1 Project area. At most, a dispersing individual may move through the site to access more suitable habitat in the region, but this is expected to be an extremely rare event given the lack of evidence that San Joaquin kit foxes are extant in the region. Therefore, while San Joaquin kit foxes are highly unlikely to occur within the Phase 1 Project area, construction-related activities may result in harm or injury to individual kit foxes were an errant individual to wander onto the site resulting in a significant and cumulatively considerable environmental effect on the San Joaquin kit fox (LOA, 2017a). As such, construction activities of the Phase 1 Project could result in a potentially significant impact.

Migratory Birds and Other Birds of Prey. While no stick nests were observed during the March 2016 survey conducted by LOA, raptors and migratory birds could establish nests in the eucalyptus trees along the southern boundary of the Project site (LOA, 2017a). The Phase 1 Project area is located along a portion of the northern boundary in the northwestern corner of the Specific Plan Program site. As such, the Phase 1 Project is not located in the vicinity of these eucalyptus trees. Therefore, implementation of the Phase 1 Project would result in a less than significant impact to migratory birds and other birds of prey.

Significance Determination before Mitigation: Significant

Phase 1 Project Cumulative Impact Analysis

Implementation of cumulative development in the vicinity of the Phase 1 Project could result in similar impacts to plant and wildlife species. These potential impacts could result in significant cumulative impacts to biological resources. Because the Phase 1 Project could result in significant impacts to wildlife species (including the burrowing owl and San Joaquin kit fox), the Phase 1 Project impacts would be cumulatively considerable.

Significance Determination before Mitigation: Significant

Phase 1 Project Mitigation Measures

BIO-1: *Pre-construction Surveys.* To avoid impacts to active burrowing owl nests, a qualified biologist shall conduct pre-construction surveys for burrowing owls. These surveys shall be conducted prior to construction within the Phase 1 Project site and prior to construction of individual project sites within the Program. The surveys shall be conducted within the development footprint and within 250 feet of the development within the Project footprint and within 250 feet of the development footprint no more than 14 days prior to the onset of ground disturbance. These surveys shall be conducted in a manner consistent with the CDFW's burrowing owl survey methods.

Avoidance of Active Nests During Breeding Season. If burrowing owls are detected within or immediately adjacent to the development footprint of the Phase 1 Project or an individual project within the Program site during the

breeding season (February 1 through August 31), a construction-free buffer of 250 feet or as otherwise determined by a qualified biologist, shall be established around all active owl nests. The buffer area shall be enclosed with temporary fencing, and construction equipment and personnel shall not enter the enclosed setback areas. Buffers shall remain in place for the duration of the breeding season or until it has been confirmed by a qualified biologist that all chicks have fledged and are independent of their parents. After the breeding season, passive relocation of any remaining owls may take place under the conditions described below.

Avoidance of Occupied Burrows During Non-breeding Season, and Passive Relocation of Resident Owls. During the non-breeding season (September 1 through January 31), any burrows occupied by resident owls in areas planned for development shall be protected by a construction-free buffer with a radius of 250 feet or as otherwise determined by a qualified biologist, around each active burrow. Passive relocation of resident owls is not recommended by CDFW where it can be avoided. If passive relocation is not avoidable, resident owls may be passively relocated according to a relocation plan prepared by a qualified biologist.

BIO-2: Pre-construction surveys shall be conducted no less than 14 days and no more than 30 days prior to the beginning of ground disturbance, construction activities, and/or any Project activity likely to impact the San Joaquin kit fox. The primary objective is to identify kit fox habitat features (e.g., potential dens and refugia) on the Project site and evaluate their use by kit foxes. If an active kit fox den is detected within or immediately adjacent to the area of work, the USFWS shall be contacted immediately to determine the best course of action for proceeding with work.

Permanent and temporary construction activities and other types of Project-related activities shall be carried out in a manner that minimizes disturbance to kit foxes, should their presence be detected on the site during pre-construction surveys. Minimization measures include, but are not limited to: restriction of Project-related vehicle traffic to established roads, construction areas, and other designated areas; inspection and covering of structures (e.g., pipes), as well as installation of escape structures, to prevent the inadvertent entrapment of kit foxes; restriction of rodenticide and herbicide use; and proper disposal of food items and trash.

The Sacramento field office of the USFWS and the Fresno field office of CDFW shall be notified in writing within three working days in case of the accidental death or injury to a San Joaquin kit fox during Project-related activities. Notification must include the date, time, location of the incident or of the finding of a dead or injured animal, and any other pertinent information.

Significance Determination after Mitigation: Less than Significant

Implementation of Mitigation Measures BIO-1 and BIO-2 prior to site grading of the Phase 1 Project would reduce potentially impacts to the burrowing owl and San Joaquin kit fox to less than significant.

Phase 1 Project Cumulative Measures

Implementation of Mitigation Measures BIO-1 and BIO-2 is required.

Significance Determination after Mitigation: Less than Significant

Implementation of Mitigation Measures BIO-1 and BIO-2 prior to site grading of the Phase 1 Project would reduce the Phase 1 Project's potential impacts to the burrowing owl and San Joaquin kit fox to less than cumulatively considerable.

Impact 3.4-1b: The proposed Program could have significant and cumulatively considerable effects on species because the Specific Plan Program could have a substantial adverse effect, either directly or through habitat modifications, on species identified as a candidate, sensitive, or special-status species in local or regional plans, policies, or regulations, or by the CDFW or USFWS.

Program Impact Analysis

Loss of Habitat for Special Status Plants

A total of 18 special-status plant species could occur within the Program vicinity. Based on a review of the species habitat requirements and the characteristics of the Specific Plan Program area, all of the special-status plant species are absent from the Specific Plan Program area (LOA, 2017a). Therefore, no significant considerable environmental effects, nor cumulatively considerable environmental effects on special status plant species would occur as no special status plant species are present within the Specific Plan Program area. As such, impacts would be less than significant.

Loss of Habitat for Special Status Animals

A total of 17 special-status animal species occur, or once occurred, regionally. Most special status animal species known to occur in the region would not be affected by the Specific Plan Program due to the absence of suitable habitat from the Specific Plan Program area or surrounding lands and/or because of the site's distance to known populations. Agricultural activities have altered the site's landscape, rendering it unsuitable for many of these special status animal species. As discussed above, species that are absent from or unlikely to occur within the Specific Plan Program area include the vernal pool tadpole shrimp, valley elderberry longhorn beetle, western spadefoot, western pond turtle, blunt-nosed leopard lizard, coast horned lizard, Fresno kangaroo rat, and American badger. The pallid bad and most special status avian species (i.e., Swainson's hawk, bald eagle, golden eagle, and tricolored blackbird) would be unlikely to occur onsite incidental to their home range and migratory movements as the Specific Plan Program area does not provide optimal foraging, breeding, or roosting habitat (LOA, 2017a). Therefore, implementation of the Specific Plan Program would result in a less than significant impact to habitat for these species.

Burrowing Owl. The burrowing owl has the potential to occur within the Specific Plan Program area. Burrowing owl species were not observed within the Specific Plan Program area, but due to the existing Project site characteristics, it may be reasonably expected to occur within the Specific Plan Program area. The nearest documented occurrence of this species is approximately 5.5 miles to the east of the Specific Plan Program area. Although orchards are generally not suitable habitat

for the burrowing owl, suitable breeding habitat in the form of ground squirrel burrows is present but limited onsite and is mostly concentrated along the northern boundary fence line. Rangelands to the north of Specific Plan Program area and roadsides may also support potentially suitable habitat for the burrowing owl (LOA, 2017a).

Although a portion of the Specific Plan Program site extends along the existing range land to the north, the Specific Plan Program would not result in the loss of foraging habitat but would result in a minimal reduction of potential nesting habitat. However, if a burrowing owl were to nest within the Specific Plan Program area prior to the start of construction, construction activities could result in the abandonment of active nests or direct mortality resulting in a significant and cumulatively considerable environmental effect on the burrowing owl. As such, construction activities of the Specific Plan Program could result in a potentially significant impact (LOA, 2017a).

California tiger salamander. The Project site does not constitute California tiger salamander breeding habitat and only marginal aestivation habitat in the few areas where small mammal burrows exist along the northern boundary fence line (LOA, 2019). Implementation of the Specific Plan Program would result in a less than significant impact to habitat for the California tiger salamander.

Vernal pool fairy shrimp. The location of the 2017 vernal pool fairy shrimp occurrence southwest of the Specific Plan Program area has been highly disturbed from high speed train construction activities and no longer exists. Standing water was observed along the northeast side of the existing railway, between the railway and the fence line to the Specific Plan Program area. While not visible during the survey due to no access of the high speed train construction area, ponded water on the southwest side of the railway is presumed to persist as aerial images show this area supporting a similar inundation regime as the ponded area north of the railway. In the unlikely event that vernal pool fairy shrimp occur here, there is no hydrologic connectivity between these pools and the Specific Plan Program area, with the southern pool further separated from the Specific Plan Program area by the raised bed of the railway (LOA, 2019). Implementation of the Specific Plan Program would result in a less than significant impact to habitat for the vernal pool fairy shrimp.

San Joaquin kit fox. Given the lack of recent occurrences in the region, it is highly unlikely that the San Joaquin kit fox would occur within the Specific Plan Program area. At most, a dispersing individual may move through the site to access more suitable habitat in the region, but this is expected to be an extremely rare event given the lack of evidence that San Joaquin kit foxes are extant in the region. Therefore, while San Joaquin kit foxes are highly unlikely to occur within the Specific Plan Program area, construction-related activities may result in harm or injury to individual kit foxes were an errant individual to wander onto the site resulting in a significant and cumulatively considerable environmental effect on the San Joaquin kit fox (LOA, 2017a). As such, construction activities of the Specific Plan Program could result in a potentially significant impact.

Migratory Birds and Other Birds of Prey. While no stick nests were observed during the March 2016 survey conducted by LOA, raptors and migratory birds could establish nests in the eucalyptus trees along the southern boundary of the Specific Plan Program area.

Construction activities could interfere with the breeding success of raptors and migratory birds due to the proximity of the eucalyptus trees to the Specific Plan Program area. There is potential for birds to nest in the orchards, although it is less likely due to the ongoing disturbances associated with orchard maintenance. However, if a migratory bird or other bird of prey were to nest on or adjacent to the Specific Plan Program area prior to or during construction, such activities could disrupt nesting behavior and result in the abandonment of active nests or direct mortality or other harm to these birds. As such, construction activities of the Specific Plan Program could result in a potentially significant impact (LOA, 2017a).

Significance Determination before Mitigation: Significant

Program Cumulative Impact Analysis

Implementation of cumulative development in the vicinity of the Specific Plan Program could result in similar impacts to plant and wildlife species. These potential impacts could result in significant cumulative impacts to biological resources. Because the Specific Plan Program could result in significant impacts to wildlife species (including the burrowing owl, San Joaquin kit fox, and migratory birds and other birds of prey), the Specific Plan Program impacts would be cumulatively considerable.

Significance Determination before Mitigation: Significant

Program Mitigation Measures

Implementation of Mitigation Measure BIO-1 and BIO-2.

BIO-3: *Construction Near Eucalyptus Trees.* No pre-construction avian nesting surveys are required if grading or construction activities are planned to occur during the non-breeding avian nesting season (September 1 through January 31).

Pre-construction Surveys. If grading or construction activities are planned to occur within 250 feet of eucalyptus trees during the breeding avian nesting season (February 1 through August 31), a qualified biologist shall conduct pre-construction surveys of the eucalyptus trees adjacent to the site for active nests of birds of prey and migratory birds within 14 days of the onset of these activities.

Establish Buffers. If nesting raptors or other migratory birds are detected in the eucalyptus trees adjacent to the site during the survey, a suitable construction-free buffer, as determined by a qualified biologist, shall be established around all active nests. The precise dimension of the buffer, which is typically up to 250 feet, would be determined at that time and may vary depending on such factors as location, species, topography, and line of sight to the construction area. The buffer area shall be enclosed with temporary fencing, and construction equipment and personnel shall not enter the enclosed area. Buffers shall remain in place for duration of the breeding season or until it has been confirmed by a qualified biologist that all chicks have fledged and are independent of their parents.

Significance Determination after Mitigation: Less than Significant

Implementation of Mitigation Measures BIO-1 through BIO-3 prior to site disturbance and grading within the southern portion of the Specific Plan Program site would reduce potentially impacts to the burrowing owl, San Joaquin kit fox and migratory birds and other birds of prey to less than significant.

Program Cumulative Measures

Implementation of Mitigation Measure BIO-1 through BIO-3 is required.

Significance Determination after Mitigation: Less than Significant

Implementation of Mitigation Measures BIO-1 through BIO-3 prior to site disturbance and grading within the southern portion of the Specific Plan Program site would reduce the Program's potentially impacts to the burrowing owl, San Joaquin kit fox and migratory birds and other birds of prey to less than cumulatively considerable.

Riparian Habitat

Impact 3.4-2a: The Phase 1 Project would have less than significant and less than cumulatively considerable effects on riparian habitat because the Phase 1 Project would not have a substantial adverse effect on riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations, or by the CDFG or USFWS.

Phase 1 Project Impact Analysis

According to the Biological Evaluation, riparian habitats are absent from the Project site (LOA, 2017a). However, approximately 0.56 acres of aquatic resources, consisting of 0.56 acres of seasonal, irrigated wetlands, are present within the Project site (USACE, 2019). The seasonal, irrigated wetland located in the Phase 1 Project area, is identified as NW-1 (0.11 acres) on Figure 3.4-2. This seasonal, irrigated wetland is typical of wetlands formed as a result of agricultural operations. NW-1 occurs within a swale segment that is a relic of the Phase 1 Project area's historical topography. Precipitation pools in this feature during the wet season and it collects and holds irrigation water through much of the summer growing season. This wetland supports weedy vegetation that includes wetland indicator species. NW-1 has minimal value as a wetland habitat and does not support hydrophytic plants or wildlife species typical of such habitats that naturally occur in the region (LOA, 2017a).

The Project includes a water resources management plan that has features of the Phase 1 Project that would result in a sustainable yield from the Madera Sub-basin. A portion of the groundwater recharge will come from impounding stormwater entering the Phase 1 Project site from the Schmidt Creek tributary in the northwest corner. The Schmidt Creek tributary drains a large area of vernal swales and vernal pools located to the north of the Phase 1 Project site. On the Phase 1 Project site, the Schmidt Creek tributary is a broad swale that leads to a culvert on the east side of Road 27 and daylights to another swale on the west side of Road 27. There is no physical evidence of frequent, large volumes of water entering the onsite swale from the north of the Phase 1 Project site contributing large volumes of water downstream. The offsite swale west of Road 27 extends past several residential homes. Standing water is present at this location during the winter

and spring that could provide aquatic habitat a source of drinking water for local wildlife. Given that water was present in the offsite swale in March 2016 but no surface water was present on the Phase 1 Project site in March 2016, the contribution of water coming from onsite or upstream of the Phase 1 Project site is minimal compared to the contribution of stormwater coming directly from precipitation and from sheet flow or directed flow coming from lands immediately surrounding the swale or other lands in the region. As such, the effects to downstream aquatic habitats as a result of impounding water entering the Phase 1 Project site from the Schmidt Creek tributary would be considered less than significant (LOA, 2017a).

Overall, the Phase 1 Project would not have a substantial adverse effect on riparian habitat or other sensitive natural communities identified in local or regional plans, policies, regulations, or by the CDFG or USFWS. As such, impacts would be less than significant.

Significance Determination before Mitigation: Less than Significant

Phase 1 Project Cumulative Impact Analysis

Implementation of cumulative development in the vicinity of the Phase 1 Project could result in impacts to riparian habitat. Impacts to riparian habitat would be considered a significant impact. Although cumulative development could result in impact to riparian habitat, the implementation of the Phase 1 Project would result in a less than significant impact to riparian habitat, and therefore, the Phase 1 Project's contribution to potential cumulative impacts to riparian habitat would be less than cumulatively considerable.

Significance Determination before Mitigation: Less than Significant

Phase 1 Project Mitigation Measures

No mitigation measures are required.

Significance Determination after Mitigation: Less than Significant

Phase 1 Project Cumulative Measures

No mitigation measures are required.

Significance Determination after Mitigation: Less than Significant

Impact 3.4-2b: The proposed Program would have less than significant and less than cumulatively considerable effects on habitat because the Specific Plan Program would not have a substantial adverse effect on riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations, or by the CDFG or USFWS.

Program Impact Analysis

According to the Biological Evaluation, riparian habitats are absent from the Specific Plan Program site (LOA, 2017a). However, approximately 0.56 acres of aquatic resources, consisting of 0.56 acres of seasonal, irrigated wetlands, are present within the Program site (USACE, 2019). The seasonal, irrigated wetland located in the Specific Plan Program area is identified as SW-1 (0.45 acres) on Figure 3.4-2. Similar to NW-1 discussed above, SW-1 is typical of wetlands formed as a result of agricultural operations. This wetland occurs within a swale segment that is a

relic of the Specific Plan Program area's historical topography. Precipitation pools in this feature during the wet season and it collects and holds irrigation water through much of the summer growing season. This wetland supports weedy vegetation that includes wetland indicator species. SW-1 has minimal value as a wetland habitat and does not support hydrophytic plants or wildlife species typical of such habitats that naturally occur in the region (LOA, 2017a).

As discussed above, the effects to downstream aquatic habitats as a result of impounding water entering the Program site from the Schmidt Creek tributary would be considered less than significant (LOA, 2017a).

Overall, the Specific Plan Program would not have a substantial adverse effect on riparian habitat or other sensitive natural communities identified in local or regional plans, policies, regulations, or by the CDFG or USFWS. As such, impacts would be less than significant.

Significance Determination before Mitigation: Less than Significant

Program Cumulative Impact Analysis

Implementation of cumulative development in the vicinity of the Specific Plan Program could result in impacts to riparian habitat. Impacts to riparian habitat would be considered a significant impact. Although cumulative development could result in impact to riparian habitat, the implementation of the Specific Plan Program would result in a less than significant impact to riparian habitat, and therefore, the Program's contribution to potential cumulative riparian impacts would be less than cumulatively considerable.

Significance Determination before Mitigation: Less than Significant

Program Mitigation Measures

No mitigation measures are required.

Significance Determination after Mitigation: Less than Significant

Program Cumulative Measures

No mitigation measures are required.

Significance Determination after Mitigation: Less than Significant

Federally Protected Wetlands

Impact 3.4-3a: The Phase 1 Project would have less than significant and less than cumulatively considerable effects on wetlands because the Project would not 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.

Phase 1 Project Impact Analysis

A formal wetland delineation and waters of the U.S. analysis was completed for the Project site and submitted to the USACE for verification on October 26, 2018. According to the letter from the USACE dated September 9, 2019, approximately 0.56 acres of aquatic resources, consisting of 0.56 acres of seasonal wetlands, are present within the survey area. The seasonal, irrigated wetland located in the Phase 1 Project area, is identified as NW-1 (0.11 acres) on Figure 3.4-2. NW-1 has no apparent interstate or foreign commerce connection. As such, this aquatic resource is not currently regulated by the USACE. Therefore, NW-1 is considered a water of the State subject to the RWQCB's jurisdiction (USACE, 2019). Implementation of the Phase 1 Project would not have a substantial adverse effect on state or federally protected wetlands. As such, impacts would be less than significant.

Significance Determination before Mitigation: Less than Significant

Phase 1 Project Cumulative Impact Analysis

Implementation of cumulative development in the vicinity of the Phase 1 Project could result in impacts to wetland habitat. Impacts to wetland habitat would be considered a significant impact. Although cumulative development could result in impacts to wetland habitat, the implementation of the Phase 1 Project would result in a less than significant impact to wetland habitat, and therefore, the Phase 1 Project's impacts associated with wetlands would be less than cumulatively considerable.

Significance Determination before Mitigation: Less than Significant

Phase 1 Project Mitigation Measures

No mitigation measures are required.

Significance Determination after Mitigation: Less than Significant

Phase 1 Project Cumulative Measures

No mitigation measures are required.

Significance Determination after Mitigation: Less than Significant

Impact 3.4-3b: The proposed Program would have less than significant and less than cumulatively considerable effects on wetlands because the Program would not 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.

Program Impact Analysis

A formal wetland delineation and waters of the U.S. analysis was completed for the Project site and submitted to the USACE for verification on October 26, 2018. According to the letter from the USACE dated September 9, 2019, approximately 0.56 acres of aquatic resources, consisting of 0.56 acres of seasonal wetlands, are present within the survey area. The seasonal, irrigated wetland located in the Specific Plan Program area, is identified as SW-1 (0.45 acres) on Figure 3.4-2. SW-1 has no apparent interstate or foreign commerce connection. As such, this aquatic resource is not currently regulated by the USACE. Therefore, SW-1 is considered a water of the State subject to the RWQCB's jurisdiction (USACE, 2019). Implementation of the Specific Plan Program would not have a substantial adverse effect on state or federally protected wetlands. As such, impacts would be less than significant.

Significance Determination before Mitigation: Less than Significant

Program Cumulative Impact Analysis

Implementation of cumulative development in the vicinity of the Specific Plan Program could result in impacts to wetland habitat. Impacts to wetland habitat would be considered a significant impact. Although cumulative development could result in impacts to wetland habitat, the implementation of the Specific Plan Program would result in a less than significant impact to wetland habitat, and therefore, the Program's impacts associated with wetlands would be less than cumulatively considerable.

Significance Determination before Mitigation: Less than Significant

Program Mitigation Measures

No mitigation measures are required.

Significance Determination after Mitigation: Less than Significant

Program Cumulative Measures

No mitigation measures are required.

Significance Determination after Mitigation: Less than Significant

Wildlife Corridors and Nursery Sites

Impact 3.4-4a: The Phase 1 Project would have less than significant and less than cumulatively considerable effects on the movement of species because the Phase 1 Project would not interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites.

Phase 1 Project Impact Analysis

Wildlife species may use the Phase 1 Project area as part of their normal home range and dispersal movements between the Phase 1 Project area and more open lands to the north and east or to the Fresno River to the south. However, the Phase 1 Project area would not be expected to facilitate regional movements of wildlife in a disproportionate way as to function as a movement corridor because animals would have to travel through miles of marginal to poor habitat (i.e., agricultural fields and orchards) to reach the Phase 1 Project area, which itself holds little habitat value, and urban development to the west and south serves as a barrier to regional wildlife movements. Wildlife would move through all portions of the Phase 1 Project area, as they would also do on surrounding lands, and any animals reaching the Phase 1 Project area from the more open lands to the north and east would be expected to disperse back in these directions. Many migratory species that now pass through the Phase 1 Project area are neo-tropical migrant birds that are likely to pass through and over the Phase 1 Project area, even when developed. (LOA, 2017a). Therefore, the Phase 1 Project would not interfere substantially with the movement of any native resident or migratory fish or wildlife corridors, or impede the use of native wildlife nursery sites. As such, impacts would be less than significant.

Significance Determination before Mitigation: Less than Significant

Phase 1 Project Cumulative Impact Analysis

Because there are no established wildlife corridors located within the vicinity of the Phase 1 Project, the implementation of cumulative development is not expected to interfere with the movement of any native resident or migratory fish or wildlife species. Therefore, cumulative projects would result in less than significant impacts to native resident or migratory fish or wildlife species. Because the Phase 1 Project would result in a less than significant impact to native resident or migratory fish or wildlife species, the Phase 1 Project's contribution to wildlife corridor impacts would be less than cumulatively considerable.

Significance Determination before Mitigation: Less than Significant

Phase 1 Project Mitigation Measures

No mitigation measures are required.

Significance Determination after Mitigation: Less than Significant

Phase 1 Project Cumulative Measures

No mitigation measures are required.

Significance Determination after Mitigation: Less than Significant

Impact 3.4-4b: The proposed Program would have less than significant and less than cumulatively considerable effects on the movement of species because the Program would not interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites.

Program Impact Analysis

Wildlife species may use the Specific Plan Program area as part of their normal home range and dispersal movements between the Specific Plan Program area and more open lands to the north and east or to the Fresno River to the south. However, the Specific Plan Program area would not be expected to facilitate regional movements of wildlife in a disproportionate way as to function as a movement corridor because animals would have to travel through miles of marginal to poor habitat (i.e., agricultural fields and orchards) to reach the Specific Plan Program area, which itself holds little habitat value, and urban development to the west and south serves as a barrier to regional wildlife movements. As discussed above, wildlife would move through all portions of the Specific Plan Program area, as they would also do on surrounding lands, and any animals reaching the Specific Plan Program area from the more open lands to the north and east would be expected to disperse back in these directions. Similar to the Phase 1 Project area, many migratory species that now pass through the Specific Plan Program area are neo-tropical migrant birds that are likely to pass through and over the Specific Plan Program area, even when developed. (LOA, 2017a). Therefore, the Specific Plan Program area would not interfere substantially with the movement of any native resident or migratory fish or wildlife corridors, or impede the use of native wildlife nursery sites. As such, impacts would be less than significant.

Significance Determination before Mitigation: Less than Significant

Specific Plan Program Cumulative Impact Analysis

Because there are no established wildlife corridors located within the vicinity of the Specific Plan Program, the implementation of cumulative development is not expected to interfere with the movement of any native resident or migratory fish or wildlife species. Therefore, cumulative projects would result in less than significant impacts to native resident or migratory fish or wildlife species. Because the Specific Plan Program would result in a less than significant impact to native resident or migratory fish or wildlife species, the Program's contribution to wildlife corridor impacts would be less than cumulatively considerable.

Significance Determination before Mitigation: Less than Significant

Specific Plan Program Mitigation Measures

No mitigation measures are required.

Significance Determination after Mitigation: Less than Significant

Specific Plan Program Cumulative Measures

No mitigation measures are required.

Significance Determination after Mitigation: Less than Significant

Local Policies or Ordinances Protecting Biological Resources

Impact 3.4-5a: The Phase 1 Project would have less than significant and less than cumulatively considerable effects on biological resources because the Phase 1 Project would not conflict with local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance.

Phase 1 Project Impact Analysis

According to the Biological Evaluation, no local ordinances, habitat conservation plans (HCPs), or natural community conservation plans (NCCPs) are known to be in effect for the Phase 1 Project area (LOA, 2017a).

Table 3.4-2 above, provides the applicable goals and policies of the Madera County General Plan, consistency determinations of each goal and policy, and consistency analysis. As shown in Table 3.4-2, the Phase 1 Project is consistent with the General Plan.

Overall, the Phase 1 Project would not conflict with local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance. As such, impacts would be less than significant.

Significance Determination before Mitigation: Less than Significant

Phase 1 Project Cumulative Impact Analysis

As cumulative development occurs, each development will be required to comply with the local policies and ordinances. Therefore, cumulative impacts related to biological resources policies and ordinances are expected to be less than significant. Because the implementation of the Phase 1 Project would result in less than significant impacts to local policies and ordinances, the Phase 1 Project's contribution to impacts to local policies and ordinances would be less than cumulatively considerable.

Significance Determination before Mitigation: Less than Significant

Phase 1 Project Mitigation Measures

No mitigation measures are required.

Significance Determination after Mitigation: Less than Significant

Phase 1 Project Cumulative Measures

No mitigation measures are required.

Significance Determination after Mitigation: Less than Significant

Impact 3.4-5b: The proposed Program would have less than significant and less than cumulatively considerable effects on biological resources because the Program would not conflict with local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance.

Program Impact Analysis

As discussed above, no local ordinances, HCPs, or NCCPs are known to be in effect for the Specific Plan Program (LOA, 2017a).

Table 3.4-2 above, provides the applicable goals and policies of the Madera County General Plan, consistency determinations of each goal and policy, and consistency analysis. As shown in Table 3.4-2, the Specific Plan Program is consistent with the General Plan.

Overall, the Specific Plan Program would not conflict with local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance. As such, impacts would be less than significant.

Significance Determination before Mitigation: Less than Significant

Program Cumulative Impact Analysis

As cumulative development occurs, each development will be required to comply with the local policies and ordinances. Therefore, cumulative impacts related to biological resources policies and ordinances are expected to be less than significant. Because the implementation of the Specific Plan Program would result in less than significant impacts to local policies and ordinances, the Specific Plan Program's contribution to impacts to local policies and ordinances would be less than cumulatively considerable.

Significance Determination before Mitigation: Less than Significant

Program Mitigation Measures

No mitigation measures are required.

Significance Determination after Mitigation: Less than Significant

Program Cumulative Measures

No mitigation measures are required.

Significance Determination after Mitigation: Less than Significant

3.4.4 References

Department of the Army, U.S. Army Corps of Engineers (USACE). 2019 Letter responding to October 26, 2018 request for an approved jurisdictional determination for the Herman Property Site. September 9, 2019.

Live Oak Associates, Inc. (LOA). 2019. Habitat assessments for California tiger salamander and vernal pool fairy shrimp on the Herman property in Madera County, California (PN 995-03). June 12, 2019.

Live Oak Associates, Inc. (LOA). 2018. Investigation of Potential Waters of the United States Herman Property/Castellina Madera County, California. Revised October 22, 2018

Live Oak Associates, Inc. (LOA). 2017a. Herman Property/Castellina Biological Evaluation, Madera County, California. February 27, 2017.

Live Oak Associates, Inc. (LOA). 2017b. Summary of correspondence with the U.S. Fish and Wildlife Service for the Herman property in Madera, California (PN 995-03). March 6, 2017.

Live Oak Associates, Inc. 2007. (LOA). Results of the Protocol Level Branchiopod Wet Season Survey and California Tiger Salamander Evaluation for the Herman Property, Madera County, California (PN 995-02). June 29, 2007.

U.S. Fish and Wildlife Service (USFWS). 2007. Comments on Branchiopod and Salamander Surveys at Herman Property and Additional Site Description, Madera County, California. October 29, 2007.

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3.5 Cultural and Tribal Cultural Resources

This section addresses the potential impacts of the Project to cultural and tribal cultural resources in the Project vicinity in accordance with the significance criteria established in Appendix G of the *CEQA Guidelines*. This section is based on various resources located in Appendix D of this Draft EIR. These resources include: *Cultural Resources Assessment Report, Castellina Specific Plan Project, County of Madera, California* prepared by ESA in April 2018 (**Appendix E-1**), *A Cultural Resources Survey for the 793.45-acre Herman Parcel, APN 031-221-001 and 031-222-019. Avenue 17 at Road 28½, Madera County, California* prepared by Sierra Valley Cultural Planning in January 2007 (**Appendix E-2**), *Paleontological Resources Survey for the 793.45-acre Herman Parcel, APN 031-221-001 and 031-222-019, Avenue 17 at Road 28½, Madera County, California* prepared by Sierra Valley Cultural Planning in October 2016 (**Appendix E-3**), and a Sacred Lands Files Search by the Native American Heritage Commission as well as Assembly Bill 52 and Senate Bill 18 Native American Consultation Notification Letters sent by the County of Madera in February 2019 and June 27, 2019, respectively (**Appendix E-4**).

Cultural resources include prehistoric and historic sites, structures, districts, places, and landscapes, or any other physical evidence associated with human activity considered important to a culture, a subculture, or a community for scientific, traditional, religious or any other reason. For this analysis, paleontological resources, although not associated with past human activity, are grouped within cultural resources. Additionally, cultural resources may be categorized into the following groups: archaeological resources, historic resources (including architectural/ engineering resources), contemporary Native American resources, human remains, and paleontological resources.

3.5.1 Environmental Setting

Natural Setting

The Specific Plan area falls within the east-central part of the San Joaquin Valley, which encompasses the southern portion of California's Central Valley. The valley is located approximately 21 miles east of the Sierra Nevada Mountains, and is composed of active alluvial fans, alkali basins, and river floodplains. Historically, the valley supported a treeless plain with patches of alkali-tolerant annual forbs and grasses. Wildlife included antelope, deer, and elk, which wintered on the plains, as well as jackrabbits, ground squirrels, and quail. Currently, the Specific Plan area is used for agricultural production and contains almond and fig orchards, related agricultural support facilities (e.g., equipment storage), wells, and unimproved dirt roadways.

Geology and Paleontology

The Project site is underlain by two geologic units (Sierra Valley Cultural Planning, 2016): Qtl, sediments of the Quaternary Turlock Lake Formation, and Qrb, sediments of the Quaternary Riverbank Formation. The records and literature search revealed no previously recorded paleontological sites within the study area (Sierra Valley Cultural Planning, 2016).

Qtl – Quaternary Turlock Lake Formation

The Quaternary Turlock Lake Formation (Qtl) underlies the Riverbank Formation. This sedimentary formation consists primarily of arkosic alluvium, mostly fine sand, silt, and, in places, clay at the base grading upward into coarse sand and occasional coarse pebbly sand or gravel. These sediments were derived from fluvial channels and overbank deposits along the eastern Sacramento and San Joaquin valleys. These sediments are middle Pleistocene in age from about 450,000 to 1 million years old. The Turlock Lake Formation varies widely in thickness but is the thickest in the middle portion of the Central Valley and thinnest in the foothills of the Sierras. Elsewhere in Madera County, large extinct vertebrate fossils are known from natural outcrops; but new discoveries have been recovered from excavations for roads, housing projects, and quarries in Turlock Lake Formation (Sierra Valley Cultural Planning, 2016).

TRC Lowney (2007) conducted a geotechnical investigation of the Project site with borings. The investigations and borings were not able to separate the Turlock from the overlying Riverbank Formation. In the Fresno area, the Turlock Lake Formation is 4.8 meters thick (Sierra Valley Cultural Planning, 2016).

Qrb – Quaternary Riverbank Formation

The Quaternary Riverbank Formation (Qrb) is thought to be 200 feet thick and is presently in an outcrop belt from 50 miles north and 150 miles south of Sacramento along the eastern San Joaquin and Sacramento valleys (Sierra Valley Cultural Planning, 2016). This mid- to late Pleistocene-age river terrace deposit consists of two members. Although both members (upper and lower) consist of fluvial clays, sands, and gravels, the upper member is more widespread. The older lower member consists of red semi-consolidated gravel, sand, and silt. The Quaternary Riverbank Formation is mapped and present in the subsurface over the entire Project area (Sierra Valley Cultural Planning, 2016). These sediments consist of reddish arkosic sand, silt, and clay and Sierran-derived sediment accumulated in fluvial channels and overbank deposits on the eastern San Joaquin Basin alluvial fans during aggradational events associated with Quaternary glacial episodes (Sierra Valley Cultural Planning, 2016). These sediments are late Pleistocene in age dated at 130,000 to 450,000 years old (Sierra Valley Cultural Planning, 2016).

The geotechnical investigations and borings on the Project site were not able to separate the Riverbank from the underlying Turlock Formation (Sierra Valley Cultural Planning, 2016). In the Fresno area, the Riverbank Formation is 4.4 meters thick (Sierra Valley Cultural Planning, 2016).

Prehistoric Setting

The Central Valley prehistoric record is divided into three basic periods: Paleo-Indian (11,550 to 8,550 cal B.C.), Archaic (8,550 cal B.C. to cal A.D. 1100), and Emergent (cal A.D. 1100 to Historic). The Archaic period is further divided into three sub-periods: Lower Archaic (8,550 to 5,550 cal B.C.), Middle Archaic (5,550 to 550 cal B.C.), and Upper Archaic (550 cal B.C. to cal A.D. 1100) (ESA, 2018).

Paleo-Indian (11,550 to 8,550 cal B.C.)

Evidence of human occupation of the Central Valley during the Paleo-Indian period comes primarily from the San Joaquin Valley. Basally thinned and fluted concave base projectile points, similar to Clovis points, have been found in three San Joaquin Valley areas: Tracy Lake, the Woolfsen mound, and the Tulare Lake basin. The Witt site (CA-KIN-32), located on a Late Pleistocene shoreline of Tulare Lake, produced hundreds of these points (ESA, 2018). Human and faunal bone recovered from this site dated to between 10,788 and 17,745 uncalibrated radiocarbon years before present; however, there is no direct association between the projectile points and the bone. Little other evidence of human occupation during the Paleo-Indian period is available for the Central Valley.

Lower Archaic (8,550 to 5,550 cal B.C.)

Lower Archaic occupation of the Central Valley is known mainly from isolated finds located along the ancient shorelines of lakes. Stemmed points, chipped stone crescents, and other flaked stone artifacts are frequently recovered from the ancient shorelines of Tulare Lake (ESA, 2018). Archaeological evidence from the valley floor and adjacent foothill areas suggest two distinct cultural adaptations, though degree of variation and interaction between valley floor and foothill groups is presently unknown; these variations may not represent divergent adaptations, but rather seasonal expressions of the same group (ESA, 2018).

Very little archaeological evidence exists for occupation of the valley floor during the Lower Archaic. One component from site CA-KER-116 was dated to between 7,175 and 6,450 cal B.C. based on radiocarbon assays obtained from freshwater mussels. This site is located on the ancient shoreline of Buena Vista Lake, between Bakersfield and Taft (ESA, 2018). The artifact assemblage from CA-KER-116 included chipped stone crescents, a stemmed projectile point fragment, a carved stone atlatl spur, and some flaked stone tools. Faunal bone included freshwater fish, waterfowl, freshwater mussel, and artiodactyl. No plant remains or milling tools were recovered (ESA, 2018). While regional trade of marine shell beads and obsidian is well documented for other areas during this time, Lower Archaic deposits from CA-KER-116 do not contain beads or obsidian.

In contrast to the valley floor, ground stone tools indicative of plant processing, such as handstones and millingslabs, are common in adjacent foothill sites (ESA, 2018). These sites appear to have been seasonally exploited, with nuts, such as acorn and pine, consumed more than small seeds. Artifact assemblages suggest a semi-permanent settlement system with rotating occupation of seasonal camps.

Middle Archaic (5,550 to 550 cal B.C.)

The Middle Archaic is characterized by a climatic shift to warmer, drier conditions, similar to present-day conditions. This change was likely the primary impetus for culture change throughout California. In the Central Valley, Tulare Lake receded as the Sacramento-San Joaquin Delta wetland habitat developed.

By the Middle Archaic, foothill and valley floor groups were distinct and separate adaptations. Early sites from the Middle Archaic period are more abundant in the foothill areas and are characterized by a large quantity of stone implements designed to exploit acorns and pine nuts. Projectile points are typically composed from locally available materials and include notched, stemmed, thick-leaf, and narrow concave base darts. There is a lack of bone and shell artifacts (ESA, 2018).

Valley floor groups are better represented in sites dating from the later Middle Archaic period and reflect an increasing exploitation of river corridors in the Sacramento and San Joaquin valleys. Sites were occupied year round and technological assemblages suggest a growing reliance on fishing. Gorge hooks, composite bone hooks, and spears all appear in the archaeological record during the Middle Archaic. Tule elk, mule deer, pronghorn sheep, rabbits, and waterfowl are also represented in faunal assemblages and indicate exploitation of freshwater marshes, riparian forests, and grasslands. Mortars and pestles appear around 4,050 cal B.C.; however, acorn and pine nut remains are also commonly recovered from sites lacking mortars and pestles (ESA, 2018).

Middle Archaic northern San Joaquin Valley and southern Sacramento Valley sites include artifacts more common to later time periods elsewhere, including fine-twisted cordage, twined basketry, basketry awls, simple pottery, and baked clay objects (ESA, 2018). Items of personal adornment, such as stone plummets, bird bone tubes, and shell beads, are also present in Middle Archaic deposits (ESA, 2018)

Regional trade was widespread during the Middle Archaic, as evidenced by obsidian and shell beads and ornaments commonly recovered from sites. The earliest appearance of Olivella grooved-rectangle beads is in the southern San Joaquin Valley (at sites CA-KER-3166/H and CA-KER-5404) and generally date to 3,050 cal B.C. or earlier (ESA, 2018). Settlement patterns reflect more stable, long-term occupation of resource-abundant areas.

The Middle Archaic period is typified by the Windmiller Pattern, first identified in the Sacramento-San Joaquin delta region. In the Central Valley, Windmiller sites generally date to between 1,850 and 750 cal B.C. These sites, found as far south as Buena Vista Lake in the San Joaquin Valley, are characterized by westerly oriented, ventrally and dorsally extended burials and complex grave offerings (ESA, 2018). During this period, Windmiller cemeteries exhibit not only a distinct burial pattern, but evidence of resource depletion and increased interpersonal violence. Osteological studies reveal higher levels of malnutrition and skeletal trauma, such as fractures and embedded stone points (ESA, 2018).

Upper Archaic (550 cal B.C. to cal A.D. 1100)

Climatic changes at the start of the Upper Archaic resulted in a cooler, wetter, and more stable environment. During the Upper Archaic period, regional variations were more common and focused on resources that could be processed in bulk, such as acorns, salmon, shellfish, rabbits, and deer. Polished and ground stone plummets, sometimes recovered as caches, are commonly recovered from riparian environments and marshlands in the delta and southern San Joaquin Valley. Use of mortars and pestles for food processing was prevalent, except for the valley margins where handstones and millingslabs remained dominant (ESA, 2018).

Shell bead trade and technological specialization increased. Shell bead types include saucer and saddle-shaped Olivella beads. Bone wands, tubes, and ornaments, as well as well-made ceremonial obsidian blades, appear in the archaeological record at this time. In San Joaquin Valley, obsidian biface blanks were imported via east-west travel corridors from eastern Sierra Nevada Mountains quarries, including Bodie Hills, Casa Diablo, and Coso. Lanceolate-shaped bifaces were produced by specialized craftsman located near northern obsidian sources, but are to the southern Sacramento Valley.

The delta region of the lower Sacramento Valley saw the rise of large mounded villages characterized by extensive habitation deposits with fire-cracked rock, hearths, ovens, house floors, and flexed burials. This adaptation is known as the Berkeley Pattern. However, descendants of the Windmiller Pattern remained in the San Joaquin Valley during this time period. Upper Archaic Windmiller sites in the San Joaquin Valley are generally located along the western and southern margins of the delta, as well as near streams and marshes (ESA, 2018) Excavated cemeteries located along the western fringes of the San Joaquin Valley contained either flexed or extended burials, and may reflect alternating occupation of this area by valley and coastal range groups.

Sites around Buena Vista Lake in the southern San Joaquin Valley reflect year-round occupation of villages and include house floors and extensive middens. House floors appear in the archaeological record as large, round depressions ranging in diameter from 4 to 8 meters and 0.3 to 1 meter in depth. Other indicators of residential dwellings could include hearths, post holes, and underground storage pits (ESA, 2018).

Emergent (cal A.D. 1000 to Historic)

During the Emergent Period, many Archaic Period technologies and cultural traditions disappeared throughout the Central Valley. Practices very similar to those observed by later European explorers appeared at this time. Research on Emergent Period sites in the San Joaquin Valley has been limited and only one cultural pattern, the Panoche Complex, has been fully identified. The Panoche Complex (circa A.D. 1500 to 1850) is characterized by large circular structures, flexed burials and cremations, small side-notched projectile points, shell disk beads, and ground stone, such as mortars, pestles, and some metates (ESA, 2018).

The Emergent Period is often divided into the Lower Emergent (A.D. 500-1500) and Upper Emergent (A.D. 1500-1800). The Lower Emergent Period is characterized by banjo-type Haliotis ornaments, incised bird bone whistles and tubes, flanged soapstone pipes, and rectangular Olivella sequin beads. The bow and arrow replaced the dart and atlatl in hunting tool kits. Panoche side-notched points, a variation on the Desert side-notched point, have been recovered from Lower Emergent Period sites along the western side of the San Joaquin Valley. The Upper Emergent is characterized by small corner-notched and desert series projectile points, Olivella lipped and clam disk beads, bead drills, magnesite cylinders, and hopper mortars. While limited cremation was practiced during the Lower Emergent, it became widespread during the Upper Emergent. In general, increasingly complex burial practices developed, as indicated by grave goods and variation in burial type (ESA, 2018).

By the end of the Emergent Period, village sites and territorial boundaries closely resembling those documented in ethnographic literature had been established. Manufacturing centers were decentralized and raw materials in the form of obsidian cobbles and shell bead blanks were transported from their sources to areas where the finished product would be completed. Trade relations were highly regularized and sophisticated, with increasing quantities of goods moving over greater distances. Clam disk beads became a monetary unit of trade. Individual and groups of specialized craftsman arose governing various aspects of production and exchange throughout California (ESA, 2018).

Central Valley sites during this time period exhibit faunal assemblages characterized by large quantities of fish bone and a diversity of bird and mammal bones, with some regional variations. Plant use is represented by the mortar and pestle, though the types of plants exploited in the San Joaquin Valley is not well documented. In the Sacramento Valley, small seeds became an increasingly important staple, as well as acorns, pine nuts, and manzanita. Diverse fishing equipment assemblages are common to the Sacramento Valley and include several types of harpoons, bone fish hooks, and gorge hooks. Twined and coiled basketry and netting have been recovered from several sites in the Central Valley, including CA-MER-3 (the Menjoulet Site) located near Los Banos Creek (ESA, 2018).

In the southern San Joaquin Valley, pottery was not manufactured but was obtained by trade with groups from the foothills to the east. Consumnes pottery was produced in the Sacramento Valley and is represented in several artifact assemblages from Sacramento County sites. Other clay items recovered from Sacramento Valley sites include baked clay balls (possibly used for cooking), and human and animal effigies (ESA, 2018).

House floors are common throughout the Central Valley during the Emergent Period. A very large house floor, probably representing a ceremonial structure, was documented during excavations at the Menjoulet Site in Merced County. The floor measured 28 meters in diameter with a mud wall around the perimeter. Thirty cremations and two inhumations were recovered from the house floor (ESA, 2018).

Ethnographic Setting

At the time of contact, the Central Valley was occupied by speakers of the California Penutian language family, specifically the Yokuts. The Yokuts entered the San Joaquin Valley sometime prior to A.D. 1400, perhaps by force, as indicated by skeletal remains with fatal wounds inflicted by projectile points. Historically, Yokuts have been divided into three cultural-geographical groupings: Northern Valley, Southern Valley, and Foothills (ESA, 2018).

The territory of the Northern Valley Yokuts is defined roughly by the crest of the Diablo Range on the west and the foothills of the Sierra Nevada on the east. The southern boundary is located approximately where the San Joaquin River bends northward and the northern boundary is roughly half way between the Calaveras and Mokelumne Rivers. Populations were concentrated along waterways and on the more hospitable east side of the San Joaquin River (ESA, 2018). The

Southern Valley Yokuts territory included Tulare, Buena Vista, and Kern lakes and the lower portions of the Kings, Kaweah, Tule, and Kern rivers (ESA, 2018).

Yokuts were organized into distinct groups each of which had their own name, dialect, and territory. Each group averaged about 350 persons (ESA, 2018). Yokuts were uniquely egalitarian in their political organization. Local groups were self-governing and all members received equal ownership and access to most resources (ESA, 2018). Both Northern Valley Yokuts and Southern Valley Yokuts established permanent settlements on high ground near larger bodies of water, above flood levels. Housing consisted of small round or oval-shaped structures framed by light wooden poles tied together and topped with tule mats.

Northern Valley Yokuts favored smaller milling tools, such as mortars and pestles, with larger milling implements, such as manos and metates, used less frequently. Flaked stone tools were manufactured primarily from locally available materials, including chert, jasper, and chalcedony. Tools made from imported obsidian were less common. Tribes traded for baskets, bows and arrows, and mussel and abalone shells (ESA, 2018).

Southern Valley Yokuts relied heavily on tule reeds for basketry and making floor mats. Basketry tools, such as awls, were manufactured primarily from large mammal bones. Cordage was constructed from milkweed. Stone was less abundant in the Southern Valley Yokuts territory and lithic material and milling implements were generally obtained through trade. Other items acquired through trade with neighboring groups include Olivella and abalone shells, as well as clam disk monetary beads (ESA, 2018). Both Northern Valley Yokuts and Southern Valley Yokuts used tule to construct watercraft.

Diets consisted mainly of fish, waterfowl, shellfish, roots, and seeds. Preferred fish included lake trout and, when available, steelhead, salmon and sturgeon. Chub, perch, and suckers were less desirable and caught in smaller numbers. Northern Valley Yokuts also had access to salmon, which would spawn in the San Joaquin River and its primary feeder streams. Fish were caught by trolling with nets, diving with hand nets, spearing, or capturing fish via basketry traps, with bare hands, or with a bow and arrow. Available waterfowl included geese, ducks, and mud hens. Methods for capturing birds included snares, nets, bow and arrow, and throwing tule mats over their prey. Stuffed decoys were employed to assist in capture. The Yokuts also acquired eggs from nests (ESA, 2018).

Other foodstuffs included freshwater mussels, turtles, wild seeds and roots, which were all consumed in large quantities. Grassnut roots were roasted whole or made into a paste. For the Southern Valley Yokuts, the absence of oak trees in the valley floor meant that acorns were only available by travel or trade, while Northern Valley Yokuts enjoyed greater access to this staple. Land mammals comprised an insignificant percentage of the Yokuts diet. On occasion, wild pigeons, jackrabbits, ground squirrels, and burrowing rodents were acquired. Larger game, such as antelope and elk, were rarely hunted (ESA, 2018).

Historic Setting

Widespread exploration of the Central Valley began in the early 1800s when Lieutenant Gabriel Moraga led a Spanish contingent over Pacheco Pass and into the valley. In the ensuing years, Moraga made several expeditions into the San Joaquin Valley to scout for potential mission sites and pursue runaway neophytes; however, no permanent Spanish settlements were established in the San Joaquin Valley (ESA, 2018).

One of the earliest Spanish trails, known as El Camino Viejo (The Old Road), ran north-south through the San Joaquin Valley extending from San Pedro to San Antonio. The trail followed the path of a prehistoric trail and skirted the eastern slope of the Coast Range foothills (approximately 50 miles west of the Specific Plan area). El Camino Viejo was an alternative route to heavily traveled El Camino Real (The Royal Road) and was often the preferred route of those wishing to travel under the radar of the Spanish government. The trail, called "The Old Trace" by American settlers, became a stagecoach and mail route and also an important route for cattle ranchers. In the valley, the route largely corresponds to modern-day Interstate 5.

Mexico gained independence in 1821 and set about secularization of the missions and promoting settlement of Alta California through the issuance of land grants and liberal colonization laws, which did not prevent foreigners from settling in Mexican territory. This allowed for a significant number of Americans to gain a foothold in Alta California. In an attempt to prevent continued foreign incursion and promote a greater Mexican presence in the interior, Mexico issued the 1840 Law of Colonization and encouraged the establishment of cattle ranches in the Central Valley; however, few Mexican land grants were issued in the San Joaquin Valley.

In the mid-to-late-1820s, American trappers, including Jedediah Smith, Ewing Young, and Kit Carson, entered to the region in order to hunt fur-bearing animals inhabiting the valley. In 1848, gold was discovered at Sutter's Mill resulting in a large influx of immigrants hoping to make their fortunes. After cessation of the Mexican-American War in the same year, California was ceded to the United States, officially becoming a state in 1850. Mexico's public lands became United States public lands and were surveyed, sectioned, and made available for sale/settlement (ESA, 2018).

The federal government passed several pieces of legislation in the mid-1800s to promote settlement of the western United States and dispose of surplus public land. Under the Preemption Act of 1841, a settler could purchase up to 160 acres (a quarter-section) for $1.25 per acre. This law was extended to California in 1853 and was the primary source of cash sales. The Homestead Act of 1862 allowed settlement of public lands, requiring only residence, improvement, and cultivation of the land. A claim for a 160-acre parcel could be made by anyone who was over the age of 21, head of a household, and paid an $18 fee. The act allowed single women, former slaves, and new immigrants an opportunity to own a piece of land. They had to improve and live on the land for 5 years to receive deed to the property, which often proved difficult. The Timber Culture Act of 1873 provided 160 acres of land to applicants, provided they planted trees on at least 40 acres (later reduced to 10) within 8 years; settlement was not required under this law. Under the Desert Land Act of 1877, which targeted settlement of arid regions in the west, applicants could receive 640 acres (an entire section) for a fee of $0.25 per acre at filing and an

additional $1.00 per acre within 3 years, provided they reclaimed the land through artificial irrigation. While these laws were designed to give individual settlers and families access to land ownership, many land speculators and farmers/ranchers manipulated them to obtain huge tracts of land for little cost, particularly in the San Joaquin Valley. The railroads also benefited from federal laws, which granted alternating odd-numbered sections within 20 miles of a projected rail line in order to facilitate rail expansion (ESA, 2018).

With the waning of the mining industry in the mid-1860s, many turned to raising cattle and sheep in the valley, including many Basque and Portuguese immigrants who had been shepherds in their native land (ESA, 2018). The vast prairie grasslands readily supported large herds that required little maintenance. Sheep were primarily herded on the uninhabited west side, feeding on wild alfalfa or rented to stubble land. Sheep ranches often included a shearing barn or shed, feed barn, ranch house, lambing sheds, and corrals. Cattle generally roamed free until they were rounded up and driven to market where they were sold for their meat, hides, and other by-products. A severe drought in 1876-1877 crippled the cattle industry. Many cattle that would have been sold for their meat were slaughtered to save the hide. It was at this same time that dry farming experienced a boost due to mechanization of farm equipment, such as threshers (ESA, 2018).

Dry farming had been practiced in the valley since the mid-1860s as well, but the Trespass Act of 1850 required famers to fence out roaming herds, hindering its growth. The passage of the "No-Fence Law" in 1872 reversed the responsibility of fencing to ranchers, who were then required to fence their large grazing tracts or sell off their cattle. Prior to the advent of barbed wire in the 1880s, this proved cost-prohibitive for many. After the decline of the cattle industry in the 1870s, the grain industry rose to prominence. In 1889, the San Joaquin Valley wheat crop topped 40 million bushels, the largest crop in the United States except that produced by the entire state of Minnesota. Over the ensuing years a failure to rotate crops depleted the soil and yields decreased. This, coupled with a drop in grain prices and the advancement of irrigation, opened up the opportunity for viticulture and other horticultural pursuits to expand (ESA, 2018).

In the mid-1930s, the Great Depression, drought, and poor economic and agricultural conditions in the southern and plains states led to a mass migration of "Dust Bowl refugees" to California. Approximately 300,000-400,000 migrants from Oklahoma, Texas, Arkansas, Missouri, and other states moved to California, drawn by the promise of employment and a better life (ESA, 2018). Many ended up in the San Joaquin Valley to work as field hands; by 1950, as many as one in four residents of the San Joaquin Valley had emigrated from Oklahoma, Texas, Arkansas, or Missouri (ESA, 2018). The influx of migrants led to a shortage of jobs, dramatically decreased wages, and abysmal living conditions (ESA, 2018). The migrants were pejoratively referred to as "Okies" and their plight was captured most famously by John Steinbeck in his 1939 book The Grapes of Wrath.

Today, a wide variety of agricultural enterprises exist in the San Joaquin Valley, with farms ranging from small to large industrial operations and producing crops such as fruits, nuts, barley, beans, corn, hay, beets, wheat, and cotton. Livestock, including cattle and poultry, is still raised in the San Joaquin Valley (ESA, 2018).

History of the Specific Plan Program Area and Vicinity

Madera County, along with Fresno County, was once part of the larger Mariposa County. In 1893, Mariposa County was split in two, creating Madera and Fresno counties. The first settlement in what is now Madera County was associated with gold discoveries in the foothill region of the Fresno River approximately 16 miles east of the City of Madera (ESA, 2018). James D. Savage established a trading post in the foothills and traded with the local tribal groups. Soon families began settling this foothill region, raising stock and crops (ESA, 2018). In 1872, The Central Pacific Railroad established its right-of-way in San Joaquin Valley, and settlement of what is presently Madera County shifted from the foothills to the valley plains. Dry land grain farming became a major industry in the region, with the first large scale operation, known as the Alabama Settlement, beginning in 1868 (ESA, 2018). The railroad facilitated the transport of large volumes of grain to markets outside of the region.

In addition to grain, the major industry in Madera County was timber harvested from the lower Sierras. In 1874, William H. Thurman established the California Lumber company, and constructed a 55-mile long wooden flume that transported lumber from the Sierras to the railroad in the valley. The original terminus of the flume was to be in the established in the community of Borden located along the railroad; however, concerns regarding the cost of land and the engineering challenges of running the flume to Borden negated it as an option (ESA, 2018). Isaac Friedlander offered 40 acres of land in what is the present-day City of Madera, located approximately 1-mile south of the Specific Plan area, for the company to establish a lumber yard and mill for an undivided half interest in a plat for a new town. The California Lumber Company took the deal and ran their flume to what would soon become the community of Madera, the Spanish name for "lumber" (ESA, 2018).

The California Lumber Company constructed a mill at the flume's terminus and began selling lots in October 1876 (Madera Chamber of Commerce n.d.). Within a short period, a town grew and several buildings were constructed including two hotels and saloons, and 20 residences (Madera Chamber of Commerce n.d.). In March 1877, the citizens of Madera established a schoolhouse on 2-acres of land within the town site. In 1878, the lumber operations within Madera passed from the California Lumber Company to the Madera Flume and Trading Company. In 1881, a fire destroyed the company's lumber yards in Madera and a nation-wide economic depression added financial strain on the company. In 1899, Madera's lumber operations passed hands once again from the Madera Flume and Trading Company to the Madera Sugar Pine Lumber Company. In 1896, Madera County was formed and Madera became the county seat. Later that same year construction of a new courthouse, jail, zoo and County Park began, and, in March of 1898 the first Chamber of Commerce was formed (Madera Chamber of Commerce n.d.). By 1907, the City of Madera was an incorporated town within the county.

Development of the Specific Plan area began in the mid to late-1970s when the fig and almonds orchards that presently occupy the Specific Plan area were planted (ESA, 2018). The orchards' support facilities include a shop building constructed in 1978 and five agricultural wells (ESA, 2018).

Identification of Resources

A records search for the Phase 1 Project area and Program area was conducted on March 8, 2018 at the California Historical Resources Information System (CHRIS) Southern San Joaquin Valley Information Center (SSJVIC) housed at California State University, Bakersfield. The records search included a review of all recorded cultural resources and previous studies within the Phase 1 Project area and Specific Plan Program area and a ¼-mile radius around the Specific Plan Program area.

Previous Cultural Resources Investigations

The records search results indicate that one cultural resources study (MA-00739) has been conducted within a ¼-mile radius of the Specific Plan Program area. Approximately five percent of the ¼-mile records search radius has been included in previous cultural resources surveys. The Southern San Joaquin Valley Information Center (SSJVIC) records search indicates that no previous cultural resources studies overlap the Specific Plan Program area.

Although not on file at the SSJVIC, a 2007 study conducted by Sierra Valley Cultural Planning included the entirety of the approximately 794-acre Specific Plan Program area (ESA, 2018). The archival research and pedestrian survey conducted as part of the 2007 study failed to identify the presence of cultural resources within the Specific Plan Program area.

Previously Recorded Cultural Resources

The records search results indicate that one historic-period built resource (P-20-002662) has been previously recorded within a ¼ mile radius of the Specific Plan area. The resource consists of the BNSF Railroad (formerly Atchison Topeka and Santa Fe) constructed between 1895 and 1898. The northwest-southeast trending railroad runs parallel to the Specific Plan Program area's southwestern boundary and is located within 50 feet of the Specific Plan Program area and the Phase I Project area. Previous evaluations of the resource recommend it as not eligible for listing in the National Register of Historic Places (National Register) or California Register due to a lack of integrity resulting from routine maintenance and repairs which have modernized the railroad, diminishing its integrity of design, materials, workmanship, and feeling (ESA, 2018). No archaeological sites were previously recorded within the Phase 1 Project area, the Specific Plan Program area, or within a ¼-mile radius of the Specific Plan Program area.

Paleontological Resources

No previously recorded paleontological resources are within the Phase 1 Project area, the Specific Plan Program area, or within a 1-mile radius of the Specific Plan Program area. The records search revealed that, although no fossil localities are recorded within the current Project area, the NHMLAC has identified fossil localities from similar-aged sedimentary formations in this portion of Madera County.

> *"We do not have any vertebrate fossil localities that lie directly within the project boundaries, but we do have localities somewhat nearby from the same or similar sedimentary deposits as occur in the proposed project area. Surface deposits in the proposed project area consist of soil on top of Pleistocene and*

> *possibly younger Quaternary deposits, predominately derived from the Fresno River that currently flows just to the south and east. The Pleistocene deposits in the proposed project area primarily consist of the early Pleistocene Turlock Formation and the middle or late Pleistocene Riverbank Formation with smaller exposures of the younger and sometimes overlying Modesto Formation. None of the vertebrate fossil localities in this part of the San Joaquin Valley distinguish between these sedimentary deposits. The closest vertebrate fossil locality to the proposed project areas from these deposits though is LACM 7254, northwest of the proposed project area immediately northeast of Chowchilla on the south side of Ash Slough, that produced a fossil specimen of elephantoid, Proboscidea" (McLeod 2016).*

Remains of extinct Ice Age animals such as mastodons, mammoths, horses, bison, dire wolf, camels, and ground sloth have been found in Pleistocene sediments from at least 14 localities in nearby Tulare County (Sierra Valley Cultural Planning, 2016). In Madera County, during the construction of a new cell for the nearby Fairmead Landfill about 9 miles northwest of the Project site, a large number of Late Pleistocene fossils were recovered during excavation. The first discovery was in 1993, when heavy equipment unearthed a Columbian mammoth tusk 32 feet below the surface. Since that time, several thousand fossils from 67 different taxa have been identified including the Columbian mammoth, camel, horse, saber-tooth cat, scimitar cat, dire wolf, and giant ground sloth, as well as reptiles, amphibians, fish, and 16 different diatoms.

Elsewhere in Tulare County, fossils are known from natural outcrops, excavations for roads, housing projects, and quarries in Riverbank Formation and similar deposits. Remains of extinct Ice Age animals such as mastodons, mammoths, horses, bison, dire wolf, camels, and ground sloth have been found in Pleistocene sediments from at least 11 localities in Tulare County.

Archaeological Survey

A cultural resources survey of the Phase I Project area was conducted on April 4, 2018 by ESA staff. Survey of the entire Specific Plan area was not conducted. No cultural resources were identified within the Phase I Project area as a result of the survey. Previously recorded resources P-20-002662 (BNSF Railroad) was noted approximately 50 feet southwest of the Phase I Project's southwestern boundary and was found to match previous descriptions.

Native American Consultation

Madera County sent AB 52 consultation letters to seven individuals representing four Native American tribes on February 11, 2019. These tribes included Chowchilla Yokuts Tribe, Table Mountain Rancheria, Picayune Rancheria of the Chuckchansi Indians, Dumna Wo-Wah Tribal Government. No tribes responded to request for AB 52 consultation. In addition, Madera County sent SB 18 letters to four tribes on June 27, 2019. These tribes included Dumna Wo-Wah Tribal Government, North Valley Yokuts Tribe, Southern Sierra Miwuk Nation, and Wuksache Indian Tribe/Eshom Valley Band. No tribes responded to request for SB 18 consultation.

3.5.2 Regulatory Framework

State

California Environmental Quality Act

CEQA is the principal statute governing environmental review of projects occurring in the state and is codified at *Public Resources Code (PRC) Section 21000 et seq.* CEQA requires lead agencies to determine if a proposed project would have a significant effect on the environment, including significant effects on historical or unique archaeological resources. Under CEQA (Section 21084.1), a project that may cause a substantial adverse change in the significance of an historical resource is a project that may have a significant effect on the environment.

The *CEQA Guidelines* (Title 14 California Code of Regulations [CCR] Section 15064.5) recognize that historical resources include: (1) a resource listed in, or determined to be eligible by the State Historical Resources Commission, for listing in the California Register of Historical Resources (California Register); (2) a resource included in a local register of historical resources, as defined in PRC Section 5020.1(k) or identified as significant in a historical resource survey meeting the requirements of PRC Section 5024.1(g); and (3) any object, building, structure, site, area, place, record, or manuscript which a lead agency determines to be historically significant or significant in the architectural, engineering, scientific, economic, agricultural, educational, social, political, military, or cultural annals of California by the lead agency, provided the lead agency's determination is supported by substantial evidence in light of the whole record. The fact that a resource does not meet the three criteria outlined above does not preclude the lead agency from determining that the resource may be an historical resource as defined in PRC Sections 5020.1(j) or 5024.1.

If a lead agency determines that an archaeological site is a historical resource, the provisions of Section 21084.1 of CEQA and Section 15064.5 of the *CEQA Guidelines* apply. If an archaeological site does not meet the criteria for a historical resource contained in the *CEQA Guidelines*, then the site may be treated in accordance with the provisions of Section 21083, which is as a unique archaeological resource. As defined in Section 21083.2 of CEQA 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 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; or,
- Is directly associated with a scientifically recognized important prehistoric or historic event or person.

If an archaeological site meets the criteria for a unique archaeological resource as defined in Section 21083.2, then the site is to be treated in accordance with the provisions of Section 21083.2, which state that if the lead agency determines that a project would have a significant

effect on unique archaeological resources, the lead agency may require reasonable efforts be made to permit any or all of these resources to be preserved in place (Section 21083.1(a)). If preservation in place is not feasible, mitigation measures shall be required. The *CEQA Guidelines* note that if an archaeological resource is neither a unique archaeological nor a historical resource, the effects of the project on those resources shall not be considered a significant effect on the environment (*CEQA Guidelines* Section 15064.5(c)(4)).

A significant effect under CEQA would occur if a project results in a substantial adverse change in the significance of a historical resource as defined in *CEQA Guidelines* Section 15064.5(a). Substantial adverse change is defined as "physical demolition, destruction, relocation, or alteration of the resource or its immediate surroundings such that the significance of a historical resource would be materially impaired" (*CEQA Guidelines* Section 15064.5(b)(1)). According to *CEQA Guidelines* Section 15064.5(b)(2), the significance of a historical resource is materially impaired when a project demolishes or materially alters in an adverse manner those physical characteristics that:

A. Convey its historical significance and that justify its inclusion in, or eligibility for, inclusion in the California Register; or

B. 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 a 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. Convey its historical significance and that justify its eligibility for inclusion in the California Register as determined by a Lead Agency for purposes of CEQA.

In general, a project that complies with the *Secretary of the Interior's Standards for the Treatment of Historic Properties with Guidelines for Preserving, Rehabilitating, Restoring, and Reconstructing Historic Buildings* (Standards) (ESA, 2018) is considered to have mitigated its impacts to historical resources to a less-than-significant level (*CEQA Guidelines* Section 15064.5(b)(3)).

California Register of Historical Resources

The California Register is "an authoritative listing and guide to be used by State and local agencies, private groups, and citizens in identifying the existing historical resources of the State and to indicate which resources deserve to be protected, to the extent prudent and feasible, from substantial adverse change" (PRC Section 5024.1[a]). The criteria for eligibility for the California Register are based upon National Register criteria (PRC Section 5024.1[b]). Certain resources are determined by the statute to be automatically included in the California Register, including California properties formally determined eligible for, or listed in, the National Register.

To be eligible for the California Register, a prehistoric or historic-period property must be significant at the local, state, and/or federal level under one or more of the following four criteria:

1. Is associated with events that have made a significant contribution to the broad patterns of California's history and cultural heritage;

2. Is associated with the lives of persons important in our past;
3. 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
4. Has yielded, or may be likely to yield, information important in prehistory or history.

A resource eligible for the California Register must meet one of the criteria of significance described above, and retain enough of its historic character or appearance (integrity) to be recognizable as a historical resource and to convey the reason for its significance. It is possible that a historic resource may not retain sufficient integrity to meet the criteria for listing in the National Register, but it may still be eligible for listing in the California Register.

Additionally, the California Register consists of resources that are listed automatically and those that must be nominated through an application and public hearing process. The California Register automatically includes the following:

- California properties listed on the National Register and those formally determined eligible for the National Register;
- California Registered Historical Landmarks from No. 770 onward; and,
- Those California Points of Historical Interest that have been evaluated by the OHP and have been recommended to the State Historical Commission for inclusion on the California Register.

Other resources that may be nominated to the California Register include:

- Historical resources with a significance rating of Category 3 through 5 (those properties identified as eligible for listing in the National Register, the California Register, and/or a local jurisdiction register);
- Individual historical resources;
- Historical resources contributing to historic districts; and,
- Historical resources designated or listed as local landmarks, or designated under any local ordinance, such as an historic preservation overlay zone.

California Health and Safety Code Section 7050.5

California Health and Safety Code Section 7050.5 requires that in the event human remains are discovered, the County Coroner be contacted to determine the nature of the remains. In the event the remains are determined to be Native American in origin, the Coroner is required to contact the California Native American Heritage Commission (NAHC) within 24 hours to relinquish jurisdiction.

California Public Resources Code Section 5097.98

California PRC Section 5097.98, as amended by Assembly Bill 2641, provides procedures in the event human remains of Native American origin are discovered during Project implementation. PRC Section 5097.98 requires that no further disturbances occur in the immediate vicinity of the discovery, that the discovery is adequately protected according to generally accepted cultural and

archaeological standards, and that further activities take into account the possibility of multiple burials. PRC Section 5097.98 further requires the NAHC, upon notification by a County Coroner, designate and notify a Most Likely Descendant (MLD) regarding the discovery of Native American human remains. Once the MLD has been granted access to the site by the landowner and inspected the discovery, the MLD then has 48 hours to provide recommendations to the landowner for the treatment of the human remains and any associated grave goods.

In the event that no descendant is identified, or the descendant fails to make a recommendation for disposition, or if the land owner rejects the recommendation of the descendant, the landowner may, with appropriate dignity, reinter the remains and burial items on the property in a location that will not be subject to further disturbance.

Assembly Bill 52 and Related Public Resources Code Sections

Assembly Bill (AB) 52 was approved by California State Governor Edmund Gerry "Jerry" Brown, Jr. on September 25, 2014. The act amended California PRC Section 5097.94, and added PRC Sections 21073, 21074, 21080.3.1, 21080.3.2, 21082.3, 21083.09, 21084.2, and 21084.3. AB 52 applies specifically to projects for which a Notice of Preparation (NOP) or a Notice of Intent to Adopt a Negative Declaration or Mitigated Negative Declaration (MND) will be filed on or after July 1, 2015. The primary intent of AB 52 was to include California Native American Tribes early in the environmental review process and to establish a new category of resources related to Native Americans that require consideration under CEQA, known as tribal cultural resources. PRC Section 21074(a)(1) and (2) defines tribal cultural resources as "sites, features, places, cultural landscapes, sacred places, and objects with cultural value to a California Native American Tribe" that are either included or determined to be eligible for inclusion in the California Register or included in a local register of historical resources, or a resource that is determined to be a tribal cultural resource by a lead agency, in its discretion and supported by substantial evidence. On July 30, 2016, the California Natural Resources Agency adopted the final text for tribal cultural resources update to Appendix G of the CEQA Guidelines, which was approved by the Office of Administrative Law on September 27, 2016.

PRC Section 21080.3.1 requires that within 14 days of a lead agency determining that an application for a project is complete, or a decision by a public agency to undertake a project, the lead agency provide formal notification to the designated contact, or a tribal representative, of California Native American Tribes that are traditionally and culturally affiliated with the geographic area of the Project (as defined in PRC Section 21073) and who have requested in writing to be informed by the lead agency (PRC Section 21080.3.1(b)). Tribes interested in consultation must respond in writing within 30 days from receipt of the lead agency's formal notification and the lead agency must begin consultation within 30 days of receiving the tribe's request for consultation (PRC Sections 21080.3.1(d) and 21080.3.1(e)).

PRC Section 21080.3.2(a) identifies the following as potential consultation discussion topics: the type of environmental review necessary; the significance of tribal cultural resources; the significance of the Project's impacts on the tribal cultural resources; Project alternatives or appropriate measures for preservation; and mitigation measures. Consultation is considered

concluded when either: (1) the parties agree to measures to mitigate or avoid a significant effect, if a significant effect exists, on a tribal cultural resource; or (2) a party, acting in good faith and after reasonable effort, concludes that mutual agreement cannot be reached (PRC Section 21080.3.2(b)).

If a California Native American tribe has requested consultation pursuant to Section 21080.3.1 and has failed to provide comments to the lead agency, or otherwise failed to engage in the consultation process, or if the lead agency has complied with Section 21080.3.1(d) and the California Native American tribe has failed to request consultation within 30 days, the lead agency may certify an EIR or adopt an MND (PRC Section 21082.3(d)(2) and (3)).

PRC Section 21082.3(c)(1) states that any 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 without the prior consent of the tribe that provided the information. If the lead agency publishes any information submitted by a California Native American tribe during the consultation or environmental review process, that information shall be published in a confidential appendix to the environmental document unless the tribe that provided the information consents, in writing, to the disclosure of some or all of the information to the public.

Senate Bill 18

Senate Bill 18 (SB 18) (Statutes of 2004, Chapter 905), which went into effect January 1, 2005, requires local governments (city and county) to consult with Native American tribes before making certain planning decisions and to provide notice to tribes at certain key points in the planning process. The intent is to "provide California Native American tribes an opportunity to participate in local land use decisions at an early planning stage, for the purpose of protecting, or mitigating impacts to, cultural places" (Governor's Office of Planning and Research, 2005).

The purpose of involving tribes at these early planning stages is to allow consideration of cultural places in the context of broad local land use policy, before individual site-specific, project-level, land use designations are made by a local government. The consultation requirements of SB 18 apply to general plan or specific plan processes proposed on or after March 1, 2005.

According to the Tribal Consultation Guidelines: Supplement to General Plan Guidelines (Governor's Office of Planning and Research, 2005), the following are the contact and notification responsibilities of local governments:

- Prior to the adoption or any amendment of a general plan or specific plan, a local government must notify the appropriate tribes (on the contact list maintained by the NAHC) of the opportunity to conduct consultations for the purpose of preserving, or mitigating impacts to, cultural places located on land within the local government's jurisdiction that is affected by the proposed plan adoption or amendment. Tribes have 90 days from the date on which they receive notification to request consultation, unless a shorter timeframe has been agreed to by the tribe (Government Code Section 65352.3).

- Prior to the adoption or substantial amendment of a general plan or specific plan, a local government must refer the proposed action to those tribes that are on the NAHC contact list and have traditional lands located within the city or county's jurisdiction. The referral must allow a 45-day comment period (Government Code Section 65352). Notice must be sent regardless of whether prior consultation has taken place. Such notice does not initiate a new consultation process.
- Local government must send a notice of a public hearing, at least 10 days prior to the hearing, to tribes who have filed a written request for such notice (Government Code Section 65092).

Local

Madera County General Plan

Madera County's General Plan, Recreation and Cultural Resources Section (1995), contains the following cultural resources goals, policies, and implementation programs relevant to the Project:

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

Policies

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.

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.

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.

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.

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.

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*.

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.

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.

Implementation Programs

4.4. The County shall prepare, adopt, and implement procedures for review and approval of all County-permitted projects involving ground disturbance and all building and/or demolition permits that will affect buildings, structures, or objects 45 years of age or older.

4.5. The County shall develop preservation incentive programs for owners of important cultural and paleontological resources, using such mechanisms as the Mills Act, the Historic Preservation Easement program, the Certified Local Government program, and the Heritage Tourism program.

4.6. The County shall appoint a County Landmarks Commission to establish archival standards, prepare an inventory of all historic, cultural, and archaeological resources in the county, and promote their preservation.

4.7. The County shall adopt a historic district overlay zone to apply to areas containing significant historic structures.

Paleontological Resources

Federal

A variety of federal statutes specifically address paleontological resources. They are generally applicable to a project if that project includes federally owned or federally managed lands or involves a federal agency license, permit, approval, or funding. Federal legislative protection for paleontological resources stems from the Antiquities Act of 1906 (PL 59-209; 16 United States Code 431 et. seq.; 34 Stat. 225), which calls for protection of historic landmarks, historic and prehistoric structures, and other objects of historic or scientific interest on federal lands.

State

Paleontological resources are also afforded protection by CEQA. Appendix G (Part V) of the CEQA Guidelines provides guidance relative to significant impacts on paleontological resources, stating that a project will normally result in a significant impact on the environment if it will "…disrupt or adversely affect a paleontologic resource or site or unique geologic feature, except as part of a scientific study." PRC Section 5097.5 specifies that any unauthorized removal of paleontological remains is a misdemeanor. Further, the California Penal Code Section 622.5 sets the penalties for the damage or removal of paleontological resources.

Professional Standards

The Society for Vertebrate Paleontology (SVP) has established standard guidelines for acceptable professional practices in the conduct of paleontological resource assessments and surveys, monitoring and mitigation, data and fossil recovery, sampling procedures, and specimen preparation, identification, analysis, and curation. Most practicing professional paleontologists in the nation adhere closely to the SVP's assessment, mitigation, and monitoring requirements as specifically provided in its standard guidelines. Most California State regulatory agencies accept the SVP standard guidelines as a measure of professional practice.

3.5.3 Impacts and Mitigation Measures

Significance Criteria

Based on Appendix G of the CEQA Guidelines, cultural resources impacts would be considered significant if the Phase 1 Project and Specific Plan Program would:

- Cause a substantial adverse change in the significance of a historical resource pursuant to 15064.5 (see Impact 3.5-1, below);
- Cause a substantial adverse change in the significance of an archaeological resource pursuant to Section 15064.5 (see Impact 3.5-2, below);
- Disturb any human remains, including those interred outside of formal cemeteries (see Impact 3.5-3, below);
- Cause a substantial adverse change in the significance of a tribal cultural resource, defined in Public Resources Code Section 21074 (see Impact 3.5-4, below);
- Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature (See Impact 3.5-5, below).

Methodology

To evaluate the proposed Project's potential effects on significant cultural resources, a cultural resources assessment of the Project site was conducted, which included a records search conducted at the California Historic Resources Information System (CHRIS) SSJVIC housed at California State University, Bakersfield, a review of historic maps and aerial photographs, a Sacred Lands File (SLF) conducted by the NAHC, and a pedestrian survey. The methodology and results of the cultural resources assessment, as well as the paleontological resources report, are summarized below.

SSJVIC Records Search

A records search for the Phase 1 Project area and the Specific Plan Program area was conducted on March 8, 2018 at SSJVIC. The records search included a review of all previous studies and previously recorded cultural resources within ¼-mile of the Specific Plan Program area.

Sacred Lands File Search

The NAHC maintains a confidential SLF which contains sites of traditional, cultural, or religious value to the Native American community. The NAHC was contacted on February 21, 2018 to request a search of the SLF. The NAHC responded to the request in a letter dated February 27, 2018. The results of the SLF search conducted by the NAHC indicate that Native American cultural resources are not known to be located within the Specific Plan Program area (Appendix E-4 of this Draft EIR). The County sent AB 52 consultation letters to seven individuals representing four Native American tribes on February 11, 2019 and sent SB 18 consultation letters to four Native American tribes on June 27, 2019. The County did not receive a request for AB 52 consultation or SB 18 consultation from any of the Native American tribes that were contacted.

Historic Map and Aerial Review

Historic maps and aerial photographs were examined to provide historical information about land uses of the Specific Plan Program area. Available maps include the 1920, 1948, and 1961 Kismet 7.5-minute topographic quadrangles, and the 1922 and 1947 Madera 7.5-minute topographic quadrangles. Historic aerial photographs were available for the years 1940, 1959, 1998, and 2014 (historicaerials.com, 2018).

The 1920, 1922, 1947, 1948, and 1961 topographic maps show the Specific Plan Program area and its immediate vicinity remained undeveloped and undisturbed throughout much of the 20th century. The Atchison Topeka and Santa Fe Railroad right-of-way is depicted immediately southwest of the Specific Plan Program area's southwestern boundary. The topographic maps also show a seasonal tributary of Schmidt Creek bisecting the northwestern corner of the Specific Plan Program area and within the Phase 1 Project area. The historic aerial photographs reflect what is indicated by the topographic maps: that the Specific Plan Program area remained undeveloped throughout much of the 20th century. The 1940 and 1959 photographs show no development, but the 1998 and 2014 aerial photographs depict the orchards that presently occupy the Specific Plan Program area. The 1998 and 2014 aerial photographs also show a housing development located immediately northwest of the Specific Plan Program area, as well as sparse residential development located immediately south of the Specific Plan Program area.

In sum, the historic map and aerial review indicates the Specific Plan Program area remained undeveloped until the mid to late 1970s when the fig and almond orchards that now occupy Specific Plan Program area as well as the Phase 1 Project area were planted. The only features that were present prior to the orchard's establishment are the Atchison Topeka and Santa Fe Railroad right-of-way (now the BNSF right-of-way) located approximately 50 feet southwest of the Specific Plan Program area and Phase I Project area, and a seasonal tributary of Schmidt Creek located within the northwest corner of the Specific Plan Program area as well as the Phase 1 Project area.

Geo-archaeological Review

A geo-archaeological review for the Specific Plan Program area was conducted by ESA's geo-archaeologist, Chris Lockwood, Ph.D., in order to predict the potential for subsurface archaeological deposits. Geologic maps, geotechnical reports, and previous cultural resources studies were reviewed as part of the review.

Surface deposits within the Specific Plan Program area are mapped as Pleistocene-aged, non-marine sediments. The majority of the Specific Plan Program area is underlain by Turlock Lake Formation alluvial granitic sand dating to the Middle Pleistocene (123,000 – 781,000 years ago). A large portion of the Specific Plan Program area is mapped as Riverbank Formation arkosic alluvial sand deposited on fans and floodplains. The Riverbank Formation, which is widespread within the valley, is commonly attributed the late Middle Pleistocene (60,000 – 80,000 years ago). The Specific Plan Program area also contains small areas of windblown (eolian) sand attributed to the lower member of the Modesto Formation. In Madera County, the lower Modesto formation has been correlated to a portion of the late Pleistocene approximately dating to 42,000 – 50,000 years ago.

Soils within the Specific Plan Program area are mapped primarily as Cometa and San Joaquin series sandy loams (NRCS, 2018). These soils possess extremely well-developed profiles including strong Bt (accumulation of silicate clay) and/or Bqm (accumulation of silica and cementation) horizons. Within this region, soils with such characteristics have been found to be associated with older Pleistocene surfaces (greater than 25,000 years ago). A series of 12 geotechnical borings within the Specific Plan Program area revealed alluvial soils to depths of 30 feet below surface, consisting of silty sands and poorly graded sands with interbedded silt layers. Sands, which were medium dense to very dense, were commonly cemented at depths ranging from 0 – 12 feet below surface, a result consistent with the expected soils types.

The mapped geological units within the Specific Plan Program area are over 42,000 years old, predating the presence of humans in the Americas by approximately 30,000 years. The age of these geological units is corroborated by the presence of soils with well-advanced pedogenesis, as well as geotechnical studies demonstrating widespread cementation of soils. These factors imply that that the Specific Plan Program area has experienced minimal (if any) natural deposition, which would bury archaeological sites, since the late Pleistocene and prior to human habitation in the region. In the absence of aggradation (vertical accretion of sediments), cultural remains would tend to remain unburied at the ground surface or to be relatively shallowly incorporated (i.e., several inches) into the soil A-horizon. If the Specific Plan Program area or the Phase 1 Project area contains archaeological sites, such sites would not be expected to be deeply buried by natural sediments and would most likely occur at or near the surface.

Cultural Resources Survey

A cultural resources survey of the Phase I Project area was conducted on April 4, 2018 by ESA staff Mai Lee, B.A., and Blake Buford, B.A. The survey was aimed at identifying archaeological and historic-period built resources within or immediately adjacent to the Phase I Project area. The entirety of the Phase I Project area was subject to systematic pedestrian survey using transect intervals spaced no more than 15 meters (approximately 50 feet) apart. Survey of the remaining portion of the Specific Plan Program area was not conducted because the remaining portion would be developed over an approximately 15-year period and specific surveys could be conducted as individual phases within the Specific Plan Program area are proposed.

The Phase 1 Project area is comprised of an almond orchard with tree rows spaced at approximately 15-foot intervals and dirt roads. The rows between the trees were covered in ankle to knee-high grasses which reduced ground surface to 0 percent visibility; however, the areas immediately adjacent to the trees had very little vegetation and had 90 percent ground surface visibility (Figure 6). The dirt roads bisecting the orchard were bare of vegetation and had 100 percent ground surface visibility (see Figure 6 of Appendix E-1 of this EIR). Overall, approximately 75 percent of the Phase I Project area had ground surface visibility of 90 – 100 percent, with the remaining 25 percent exhibiting 0 percent ground surface visibility. No cultural resources were identified within the Phase I Project area as a result of the survey. Previously recorded resources P-20-002662 (BNSF Railroad) was noted approximately 50 feet southwest of the Phase I Project's southwestern boundary and was found to match previous descriptions.

Paleontological Resources Assessment

The paleontological resources study prepared by Sierra Valley Cultural Planning in October 2016 consisted of a paleontological records search requested of Dr. Sam McLeod at the Vertebrate Paleontology Section of the Natural History Museum of Los Angeles County (NHMLAC). Dr. McLeod responded on June 16, 2016. The paleontological study also consisted of a literature search of pertinent reports, published articles, and geologic maps of the Specific Plan Program area. A windshield and pedestrian survey of the Program area was conducted on July 8, 2015 by Sierra Valley Cultural Planning. At the time of the survey, the Specific Plan Program area supported agricultural uses and rock unit formations were not observable.

Impacts Discussion

Historical Resources

Impact 3.5-1a: The Phase 1 Project would have less than significant and less than cumulatively considerable effects on historical resources because the Phase 1 Project would not cause a substantial adverse change in the significance of a historical resource.

Phase 1 Project Impact Analysis

As a result of the archival research and pedestrian survey, no historical resources were identified within the Phase I Project area. Therefore, the Phase 1 Project would not cause a substantial adverse change in the significance of a historical resource, as defined in Section 15064.5. The Phase 1 Project would have less than significant impacts on historical resources.

Significance Determination before Mitigation: Less than Significant

Phase 1 Project Cumulative Impact Analysis

The geographic scope for cumulative impacts on historical resources includes all recorded and unrecorded resources within the City and County where historic-era sites have been located. The cumulative development assumed within this geographic area includes the cumulative projects identified in Table 3.0-1 in Section 3.0 of this Draft EIR. Development of the cumulative projects could result in significant impacts on historical resources.

As discussed above, no historical resources have been identified within the Phase 1 Project site. Because the proposed Phase 1 Project would result in less than significant impacts on historical resources, the Phase 1 Project would result in a less than cumulatively considerable contribution to cumulative impacts to historical resources.

Significance Determination before Mitigation: Less than Significant

Phase 1 Project Mitigation Measures

No mitigation measures are required.

Significance Determination after Mitigation: Less than Significant

Phase 1 Project Cumulative Measures

No mitigation measures are required.

Significance Determination after Mitigation: Less than Significant

Impact 3.5-1b: The proposed Program could have significant and cumulatively considerable effects on historical resources because the Program could cause a substantial adverse change in the significance of a historical resource.

Program Impact Analysis

Currently, structures associated with the orchards occupying the Specific Plan Program area have not yet reached the California Office of Historic Preservation's (OHP) 45-year age threshold to be historic-age and be considered as historical resources. However, the phased development of the Specific Plan Program area would occur over an approximately 15-year period, in which time the structures presently located in the Specific Plan Program area may have reached the 45-year old threshold and would require documentation to determine if structures are considered historical resources pursuant to CEQA. A substantial adverse change in the significance of a historical resource pursuant to CEQA Section 15064.5 would result in a significant impact. Therefore, the development of the Program area could result in a significant impact to historical resources.

Significance Determination before Mitigation: Significant

Program Cumulative Impact Analysis

The geographic scope for cumulative impacts on historical resources includes all recorded and unrecorded resources within the County where historic-era sites have been located. Future development assumed within this geographic area includes buildout/growth of the County. The cumulative growth of the County is identified in Table 3.0-2 in Section 3.0 of this Draft EIR. Development associated with the cumulative growth could result in significant impacts on historical resources.

As identified above, development of the proposed Program could result in impacts to existing onsite structures that could be historic. As a result, the development of the proposed Program could contribute to cumulative impacts on historical resources, and the Program's impacts could be cumulatively considerable.

Significance Determination before Mitigation: Significant

Program Mitigation Measures

CUL-1: Prior to the issuance of individual tract maps for the portions of the proposed Specific Plan Program that contain historic-age (45 years or older) structures, a historic built environment survey shall be conducted. The historic-age structures shall be evaluated for their historic significance. The survey shall be carried out by a qualified historian or architectural historian meeting the Secretary of the Interior's Standards for Architectural History. If historic-age resources are determined to be of historic significance and the Specific Plan Program could result in potential impacts to these resources, demolition or substantial alteration of such resources shall be avoided. If avoidance of identified historic resources is deemed infeasible, the applicant of the individual tract map shall prepare a

treatment plan to include, but not limited to, photographic documentation and public interpretation of the resource.

Significance Determination after Mitigation: Significant and Unavoidable

Implementation of Mitigation Measure CUL-1 would require a historic built environment survey for structures 45 years or older and historic-age structures would be evaluated for their historic significance. However, if retaining the resources is not feasible, photographic-documentation and public interpretation of the resources would reduce the impact to the historic resources. However, these measures are not considered full mitigation, and as a result, impacts to the resources would remain significant.

Program Cumulative Measures

Implementation of Mitigation Measure CUL-1 is required.

Significance Determination after Mitigation: Significant and Unavoidable

Implementation of Mitigation Measure CUL-1 would require a historic built environment survey for structures 45 years or older and historic-age structures would be evaluated for their historic significance. However, if retaining the resources is not feasible, photographic-documentation and public interpretation of the resources would reduce the impact to the historic resources. However, these measures are not considered full mitigation, and as a result, impacts to the resources would remain significant.

Archaeological Resources

Impact 3.5-2a: The Phase 1 Project could have significant and cumulatively considerable effects on archaeological resources because the Phase 1 Project could cause a substantial change in the significance of an archeological resource.

Phase 1 Project Impact Analysis

As a result of the archival research and pedestrian survey, no historical resources were identified within the Phase I Project area. The geo-archaeological review indicates that the geologic units underlying the Phase I Project area, and the Specific Plan Program area, predate the presence of human habitation in the Americas. As such, the potential for the Phase I Project area to contain deeply buried archaeological deposits is low. If archaeological resources are present, they would likely be found at or near the surface. During the cultural resources survey, approximately 25 percent of the Phase I Project area's ground surface was obscured by seasonal grasses, which may have concealed the presence of surficial archaeological resources. Proposed Project-related ground disturbing activities have the potential to impact previously unidentified cultural resources that could qualify as archaeological resources pursuant to CEQA. Therefore, the Phase 1 Project has the potential to result in significant impacts to buried archaeological resources.

Significance Determination before Mitigation: Significant

Phase 1 Project Cumulative Impact Analysis

The geographic scope for cumulative impacts on archaeological resources includes all recorded and unrecorded resources within the City and County where historic-era sites have been located. The cumulative development assumed within this geographic area includes the cumulative projects identified in Table 3.0-1 in Section 3.0 of this Draft EIR. Development of the cumulative projects could result in significant impacts on archaeological resources.

As discussed above, no known archaeological resources have been identified within the Phase 1 Project site. However, Project-related ground disturbing activities have the potential to impact previously unidentified archaeological resources that could qualify as unique archaeological resources pursuant to CEQA. Because the proposed Phase 1 Project could result in potential impacts to archaeological resources, the Phase 1 Project's contribution to cumulative archaeological resource impacts could be cumulatively considerable.

Significance Determination before Mitigation: Significant

Phase 1 Project Mitigation Measures

CUL-2: Prior to the issuance of a grading permit, the project applicant shall retain a qualified archaeologist (defined as a cultural resources professional who meets the Secretary of the Interior's Professional Qualifications Standards for archaeology [U.S. Department of the Interior, 2008]) to evaluate any potential archaeological resources identified during grading or construction activities within the Phase 1 Project site. The selected qualified archaeologist shall be approved by the County of Madera. The project applicant shall submit a fully executed copy of the contract to retain a County of Madera qualified/approved archaeological monitor to the County of Madera to ensure compliance with this measure.

CUL-3: Prior to the start of ground disturbing activities associated with the Project, the qualified archaeologist (or an archaeologist working under the direct supervision of the qualified archaeologist) shall conduct cultural resources sensitivity training for all construction personnel. Construction personnel shall be informed of the types of archaeological resources that may be encountered, the proper procedures to be enacted in the event of an inadvertent discovery of archaeological resources or human remains, and safety precautions to be taken when working with archaeological monitors. The County of Madera and the project applicant shall ensure that construction personnel are made available for and attend the training and retain documentation demonstrating attendance.

An Archaeological Resources Monitoring Plan shall be prepared prior to ground disturbance activities. The plan, among other topics, shall document the proposed methodology for inadvertent finds, the state law process applicable to discovered human remains, the grading activity observation process, the mitigation measures and conditions of approval for the Project.

CUL-4: If during grading or construction activities and if archaeological resources are discovered within the Phase 1 Project site, work shall be halted immediately within 100 feet of the discovery and the qualified archaeologist shall be contacted to evaluate the resource. The County of Madera shall also be contacted for discoveries.

The qualified archaeologist shall evaluate the resource. If the qualified archaeologist determines that the resource is not unique, and therefore not significant, grading and construction activities may continue. If the qualified archaeologist determines that the resource is unique, and therefore significant, as defined under Section 15064.5 of the *CEQA Guidelines*, the archaeologist shall work with the County of Madera and the applicant in developing mitigation measures including avoidance or capping, incorporation of the site in green space or data recovery excavations of the resource. All cultural resources, with the exception of human remains and Native American tribal cultural resources that are addressed in Impact 3.5-3a, collected shall be curated according to the current professional repository standards. Weekly reports shall be submitted by the qualified archaeologist to the County of Madera until all resources are collected and curated. The collections and associated records shall be transferred, including title, to a curation facility that meets the standards set forth in 36 Code of Federal Regulations (CFR) Part 79 for federal repositories. A final report shall be prepared that addresses each resource found. The final report shall be provided to the curation facility as well as to the County of Madera.

Significance Determination after Mitigation: Less than Significant

The potential to encounter previously unrecorded resources would be reduced to less than significant with implementation of Mitigation Measures CUL-2 through CUL-4. These measure require a qualified archaeologist to be under contract prior to issuance of a grading permit, a qualified archaeologist to conduct a cultural resources sensitivity training for all construction personnel, construction activities to be halted if potential resources are discovered, and a qualified archaeologist to evaluate resources found by construction personnel. Implementation of this measure would effectively avoid damage to or loss of resources, and little to no residual impact would remain after mitigation. If avoidance and preservation of the archaeological resource is not feasible, the scientifically consequential data contained in the archaeological resource would be recovered. Implementation of Mitigation Measures CUL-2 through CUL-4 would reduce the Phase 1 Project's impacts to archaeological resources to less than significant.

Phase 1 Project Cumulative Measures

Implementation of Mitigation Measures CUL-2 through CUL-4 is required.

Significance Determination after Mitigation: Less than Significant

As discussed above, the implementation of Mitigation Measures CUL-2 through CUL-4 would avoid and preserve previously unrecorded archaeological resources or recover the scientifically consequential data contained in the archaeological resources. After the implementation of Mitigation Measures CUL-2 through CUL-4, the Phase 1 Project's contribution to cumulative archaeological resources impacts would be less than cumulatively considerable.

Impact 3.5-2b: The proposed Program could have significant and cumulatively considerable effects on archaeological resources because the Program could cause a substantial change in the significance of an archeological resource.

Program Impact Analysis

The assessment of the portion of the Specific Plan Program area outside of the Phase I Project area included an archival research to determine if any archaeological resources were recorded since the preparation of the Cultural Resources Survey conducted by Sierra Valley Cultural Planning in January 2007 for the Specific Plan Program area. No known archaeological resources were identified within the Specific Plan Program area during the archival research as well as the onsite survey in 2007. No additional survey of the portion of the Specific Plan Program area was conducted because the remaining portion would be developed over an approximately 15-year period and specific surveys could be conducted as individual phases within the Specific Plan Program area are proposed. Although no known archaeological resources have been identified within the Specific Plan Program area, ground disturbing activities associated with future phases of the Specific Plan Program have the potential to impact previously unidentified archaeological resources that could qualify as unique archaeological resources pursuant to CEQA. Therefore, the Specific Plan Program has the potential to result in significant impacts to buried archaeological resources.

Significance Determination before Mitigation: Significant

Program Cumulative Impact Analysis

The geographic scope for cumulative impacts on archaeological resources includes all recorded and unrecorded resources within the County where archaeological sites have been located. Future development assumed within this geographic area includes buildout/growth of the County. The cumulative growth of the County is identified in Table 3.0-2 in Section 3.0 of this Draft EIR. Development associated with the cumulative growth could result in significant impacts on archaeological resources.

As identified above, ground disturbing activities associated with future phases of the Specific Plan Program have the potential to impact previously unidentified archaeological resources that could qualify as unique archaeological resources pursuant to CEQA. Therefore, the Specific Plan Program could contribute to cumulative impacts on archaeological resources, and the Program's impacts could be cumulatively considerable.

Significance Determination before Mitigation: Significant

Program Mitigation Measures

CUL-5: Prior to the issuance of individual tract maps within the Specific Plan Program site that is located outside of the Phase 1 Project site, a Phase I cultural resources survey shall be conducted. The study shall be carried out by a qualified archaeologist meeting the Secretary of the Interior's Standards for professional archaeology. The cultural resources survey study shall consist of: a cultural resources records search to be conducted at the Southern San Joaquin Valley Information Center; a Sacred Lands File search conducted by the

California Native American Heritage Commission; a pedestrian cultural resources survey where deemed appropriate by the archaeologist; and recordation of all identified archaeological resources on California Department of Parks and Recreation 523 forms.

CUL-6 If no archaeological resources are discovered during the survey of an individual tract map area, a qualified archaeologist shall be retained in accordance with Mitigation Measure CUL-2, a qualified archaeologist shall conduct a cultural resources sensitivity training for all construction personnel in accordance with Mitigation Measure CUL-3, and a qualified archaeologist shall evaluate resources discovered during grading activities and determine additional measures to be implemented.

CUL-7 If potentially significant archaeological resources are encountered during a survey of an individual tract map area, the County shall require that the resources are evaluated for significance as an archaeological resource per CEQA, and that recommendations are made for treatment of these resources if found to be significant, in consultation with the County, applicant, and the appropriate Native American groups. Project redesign and preservation in place shall be the preferred means of mitigation to avoid impacts to significant archaeological resources. Methods of avoidance may include, but shall not be limited to, Project re-route or re-design, Project cancellation, or identification of protection measures such as capping or fencing. If avoidance is not feasible, the qualified archaeologist shall develop additional treatment measures in consultation with the County and the applicant, which may include data recovery or other appropriate measures. All significant archaeological materials recovered will be, as necessary and at the discretion of the qualified archaeologist and in consultation with local Native American groups, subject to scientific analysis, professional museum curation, and documentation according to current professional standards.

CUL-8 If potentially significant archaeological resources are encountered during the survey of an individual tract map area, a qualified archaeologist shall be retained in accordance with Mitigation Measure CUL-2, a qualified archaeologist shall conduct a cultural resources sensitivity training for all construction personnel in accordance with Mitigation Measure CUL-3, and a qualified archaeologist shall evaluate discovered resources and determine additional measures to be implemented.

CUL-9 If potentially significant archaeological resources are encountered during the survey of an individual tract map area, monitoring of all ground-disturbing activities shall be conducted by a qualified archaeologist (or an archaeologist working under the direct supervision of a qualified archaeologist) for the tract map area where the potentially significant resources are encountered. A qualified archaeologist shall determine the frequency, duration and locations where archaeological monitoring shall be conducted during ground-disturbing activities.

Significance Determination after Mitigation: Less than Significant.

Implementation of Mitigation Measure CUL-5 includes cultural resources surveys for the portions of the Specific Plan Program areas that are outside of the Phase 1 Project area. If no resources are found during the surveys, Mitigation Measure CUL-6, which requires the implementation of Mitigation Measures CUL 2 through CUL-4, is required. If resources are found, Mitigation Measures CUL-7 through CUL-9 are required. The implementation of Mitigation Measures CUL-5 through CUL-9 would reduce the potential impacts from the individual tracts within the Specific Plan Program to archaeological resources to less than significant.

Program Cumulative Measures

Implementation of Mitigation Measures CUL-5 through CUL-9 is required.

Significance Determination after Mitigation: Less than Significant.

The implementation of Mitigation Measures CUL-5 through CUL-9 would reduce potential Program impacts to archaeological resources to less than significant as discussed above. Therefore, the Program's contribution to cumulative archaeological impacts would be reduced to less than cumulatively considerable.

Human Remains

Impact 3.5-3a: The Phase 1 Project would have less than significant and less than cumulatively considerable effects on human remains.

Phase 1 Project Impact Analysis

No known human remains exist within the Phase 1 Project area or in its vicinity. However, because the proposed Project would involve ground-disturbing activities, it is possible that such actions could unearth, expose, or disturb previously unknown human remains.

If human remains are encountered, all work is required to halt work in the vicinity (within 100 feet) of the discovery and the Madera County Coroner is required to be contacted in accordance with PRC Section 5097.98 and Health and Safety Code Section 7050.5. The County of Madera will also be notified. If the County Coroner determines that the remains are Native American, the California Native American Heritage Commission (NAHC) will be notified in accordance with Health and Safety Code Section 7050.5, subdivision (c), and PRC Section 5097.98 (as amended by AB 2641). The NAHC will designate a Most Likely Descendant (MLD) for the remains per PRC Section 5097.98. Until the landowner has conferred with the MLD, the County of Madera will ensure that the immediate vicinity where the discovery occurred is not disturbed by further activity, is adequately protected according to generally accepted cultural or archaeological standards or practices, and that further activities take into account the possibility of multiple burials. Compliance with State law would ensure that potential impacts on human remains would be reduced to less than significant.

Significance Determination before Mitigation: Less than Significant.

Phase 1 Project Cumulative Impact Analysis

No known cemeteries, or other burial places, are known to exist in the immediate vicinities of the cumulative projects. Similar to the Phase 1 Project, the cumulative projects would also involve ground disturbing activities. These activities could unearth, expose, or disturb previously unknown human remains. In the event that human remains are encountered, the County would comply with State Health and Safety Code Section 7050.5 and Public Resources Code Section 5097.98 resulting in a less than significant impact. Therefore, Phase 1 Project impacts on human remains would be less than cumulatively considerable.

Significance Determination before Mitigation: Less than Significant

Phase 1 Project Mitigation Measures

No mitigation measures are required.

Significance Determination after Mitigation: Less than Significant.

Phase 1 Project Cumulative Measures

No mitigation measures are required.

Significance Determination after Mitigation: Less than Significant.

Impact 3.5-3b: The proposed Program would have less than significant and less than cumulatively considerable effects on human remains.

Program Impact Analysis

No known human remains exist within the Specific Plan Program area or its vicinity. However, because the proposed Program would involve ground-disturbing activities, it is possible that such actions could unearth, expose, or disturb previously unknown human remains.

If human remains are encountered, all work is required to halt work in the vicinity (within 100 feet) of the discovery and the Madera County Coroner is required to be contacted in accordance with PRC Section 5097.98 and Health and Safety Code Section 7050.5. The County of Madera will also be notified. If the County Coroner determines that the remains are Native American, the California Native American Heritage Commission (NAHC) will be notified in accordance with Health and Safety Code Section 7050.5, subdivision (c), and PRC Section 5097.98 (as amended by AB 2641). The NAHC will designate a Most Likely Descendant (MLD) for the remains per PRC Section 5097.98. Until the landowner has conferred with the MLD, the County of Madera will ensure that the immediate vicinity where the discovery occurred is not disturbed by further activity, is adequately protected according to generally accepted cultural or archaeological standards or practices, and that further activities take into account the possibility of multiple burials. Compliance with State law would ensure that potential impacts on human remains would be reduced to less than significant.

Significance Determination before Mitigation: Less than Significant

Program Cumulative Impact Analysis

The geographic scope for cumulative impacts on human remains includes Madera County. There are seven known cemeteries located within the County. Future development assumed within this geographic area includes buildout/growth of the County. The cumulative growth of the County is identified in Table 3.0-2 in Section 3.0 of this Draft EIR. Development associated with the cumulative growth could unearth, expose, or disturb previously unknown human remains. Similar to the potential human remain impacts associated with the Specific Plan Program, cumulative projects that encounter previously unknown human remains would be required to comply with State Health and Safety Code Section 7050.5 and Public Resources Code Section 5097.98. As a result, cumulative projects would result in less than significant impacts on human remains. Therefore, the Program's impacts on human remains would be less than cumulatively considerable.

Significance Determination before Mitigation: Less than Significant

Program Mitigation Measures

No mitigation measures are required.

Significance Determination after Mitigation: Less than Significant

Program Cumulative Measures

No mitigation measures are required.

Significance Determination after Mitigation: Less than Significant

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Tribal Cultural Resources

Impact 3.5-4a: The Phase 1 Project would have a less than significant and less than cumulatively considerable impact on a tribal cultural resource defined in Public Resources Code Section 21074.

Phase 1 Project Impact Analysis

Based on the archival research at the California Historic Resources Information System (CHRIS) SSJVIC housed at California State University, Bakersfield, a review of historic maps and aerial photographs, a Sacred Lands File (SLF) conducted by the NAHC, and a pedestrian survey, no historical resources were identified within the Phase 1 Project area. Because the archival research and pedestrian survey within the Phase 1 Project area did not identify tribal cultural resources and Native American tribes that requested to be notified of projects occurring within the County did not request tribal cultural resources consultation after the County notified the tribes in accordance with AB 52 and SB 18, the Phase 1 Project would result in less than significant impacts on tribal cultural resources.

Significance Determination before Mitigation: Less than Significant

Phase 1 Project Cumulative Impact Analysis

The geographic scope for cumulative impacts on tribal cultural resources is within the County. The cumulative development assumed within this geographic area includes the cumulative projects identified in Table 3.0-1 in Section 3.0 of this Draft EIR. No known tribal cultural resources are located in the vicinity of the Phase 1 Project site. There could be unknown tribal cultural resources at the locations of each cumulative project, and potential cumulative impacts could be significant. Because the archival research and pedestrian survey within the Phase 1 Project area did not identify tribal cultural resources and Native American tribes that requested to be notified of projects occurring within the County did not request tribal cultural resources consultation after the County notified the tribes in accordance with AB 52 and SB 18, the Phase 1 Project's potential impact on tribal cultural resources are determined to be less than cumulatively considerable.

Significance Determination before Mitigation: Less than Significant

Phase 1 Project Mitigation Measures

No mitigation measures are required.

Significance Determination after Mitigation: Less than Significant

Phase 1 Project Cumulative Measures

No mitigation measures are required.

Significance Determination after Mitigation: Less than Significant

Impact 3.5-4b: The proposed Program would have a less than significant and less than cumulatively considerable impact on a tribal cultural resource defined in Public Resources Code Section 21074.

Program Impact Analysis

Based on the archival research at the California Historic Resources Information System (CHRIS) SSJVIC housed at California State University, Bakersfield, a review of historic maps and aerial photographs, a Sacred Lands File (SLF) conducted by the NAHC, and a pedestrian survey, no historical resources were identified within the Specific Plan Program area. Because the archival research and pedestrian survey within the Program area did not identify tribal cultural resources and Native American tribes that requested to be notified of projects occurring within the County did not request tribal cultural resources consultation after the County notified the tribes in accordance with AB 52 and SB 18, the Specific Plan Program would result in less than significant impacts on tribal cultural resources.

Significance Determination before Mitigation: Less than Significant

Program Cumulative Impact Analysis

The geographic scope for cumulative impacts on tribal cultural resources is within the County. Future development assumed within this geographic area includes buildout/growth of the County. The cumulative growth of the County is identified in Table 3.0-2 in Section 3.0 of this Draft EIR.

Development associated with the cumulative growth could result in significant impacts on unknown tribal cultural resources. Because the archival research and pedestrian survey within the Program area did not identify tribal cultural resources and Native American tribes that requested to be notified of projects occurring within the County did not request tribal cultural resources consultation after the County notified the tribes in accordance with AB 52 and SB 18, the Specific Plan Program would result in less than significant impacts on tribal cultural resources.

The geographic scope for cumulative impacts on tribal cultural resources within the County. The cumulative development assumed within this geographic area includes the cumulative projects identified in Table 3.0-1 in Section 3.0 of this Draft EIR. No known tribal cultural resources are located in the vicinity of the Phase 1 Project site. There could be unknown tribal cultural resources at the locations of each cumulative project, and potential cumulative impacts could be significant. Because the archival research and pedestrian survey within the Phase 1 Project area did not identify potential tribal cultural resources and Native American tribes that requested to be notified of projects occurring within the County did not request tribal cultural resources consultation, the Program's potential impact on tribal cultural resources are determined to be less than cumulatively considerable.

Significance Determination before Mitigation: Less than Significant

Program Mitigation Measures

No mitigation measures are required.

Significance Determination after Mitigation: Less than Significant

Program Cumulative Measures

No mitigation measures are required.

Significance Determination after Mitigation: Less than Significant

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Paleontological Resource

Impact 3.5-5a: The Phase 1 Project could have significant and cumulatively considerable direct or indirect impacts to a unique paleontological resource or site or unique geologic feature.

Phase 1 Project Impact Analysis

No previously recorded paleontological resources are within the Phase 1 Project area, and no known paleontological resources are located within a 1-mile radius of the Phase 1 Project area. Because the Phase 1 Project area contains the Quaternary Turlock Lake and Riverbank Formation, ground disturbing activities have a high potential for yielding paleontological resources. As such, the Phase 1 Project's ground disturbing activities at a depth of 5 feet and deeper have the potential to result in a significant impact on paleontological resources or unique geologic features pursuant to CEQA.

Significance Determination before Mitigation: Significant

Phase 1 Project Cumulative Impact Analysis

The geographic scope for cumulative impacts on paleontological resources includes all recorded and unrecorded resources within the City and County where paleontological sites have been located. The cumulative development assumed within this geographic area includes the cumulative projects identified in Table 3.0-1 in Section 3.0 of this Draft EIR. There could be geologic formations that could yield paleontological resources within the cumulative projects area. Therefore, development of the cumulative projects could result in significant impacts on paleontological resources.

As discussed above, no known paleontological resources have been identified within the Phase 1 Project site. However, the Phase 1 Project area is underlain by a geologic formation that is known to yield paleontological resources. Because the proposed Phase 1 Project could result in potential impacts to paleontological resources, the Phase 1 Project's contribution to cumulative paleontological resource impacts could be cumulatively considerable.

Significance Determination before Mitigation: Significant

Phase 1 Project Mitigation Measures

CUL-10: Prior to the issuance of a grading permit for the Phase 1 Project, the Project Applicant shall retain a qualified paleontologist to conduct monitoring activities and evaluate paleontological resources if they are found during grading and construction activities within the Phase 1 Project site. The selected qualified paleontologist will be required to be approved by the County of Madera.

CUL-11 Prior to the issuance of a grading permit, the qualified paleontologist shall prepare a Paleontological Resource Mitigation Plan (PRMP) for the Phase 1 Project and provide the PRMP to the County of Madera.

CUL-12 Prior to the start of ground disturbing activities associated with the Phase 1 Project, the qualified paleontologist (or a paleontologist working under the direct supervision of the qualified paleontologist) shall conduct paleontological resources sensitivity training for all construction personnel. Construction personnel shall be informed of the types of paleontological resources that may be encountered, the proper procedures to be enacted in the event of an inadvertent discovery of paleontological resources, and safety precautions to be taken when working with paleontological monitors. The County of Madera and the Project Applicant shall ensure that construction personnel are made available for and attend the training and retain documentation demonstrating attendance.

CUL-13: During grading and construction activities within the Phase 1 Project area, full-time monitoring shall be required during ground-disturbing activities that extend to 5 feet or more below ground surface (bgs) within areas deemed to have a high paleontological resource potential. Part-time monitoring, or spot checking, shall be required during shallow ground-disturbances (i.e., less than 5 feet bgs) to determine if the underlying sensitive geologic units are being impacted by construction, and at what depth. Monitoring shall entail the visual inspection of

excavated or graded areas and trench sidewalls. Based on the resources that are discovered during monitoring activities, a qualified paleontologist shall determine the frequency, duration and locations where paleontological monitoring shall be conducted during ground-disturbing activities. In the event that a paleontological resource is discovered, the monitor shall have the authority to temporarily divert the construction equipment around the find until it is assessed for scientific significance and collected.

Monitoring shall include matrix screening for the presence of microfossils, the frequency of which shall be determined by the qualified paleontologist. Monitoring is largely a visual inspection of sediments; therefore, the most likely fossils to be observed will be macrofossils of vertebrates (bones, teeth, tusk) or invertebrates (shells). At the discretion of the qualified paleontologist, the monitor shall periodically screen sediments to check for the presence of microfossils that can be seen with the aid of a hand lens (i.e., microvertebrates). If micro vertebrate fossils are encountered during the screening process, then bulk matrix samples shall be taken for processing off site. For each fossiliferous horizon or paleosol, a standard sample (4.0 cubic yards or 6,000 pounds) shall be collected for subsequent wet-screening per SVP (2010) guidelines.

CUL-14 Weekly reports of monitoring activities and resources that are discovered within the Phase 1 Project area shall be submitted by the qualified paleontologist to the County of Madera.

CUL-15: Upon completion of fieldwork within the Phase 1 Project area, all significant fossils collected shall be prepared in a properly equipped paleontology laboratory to a point ready for curation. Preparation shall include the careful removal of excess matrix from fossil materials and stabilizing and repairing specimens, as necessary. Following laboratory work, all fossils specimens shall be identified to the lowest taxonomic level, cataloged, analyzed, and curated. The fossil specimens must be delivered to the accredited museum repository identified on the permit and receipt(s) of collections shall be submitted to the Project Applicant with copies sent to the County of Madera. This delivery shall be made as soon as practical but no later than 60 days after all fieldwork is completed. The cost of curation is assessed by the repository and shall be the responsibility of the Project Applicant. At the conclusion of laboratory work and museum curation, a Paleontological Mitigation Report shall be prepared describing the results of the paleontological mitigation monitoring efforts associated with the Project. The report shall include a summary of the field and laboratory methods, an overview of the Project area geology and paleontology, a specimen inventory of all taxa recovered (if any), an analysis of fossils recovered (if any) and their scientific significance, the signed receipt of confirmation of museum deposition, and recommendations. The report shall be submitted to the designated repository and the County of Madera within 45 days following completion of monitoring and laboratory work.

Significance Determination after Mitigation: Less than Significant

Implementation of Mitigation Measures CUL-10 through CUL-15 would reduce potential Phase 1 Project impacts to paleontological resources to less than significant because a qualified

paleontologist would be retained, prepare a Paleontological Resources Mitigation Plan, conduct paleontological resources sensitivity training, conduct full time monitoring, prepare weekly reports and prepare a final report of the monitoring activities. These measures would effectively avoid damage to or loss of paleontological resources, and little to no residual impact would remain.

Phase 1 Project Cumulative Measures

Implementation of mitigation measures CUL-10 through CUL-15 is required.

Significance Determination after Mitigation: Less than Significant

As identified above, Mitigation Measures CUL-10 through CUL-15 would reduce potential Phase 1 Project impacts to paleontological resources to less than significant. These measures would effectively avoid damage to or loss of paleontological resources, and little to no residual impact would remain. Therefore, paleontological impacts from implementation of the Phase 1 Project would be less than cumulatively considerable.

Impact 3.5-5b: The proposed Program could have significant and cumulatively considerable direct or indirect impacts to a unique paleontological resource or site or unique geologic feature.

Program Impact Analysis

No previously recorded paleontological resources are within the Program area, and no known paleontological resources are located within a 1-mile radius of the Program area. Because the Program area contains the Quaternary Turlock Lake and Riverbank Formation, ground disturbing activities have a high potential for yielding paleontological resources. As such, the Program's ground disturbing activities at a depth of 5 feet and deeper have the potential to result in a significant impact on paleontological resources or unique geologic features pursuant to CEQA.

Significance Determination before Mitigation: Significant

Program Cumulative Impact Analysis

The geographic scope for cumulative impacts on paleontological resources includes all recorded and unrecorded resources within the County where paleontological sites have been located. Future development assumed within this geographic area includes buildout/growth of the County. The cumulative growth of the County is identified in Table 3.0-2 in Section 3.0 of this Draft EIR. Development associated with the cumulative growth could result in significant impacts on paleontological resources.

As identified above, ground disturbing activities associated with future phases of the Specific Plan Program have the potential to impact the Quaternary Turlock Lake and Riverbank Formation which has a high potential for yielding paleontological resources. As such, the impacts associated with the Program's ground disturbing activities at a depth of 5 feet and deeper have the potential to be cumulatively considerable.

Significance Determination before Mitigation: Significant

Program Mitigation Measures

CUL-16: Prior to the issuance of a grading permit for each individual tract map where grading has the potential to impact the Quaternary Turlock Lake and Riverbank Formation, the applicant of each individual tract map shall retain a qualified paleontologist to conduct monitoring activities and evaluate paleontological resources if they are found during grading and construction activities. The selected qualified paleontologist will be required to be approved by the County of Madera.

CUL-17 Prior to the issuance of a grading permit for each individual tract map where grading has the potential to impact the Quaternary Turlock Lake and Riverbank Formation, the qualified paleontologist shall prepare a Paleontological Resource Mitigation Plan (PRMP) and provide the PRMP to the County of Madera.

CUL-18 Prior to the start of ground disturbing activities associated with each individual tract map where grading has the potential to impact the Quaternary Turlock Lake and Riverbank Formation, the qualified paleontologist (or a paleontologist working under the direct supervision of the qualified paleontologist) shall conduct paleontological resources sensitivity training for all construction personnel. Construction personnel shall be informed of the types of paleontological resources that may be encountered, the proper procedures to be enacted in the event of an inadvertent discovery of paleontological resources, and safety precautions to be taken when working with paleontological monitors. The County of Madera and the applicant shall ensure that construction personnel are made available for and attend the training and retain documentation demonstrating attendance.

CUL-19: During grading and construction activities for each individual tract map where grading has the potential to impact the Quaternary Turlock Lake and Riverbank Formation, full-time monitoring shall be required. during ground-disturbing activities that extend to 5 feet or more below ground surface (bgs) within areas deemed to have a high paleontological resource potential. Part-time monitoring, or spot checking, shall be required during shallow ground-disturbances (i.e., less than 5 feet bgs) in areas where the Quaternary Turlock Lake and Riverbank Formation underlies the surface soils to determine if the underlying sensitive geologic units are being impacted by construction, and at what depth. Monitoring shall entail the visual inspection of excavated or graded areas and trench sidewalls. Based on the resources that are discovered during monitoring activities, a qualified paleontologist shall determine the frequency, duration and locations where paleontological monitoring shall be conducted during ground-disturbing activities. In the event that a paleontological resource is discovered, the monitor shall have the authority to temporarily divert the construction equipment around the find until it is assessed for scientific significance and collected.

Monitoring shall include matrix screening for the presence of microfossils, the frequency of which shall be determined by the qualified paleontologist. Monitoring is largely a visual inspection of sediments; therefore, the most likely fossils to be observed will be macrofossils of vertebrates (bones, teeth, tusk) or invertebrates (shells). At the discretion of the qualified paleontologist, the monitor shall periodically screen sediments to check for the presence of

microfossils that can be seen with the aid of a hand lens (i.e., microvertebrates). If micro vertebrate fossils are encountered during the screening process, then bulk matrix samples shall be taken for processing off site. For each fossiliferous horizon or paleosol, a standard sample (4.0 cubic yards or 6,000 pounds) shall be collected for subsequent wet-screening per SVP (2010) guidelines.

CUL-20 Weekly reports of monitoring activities and resources that are discovered within each individual tract map, where grading has the potential to impact the Quaternary Turlock Lake and Riverbank Formation, shall be submitted by the qualified paleontologist to the County of Madera.

CUL-21: Upon completion of fieldwork within each individual tract map where grading has the potential to impact the Quaternary Turlock Lake and Riverbank Formation, all significant fossils collected shall be prepared in a properly equipped paleontology laboratory to a point ready for curation. Preparation shall include the careful removal of excess matrix from fossil materials and stabilizing and repairing specimens, as necessary. Following laboratory work, all fossils specimens shall be identified to the lowest taxonomic level, cataloged, analyzed, and curated. The fossil specimens must be delivered to the accredited museum repository identified on the permit and receipt(s) of collections shall be submitted to the applicant with copies sent to the County of Madera. This delivery shall be made as soon as practical but no later than 60 days after all fieldwork is completed. The cost of curation is assessed by the repository and shall be the responsibility of the applicant. At the conclusion of laboratory work and museum curation, a Paleontological Mitigation Report shall be prepared describing the results of the paleontological mitigation monitoring efforts associated with the Project. The report shall include a summary of the field and laboratory methods, an overview of the individual project site geology and paleontology, a specimen inventory of all taxa recovered (if any), an analysis of fossils recovered (if any) and their scientific significance, the signed receipt of confirmation of museum deposition, and recommendations. The report shall be submitted to the designated repository and the County of Madera within 45 days following completion of monitoring and laboratory work.

Significance Determination after Mitigation: Less than Significant.

Implementation of Mitigation Measures CUL-16 through CUL-21 would reduce potential impacts to paleontological resources from the development of individual tract maps within the Program area, where grading has the potential to impact the Quaternary Turlock Lake and Riverbank Formation, to less than significant because a qualified paleontologist would be retained, prepare a Paleontological Resources Mitigation Plan, conduct paleontological resources sensitivity training, conduct full time monitoring, prepare weekly reports and prepare a final report of the monitoring activities. These measures would effectively avoid damage to or loss of paleontological resources, and little to no residual impact would remain.

Program Cumulative Measures

Implementation of Mitigation Measure CUL-16 through CUL-21 is required.

Significance Determination after Mitigation: Less than Significant

The implementation of Mitigation Measures CUL-16 through CUL-21 would reduce potential Program impacts to paleontological resources to less than significant as discussed above. Therefore, the Program's contribution to cumulative paleontological impacts would be reduced to less than cumulatively considerable.

3.5.4 References

ESA. 2018. *Cultural Resources Assessment Report, Castellina Specific Plan Project, County of Madera, California*. April.

Native American Heritage Commission. 2018. *Sacred Lands File Search*. February.

Sierra Valley Cultural Planning. 2007. *A Cultural Resources Survey for the 793.45-acre Herman Parcel, APN 031-221-001 and 031-222-019, Avenue 17 at Road 28 ½, Madera County, California. Prepared by Sierra Valley Cultural Planning*. January.

Sierra Valley Cultural Planning. 2016. *Paleontological Resources Survey for the 793.45-acre Herman Parcel, APN 031-221-001 and 031-222-019, Avenue 17 at Road 28 ½, Madera County, California. Prepared by Sierra Valley Cultural Planning*. October.

3.6 Geology, Soils, and Seismicity

This section addresses the potential impacts to geology and soils associated with the proposed Project. A description of regional and local geology, a summary of applicable regulations related to geologic and seismic hazards, an evaluation of the potential impacts that may result from implementing the proposed Project and identification of mitigation measures to minimize potential effects is provided. The analysis in this section is based, in part, on review of various geologic maps and reports, as well as the *Geotechnical Feasibility Investigation: Madera Herman Parcels, Madera County, California*, prepared by TRC Lowney in 2007 (**Appendix F-1**), the *Updated Geotechnical Feasibility Investigation, Madera Herman Parcels, Madera County, California*, prepared by TRC Lowney in 2017 (**Appendix F-2**), and the *Castellina Master Planned Community – Land Subsidence Assessment*, prepared by Wood Rodgers in 2016 (**Appendix F-3**). All applicable technical reports are provided in **Appendix F** of this Draft EIR.

3.6.1 Environmental Setting

Regional Geology

The Project site lies within the geologic region of California referred to as the Great Valley geomorphic province. The Great Valley geomorphic province is a long alluvial plain that extends approximately 400 miles through central California. The Great Valley can be further divided into the northern Sacramento Valley and the southern San Joaquin Valley. The Coast Ranges, forming a barrier between the Great Valley and the Pacific Ocean, evolved as a result of folding, faulting, and accretion of diverse geologic terrains and are composed chiefly of sedimentary and metamorphic rocks that are sharply deformed into complex structures. The Coast Ranges are broken by numerous faults, the San Andreas fault being the most dominant structural feature. The east side of the Great Valley province is bounded by the Sierra Nevada geomorphic province. The Sierra Nevada block has been tilted westward, caused by faulting and uplifting of the eastern edge. The western side is depressed and overlain by the sedimentary deposits of the valley.

In 2007, when the geotechnical analysis was conducted, the northern portion of the site had planted mature fig and almond trees. The southern portion of the site was planted with young fig and almond figs. A structure was located in the central portion of the site as well as improvements that include wells, tanks, and irrigation lines.

Topography

USGS topographic maps indicate that site grades range from approximately 310 feet in the southeast corner of the site to approximately 280 feet in the northwest corner of the Project site.

Seismic Hazards

Five major active and potentially active faults are close to the Madera County General Plan Planning Area: The San Andreas, San Joaquin, Ortigalita, Owens Valley, and Melones faults. Of these, the San Andreas and the Owens Valley faults are expected to be the sources of future major earthquakes. According to the Madera County Health and Safety Element of the 2009 General Plan, no earthquakes of a magnitude 5.5 or greater have ever been recorded in the Madera area,

nor have there been reports of damage in the area from earthquakes of such magnitude outside the City within the unincorporated portions of Madera County. (City of Madera, 2009)

Surface Fault Rupture

The Project site is located approximately 19 miles from the Foothills Fault system and greater than 41 miles from the Great Valley Fault system. The site is not located within a designated Alquist-Priolo Earthquake Zone.

Ground Shaking

Earthquake intensity is dependent upon the earthquake magnitude, the distance from the earthquake source, and the underlying soil or bedrock deposits. Ground shaking at the site would likely be low to moderate given the historic seismicity of the area and distance to active faults. The Probabilistic Seismic Hazard Analysis (PSHA) performed by the California Geological Survey estimates a peak horizontal ground acceleration of 0.17g at the site with a 10 percent probability of exceedance in 50 years. Based on Equation 11.8-1 of American Society of Civil Engineers (ASCE) 7-10 (ASCE, 2010), a maximum considered earthquake geometric mean peak ground acceleration (PGA_M) of 0.31g can be expected at the Project site (TRC, 2017).

Liquefaction and Landslide Hazards

Soil liquefaction results from loss of strength during cycling load, such as imposed by earthquakes. Soils most susceptible to liquefaction are clean, loose, saturated, uniformly graded, fine-grained sands.

The borings conducted for the geotechnical analysis encountered several localized areas of loose sand within 5 feet of the ground surface. Ground water was not encountered in borings, up to the maximum depth of 30 feet. Based on soils encountered during the analysis, the depth to ground water, and the expected levels of seismic shaking, the potential for liquefaction at the site may be considered low.

Lateral spreading and landslides typically occur as a form of horizontal displacement of relatively flat-lying alluvial material toward an open or free face, such as an open body of water, channel, or excavation. Movement is generally due to failure along a weak plane and may be often associated with liquefaction. Borings did not encounter a weak or potentially-liquefiable soil layer through the site. Additionally, no free faces within an appropriate distance of the site were found, which could cause lateral spreading. The probability of the Project site experiencing lateral spreading during a seismic event is considered low.

Soils

Alluvial soils to a depth of 30 feet. The alluvium generally consisted of silty sands and poorly graded sands with interbedded silt layers. The soils encountered in the geotechnical feasibility study were loose surficial soils and sands that were generally medium dense to very dense (hardpan). Loose surficial soils were found in the northwestern and southwestern portion of the site in the upper 1 to 2 feet near-surface areas. Loose near-surface soil is a result of past agricultural activities. Very dense cemented sands, known locally as hardpan, at depths ranging

from 0 to 12 feet. The cemented layers ranged from 2 to 12 feet in thickness. The upper 2 to 5 feet of soils were loose. The interbedded silty layers were generally 2 to 5 feet thick and were stiff to hard. No groundwater was found.

Subsidence

Subsidence is the gradual lowering of the land surface due to the loss or compaction of underlying soil materials. Subsidence can occur as the result of hydro-compaction; groundwater, gas and oil extraction; or the decomposition of highly organic soils. Hydro-compaction is the process of volume decrease and density increase upon saturation of moisture-deficient deposits. Land subsidence has been correlated to occur during drought periods as a result of increased groundwater pumping for agriculture (Wood Rodgers, 2016) and with geologic formations consisting of fine-grained sediments. Two types of land subsidence occur, elastic and inelastic subsidence. Elastic subsidence is temporary, typically a result of seasonal fluctuations in groundwater levels where ground surface elevations return to previous years' conditions. Inelastic land subsidence is the permanent displacement of the ground surface and occurs when groundwater levels are drawn down past the respective historical low, such as during prolonged droughts when groundwater basins are stressed and sometimes over drafted.

Permanent land subsidence can occur when fine-grained sediments (such as compressible clays) compact. The clay compaction results in the permanent loss of groundwater storage capacity and lowers the elevation of the ground surface.

Located in Madera County, California, the Project is in the San Joaquin Valley (Valley) which has experienced land subsidence. Land subsidence within the Valley was discovered in the 1950s as a result of groundwater over-pumping and resulted in significant drops in land surface elevations. The construction of extensometers quantified the rate and magnitude of ground surface displacement; however, primarily on the west side of the valley. Recently published data suggests that land subsidence continues in the vicinity of El Nido, California, approximately 25 miles northwest of the Project site. The land subsidence depression in the El Nido area appears to extend to the Project site. The subsidence is centered south of the town of El Nido, where at its center, subsidence was approximately 24 inches for the 2007 and 2010 period. The magnitude of subsidence in this depression decreases with distance towards the Project site. From May 2014 to January 2015, an additional 10-inches of land subsidence occurred within this depression. The Project site is located on the outer edge of the mapped area of land subsidence.

Direct and remote land subsidence data indicate that the Project area is currently subject to a small amount of annual subsidence. From the remote data, reports suggest that subsidence has been between approximately one to five inches per year; however, the Continuous Global Positioning System (CGPS) station indicates it is likely closer to one inch per year. Future land subsidence can be expected at a rate of approximately one inch per year during drought periods based on the data and reports reviewed (Wood Rogers, 2016). This Project would reduce the amount of groundwater pumping that is currently conducted at the Project site, and thus would not exacerbate the current rate of subsidence.

Erosion

The Project site is relatively flat without steep slopes on or adjacent to the site. The potential for erosion and siltation occurring at the Project site during grading is expected to be low. However, during periods of heavy rainfall, runoff can occur. In addition, the near-surface soils consist primarily of sandy soils, which have a moderate to high susceptibility to erosion. A Storm Water Pollution Prevention Plan (SWPPP) would be prepared and implemented during grading operations to reduce the potential for erosion or siltation impacts.

Expansive Soils

Expansive soils possess a "shrink-swell" behavior. Shrink-swell is the cyclic change in volume (expansion and contraction) that occurs in fine-grained clay sediments from the process of wetting and drying. Structural damage may occur over a long period of time, usually the result of inadequate soil and foundation engineering or the placement of structures directly on expansive soils.

3.6.2 Regulatory Framework

State

Alquist-Priolo Earthquake Fault Zones

The Alquist-Priolo Earthquake Fault Zoning Act of 1972 requires that special geologic studies be conducted to locate and assess any active fault traces in and around known active fault areas prior to development of structures for human occupancy. This law was a direct result of the 1971 San Fernando Earthquake, which was associated with extensive surface fault ruptures that damaged numerous homes, commercial buildings, and other structures.

The Alquist-Priolo Act's main purpose is to prevent the construction of buildings used for human occupancy on the surface trace of active faults. This act only addresses the hazard of surface fault rupture and is not directed toward other earthquake hazards. The law requires the State Geologist to establish regulatory zones (Earthquake Fault Zones) around the surface traces of active faults and to issue appropriate maps. These maps (Alquist-Priolo Maps) are distributed to all affected cities, counties and state agencies for their use in planning and controlling new or renewed construction. Local cities and counties must regulate certain development projects within the zones that include withholding permits until geologic investigations demonstrate that development sites are not threatened by future surface displacement. Projects include all land divisions and most structures for human occupancy. As previously discussed, the Project site is not located within a designated Alquist-Priolo Earthquake Zone.

Seismic Hazards Mapping Act

The Seismic Hazards Mapping Act of 1990 addresses non-surface fault rupture earthquake hazards, including liquefaction and seismically induced landslides. The purpose of the act is to protect public safety from the effects of strong ground shaking, liquefaction, landslides, or other ground failure, and other hazards caused by earthquakes. This act requires the State Geologist to delineate various seismic hazard zones and requires cities, counties, and other local permitting agencies to regulate certain development projects within these zones. Before a development

permit is granted for a site within a seismic hazard zone, a geotechnical investigation of the site has to be conducted and appropriate mitigation measures incorporated into the Project design. Seismic Hazard maps have been completed for much of the southern California region.

California Building Code

The California Building Code (CBC) is codified in the California Code of Regulations (CCR), Title 24, Part 2 that incorporates the California Building Standards Code. The most recent CBC is the 2019 CBC that became effective on January 1, 2020. Title 24 is assigned to the California Building Standards Commission that, by law, is responsible for coordinating all building standards. Under state law, all building standards must be centralized in Title 24 or they are not enforceable.[1] Published by the International Conference of Building Officials, the Uniform Building Code (UBC) is a widely adopted model building code in the United States. The California Building Code incorporates (by reference) the UBC with necessary California amendments. This Code specifies criteria for open excavation, seismic design, and load-bearing capacity directly related to construction in the State. About one-third of the text within the CBC has been tailored for California earthquake conditions.

California Department of Conservation

The CDC is the primary agency charged with mineral resource protection. The CDC's main responsibility is conserving the Earth's mineral resources through five program divisions: the Division of Mines and Geology; the Division of Oil, Gas and Geothermal Resources; the Division of Land Resource Protection; the Division of Recycling; and the Office of Mine Reclamation. The State Mining and Geology Board operates within the CDC, and serves as a regulatory, policy, and appeals body representing the state's interest in geology, geologic and seismologic hazards, conservation of mineral resources, and reclamation following surface mining activities.

Surface Mining and Reclamation Act

Enacted in 1975, SMARA is the primary state law governing the conservation and development of mineral resources in California (Health and Safety Code, Division 2, Chapter 9, Section 2710, et seq.).[2] Depending on the region, natural resources could include geologic deposits of valuable minerals used in manufacturing processes and in the production of construction materials. Enacted to limit new development in areas with significant mineral deposits, SMARA calls for the State Geologist to classify land within California based on mineral resource availability.

While acknowledging that the extraction of minerals is essential to the continued economic well-being of the state and to the needs of society, SMARA also provides for reclamation of mined lands to prevent or minimize adverse effects on the environment and to protect the public health and safety. The reclamation of mined lands permits the continued mining of minerals and the protection of, and subsequent beneficial use of, mined and reclaimed land.

1 Bolt, B., *Earthquakes,* W. H. Freeman and Company, New York, New York, 1988.

2 Mining also may be regulated by local government, which has the authority to prohibit mining pursuant to its general plan and local zoning laws.

Local

Madera County Building Code

The current Madera County Building Code (Title 14, Chapter 14.08 of the Madera County Code) is based on the 2019 California Building Standards Code, as adopted by the California Buildings Standards Commission. Chapter 14 of the Madera County Building Code provides minimum standards to safeguard life or limb, health, property and public welfare. The Code applies to the erection, construction, demolition, enlargement, alteration, repair, relocation, conversion, occupancy, change of occupancy, and maintenance of buildings, structures, swimming pools, and also the installation of electrical, plumbing, heating and cooling facilities and appurtenances necessary within the County. Structural design for geotechnical constraints is provided in Chapters 16 through 26 of the 2019 CBC.

Madera County General Plan

The *Madera County General Plan* includes seismic and geological hazards goal and policies. The following goal and policy are relevant to the soils and geotechnical issues at the Project site:

Goal 6.A.: To minimize the loss of life, injury, and property damage due to seismic and geotechnical hazards.

Policy 6.A.1: The County shall require the preparation of a soils engineering and geologic-seismic analysis prior to permitting development in areas prone to geological or seismic hazards (i.e., groundshaking, landslides, liquefaction, critically expansive soils).

Because the development of the Project would require adherence to the County of Madera Building Code which includes structural design regulations to address soil and geotechnical hazards, the Project would be consistent with the above relevant goal and policy. A preliminary geotechnical investigation has already been completed which would be followed by a site specific investigation to develop design criteria to address specific soil and geotechnical constraints in accordance with the County of Madera Building Code.

3.6.3 Impacts and Mitigation Measures

Significance Criteria

The criteria used to determine the significance of impacts related to geology, soils and seismicity are based on Appendix G of the *CEQA Guidelines*. The Phase 1 Project and proposed Program would result in a significant impact to geology, soils, and seismicity if it would:

- Directly or indirectly cause potential substantial adverse effects, including the risk of loss, injury, or death involving:
  - Rupture of a known earthquake fault, as delineated on the most recent Alquist-Priolo Earthquake Fault Zoning Map issued by the State Geologist for the area or based on other substantial evidence of a known fault (see Section 4.1.3, Issue 1 in Chapter 4.0, Other CEQA Considerations)
  - Strong seismic ground shaking (see Impact 3.6-1a and 3.6-1b, below)

  - Seismic-related ground failure, including liquefaction (see Impact 3.6-1a and 3.6-1b, below)
  - Landslides (see Section 4.1.3, Issue 2 in Chapter 4.0, Other CEQA Considerations)
- Result in substantial soil erosion or the loss of topsoil (see Impact 3.6-2a and 3.6-2b, below);
- Be located on a geologic unit or soil that is unstable or that would become unstable as a result of the project, and potentially result in on-site or offsite landslide, lateral spreading, subsidence (i.e., settlement), liquefaction, or collapse (see Impact 3.6-3a and 3.6-3b, below);
- Be located on expansive soil, as defined in Table 18-1-B of the Uniform Building Code (1994), creating direct or indirect substantial risks to life or property (see Impact 3.6-4a and 3.6-4b, below);
- Have soils incapable of adequately supporting the use of septic tanks or alternative waste water disposal systems where sewers are not available for the disposal of waste water (see Section 4.1.3, Issue 3 in Chapter 4.0, Other CEQA Considerations).

Methodology

The following analysis considers the existing environmental setting and regulatory environment applicable to the Project area. The Madera County General Plan as well as the preliminary geotechnical investigation prepared for the site were consulted to determine what, if any, identified geologic hazards are located in the Project area. If there is a potential for geologic hazards and if existing regulatory requirements reduces the potential hazard to less than significant, no mitigation measures are required.

Impacts Discussion

Earthquakes

Impact 3.6-1a: The Phase 1 Project would have a less than significant and less than cumulatively considerable potential to expose people or structures to adverse geologic effects, including the risk of loss, injury or death involving strong seismic ground shaking, or seismic-related ground failure, including liquefaction.

Phase 1 Project Impact Analysis

The Phase 1 Project site is not located within a currently designated State of California Earthquake Fault Zone (Alquist-Priolo Zone) (CGS, 2015). The site is located approximately 41 miles from Great Valley Fault and is located approximately 19 miles from the active Foothill fault system. However, the Phase 1 Project is within a seismically active region, which includes 5 active faults: The San Andreas, San Joaquin, Ortigalita, Owens Valley, and Melones faults. People and structures within the County of Madera and within the vicinity of the aforementioned active faults could be subject to strong seismic ground shaking. As previously mentioned under the existing setting, the based on Equation 11.8-1 of American Society of Civil Engineers (ASCE) 7-10 (ASCE, 2010), a maximum considered earthquake geometric PGA_M of 0.31g can be expected at the Project site, which was determined by the geotechnical feasibility investigation to be low to moderate, given the historic seismicity of the area and distance to active faults (TRC, 2017). Additionally, the Phase 1 Project would conform to the County of Madera Building Code that would reduce impacts from strong seismic ground shaking to the maximum extent possible under currently accepted engineering practices. Therefore, the implementation of the proposed

Phase 1 Project would result in less than significant impacts related to exposing people or structures to strong seismic ground shaking.

Seismic shaking temporarily eliminates the grain-to-grain support normally provided by the sediment grains. The waters between the grains assume the weight of the overlying material and the sudden increase in pore water pressure results in the soil losing its friction properties. The saturated material (with the frictionless properties of a liquid) will fail to support overlying structures. Liquefaction-related effects include loss of bearing strength, ground oscillations, lateral spreading, and slumping. Liquefaction may occur in water-saturated sediment during a moderate to high acceleration of seismic shaking in the Phase 1 Project area because the depth of groundwater is approximately 30 to 40 feet below the ground surface.

Liquefaction susceptibility reflects the relative resistance of a soil to loss of strength when subjected to ground shaking. Physical properties of soil such as sediment grainsize distribution, compaction, cementation, saturation, and depth govern the degree of resistance to liquefaction. The alluvial deposits within the Phase 1 Project site consisted of silty sands and poorly graded sands with interbedded silt layers (TRC, 2017). Most test boreholes drilled in these units report the presence of silty sands and poorly graded sands with interbedded silt layers, with loose surficial soils and sands that were generally medium dense to very dense.

The Phase 1 Project would involve new development of several structures at the approximate 92-acre site. The Phase 1 Project area is not classified as having high potential for liquefaction. Liquefaction can occur as a secondary effect of seismic shaking in areas of saturated, loose, fine-to-medium grained soils where the water table is 40 feet or less below the ground surface. The groundwater was measured to be at a depth of approximately 105 feet below ground surface (bgs) at a monitoring well that was about 2.5 miles from the Phase 1 Project site. According to soils encountered during the borings conducted for the geotechnical analysis, the depth to ground water, and the expected levels of seismic shaking, the potential for liquefaction at the site is considered low.

As previously mentioned, the Phase 1 Project would conform to the County of Madera Building Code and would reduce impacts from liquefaction on the site to the maximum extent possible under currently accepted engineering practices. These engineering practices could include over excavation of hardpan layers and surficial soils and replacement with compacted engineered fill. Therefore, the implementation of the proposed Phase 1 Project would result in less than significant impacts related to exposing people or structures to liquefaction.

Significance Determination before Mitigation: Less than Significant

Phase 1 Project Cumulative Impact Analysis

The implementation of the cumulative projects identified in Section 3.0.2 could primarily be located within areas involving strong seismic ground shaking and because the direct geology and soil impacts are site specific, people and structures could be exposed to indirect hazards from unstable structures in the general vicinity of the Phase 1 Project area. Future cumulative development could be located in areas susceptible to strong seismic ground shaking, or could be

susceptible to low to moderate seismic ground shaking, similar to the proposed Project. However, as required for all new developments, conforming to the County of Madera Building Code, the CBC, or local ordinances would reduce impacts from strong seismic ground shaking for future cumulative development to the maximum extent possible under currently accepted engineering practices. Therefore, cumulative development would result in less than significant impacts related to exposing people or structures to strong seismic ground shaking

Because both the Phase 1 Project and cumulative development would result in less than significant impacts related to exposing people or structures to strong seismic ground shaking, the Phase 1 Project's contribution to cumulative strong seismic ground shaking would be less than cumulatively considerable, and therefore, less than cumulatively significant.

The study area for potential cumulative geology and soils impacts involving liquefaction includes the Phase 1 Project area and areas immediately adjacent to the proposed Project because the direct geology and soil impacts are site specific and people and structures within the Phase 1 Project could be exposed to indirect hazards from unstable structures immediately adjacent to the Phase 1 Project area. Future cumulative development could be located in areas susceptible to liquefaction, or have a low susceptibility to the aforementioned impacts, similar to the Phase 1 Project. Because future development could be exposed to these impacts, people and structures could be exposed to a high potential for liquefaction. However, as required for all new developments, conforming to the County of Madera Building Code, the CBC, or local ordinances would reduce potential impacts from liquefaction for future cumulative development to the maximum extent possible under currently accepted engineering practices. Therefore, cumulative development would result in less than significant impacts related to exposing people or structures to liquefaction.

Because both the Phase 1 Project and cumulative development would result in less than significant impacts related to exposing people or structures to liquefaction, the Phase 1 Project's contribution to cumulative liquefaction impacts would be less than cumulatively considerable, and therefore, less than cumulatively significant.

Significance Determination before Mitigation: Less than Significant

Phase 1 Project Mitigation Measures

No mitigation measures are required.

Significance Determination after Mitigation: Less than Significant

Phase 1 Project Cumulative Measures

No mitigation measures are required.

Significance Determination after Mitigation: Less than Significant

Impact 3.6-1b: The proposed Program would have less than significant and less than cumulatively considerable potential to expose people or structures to adverse geologic effects, including the risk of loss, injury or death involving strong seismic ground shaking, or seismic-related ground failure, including liquefaction.

Program Impact Analysis

Similar to the analysis provided for the Phase 1 Project, there are no currently designated State of California Earthquake Fault Zones (Alquist-Priolo Zones) within or immediately adjacent to the Program site (TRC, 2017). The nearest active fault is located approximately 19 miles northwest of the Program site (TRC Lowney, 2007). The implementation of the proposed Program would have no impact related to exposing people or structures to strong seismic ground shaking. In addition, similar to the discussion above, the Program would conform to the County of Madera Building Code and would reduce impacts from liquefaction within the Program area to the maximum extent possible under currently accepted engineering practices. Therefore, implementation of the proposed Program would result in a less than significant impact related to exposing people or structures to liquefaction.

Significance Determination before Mitigation: Less than Significant

Program Cumulative Impact Analysis

Implementation of cumulative growth in the Program area, as described in Section 3.0.2, would increase development in the County and in the Program vicinity. The cumulative growth is expected to be consistent with the current land use designation within the County as well as the future growth of the City of Madera. The cumulative growth within the County would not include development within fault zones (CGS, 2015). This cumulative growth would also conform to the County of Madera Building Code, CBC, or local ordinances and would reduce impacts from liquefaction within the proposed Program area to the maximum extent possible under currently accepted engineering practices. Therefore, this cumulative growth would have a less than significant impact related to exposure of people or structures to adverse geologic effects, including the risk of loss, injury or death involving strong seismic ground shaking, or seismic-related ground failure, including liquefaction.

Because both the proposed Program and cumulative development would result in less than significant impacts related to exposing people or structures to liquefaction, the proposed Program's contribution to cumulative liquefaction impacts would be less than cumulatively considerable, and therefore, less than cumulatively significant.

Significance Determination before Mitigation: Less than Significant

Program Mitigation Measures

No mitigation measures are required.

Significance Determination after Mitigation: Less than Significant

Program Cumulative Measures

No mitigation measures are required.

Significance Determination after Mitigation: Less than Significant

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Soil Erosion or Topsoil Loss

Impact 3.6-2a: The Phase 1 Project would have less than significant and less than cumulatively considerable effects from soil erosion or the loss of topsoil.

Phase 1 Project Impact Analysis

The relatively flat topography of the Phase 1 Project site substantially reduces the potential for erosion and loss of topsoil during construction of the Phase 1 Project. Although the Phase 1 Project site is located within a flat and undeveloped area, construction activities may include excavation, grading, and other soil-disturbing activities that could result in soil erosion or loss of topsoil during rain or high-wind events. Erosion of site soils would be reduced through erosion control measures. Because the Phase 1 Project would disturb more than one acre, construction activities would be required to comply with the NPDES General Permit for Discharges of Storm Water Runoff Associated with Construction Activity (General Construction Permit), which involves preparing a SWPPP for all construction phases of the Phase 1 Project. As described in Section 3.9, *Hydrology and Water Quality*, the Project Applicant would be required to develop and implement a SWPPP in order to minimize potential erosion and subsequent sedimentation of storm water runoff. This SWPPP would include BMPs to control erosion associated with grading, trenching, and other ground surface-disturbing activities. Because BMPs have been recognized as methods to effectively prevent or minimize erosion, the Project Applicant would be required to adhere to erosion control measures outlined in the SWPPP. Compliance with Construction General Permit requirements would ensure less than significant impacts related to erosion and topsoil during construction within the Phase 1 Project area.

During operational activities, the Phase 1 Project area would include structures, roadways and landscaping. As part of erosion control, the Phase 1 Project area would include open space to be landscaped with trees, ground cover, shrubbery and flowers that would be designed to reduce offsite runoff, promote rainwater harvesting, and reduce erosion and hydrologic impacts downstream. By reducing the velocity and quantity of stormwater onsite through the use of onsite basins, the potential for erosion and topsoil loss in landscaped areas caused by runoff is also reduced. The presence of vegetation on landscaped areas would reduce the ability of soil to be eroded and lost by wind erosion. Impacts related to erosion and topsoil loss during operation of Phase 1 Project would be less than significant.

Significance Determination before Mitigation: Less than Significant

Phase 1 Project Cumulative Impact Analysis

Topsoil and erosion impacts are typically site-specific. The cumulative projects adjacent to the Phase 1 Project area that are disturbing more than an acre of ground surface would be required to implement erosion control and sediment control BMPs as required by their site-specific SWPPPs per Construction General Permit requirements. Therefore, cumulative developments would result in less than significant erosion and topsoil loss impacts because these projects would be required

to comply with existing regulations. Because the projects that would be located in the vicinity of or adjacent to the Phase 1 Project would result in less than significant soil erosion and loss of topsoil impacts as discussed above, the Phase 1 Project's contribution to cumulative soil impacts would be less than cumulatively considerable, and thus less than cumulatively significant.

***Significance Determination before Mitigation*:** Less than Significant

Phase 1 Project Mitigation Measures

No mitigation measures are required

Significance Determination after Mitigation: Less than Significant

Phase 1 Project Cumulative Measures

No mitigation measures are required

Significance Determination after Mitigation: Less than Significant

Impact 3.6-2b: The proposed Program would have a less than significant and less than cumulatively considerable effect from soil erosion or the loss of topsoil.

Program Impact Analysis

Similar to the analysis provided for the Phase 1 Project, the Program area is located on flat topography, which substantially reduces the potential for erosion and loss of topsoil during construction of the developments that are part of the proposed Program.

The various phases of the proposed Program would disturb more than one acre and, therefore, would be required to comply with the NPDES General Construction Permit, which involves preparing a SWPPP for all construction phases of the proposed Program. Although the Program site is located within a flat and undeveloped area, construction activities may include excavation, grading, and other soil-disturbing activities that could result in soil erosion or loss of topsoil during rain or high-wind events. Erosion of site soils would be reduced through erosion control measures. Because the phases of the Program would disturb more than one acre, construction activities would be required to comply with the NPDES General Permit for Discharges of Storm Water Runoff Associated with Construction Activity (General Construction Permit), which involves preparing a SWPPP for all construction phases of the Program. As described in Section 3.9, *Hydrology and Water Quality*, the project applicant would be required to develop and implement a SWPPP in order to minimize potential erosion and subsequent sedimentation of storm water runoff. This SWPPP would include BMPs to control erosion associated with grading, trenching, and other ground surface-disturbing activities. Because BMPs have been recognized as methods to effectively prevent or minimize erosion, the project applicant would be required to adhere to erosion control measures outlined in the SWPPP. Compliance with Construction General Permit requirements would ensure less than significant impacts related to erosion and topsoil during construction within the Program area.

During operational activities, the Program area would include structures, roadways and landscaping. As part of erosion control, the Program area would include open space to be landscaped with trees, ground cover, shrubbery and flowers that would be designed to reduce offsite runoff, promote

rainwater harvesting, and reduce erosion and hydrologic impacts downstream. By reducing the velocity and quantity of stormwater onsite through the use of onsite basins, the potential for erosion and topsoil loss in landscaped areas caused by runoff is also reduced. The presence of vegetation on landscaped areas would reduce the ability of soil to be eroded and lost by wind erosion. Impacts related to erosion and topsoil loss during operation of Program would be less than significant.

Significance Determination before Mitigation: Less than Significant

Program Cumulative Impact Analysis

Implementation of cumulative growth in the vicinity of the Program area, as described in Section 3.0.2, would increase development in the County and in the Program vicinity. The cumulative growth is expected to be consistent with the current land use designation within the County as well as the future growth of the City of Madera. Topsoil and erosion impacts are typically site-specific. The cumulative projects adjacent to the Program area that would disturb more than an acre of ground surface would be required to implement erosion control and sediment control BMPs as required by their site-specific SWPPPs per Construction General Permit requirements. Cumulative projects not falling into this disturbance category would be required at a minimum to implement erosion and sediment control (see Chapter 3.9, Hydrology and Water Quality, for a more detailed explanation). Therefore, cumulative developments would result in less than significant erosion and topsoil loss impacts because these projects would be required to comply with existing regulations. Because the projects that would be located within the vicinity, or adjacent to, the Program area would result in less than significant soil erosion and loss of topsoil impacts as discussed above, the Program's contribution to cumulative soil impacts would be less than cumulatively considerable, and thus less than cumulatively significant.

***Significance Determination before Mitigation*:** Less than Significant

Program Mitigation Measures

No mitigation measures are required

Significance Determination after Mitigation: Less than Significant

Program Cumulative Measures

No mitigation measures are required

Significance Determination after Mitigation: Less than Significant

Unstable Geologic Location

Impact 3.6-3a: The Phase 1 Project would have less than significant and less than cumulatively considerable instability effects because the Phase 1 Project would not be located on a geologic unit or soil that is unstable or that would become unstable as a result of the Phase 1 Project and potentially result in on-or off-site landslide, lateral spreading, subsidence, liquefaction, or collapse.

Phase 1 Project Impact Analysis

As mentioned above, the Phase 1 Project site is located within a region of low to moderate seismicity and is not located within a state-designated Alquist-Priolo Earthquake Fault Zone for active faults. Although some major active faults occur to the east, west, and south of the Phase 1 Project site, none of these active faults are located within close proximity to the site (CGS, 2019). The closest fault to the Phase 1 Project site is the Foothill fault system, which lies approximately 19 miles west. However, this fault is only considered to be potentially active (CGS, 2019), and would not pose a significant risk to the Phase 1 Project. In addition, with implementation of the County of Madera Building Code requirements, the potential for adverse impacts from unstable soils at the site would be reduced to less than significant.

As stated in the IS/NOP for the project, the Phase 1 Project would have no impact related to landslides given that the existing area is relatively flat. The potential for liquefaction is addressed in Impact 3.6-1a, above. As stated in Impact 3.6-1a, development in accordance with the Phase 1 Project requires conformance with the County of Madera Building Code that would reduce impacts from liquefaction to the maximum extent possible under currently accepted engineering practices. These engineering practices could include densification of soils and soil reinforcement. Additionally, the lack of shallow groundwater at the Phase 1 Project site would also serve to preclude any potential for liquefaction to occur. Therefore, the implementation of the Phase 1 Project would result in less than significant impacts related to liquefaction that would result in instability effects.

Lateral spreading typically occurs as a form of horizontal displacement of relatively flat-lying alluvial material toward an open face, such as an open body of water, channel or excavation. Movement is generally due to failure along a weak plane and may often be associated with liquefaction. Based on soil borings that were performed during the Geotechnical Feasibility Investigation (Appendix F-1), there were no weak or potentially liquefiable soil layer through the site and no open faces with an appropriate distance of the site and therefore the probability of lateral spreading to occur would be low. Therefore, the implementation of the Phase 1 Project would result in less than significant lateral-spreading impacts.

Subsidence or collapse is the gradual lowering of the land surface due to the loss or compaction of underlying soil materials. As mentioned above, the land subsidence report of the Project area states that recently published data suggests that land subsidence continues in the vicinity of El Nido, California within Merced County, approximately 25 miles northwest of the Phase 1 Project site. Additionally, reports suggest subsidence has been between approximately one to five inches per year; however, the CGPS station indicates it is likely closer to one inch per year during drought periods (Wood Rogers, 2016). Land subsidence or collapse has been correlated to occur

during drought periods as a result of increased groundwater pumping for agriculture, which is the existing use of the Phase 1 Project site. The Phase 1 Project would reduce the amount of groundwater pumping that is currently conducted at the site, and thus would not exacerbate the current rate of subsidence. It is a generally accepted that water level declines alone do not cause land subsidence or collapse, and that a specific type of compactable clay must also be present at a site for subsidence or collapse to occur. This type of compactable clay is generally absent from the Phase 1 Project vicinity, as well as the Phase 1 Project site. Therefore, regardless of the projected rate of subsidence in the vicinity of the site, the Phase 1 Project site is devoid of any large areas of compactable clays, and therefore, is not expected to experience any measurable land subsidence or collapse during the life of the Phase 1 Project. The potential for subsidence or collapse would be reduced to less than significant with incorporation of industry standard geotechnical practices.

Therefore, with adherence to building code requirements and industry standard geotechnical practices, the potential for unstable soils resulting in landslide, liquefaction, lateral spreading, subsidence, or collapse to adversely affect proposed structures and improvements would be reduced to less than significant.

Significance Determination before Mitigation: Less than Significant

Phase 1 Project Cumulative Impact Analysis

The study area for potential cumulative geology and soils impacts involving landslides, liquefaction, lateral spreading, subsidence and collapsible soils includes the proposed Phase 1 Project area and areas immediately adjacent to Phase 1 Project area because the direct geology and soil impacts are site specific. People and structures within the Phase 1 Project area could be exposed to indirect hazards from unstable structures immediately adjacent to the Phase 1 Project area. As stated above the Phase 1 Project area and vicinity have relatively flat terrain and therefore, no cumulative impacts from landslides would occur. Future cumulative development could be located in areas susceptible to liquefaction, lateral spreading, subsidence and collapsible soils similar to the proposed Phase 1 Project. Because future development could be exposed to these impacts, people and structures could be exposed to hazards from these impacts. However, as required for all new developments, conforming to the County of Madera Building Code, CBC, or local ordinance would reduce potential impacts from liquefaction, lateral spreading, subsidence and collapsible soils for future cumulative development to the maximum extent possible under currently accepted engineering practices such as the site preparation and design measures identified above. Therefore, cumulative development would result in less than significant impacts related to exposing people or structures to liquefaction, lateral spreading, subsidence and collapsible soils

Because both the proposed Project and cumulative development would result in less than significant impacts related to exposing people or structures to liquefaction, lateral spreading, subsidence and collapsible soils with adherence to the County of Madera Building code, CBC, or local ordinances, the Project's contribution to cumulative liquefaction, lateral spreading, settlement, subsidence and collapsible soils would be less than cumulatively considerable, and therefore, less than cumulatively significant.

Significance Determination before Mitigation: Less than Significant

Phase 1 Project Mitigation Measures

No mitigation measures are required

Significance Determination after Mitigation: Less than Significant

Phase 1 Project Cumulative Measures

No mitigation measures are required

Significance Determination after Mitigation: Less than Significant

Impact 3.6-3b: The proposed Program would have a less than significant and less than cumulatively considerable instability effects because the Program would not be located on a geologic unit or soil that is unstable or that would become unstable as a result of the proposed program and potentially result in on-or off-site landslide, lateral spreading, subsidence, liquefaction, or collapse.

Program Impact Analysis

Similar to the analysis provided for the Phase 1 Project, the Specific Plan Program would have no impact related to landslides given that the existing area is relatively flat. As mentioned in Impact 3.6-1b, the Program site is not located within a state-designated Alquist-Priolo Earthquake Fault Zone for active faults. Although some major active faults occur to the east, west, and south of the Program site, none of these active faults are located within close proximity to the Program site (CGS, 2019). The potential for liquefaction is also addressed in Impact 3.6-1b. As stated in Impact 3.6-1b, development in accordance with the Program requires conformance with the County of Madera Building Code that would reduce impacts from liquefaction within the Program area to the maximum extent possible under currently accepted engineering practices. These engineering practices could include densification of soils, and soil reinforcement through over excavation and compaction with engineered fill. Additionally, the lack of shallow groundwater at the Program site would also serve to preclude any potential for liquefaction to occur. Therefore, the implementation of the proposed Program would result in less than significant impacts related to liquefaction that would result in instability effects.

As discussed above for the Phase 1 Project area, lateral spreading typically occurs as a form of horizontal displacement of relatively flat-lying alluvial material toward an open face, such as an open body of water, channel or excavation. Movement is generally due to failure along a weak plane and may often be associated with liquefaction. Based on soil borings that were performed during the Geotechnical Feasibility Investigation (Appendix F-1), there were no weak or potentially liquefiable soil layer through the site and no open faces with an appropriate distance of the site and therefore the probability of lateral spreading to occur would be low. Therefore, the implementation of the proposed Program would result in less than significant lateral-spreading impacts.

The proposed Program would reduce the amount of groundwater pumping that is currently conducted at the site, and thus would not exacerbate the current rate of subsidence. It is a generally accepted that water level declines alone do not cause land subsidence or collapse, and

that a specific type of compactable clay must also be present at a site for subsidence or collapse to occur. This type of compactable clay is generally absent from the Program vicinity, as well as the Program site. Therefore, regardless of the projected rate of subsidence in the vicinity of the site, the Program is devoid of any large areas of compactable clays, and therefore, is not expected to experience any measurable land subsidence or collapse during the life of the Program. The potential for subsidence or collapse would be reduced to less than significant with incorporation of industry standard geotechnical practices.

Therefore, with adherence to building code requirements and industry standard geotechnical practices, the potential for unstable soils resulting in landslide, liquefaction, lateral spreading, subsidence, or collapse to adversely affect proposed Program structures and improvements would be reduced to less than significant.

Significance Determination before Mitigation: Less than Significant

Cumulative Impact Analysis

Implementation of cumulative growth in the Program area, as described in Section 3.0.2, would increase development in the County and in the Program vicinity. Study areas for potential cumulative geology and soils impacts involving landslides, liquefaction, lateral spreading, subsidence and collapsible soils includes the proposed Program area and areas immediately adjacent to the Program area because the direct geology and soil impacts are site specific. People and structures within the Program area could be exposed to indirect hazards from unstable structures immediately adjacent to the Program area. As stated above, the Program area and vicinity have relatively flat terrain and therefore, no cumulative impacts from landslides would occur. Future cumulative development could be located in areas susceptible to liquefaction, lateral spreading, subsidence and collapsible soils similar to the proposed Program. Because future development could be exposed to these impacts, people and structures could be exposed to hazards from these impacts. However, as required for all new developments, conforming to the Madera county Building code, CBC and local ordinances would reduce potential impacts from liquefaction, lateral spreading, subsidence and collapsible soils for future cumulative development to the maximum extent possible under currently accepted engineering practices such as the site preparation and design measures identified. Therefore, cumulative development would result in less than significant impacts related to exposing people or structures to liquefaction, lateral spreading, subsidence and collapsible soils.

***Significance Determination before Mitigation*:** Less than Significant

Program Mitigation Measures

No mitigation measures are required

Significance Determination after Mitigation: Less than Significant

Program Cumulative Measures

No mitigation measures are required

Significance Determination after Mitigation: Less than Significant

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Expansive Soil

Impact 3.6-4a: The Phase 1 Project would have a less than significant and less than cumulatively considerable geologic effects because the Phase 1 Project would not be located on expansive soils, as defined in Table 18-1-B of the Uniform Building Code (1994), creating substantial direct or indirect risks to life or property.

Phase 1 Project Impact Analysis

Alamo clay soils are located within relatively small isolated areas within the Phase 1 Project site. These soils have very slow permeability characteristics and could exhibit expansion characteristics. Expansive soils, which shrink and swell as they are wet and dry from seasonal rains or irrigation, can result in damage to structures over time. However, building activities within the Phase 1 Project will be required to comply with the Madera County Building Code which includes provisions for the foundation design and construction in areas of expansive soils. A variety of approaches to reduce potential impacts from expansive soils are typically evaluated to comply with regulations including over-excavation and replacement of native soils with non-expansive soils, onsite use of native soils, and implementation of specialized foundation designs. Compliance with the Madera County Building Code would reduce potential expansive soil impacts to less than significant.

Significance Determination before Mitigation: Less than Significant

Cumulative Impact Analysis

The study area for potential cumulative geology and soils impacts involving expansive soils includes the proposed Phase 1 Project area and areas immediately adjacent to Phase 1 Project area because the direct soil expansion impacts are site specific. Similar to the onsite location of the Alamo clay soils, these soils are also located in the immediate vicinity of the Phase 1 Project site and are located within relatively small isolated areas. As discussed above, these soils have very slow permeability characteristics and could exhibit expansion characteristics. Expansive soils, which shrink and swell as they are wet and dry from seasonal rains or irrigation, can result in damage to structures over time. However, building activities within the areas immediately adjacent and within the Phase 1 Project area will be required to comply with the Madera County Building Code which includes provisions for the foundation design and construction in areas of expansive soils. A variety of approaches to reduce potential impacts from expansive soils are typically evaluated to comply with regulations including over-excavation and replacement of native soils with non-expansive soils, onsite use of native soils, and implementation of specialized foundation designs. Compliance with the Madera County Building Code, CBC or local ordinances would reduce potential expansive soil impacts on cumulative projects to less than significant.

Because the Phase 1 Project would require compliance with the Madera County Building Code, potential expansive soil impacts to structures within the Phase 1 Project area would be less than cumulatively considerable.

Significance Determination before Mitigation: Less than Significant

Project Phase 1 Mitigation Measures

No mitigation measures are required.

Significance Determination after Mitigation: Less than Significant

Project Phase 1 Cumulative Measures

No mitigation measures are required.

Significance Determination after Mitigation: Less than Significant

Impact 3.6-4b: The proposed Program would have less than significant and less than cumulatively considerable geologic effects because the structural developments under the Program would not be located on expansive soils, as defined in Table 18-1-B of the Uniform Building Code (1994), creating substantial direct or indirect risks to life or property.

Program Impact Analysis

Similar to the Phase 1 Project area, the Program area contains Alamo clay soils that are located within relatively small isolated areas. These soils have very slow permeability characteristics and could exhibit expansion characteristics. Expansive soils, which shrink and swell as they are wet and dry from seasonal rains or irrigation, can result in damage to structures over time. However, building activities within the proposed Program area will be required to comply with the Madera County Building Code which includes provisions for the foundation design and construction in areas of expansive soils. A variety of approaches to reduce potential impacts from expansive soils are typically evaluated to comply with regulations including over-excavation and replacement of native soils with non-expansive soils, onsite use of native soils, and implementation of specialized foundation designs. Compliance with the Madera County Building Code would reduce potential expansive soil impacts to less than significant.

Significance Determination before Mitigation: Less than Significant

Cumulative Impact Analysis

The study area for potential cumulative geology and soils impacts involving expansive soils includes the proposed Program area and areas immediately adjacent to proposed Program area because the direct soil expansion impacts are site specific. Similar to the onsite location of the Alamo clay soils, these soils are also located in the immediate vicinity of the Program site and are located within relatively small isolated areas. As discussed above, these soils have very slow permeability characteristics and could exhibit expansion characteristics. Expansive soils, which shrink and swell as they are wet and dry from seasonal rains or irrigation, can result in damage to structures over time. However, building activities within the areas immediately adjacent and within the Program area will be required to comply with the Madera County Building Code, CBC

or local ordinances which include provisions for the foundation design and construction in areas of expansive soils. A variety of approaches to reduce potential impacts from expansive soils are typically evaluated to comply with regulations including over-excavation and replacement of native soils with non-expansive soils, onsite use of native soils, and implementation of specialized foundation designs. Compliance with the Madera County Building Code, CBC or local ordinances would reduce potential expansive soil impacts on cumulative projects to less than significant.

Because the proposed Program would require compliance with the Madera County Building Code, potential expansive soil impacts to structures within the Program area would be less than cumulatively considerable.

Significance Determination before Mitigation: Less than Significant

Program Mitigation Measures

No mitigation measures are required.

Significance Determination after Mitigation: Less than Significant

Program Cumulative Measures

No mitigation measures are required.

Significance Determination after Mitigation: Less than Significant

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3.6.4 References

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3.7 Greenhouse Gas Emissions

This section assesses potential environmental impacts related to greenhouse gases (GHGs), and climate change from growth anticipated by the Project. This section describes GHG emissions, and sources of GHGs in the Project area, as well as relevant federal, State, and local regulations and programs. Calculations and supporting documentation are in **Appendix G**.

3.7.1 Environmental Setting

Regional

Greenhouse Gas Emissions

Greenhouse Gases

GHGs are compounds in the earth's atmosphere that play a critical role in determining temperature near the earth's surface. Specifically, these gases allow high-frequency shortwave solar radiation to enter the earth's atmosphere, but retain some of the low frequency infrared energy which is radiated back from the earth towards space, resulting in a warming of the atmosphere. Not all GHGs possess the same ability to induce climate change; as a result, GHG contributions are commonly quantified in the units of carbon dioxide equivalents (CO_2e). Mass emissions are calculated by converting pollutant specific emissions to CO_2e emissions by applying the proper global warming potential (GWP) value. These GWP ratios are available from the Intergovernmental Panel on Climate Change (IPCC). By applying the GWP ratios, CO_2e emissions can be tabulated in metric tons per year. Typically, the GWP ratio corresponding to the warming potential of carbon dioxide (CO_2) over a 100-year period is used as a baseline. The State of California uses the GWPs from the IPCC Fourth Assessment Report (AR4) in the official State GHG emissions inventory (IPCC, 2014). Prior to the 2014 reporting year, the State utilized GWPs from the IPCC Second Assessment Report (SAR). Compounds that are regulated as GHGs are discussed below.

- Carbon Dioxide (CO_2). CO_2 is the most abundant GHG in the atmosphere and is primarily generated from fossil fuel combustion from stationary and mobile sources. CO_2 is the reference gas (GWP of 1) for determining the GWPs of other GHGs.
- Methane (CH_4). CH_4 is emitted from biogenic sources (i.e., resulting from the activity of living organisms), incomplete combustion in forest fires, landfills, manure management, and leaks in natural gas pipelines. The GWP of CH_4 is 21 in the IPCC SAR and 25 in the IPCC AR4.
- Nitrous Oxide (N_2O). N_2O produced by human-related sources including agricultural soil management, animal manure management, sewage treatment, mobile and stationary combustion of fossil fuel, adipic acid production, and nitric acid production. The GWP of N_2O is 310 in the IPCC SAR and 298 in the IPCC AR4.
- Hydrofluorocarbons (HFCs). HFCs are fluorinated compounds consisting of hydrogen, carbon, and fluorine. They are typically used as refrigerants in both stationary refrigeration and mobile air conditioning systems. The GWPs of HFCs ranges from 140 for HFC-152a to 11,700 for HFC-23 in the IPCC SAR and 124 for HFC-152a to 14,800 for HFC-23 in the IPCC AR4.

- Perfluorocarbons (PFCs). PFCs are fluorinated compounds consisting of carbon and fluorine. They are primarily created as a byproduct of aluminum production and semiconductor manufacturing. The GWPs of PFCs range from 6,500 to 9,200 in the IPCC SAR and 7,390 to 17,700 in the IPCC AR4.
- Sulfur Hexafluoride (SF_6). SF_6 is a fluorinated compound consisting of sulfur and fluoride. It is a colorless, odorless, nontoxic, nonflammable gas. It is most commonly used as an electrical insulator in high voltage equipment that transmits and distributes electricity. SF_6 has a GWP of 23,900 in the IPCC SAR and 22,800 in the IPCC AR4.

Effects of Climate Change

The scientific community's understanding of the fundamental processes responsible for global climate change has improved over the past decade, and its predictive capabilities are advancing. However, there remain significant scientific uncertainties in, for example, predictions of local effects of climate change, occurrence, frequency, and magnitude of extreme weather events, effects of aerosols, changes in clouds, shifts in the intensity and distribution of precipitation, and changes in oceanic circulation. Due to the complexity of the Earth's climate system and inability to accurately model all climate parameters, the uncertainty surrounding climate change may never be completely eliminated. Nonetheless, the IPCC, in its Fifth Assessment Report, Summary for Policy Makers, stated that, "it is extremely likely [95–100 percent] that more than half of the observed increase in global average surface temperature from 1951 to 2010 was caused by the anthropogenic increase in greenhouse gas concentrations and other anthropogenic forcings together." (IPCC, 2013). A report from the National Academy of Sciences concluded that 97 to 98 percent of the climate researchers most actively publishing in the field support the tenets of the IPCC in that climate change is very likely caused by human (i.e., anthropogenic) activity (Anderegg, 2010).

According to the California Air Resources Board (CARB), the potential impacts in California due to global climate change may include: loss in snow pack; sea level rise; more extreme heat days per year; more high ozone days; more larger forest fires; more drought years; increased erosion of California's coast-lines and sea water intrusion into the Sacramento and San Joaquin Deltas and associated levee systems; and increased pest infestation (CalEPA, 2006). Below is a summary of some of the potential effects, reported by an array of studies that could be experienced in California as a result of global warming and climate change.

Temperature Increase

The primary effect of adding GHGs to the atmosphere has been a rise in the average global temperature. The impact of human activities on global temperature is readily apparent in the observational record. Since 1895, the contiguous U.S. has observed an average temperature increase of 1.5°F per century. The last five-year period (2014–2018) is the warmest on record for the contiguous U.S. (NOAA, 2019), while the 20 warmest years have occurred over the past 22-year period (Climate Central, 2019).

The Fourth Assessment indicates that average temperatures in California could rise 5.6°F to 8.8°F by the end of the century, depending on the global trajectory of GHG emissions (OPR, 2018). According to the Cal-Adapt website, the portion of the state in which the County is located could result in an average increase in temperature of approximately 4.2° to 6.9°F by 2070-2090, compared to the baseline period of 1961-1990.

With climate change, extreme heat conditions and heat waves are predicted to impact larger areas, last longer, and have higher temperatures. Heat waves, defined as three or more days with temperatures above 90°F, are projected to occur more frequently by the end of the century. Extreme heat days and heat waves can negatively impact human health. Heat-related illness includes a spectrum of illnesses ranging from heat cramps to severe heat exhaustion and life-threatening heat stroke (CalEPA, 2013).

Air Quality

Higher temperatures, conducive to air pollution formation, could worsen air quality in California and make it more difficult for the State to achieve air quality standards. Climate change may increase the concentration of ground-level ozone in particular, which can cause breathing problems, aggravate lung diseases such as asthma, emphysema, chronic bronchitis, and cause chronic obstructive pulmonary disease (COPD), but the magnitude of the effect, and therefore, its indirect effects, are uncertain. Emissions from wildfires can lead to excessive levels of particulate matter, ozone, and volatile organic compounds (Kenward, 2013). Additionally, severe heat accompanied by drier conditions and poor air quality could increase the number of heat-related deaths, illnesses, and asthma attacks throughout the state (CalEPA 2013).

Water Supply

There is a high degree of uncertainty with respect to the overall impact of global climate change on future water supplies in California. Studies indicate considerable variability in predicting precise impacts of climate change on California hydrology and water resources. Increasing uncertainty in the timing and intensity of precipitation will challenge the operational flexibility of California's water management systems. Warmer, wetter winters would increase the amount of runoff available for groundwater recharge; however, this additional runoff would occur at a time when some basins are either being recharged at their maximum capacity or are already full. Conversely, reductions in spring runoff and higher evapotranspiration because of higher temperatures could reduce the amount of water available for recharge (CNR, 2014). In addition, droughts in California are a recurring feature of California's climate. The most recent drought from 2012-2016 was one of extreme proportions, with record-high temperatures and record-low levels of snowpack and precipitation. Drought negatively impacts both the quantity and quality of water supplies. Drought can also compromise water quality, such as by concentrating salts and other contaminants, reducing dissolved oxygen levels, and increasing water temperatures.

Hydrology and Sea Level Rise

Climate changes could potentially affect: the amount of snowfall, rainfall and snow pack; the intensity and frequency of storms; flood hydrographs (flash floods, rain or snow events, coincidental high tide and high runoff events); sea level rise and coastal flooding; coastal erosion; and the potential for salt water intrusion. Sea level rise can be a product of global warming through two main processes: expansion of seawater as the oceans warm, and melting of ice over land. A rise in sea levels could result in coastal flooding and erosion and could jeopardize California's water supply. Sea level could potentially rise as much as two feet along most of the U.S. coastline. Increased storm intensity and frequency could affect the ability of flood-control facilities, including levees, to handle storm events (CNR, 2014).

Agriculture

California has a massive agricultural industry that represents 11.3 percent of total U.S. agricultural revenue. Higher CO_2 levels can stimulate plant production and increase plant water-use efficiency. However, a changing climate presents significant risks to agriculture due to "potential changes to water quality and availability; changing precipitation patterns; extreme weather events including drought, severe storms, and floods; heat stress; decreased chill hours; shifts in pollinator lifecycles; increased risks from weeds, pest and disease; and disruptions to the transportation and energy infrastructure supporting agricultural production" (CNR, 2014).

Ecosystem and Wildlife

Increases in global temperatures and the potential resulting changes in weather patterns could have ecological effects on a global and local scale. Increased concentrations of GHGs are likely to accelerate the rate of climate change. Scientists expect that the average global surface temperature could rise by 2-11.5°F (1.1-6.4°C) by 2100, with significant regional variation (NRC, 2010). Soil moisture is likely to decline in many regions, and intense rainstorms are likely to become more frequent. With climate change, ecosystems and wildlife will be challenged by the spread of invasive species, barriers to species migration or movement in response to changing climatic conditions, direct impacts to species health, and mismatches in timing between seasonal life-cycle events such as species migration and food availability (CNR, 2014).

Wildfires

The hotter and dryer conditions expected with climate change will make forests more susceptible to extreme wildfires. One study found that, if GHG emissions continue to rise, the frequency of extreme wildfires burning over approximately 25,000 acres would increase by nearly 50 percent, and the average area burned statewide each year would increase by 77 percent, by the year 2100. In the areas that have the highest fire risk, wildfire insurance is estimated to see costs rise by 18 percent by 2055 and the fraction of property insured would decrease (Westerling, 2018).

Global Emissions

Worldwide human-made emissions of GHGs were approximately 49,000 million metric tons (MMT) of CO_2e annually including ongoing emissions from industrial and agricultural sources and emissions from land use changes (e.g., deforestation) (IPCC, 2014). Emissions of CO_2 from fossil fuel use and industrial processes account for 65 percent of the total while CO_2 emissions from all sources accounts for 76 percent of the total. Methane emissions account for 16 percent and N_2O emissions for 6.2 percent. In 2013, the United States was the world's second largest emitter of carbon dioxide at 5,300 $MMTCO_2e$ (China was the largest emitter of carbon dioxide at 10,300 $MMTCO_2e$) (PBL, 2014).

U.S. Emissions

In 2017, the United States emitted about 6,457 MMT of CO_2e, 76.1 percent of which came from fossil fuel combustion. Of the major sectors nationwide, transportation accounts for the highest amount of GHG emissions (approximately 29 percent), followed by electricity (28 percent), industry (22 percent), agriculture (9 percent), commercial buildings (6 percent), and residential buildings (5 percent). Between 1990 and 2017, total U.S. GHG emissions rose by 1.3 percent, but

emissions have generally decreased since peaking in 2005. Since 1990, U.S. emissions have increased at an average annual rate of 0.4 percent (USEPA, 2019).

California Greenhouse Gas Emissions Inventory

CARB compiles GHG inventories for the State. Based on the 2016 GHG inventory data (i.e., the latest year for which data are available from CARB) prepared by CARB in 2018, California emitted 429.4 million metric tons of CO_2e ($MMTCO_2e$) including emissions resulting from imported electrical power (CARB, 2018a). Between 1990 and 2016, the population of California grew by approximately 9.4 million (from 29.8 to 39.2 million) (DOF, 2019). This represents an increase of approximately 31 percent from 1990 population levels. In addition, the California economy, measured as gross state product, grew from $773 billion in 1990 to $2.26 trillion in 2016 representing an increase of approximately 292 percent (almost three times the 1990 gross state product) in today's dollars (DOF, 2018). Despite the population and economic growth, CARB's 2016 statewide inventory indicated that California's net GHG emissions in 2016 were just below 1990 levels, which is the 2020 GHG reduction target codified in California Health and Safety Code (HSC), Division 25.5, also known as The Global Warming Solutions Act of 2006 (AB 32). **Table 3.7-1** identifies and quantifies statewide anthropogenic GHG emissions and sinks (e.g., carbon sequestration due to forest growth) in 1990 and 2016. As shown in Table 3.7-1, the transportation sector is the largest contributor to statewide GHG emissions at approximately 39 percent in 2016.

TABLE 3.7-1
STATE OF CALIFORNIA GREENHOUSE GAS EMISSIONS

Category	Total 1990 Emissions Using IPCC SAR ($MMTCO_2e$)	Percent of Total 1990 Emissions	Total 2016 Emissions using IPCC AR4 ($MMTCO_2e$)	Percent of Total 2016 Emissions
Transportation	150.7	35%	169.4	39%
Electric Power	110.6	26%	68.6	16%
Commercial	14.4	3%	15.2	4%
Residential	29.7	7%	24.2	6%
Industrial	103.0	24%	89.6	21%
Recycling and Waste[a]	-	-	8.8	2%
High GWP/Non-Specified[b]	1.3	<1%	19.8	5%
Agriculture/Forestry	23.6	6%	33.8	8%
Forestry Sinks	-6.7		—[c]	—[c]
Net Total (IPCC SAR)	**426.6**	**100%[e]**	**—**	**—**
Net Total (IPCC AR4)[d]	**431**	**100%[e]**	**429.4**	**100%**

[a] Included in other categories for the 1990 emissions inventory.

[b] High GWP gases are not specifically called out in the 1990 emissions inventory.

[c] Revised methodology under development (not reported for 2012).

[d] CARB revised the state's 1990 level GHG emissions using GWPs from the IPCC Fourth Assessment Report (IPCC AR4).

[e] Total of individual percentages may not add up to 100% due to rounding. Revised methodology under development (not reported for 2016).

SOURCES: CARB, 2007; CARB 2018a.

Local

Existing/Baseline Project Site Emissions

The Project site is currently used for agricultural production and contains almond and fig orchards, related agricultural support facilities (e.g., equipment storage), wells, and unimproved dirt roadways. There are five wells located within the Specific Plan Program area that draw groundwater from the Madera groundwater basin. Based on data provided by the property owners and engineering estimates, the existing agricultural operations pump approximately 2,800 acre-feet per year (AFY) of groundwater, which is equivalent to nearly 912 million gallons. The Specific Plan Program area is designated as a New Growth Area (NGA) in the County's General Plan and has a zoning designation of Agricultural Rural Exclusive 40-Acres (ARE-40).

Agricultural equipment and pump operations would result in greenhouse gas emissions that are part of the existing conditions, however for the purposes of this analysis, the emissions from the Project are considered to be all new emissions, and therefore, emissions from the agricultural operations were not quantified.

3.7.2 Regulatory Framework

Federal

Corporate Average Fuel Economy (CAFE) Standards

Established by the U.S. Congress in 1975, the CAFE standards reduce energy consumption by increasing the fuel economy of cars and light trucks. The National Highway Traffic Safety Administration (NHTSA) and USEPA jointly administer the CAFE standards. The U.S. Congress has specified that CAFE standards must be set at the "maximum feasible level" with consideration given to: (1) technological feasibility; (2) economic practicality; (3) effect of other standards on fuel economy; and (4) need for the nation to conserve energy.[1]

Fuel efficiency standards for medium- and heavy-duty trucks have been jointly developed by USEPA and NHTSA. The Phase 1 heavy-duty truck standards apply to combination tractors, heavy-duty pickup trucks and vans, and vocational vehicles for model years 2014 through 2018, and result in a reduction in fuel consumption from 6 to 23 percent over the 2010 baseline, depending on the vehicle type (USEPA, 2011). USEPA and NHTSA have also adopted the Phase 2 heavy-duty truck standards, which cover model years 2021 through 2027 and require the phase-in of a 5 to 25 percent reduction in fuel consumption over the 2017 baseline depending on the compliance year and vehicle type (USEPA, 2016).

U.S. Department of Transportation, U.S. Department of Energy, and U.S. Environmental Protection Agency on Transportation Energy

On the federal level, the U.S. Department of Transportation, U.S. Department of Energy, and USEPA are three agencies with substantial influence over energy policies related to transportation fuels consumption. Generally, federal agencies influence transportation energy consumption

[1] For more information on the CAFE standards, refer to https://www.nhtsa.gov/laws-regulations/corporate-average-fuel-economy.

through establishment and enforcement of fuel economy standards for automobiles and light trucks, through funding of energy-related research and development projects, and through funding for transportation infrastructure projects.

U.S. Environmental Protection Agency "Endangerment" and "Cause or Contribute" Findings

In Massachusetts v. Environmental Protection Agency, 549 U.S. 497 (2007), 12 states and cities, including California, together with several environmental organizations, sued to require USEPA to regulate GHGs as pollutants under the Federal Clean Air Act (CAA). The U.S. Supreme Court ruled that GHGs fit within the CAA's definition of a pollutant and USEPA had the authority to regulate GHGs.

In 2009, the USEPA Administrator signed two distinct findings regarding GHGs under Section 202(a) of the CAA:

- **Endangerment Finding**: The current and projected concentrations of the six key GHGs— CO_2, CH_4, N_2O, HFCs, PFCs, and SF_6 — in the atmosphere threaten the public health and welfare of current and future generations
- **Cause or Contribute Finding:** The combined emissions of these GHGs from new motor vehicles and new motor vehicle engines contribute to the GHG pollution that threatens public health and welfare.

These findings did not, by themselves, impose any requirements on industry or other entities. However, these actions were a prerequisite for implementing GHG emissions standards for motor vehicles.

Mandatory Greenhouse Gas Reporting Rule

On September 22, 2009, USEPA released its final Greenhouse Gas Reporting Rule (Reporting Rule). The Reporting Rule was a response to the fiscal year (FY) 2008 Consolidated Appropriations Act (H.R. 2764; Public Law 110-161), that required USEPA to develop "…mandatory reporting of GHGs above appropriate thresholds in all sectors of the economy…." The Reporting Rule applied to most entities that emit 25,000 metric tons of CO_2e or more per year at their facility from stationary sources. Starting in 2010, facility owners were required to submit an annual GHG emissions report with detailed calculations of facility GHG emissions. The Reporting Rule also mandated recordkeeping and administrative requirements in order for USEPA to verify annual GHG emissions reports.

Clean Air Act

The Federal Clean Air Act, passed in 1970 and last amended in 1990, forms the basis for the national air pollution control effort. The USEPA is responsible for implementing most aspects of the Clean Air Act, including the setting of NAAQS for major air pollutants, hazardous air pollutant standards, approval of State attainment plans, motor vehicle emission standards, stationary source emission standards and permits, acid rain control measures, stratospheric O3 protection, and enforcement provisions. NAAQS are established for "criteria pollutants" under the Clean Air Act, which are O3, CO, NO2, SO2, PM10, PM2.5, and lead.

Vehicle Emissions Standards

In 1975, Congress enacted the Energy Policy and Conservation Act, which established the first fuel economy standards for on-road motor vehicles in the U.S. Pursuant to the act, USEPA and National Highway Traffic Safety Administration (NHTSA) are responsible for establishing additional vehicle standards. In 2012, standards were adopted for model year 2017 through 2025 for passenger cars and light-duty trucks. Under the standards, by 2025 vehicles are required to achieve 54.5 mpg (if GHG reductions are achieved exclusively through fuel economy improvements) and 163 grams of CO_2 per mile. According to USEPA, a model year 2025 vehicle would emit one-half of the GHG emissions as compared to emissions from a model year 2010 vehicle (USEPA, 2012). California harmonized its vehicle efficiency standards through 2025 with the federal standards (see Advanced Clean Cars Program below).

In 2017, USEPA issued its Mid-Term Evaluation of the GHG emissions standards, finding that it would be practical and feasible for automakers to meet the model year 2022-2025 standards through a number of existing technologies. In 2018, USEPA revised its 2017 determination, and issued a proposed rule that maintains the 2020 Corporate Average Fuel Economy (CAFE) and CO_2 standards for model years 2021 through 2026 (Federal Register, 2018). The estimated CAFE and CO_2 standards for model year 2020 are 43.7 mpg and 204 grams of CO_2 per mile for passenger cars and 31.3 mpg and 284 grams of CO_2 per mile for light trucks, projecting an overall industry average of 37 mpg, as compared to 46.7 mpg under the standards issued in 2012. In 2019, the state of California, joined by 16 other states and the District of Columbia, filed a petition challenging the USEPA's proposed rule to revise the vehicle emissions standards, arguing that USEPA had reached erroneous conclusions about the feasibility of meeting the existing standards (Amicus Brief, 2019). As of April, 9, 2019, the case was pending and oral arguments had not been scheduled. Accordingly, due to the uncertainty of future federal regulations, this analysis assumes that the existing CAFE standards will remain unchanged.

State

California Energy Commission

The California Energy Commission (CEC) is California's primary energy policy and planning agency. The CEC has five major responsibilities: (1) forecasting future energy needs and keeping historical energy data; (2) licensing thermal power plants 50 MW or larger; (3) promoting energy efficiency through appliance and building standards; (4) developing energy technologies and supporting renewable energy; and (5) planning for and directing State response to energy emergencies.

Senate Bill 1389

Senate Bill (SB) 1389 (Public Resources Code PRC sections 25300–25323) requires the CEC to prepare a biennial integrated energy policy report that assesses major energy trends and issues facing the state's electricity, natural gas, and transportation fuel sectors and provides policy recommendations to conserve resources; protect the environment; ensure reliable, secure, and diverse energy supplies; enhance the state's economy; and protect public health and safety (Public Resources Code PRC section 25301(a)). The 2017 Integrated Energy Policy Report

provides the results of the CEC's assessments of a variety of energy issues facing California including energy efficiency, strategies related to data for improved decisions in the Existing Buildings Energy Efficiency Action Plan, building energy efficiency standards, the impact of drought on California's energy system, achieving 50 percent renewables by 2030, the California Energy Demand Forecast, the Natural Gas Outlook, the Transportation Energy Demand Forecast, Alternative and Renewable Fuel and Vehicle Technology Program benefits updates, an update on electricity infrastructure in Southern California, an update on trends in California's sources of crude oil, an update on California's nuclear plants, and other energy issues.

California Health and Safety Code, Division 25.5 – California Global Warming Solutions Act of 2006 (AB 32)

In 2006, following the issuance of Executive Order S-3-05, the California Global Warming Solutions Act of 2006 (passed as Assembly Bill (AB) 32 and codified in the California Health and Safety Code [HSC], Division 25.5) focuses on reducing GHG emissions in California to 1990 levels by 2020. HSC Division 25.5 defines GHGs as CO_2, CH_4, N_2O, HFCs, PFCs, and SF_6 and represents the first enforceable statewide program to limit emissions of these GHGs from all major industries with penalties for noncompliance. The law further requires that reduction measures be technologically feasible and cost effective. AB 32 also tasked the CEC and CPUC with providing information, analysis, and recommendations to CARB regarding strategies to reduce GHG emissions in the energy sector.

Under HSC Division 25.5, CARB has the primary responsibility for reducing GHG emissions. CARB is required to adopt rules and regulations directing state actions that would achieve GHG emissions reductions equivalent to 1990 statewide levels by 2020.In 2016, SB 32 and its companion bill AB 197 amend HSC Division 25.5 and establish a new climate pollution reduction target of 40 percent below 1990 levels by 2030 and include provisions to ensure that the benefits of state climate policies reach into disadvantaged communities.

Senate Bill (SB) 1078 (Sher) (Chapter 516, Statutes of 2002), SB 107 (Simitian) (Chapter 464, Statutes of 2006),

In 2002, the passage of SB 1078 established the Renewables Portfolio Standard (RPS), which requires retail sellers of electricity, including investor-owned utilities and community choice aggregators, to provide at least 20 percent of their supply from eligible renewable sources by 2017. SB 107, adopted in 2006, changed the target date to 2010.

Executive Order S-14-08

In 2008, Executive Order S-14-08 expanded the state's RPS goal to 33 percent renewable power by 2020. In 2009, Executive Order S-21-09 directed CARB (under its AB 32 authority) to enact regulations to help the state meet the 2020 goal of 33 percent renewable energy. The 33 percent by 2020 RPS goal was codified with the passage of Senate Bill X1-2. This new RPS applied to all electricity retailers in the state, including publicly owned utilities (POUs), investor-owned utilities, electricity service providers, and community choice aggregators.

CPUC and the CEC jointly implement the RPS program. The CPUC's responsibilities include: (1) determining annual procurement targets and enforcing compliance; (2) reviewing and approving each investor-owned utility's renewable energy procurement plan; (3) reviewing contracts for RPS-eligible energy; and (4) establishing the standard terms and conditions used in contracts for eligible renewable energy.

SB 100 (De León) (Chapter 312, Statutes of 2018)

In 2018, SB 100 established that 100 percent of all electricity in California must be obtained from renewable and zero-carbon energy resources by the end of 2045. SB 100 also creates new standards for the RPS, increasing required energy from renewable sources for both investor-owned utilities and publicly-owned utilities from 50 percent to 60 percent by the end of 2030. Incrementally, these energy providers must also have a renewable energy supply of 44 percent by the end of 2024, and 52 percent by the end of 2027. The updated RPS goals are considered achievable, since many California energy providers are already meeting or exceeding the RPS goals established by SB 350.

California Building Standards Code (Title 24, Parts 6 and 11)

In 1978, the California Energy Commission (CEC) first adopted Energy Efficiency Standards for Residential and Nonresidential Buildings (CCR, Title 24, Part 6) in response to a legislative mandate to reduce energy consumption in the State. Although not originally intended to reduce GHG emissions, the increased energy efficiency and reduced consumption of electricity, natural gas, and other fuels would result in fewer GHG emissions from residential and nonresidential buildings subject to the CEC standards. The standards are updated periodically (typically every three years) to allow for the consideration and inclusion of new energy efficiency technologies and methods. The Energy Efficiency Standards for Residential and Nonresidential Buildings focuses on several key areas to improve the energy efficiency of renovations and addition to existing buildings as well as newly constructed buildings and renovations and additions to existing buildings. The major efficiency improvements to the residential standards involve improvements for attics, walls, water heating, and lighting, whereas the major efficiency improvements to the nonresidential standards include alignment with the American Society of Heating, Refrigerating and Air-Conditioning Engineers (ASHRAE) national standards. Furthermore, the standards require that enforcement agencies determine compliance with CCR, Title 24, Part 6 before issuing building permits for any construction.

Part 11 of the Title 24 Building Energy Efficiency Standards is referred to as the California Green Building Standards (CALGreen) Code. The purpose of the CALGreen Code is to "improve public health, safety and general welfare by enhancing the design and construction of buildings through the use of building concepts having a reduced negative impact or positive environmental impact and encouraging sustainable construction practices in the following categories: Planning and design; Energy efficiency; Water efficiency and conservation; Material conservation and resource efficiency; and Environmental air quality." The CALGreen Code is not intended to substitute for or be identified as meeting the certification requirements of any green building program that is not established and adopted by the California Building Standards Commission. The CALGreen Code establishes mandatory measures for new residential and non-residential buildings. Such

mandatory measures include energy efficiency, water conservation, material conservation, planning and design and overall environmental quality.

California Assembly Bill (AB) 1493 (Pavley)

In 2002, AB 1493 (Pavley) required CARB to set GHG emission standards for passenger vehicles, light duty trucks, and other vehicles whose primary use is non-commercial personal transportation manufactured in and after 2009.

To meet the requirements of AB 1493, CARB approved amendments to the California Code of Regulations (CCR) in 2004, requiring automobile manufacturers to meet fleet-average GHG emissions limits for all passenger cars, light-duty trucks within various weight criteria, and medium-duty passenger vehicle weight classes (i.e., any medium-duty vehicle with a gross vehicle weight [GVW] rating of less than 10,000 pounds and that is designed primarily for the transportation of persons), beginning with model year 2009. For passenger cars and light-duty trucks with a loaded vehicle weight (LVW) of 3,750 pounds or less, the GHG emission limits for model year 2016 are approximately 37 percent lower than the limits for the first year of the regulations, model year 2009. For light-duty trucks with an LVW of 3,751 pounds to a GVW of 8,500 pounds, as well as for medium-duty passenger vehicles, GHG emissions will be reduced approximately 24 percent between 2009 and 2016.

Because the Pavley standards (named for the bill's author, state Senator Fran Pavley) would impose stricter standards than those under the CAA, California applied to the USEPA for a waiver under the CAA. In 2009, USEPA granted the waiver, which has been extended consistently since 2009.

As discussed previously, the federal government adopted standards for model year 2012 through 2016 light-duty vehicles. In addition, USEPA and U.S. Department of Transportation (USDOT) have adopted GHG emission standards for model year 2017 through 2025 vehicles. These standards are slightly different from the state's standards (described below in the Advanced Clean Cars Program), but the state of California has agreed not to contest them, in part due to the fact that while the national standard would achieve slightly fewer reductions in California, the national standard would achieve greater reductions nationally and is stringent enough to meet state GHG emission reduction goals

California Assembly Bill (AB) 341

In 2011, Assembly Bill 341 requires that integrated waste management plans set a policy goal of reducing not less than 75% of solid waste to be diverted from landfill disposal by 2020. AB 341 also requires that any business that generates more than 4 cubic yards of commercial solid waste per week to arrange for recycling services.

Airborne Toxic Control Measure to Limit Diesel-Fueled Commercial Motor Vehicle Idling

In 2004, CARB adopted an Airborne Toxic Control Measure to Limit Diesel-Fueled Commercial Motor Vehicle Idling to reduce public exposure to diesel particulate matter emissions (Title 13

California Code of Regulations [CCR] Section 2485). The measure applies to diesel-fueled commercial vehicles with gross vehicle weight ratings greater than 10,000 pounds that are licensed to operate on highways, regardless of where they are registered. This measure prohibits diesel-fueled commercial vehicles from idling for more than five minutes at any given location. While the goal of this measure is primarily to reduce public health impacts from diesel emissions, compliance with the regulation also results in energy savings in the form of reduced fuel consumption from unnecessary idling.

Airborne Toxic Control Measure to for Stationary CI Engines

In 2004, CARB adopted an Airborne Toxic Control Measure to reduce public exposure to diesel particulate matter emissions and criteria pollutant emissions from stationary diesel-fueled compression ignition (CI) engines (Title 17 California Code of Regulations [CCR] Section 93115). The measure applies to any person who owns or operates a stationary CI engine in California with a rated brake horsepower greater than 50, or anyone who either sells, offers for sale, leases, or purchases a stationary CI engine. This measure outlines fuel and fuel additive requirements; emission standards; recordkeeping, reporting and monitoring requirements; and compliance schedules for CI engines.

Low Carbon Fuel Standard

In 2007, Executive Order S-01-07 mandates that the state: (1) establish a statewide goal to reduce the carbon intensity of California's transportation fuels by at least 10 percent by 2020; and (2) adopt a Low Carbon Fuel Standard (LCFS) for transportation fuels in California. The overall goal of the LCFS is to lower the carbon intensity of California transportation fuel. The 2017 Scoping Plan Update calls for the LCFS to reduce fuel carbon intensity by at least 18 percent by 2030. In 2018, CARB extended the LCFS program to 2030, making significant changes to the design and implementation of the Program including a doubling of the carbon intensity reduction to 20 percent by 2030.

Regulations to Reduce Emissions of Diesel Particulate Matter, Nitrogen Oxides and other Criteria Air Pollutants, from In-Use Heavy-Duty Diesel-Fueled Vehicles

In addition to limiting exhaust from idling trucks, in 2008, CARB approved the Truck and Bus regulation to reduce NO_X, PM10, and PM2.5 emissions from existing diesel vehicles operating in California (13 CCR section 2025). The phased regulation aims to reduce emissions by requiring installation of diesel soot filters and encouraging the retirement, replacement, or retrofit of older engines with newer emission-controlled models. The phasing of this regulation has full implementation by 2023.

CARB also promulgated emission standards for off-road diesel construction equipment of greater than 25 horsepower (hp) such as bulldozers, loaders, backhoes and forklifts, as well as many other self-propelled off-road diesel vehicles. The In-Use Off-Road Diesel-Fueled Fleets regulation adopted by CARB in 2007, aims to reduce emissions by installation of diesel soot filters and encouraging the retirement, replacement, or repower of older, dirtier engines with newer emission-controlled models (13 CCR section 2449). The compliance schedule requires full implementation by 2023 in all equipment for large and medium fleets and by 2028 for small fleets.

While the goals of these measures are primarily to reduce public health impacts from diesel emissions, compliance with the regulation has shown an increase in energy savings in the form of reduced fuel consumption from more fuel-efficient engines (Cummins, 2014).

CARB's Advanced Clean Car Program

The Advanced Clean Cars Emissions-Control Program was approved by CARB in 2012 and is closely associated with the Pavley regulations (CARB, 2017a). The program requires a greater number of zero-emission vehicle models for years 2015 through 2025 to control smog, soot, and GHG emissions. This program includes the Low-Emissions Vehicle (LEV) regulations to reduce criteria air pollutants and GHG emissions from light- and medium-duty vehicles; and the Zero-Emissions Vehicle regulations (ZEV) to require manufacturers to produce an increasing number of pure ZEV's (meaning battery and fuel cell electric vehicles) with the provision to produce plug-in hybrid electric vehicles (PHEV) between 2018 and 2025.

Sustainable Communities and Climate Protection Act of 2008 (SB 375)

In 2008, SB 375 (Chapter 728, Statutes of 2008) established mechanisms for the development of regional targets for reducing passenger vehicle greenhouse gas emissions. Under SB 375, CARB is required, in consultation with the state's Metropolitan Planning Organizations (MPOs), to set regional GHG reduction targets for the passenger vehicle and light-duty truck sector for 2020 and 2035 (CARB, 2018b).

Under SB 375, the regional reduction target must be incorporated within the applicable MPO's Regional Transportation Plan (RTP), which is used for long-term transportation planning, in a Sustainable Communities Strategy (SCS). Certain transportation planning and programming activities need to be consistent with the SCS, and consistency with the SCS can provide certain CEQA streamlining for proposed projects; however, SB 375 expressly provides that the SCS does not regulate the use of land, and further provides that local land use plans and policies (e.g., general plan) are not required to be consistent with either the RTP or SCS.

In 2011, CARB adopted GHG emissions reduction targets for Madera County Transportation Commissions (MCTC), the Metropolitan Planning Organization (MPO) for Madera. In 2018, CARB updated the SB 375 targets to require an 8 percent reduction by 2020 and a 19 percent reduction by 2035 in per capita passenger vehicle GHG emissions (CARB, 2017b; CARB, 2018c). The proposed reduction targets explicitly exclude emission reductions expected from the AB 1493 and the LCFS regulations.

Executive Order S-3-05

In 2005, Executive Order S-3-05 established the following GHG emission reduction targets:

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

Executive Order B-30-15

In 2015, Executive Order B-30-15:

- Established a new interim statewide reduction target to reduce GHG emissions to 40 percent below 1990 levels by 2030;
- Ordered all state agencies with jurisdiction over sources of GHG emissions to implement measures to achieve reductions of GHG emissions to meet the 2030 and 2050 reduction targets; and
- Directed CARB to update the Climate Change Scoping Plan to express the 2030 target in terms of million metric tons of carbon dioxide equivalent.

2017 CARB Climate Change Scoping Plan

A specific requirement of AB 32 was the preparation of a Climate Change Scoping Plan for achieving the maximum technologically feasible and cost-effective GHG emission reduction by 2020. CARB developed and approved the initial Scoping Plan in 2008, outlining the regulations, market-based approaches, voluntary measures, policies, and other emission reduction programs that would be needed to meet the 2020 statewide GHG emission limit and initiate the transformations needed to achieve the state's long-range climate objectives (CARB, 2008). The First Update to the Scoping Plan was approved by CARB in 2014 and built upon the initial Scoping Plan with new strategies and recommendations and a revised target.

In response to SB 32 and the 2030 GHG reduction target, CARB approved the 2017 Climate Change Scoping Plan Update (2017 Scoping Plan Update) in 2017. The 2017 Scoping Plan Update outlines the proposed framework of action for achieving the 2030 GHG target of 40 percent reduction in GHG emissions relative to 1990 levels. The 2017 Scoping Plan Update identifies key sectors of the state's implementation strategy, which includes improvements in low carbon energy, industry, transportation sustainability, natural and working lands, waste management, and water. Through a combination of data synthesis and modeling, CARB determined that the target statewide 2030 emissions limit is 260 $MMTCO_2e$, and that further commitments will need to be made to achieve an additional reduction of 50 $MMTCO_2e$ beyond current policies and programs. The cornerstone of the 2017 Scoping Plan Update is an expansion of the Cap-and-Trade Program (discussed further below) to meet the aggressive 2030 GHG emissions goal and ensure achievement of the 2030 limit set forth by E.O. B-30-15.

The 2017 Scoping Plan Update's strategy for meeting the state's 2030 GHG target incorporates the full range of legislative actions and state-developed plans that have relevance to the year 2030, including the following, described elsewhere in this section:

- Extending the LCFS beyond 2020 and increasing the carbon intensity reduction requirement to 18 percent by 2030;
- SB 350, which increases the RPS to 50 percent by 2030 and requires the CEC to establish annual targets for statewide energy efficiency savings and demand reduction that will achieve a cumulative doubling of statewide energy efficiency savings in electricity and natural gas final end uses of retail customers by 2030. These targets may be achieved through energy efficiency savings and demand reductions from a variety of programs, including but not

limited to appliance and building energy efficiency standards and a comprehensive program to achieve greater energy efficiency standards in existing buildings;

- The 2016 Mobile Source Strategy is estimated to reduce emissions from mobile sources including a 45 percent reduction in statewide GHG emissions (from both on-road and off-road mobile sources) and a 50 percent reduction in statewide consumption of petroleum-based fuels;
- The Sustainable Freight Action Plan to improve freight efficiency and transition to zero-emission freight handling technologies (described in more detail below);
- SB 1383, which requires a 50 percent reduction in anthropogenic black carbon and a 40 percent reduction in hydrofluorocarbon and methane emissions below 2013 levels by 2030; and
- AB 398, which extends the state Cap-and-Trade Program through 2030.

In the 2017 Scoping Plan Update, CARB recommends statewide targets of no more than six MT CO_2e per capita by 2030 and no more than two metric tons CO_2e per capita by 2050. CARB acknowledges that because the statewide per capita targets are based on the statewide GHG emissions inventory that includes all emissions sectors in the state, they are not applicable for use at the local level. Rather, it is appropriate for local jurisdictions to derive evidence-based local per-capita goals based on local emissions sectors and growth projections.

To demonstrate how a local jurisdiction can achieve their long-term GHG goals at the community plan level, CARB recommends developing a geographically specific GHG reduction plan (i.e., climate action plan) consistent with the requirements of CEQA Guidelines section 15183.5(b). A so-called "CEQA-qualified" GHG reduction plan, once adopted, can provide local governments with a streamlining tool for project-level environmental review of GHG emissions, provided there are adequate performance metrics for determining project consistency with the plan. Absent conformity with such a plan, CARB recommends "that projects incorporate design features and GHG reduction measures, to the degree feasible, to minimize GHG emissions. Achieving no net additional increase in GHG emissions, resulting in no contribution to GHG impacts, is an appropriate overall objective for new development" (CARB, 2017c).

SB 32/AB 197

In 2016, SB 32 and its companion bill AB 197, augmented AB 32 and amended HSC Division 25.5, establishing a new climate pollution reduction target of 40 percent below 1990 levels by 2030 and including provisions to ensure the benefits of state climate policies reach into disadvantaged communities.

Cap-and-Trade Program

Initially authorized by AB 32, and extended through the year 2030 with the passage of AB 398 in 2017, the California Cap-and-Trade Program is a core strategy that the state is using to meet its GHG reduction targets for 2020 and 2030, and ultimately achieve an 80 percent reduction from 1990 levels by 2050. CARB designed and adopted the California Cap-and-Trade Program to

reduce GHG emissions from "covered entities"[2] (e.g., electricity generation and petroleum refining), setting a firm cap on statewide GHG emissions and employing market mechanisms to achieve reductions.[3] Under the Cap-and-Trade Program, an overall limit is established for GHG emissions from capped sectors. The statewide cap for GHG emissions from the capped sectors commenced in 2013. The cap declines over time. Facilities subject to the cap can trade permits to emit GHGs.[4]

If California's direct regulatory measures reduce GHG emissions more than expected, then the Cap-and-Trade Program will be responsible for relatively fewer emissions reductions. If California's direct regulatory measures reduce GHG emissions less than expected, then the Cap-and-Trade Program will require relatively more emission reductions. In other words, the Cap-and-Trade Program can be adaptively managed by the state to ensure achievement of California's 2020 and 2030 GHG emissions reduction mandates, depending on whether other regulatory measures are more or less effective than anticipated.

California Environmental Quality Act and Senate Bill 97

In 2007, SB 97, acknowledged that climate change is an environmental issue requiring analysis under CEQA. This bill directed the Governor's Office of Planning and Research (OPR) to prepare, develop, and transmit to the California Natural Resources Agency (CNRA) guidelines for the feasible mitigation of GHG emissions or the effects of GHG emissions, as required by CEQA. SB 97 required the CNRA to certify or adopt those guidelines. In 2009, CNRA adopted amendments to the State CEQA Guidelines, as required by SB 97. In 2010, the CEQA Guidelines amendments provide guidance to public agencies regarding the analysis and mitigation of the effects of GHG emissions in draft CEQA documents.

Advanced Clean Cars Program

In 2012, CARB approved the Pavley II (LEV III) Advanced Clean Cars Program, an emissions-control scheme for model years 2015 through 2025 that allows manufacturers to comply with the 2017 through 2025 national standards while meeting state law. The program includes components to reduce smog-forming pollution, reduce GHG emissions, promote clean cars, and provide the fuels for clean cars. The ZEV program will act as the focused technology of the Advanced Clean Cars Program by requiring manufacturers to produce increasing numbers of ZEVs and plug-in hybrid electric vehicles (PHEV) in the 2018 to 2025 model years (CARB, 2017c).

Executive Order B-16-12 - 2025 Goal for Zero-Emission Vehicles

In 2012, Executive Order B-16-12 established a goal of 1.5 million ZEVs on California roads by 2025. In addition to the ZEV goal, EO B-16-12 stipulated that by 2015 all major cities in California will have adequate infrastructure and be 'zero-emission vehicle ready'; that by 2020

2 "Covered Entity" means an entity within California that has one or more of the processes or operations and has a compliance obligation as specified in subarticle 7 of the Cap-and-Trade Regulation; and that has emitted, produced, imported, manufactured, or delivered in 2008 or any subsequent year more than the applicable threshold level specified in section 95812 (a) of the Regulation.

3 17 CCR §§ 95800 to 96023.

4 See generally 17 CCR §§ 95811, 95812.

the state will have established adequate infrastructure to support 1 million ZEVs; that by 2050, virtually all personal transportation in the state will be based on ZEVs; and that GHG emissions from the transportation sector will be reduced by 80 percent below 1990 levels.

Mobile Source Strategy

In 2016, CARB released the updated Mobile Source Strategy that demonstrates how the state can simultaneously meet air quality standards, achieve GHG emission reduction targets, decrease health risk from transportation emissions, and reduce petroleum consumption over the next 15 years. The strategy promotes a transition to zero-emission and low-emission vehicles, cleaner transit systems and reduction of VMT. The Mobile Source Strategy calls for 1.5 million ZEVs (including plug-in hybrid electric, battery-electric, and hydrogen fuel cell vehicles) by 2025 and 4.2 million ZEVs by 2030. The strategy also calls for more stringent GHG requirements for light-duty vehicles beyond 2025 as well as GHG reductions from medium-duty and heavy-duty vehicles and increased deployment of zero-emission trucks primarily for class 3 – 7 "last mile" delivery trucks in California. Statewide, the Mobile Source Strategy would result in a 45 percent reduction in GHG emissions from mobile sources and a 50 percent reduction in the consumption of petroleum-based fuels (CARB, 2016c).

Executive Order B-48-18 - 2030 Goal for Zero-Emission Vehicles

In 2018, Executive Order B-48-18 established a goal of 5 million ZEVs on California roads by 2030, in recognition of the critical need to reduce emissions from the transportation sector in order to meet the GHG emissions target of SB 32.

Senate Bill 350

SB 350 (The Clean Energy and Pollution Reduction Act of 2015, Chapter 547, Statutes of 2015) increased the RPS by requiring an increase in the amount of electricity generated and sold to retail customers per year from eligible renewable energy resources from 33 percent to 50 percent by the end of 2030. SB 350 also requires the State Energy Resources Conservation and Development Commission to establish annual targets for statewide energy efficiency savings and demand reduction that will achieve a cumulative doubling of statewide energy efficiency savings in existing electricity and natural gas final end uses of retail customers by January 2030.

SB 1383 (Short-lived Climate Pollutants)

In 2016, SB 1383 required statewide reductions in short-lived climate pollutants (SLCPs) across various industry sectors. SLCPs covered under AB 1383 include methane, fluorinated gases, and black carbon – all GHGs with a much higher warming impact than carbon dioxide and with the potential to have detrimental effects on human health. SB 1383 requires the CARB to adopt a strategy to reduce methane by 40 percent, hydrofluorocarbon gases by 40 percent, and anthropogenic black carbon by 50 percent below 2013 levels by 2030. The methane emission reduction goals include a 75 percent reduction in the level of statewide disposal of organic waste from 2014 levels by 2025.

Local

San Joaquin Valley Air Pollution Control District

The SJVAPCD has published Guidance for Valley Land-Use Agencies in Addressing GHG Emissions Impacts for New Projects (SJVAPCD Guidance). According to the SJVAPCD Guidance, the District identifies a tiered approach for determining significance from GHG emissions as follows:

- Tier 1: Project Exemption from CEQA
- Tier 2: Project complies with an adopted statewide, regional, or local plan for the reduction or mitigation of GHG emissions;
- Tier 3: The project achieves the 29 percent GHG Emissions Reduction Target by using approved Best Management Practices (BMPs).
- Tier 4: GHG emissions are quantified and then mitigation is applied to reduce GHG emissions to 29 percent below Business-as-usual (BAU).

With respect to the Project, the Tier 1 approach cannot be used as the Project is not exempt from CEQA. With respect to Tier 2, neither the State, nor the County of Madera has a qualified (CEQA verified and adopted) Climate Action Plan; however, there are applicable plans to reduce GHG Emissions. A list of these plans include the 2017 CARB Climate Change Scoping Plan, 2018 MCTC 2018 RTP/SCS, 2005 Executive Order S-3-05, and the Mobile Source Strategy and 2018 Executive Order B-48-18 – 2030 Goal for Zero-Emission Vehicles. Therefore, Tier 2 can be used for determining significance with GHG emissions.

In light of Center for Biological Diversity v. California Department of Fish and Wildlife and Newhall Land and Farming (CBD vs. CDFW), the use of either Tier 3 or Tier 4 as significance thresholds are not recommended for use in determining significance.

Therefore, significance is determined for the Project through Tier 2, consistency with adopted plans (see applicable list above) for the reduction or mitigation of GHGs.

Madera County General Plan

Goals and policies from the Madera County General Plan that are relevant to the GHG analysis include:

Air Quality

AQ Policy A1.2.1: Facilitate efforts that increase the public's understanding of the linkage between land use, transportation, water and energy use and air pollution. Efforts should include informing the public of measures that can be taken and resources that are available to improve air quality and reduce potential climate change impacts.

AQ Policy C1.1.2: Assess and mitigate project greenhouse gas/climate change impacts using analysis methods and significance thresholds as defined or recommended by

the SJVAPCD, MCTC or California Air Resources Board (ARB) depending on the type of project involved.

AQ Policy C1.1.3: Ensure that air quality and climate change impacts identified during CEQA review are minimized and consistently and fairly mitigated at a minimum, to levels as required by CEQA.

AQ Policy C1.1.5 Assess and reduce the air quality and potential climate change impacts of new development projects that may be insignificant by themselves but, taken together, may be cumulatively significant for the County as a whole.

AQ Policy D2.1.1 Request project sponsors to demonstrate that all feasible TCMs and other measures have been incorporated into project designs which increase the effective capacity of the existing road network prior to seeking approval to construct additional roadway capacity, such as additional lanes or new highways.

AQ Policy D2.1.3 Encourage and support private sector employer based trip reduction programs such as alternative work schedules, rideshare matching, and transit subsidies.

Transportation and Circulation

2.A.1. The County shall encourage, where appropriate, development of an integrated, multi-modal transportation system that offers attractive choices among modes including pedestrian ways, public transportation, roadways, bikeways, rail, and aviation.

2.A.5. The County shall require that land use form and transportation systems in designated new growth areas be designed to provide residents and employees with the opportunity to accomplish many of their trips within the new growth area by walking, bicycling, and using transit.

2.A.7. The County shall support public and private efforts where appropriate to provide alternative choices to single occupant driving.

2.B.6. The County shall ensure the installation of signals, signs, lighting, and other traffic safety and operation improvements necessary for the safe and efficient movement of automobiles, trucks, farm equipment, bicyclists, and pedestrians.

2.B.7. The County shall encourage large private developments (e.g., office parks, apartment complexes, retail centers) to provide internal complete streets that connect to the existing roadway system.

2.B.8. The County shall require that plans for road improvements give maximum consideration to the preservation of existing landscaping to the extent that it will be consistent with road system safety.

2.B.9. The County shall require that all medians on local streets be landscaped. Landscaping shall not interfere with public safety. The developer, in cooperation with the County, shall provide a mechanism for landscaping maintenance.

2.C.7.	The County shall require existing and new streets and roads to be dedicated, widened, and constructed according to the roadway design and access standards generally defined in Part I of this Policy Document. Exceptions to these standards may be necessary, but should be kept to a minimum. Exceptions shall be permitted only upon determination by the County Public Works Director that safe and adequate public access and circulation are preserved where such exceptions are permitted.
2.C.8.	The County shall ensure that through-traffic is accommodated in a manner that discourages the use of neighborhood roadways, particularly local streets. This through traffic, including through truck traffic, shall be directed to appropriate routes in order to maintain public safety and local quality of life. Where feasible, the County shall seek to develop alternate routes around urban centers to accommodate through-traffic.
2.A.26.	The County shall require that new nonresidential development provide for off-street parking, either on-site or through contributions to consolidated lots or structures, particularly where these facilities are located in or near residential areas.
2.A.27.	The County shall ensure that new automobile parking facilities are designed to facilitate safe and convenient pedestrian access, including clearly defined corridors and walkways connecting parking areas with buildings.
2E.4.	New bikeways should be linked with other bikeways, bicycle rest stops, and parks to provide safe and continuous routes.
2E.6.	The County shall require that bikeways recommended in the Bicycle Master Plan be developed when roadway projects are constructed and when street frontage improvements are required of new development.
2E.9.	The County shall require that sidewalks in unincorporated communities be developed at sufficient width to accommodate pedestrians in accordance with the Americans with Disabilities Act.
2E.12.	The County shall require developers to finance and install pedestrian walkways, equestrian trails, and multi-purpose paths in new development, as appropriate.
2E.13.	The County shall encourage bicycle storage facilities (i.e., bicycle racks, lockers) at all new major transportation terminals and employment centers.
2.A.26.	The County shall require that new nonresidential development provide for off-street parking, either on-site or through contributions to consolidated lots or structures, particularly where these facilities are located in or near residential areas.
2.A.27.	The County shall ensure that new automobile parking facilities are designed to facilitate safe and convenient pedestrian access, including clearly defined corridors and walkways connecting parking areas with buildings.

3.7.3 Impacts and Mitigation Measures

Significance Criteria

According to Appendix G of the *CEQA Guidelines*, a project would have a significant effect on GHG emissions if it would:

- Generate GHG emissions, either directly or indirectly, that may have a significant impact on the environment (see Impact 3.7-1, below); or
- Conflict with any applicable plan, policy or regulation of an agency adopted for the purpose of reducing the emissions of GHGs (see Impact 3.7-2, below).

Amendments to Section 15064.4 of the State CEQA Guidelines were adopted to assist lead agencies in determining the significance of the impacts of GHG emissions. The amendments to Section 15064.4 do not establish a threshold of significance; rather it gives lead agencies the discretion to determine whether to assess those emissions quantitatively or qualitatively. If a qualitative analysis is used, in addition to quantification, this section recommends certain qualitative factors that may be used in the determination of significance (i.e., extent to which the Project may increase or reduce GHG emissions compared to the existing environment; whether the Project exceeds an applicable significance threshold; and extent to which the Project complies with regulations or requirements adopted to implement a reduction or mitigation of GHGs). Under amendments to Section 15064.4, lead agencies are further granted discretion to establish significance thresholds for their respective jurisdictions, including looking to thresholds developed by other public agencies, or suggested by other experts, such as the California Air Pollution Control Officers Association (CAPCOA), so long as any threshold chosen is supported by substantial evidence (see Section 15064.7(c)).

The California Natural Resources Agency has also clarified that the Guidelines Amendments focus on the effects of GHG emissions as cumulative impacts, and that they should be analyzed in the context of CEQA's requirements for cumulative impact analysis (see Section 15064(h)(3)) (CNRA, 2009; OPR, 2009).

Although GHG emissions can be quantified as discussed under the Methodology section below, CARB, SJVAPCD, and the County of Madera have not adopted quantitative project-level significance thresholds for GHG emissions for projects developed post 2020. The Governor's Office of Planning and Research (OPR) released a technical advisory on CEQA and climate change that provided some guidance on assessing the significance of GHG emissions, and states that "lead agencies may undertake a project-by-project analysis, consistent with available guidance and current CEQA practice," and that while "climate change is ultimately a cumulative impact, not every individual project that emits GHGs must necessarily be found to contribute to a significant cumulative impact on the environment (OPR, 2008)." Furthermore, the technical advisory states that "CEQA authorizes reliance on previously approved plans and mitigation programs that have adequately analyzed and mitigated GHG emissions to a less than significant level as a means to avoid or substantially reduce the cumulative impact of a project (OPR, 2008)."

As indicated above, the CEQA Guidelines were amended in response to SB 97. In particular, the CEQA Guidelines were amended to specify that compliance with a GHG emissions reduction plan renders a cumulative impact insignificant.

Per State 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 will avoid or substantially lessen the cumulative problem within the geographic area of the project. To qualify, such a plan or program 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 plan, [and] plans or regulations for the reduction of greenhouse gas emissions."

Thus, State CEQA Guidelines Section 15064(h)(3) allows a lead agency to make a finding of non-significance for GHG emissions if a project complies with a program and/or other regulatory schemes to reduce GHG emissions.

CARB's Climate Change Scoping Plan, MCTC's 2018 RTP/SCS; the Green Building Code; and the SJVAPCD's Final Staff Report –Climate Change Action Plan (CCAP) (SJVAPCD, 2009) all apply to the Project and are all intended to reduce GHG emissions to meet the Statewide targets set forth in AB 32 and as expanded by SB 32. Thus, in the absence of any adopted quantitative threshold, the significance of the Project's GHG emissions is evaluated consistent with CEQA Guidelines Section 15064.4(b)(2) by considering whether the Project complies with applicable plans, policies, regulations and requirements adopted to implement a statewide, regional, or local plan for the reduction or mitigation of greenhouse gas emissions, including CARB's 2017 Climate Change Scoping Plan, MCTC's 2018 RTP/SCS, the Green Building Code, SJVAPCD's CCAP.

SJVAPCD Thresholds

As discussed in the Regulatory Section above, the SJVAPCD implemented a tiered approach to determining significance with respect to GHG emissions and in light of Newhall Ranch decision and SB 32, the quantitative threshold presented in their CCAP is no longer appropriate for determining significance of Project-related GHG emissions. However, compliance with Best Performance Standards within the CCAP will provide GHG reductions associated with the Project and will help to advance the State's goals for reducing GHG emissions.

Methodology

Pursuant to full disclosure and according to OPR's CEQA Guidelines Section 15064.4(a), which states, "A lead agency should make a good-faith effort, based to the extent possible on scientific and factual data, to describe, calculate or estimate the amount of GHG emissions resulting from a project," the construction and operational emissions associated with the Project are quantified using the following methodology.

Construction

Construction anticipated by the Project may result in GHG emissions of CO_2 and smaller amounts of CH_4 and N_2O from construction equipment and mobile sources, such as haul trucks and worker vehicles. Construction emissions for the Project were estimated using the most recent version of the California Emissions Estimator Model (CalEEMod), version 2016.3.2, and California Emissions Factor Model (EMFAC), as applicable. Modeling was based on Project-specific data, where available. Where Project-specific information was not available default model settings and/or reasonable assumptions based on other similar projects were used to estimate criteria pollutant emissions. Modeling assumptions, calculations, and output files are provided in Appendix G.

The Specific Plan Program is evaluated at a program-level analysis and the initial Phase 1 Project is evaluated at a project-level. The Phase 1 Project includes 117 single family residential units, a 6.5-acre park, a wastewater treatment facility and water facilities, and open space. The Castellina development Program is intended to be built out over an approximately fifteen-year period between 2024 and sometime between 2035 and 2040, with the Phase 1 Project built out over one year beginning construction in approximately 2024 and full occupation in approximately 2025. To be conservative, the analysis included an assumption that after the completion of the Phase 1 Project, a maximum of 15 percent of the remaining Specific Plan Program buildout would be constructed in any one year. An additional conservative assumption is the use of the year 2020 for modeling purposes as construction equipment becomes more efficient in subsequent years.[5]

Because the proposed Specific Plan Program would not be constructed as one large development, but provides for numerous smaller projects, there could be more than one development project occurring at the same time during the year, and therefore, increasing the amount of equipment used. As a conservative estimate of emissions, annual emissions are presented as two times the annual emissions for grading, building construction, and architectural coating for the Phase 1 Project and four times the annual emissions for the subsequent buildout of the Specific Plan Program. This conservatively assumes that during the first year of construction, two projects occur at the same time during the Phase 1 Project and four projects occur at the same time and at the same emissions rate as the Phase 1 Project during remaining Specific Plan Program buildout years. Even if less than fifteen percent is built in any one year during the remaining buildout years, it is possible that similar construction schedules and equipment would be used for the projects based on development size and acreage.

Based on current practice of quantifying construction emissions and adding the emissions to operational emissions, the total construction emissions is amortized over a 30-year period which represents a typical lifetime of a project. This amortization is an accepted methodology to

[5] The analysis conservatively assumed that construction occurs at the earliest possible time (i.e. modeling for a 2020-year construction scenario), therefore, the potential for reduction in GHG emissions from more efficient engines is not accounted for, as older equipment phases out over the 15-year buildout horizon. Additionally, should construction begin subsequent to the dates used in the analysis, emissions from construction and operation would be reduced from what is analyzed herein.

combine construction and operational emissions to determine an average quantity of emissions over the life of a project.

Operational

Operational emissions anticipated by the Project include emissions from energy use (electricity and natural gas), on-road motor vehicles (mobile), solid waste, water and wastewater, area sources (landscaping), and onsite stationary sources (emergency generators). Methodology for quantifying existing and future operational GHG emissions is detailed in Appendix G and summarized here.

Energy

The growth anticipated by the Project would consume energy (electricity and natural gas) for multiple purposes including, but not limited to, building heating and cooling, lighting, and electronics. For all land uses, building electricity and natural gas usage for existing uses were provided by the Pacific Gas and Electric Company. GHG emissions also take into account the Renewable Portfolio Standards (RPS) requirements.

Mobile Sources

Operations anticipated by the Project would include vehicle trips related to the operation of land uses. Mobile source emissions were calculated using VMT data as provided in the Project-specific Transportation Analysis Report (Kimley Horn 2021), which takes into account mode and trip lengths. VMT emissions were calculated based on EMFAC2017 emission factors for CO_2, CH_4, and N_2O.

Solid Waste

Solid waste generation anticipated by the Project would include generation from day-to-day operational activities, which generally consists of product packaging, grass clippings, bottles, food scraps, newspapers, plastic, and other items routinely disposed of in trash bins. A portion of the waste is diverted to waste recycling and reclamation facilities. Waste that is not diverted is typically sent to local landfills for disposal, where it results in GHG emissions of CO_2 and CH_4 from the decomposition of the waste that occurs over the span of many years. The amount of solid waste generated by the Project was estimated using CalEEMod default generation rates. The 75 percent reduction and diversion rate required in California by Project buildout was also applied to waste emission calculations.

Water and Wastewater

GHG emissions from water use and wastewater are associated with the electrical energy used to treat and transport the water. Emissions associated with the Project's anticipated operations were calculated based on water consumption and wastewater generation. Water consumption was provided in the Project-specific water assessment analysis (Tully & Young, 2018). Anticipated water usage for the Phase 1 Project is approximately 18 million gallons per year and for the Specific Plan Program at buildout is approximately 355 million gallons per year (approximately 220 million gallons per year would be used indoors resulting in wastewater generation).[6] The wastewater

[6] The 355 million gallons per year buildout includes the 18 million gallons per year from the Phase 1 Project.

treatment facility is anticipated to have capacity to treat approximately 274 million gallons per year, with treated water returned to the community for irrigation or other non-potable water uses.

Stationary Sources

The wastewater treatment facility would operate three stand-by emergency generators. Generators are anticipated to operate for up to 50 hours per year in accordance with SJVAPCD regulations. GHG emissions were calculated for the operation of three 750 horse power emergency generators.

Impacts Discussion (Project and Cumulative)

An individual project in and of itself could not alter the climate globally, so climate change impacts are considered only from a cumulative perspective.

Greenhouse Gas Emissions

Impact 3.7-1a: The Phase 1 Project could result in significant and cumulatively considerable effects associated with greenhouse gas emissions because the Project could generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment.

Development anticipated by the Project could result in a significant impact, if the Project conflicts with the adopted state and local regulations and programs for reducing GHG emissions as detailed under Impact 3.7-2 below. Emissions are quantified for full disclosure and according to OPR's CEQA Guidelines Section 15064.4(a); however, as discussed under the thresholds section, there are no current quantitative thresholds applicable to the Specific Plan Program or the Phase 1 Project. As discussed above, an individual project in and of itself could not alter the climate globally, so climate change impacts are considered only from a cumulative perspective, and therefore, the following evaluations are considered both project and cumulative.

Phase 1 Project Impact Analysis and Phase 1 Project Cumulative Impact Analysis

Construction and Operation GHG Emissions

Construction and operational activities anticipated by the Phase 1 Project may emit GHGs that could, in combination with other regional and global emissions, result in an increase in CO_2e emissions that may result in changes in local and global climate. The following emissions were calculated for the potential construction and operation of the Phase 1 Project. **Table 3.7-2** shows construction emissions on an amortized annual basis.

Table 3.7-3 shows the forecasted GHG emissions for operation of the Phase 1 Project. Based on current methodology, construction emissions are added to operational emissions to determine a total annual emissions inventory.

TABLE 3.7-2
ANNUAL PHASE 1 PROJECT CONSTRUCTION GHG EMISSIONS

Phase	$MTCO_2e$
Site Preparation	105
Grading	874
Building Construction	1,475
Paving	117
Architectural Coating	121
TOTAL Annual Emissions	**2,670**
Amortized (30 year) Emissions	**89**

SOURCE: ESA, 2019 (Appendix G).

TABLE 3.7-3
TOTAL ANNUAL PHASE 1 PROJECT GHG EMISSIONS

Sector	$MTCO_2e$
Area	52
Energy	444
Mobile	1,597
Stationary	45
Waste	20
Wastewater	829
Water	29
Total Operational Emissions	**3,016**
Amortized Construction Emissions	89
TOTAL Annual Phase 1 Project Emissions	**3,105**

SOURCE: ESA, 2019 (Appendix G).

The CAFE Standards, AB 1493, LCFS, and CARB's Advanced Clean Car Program will reduce impacts from future transportation throughout the County by increasing fuel efficiency of vehicles and promoting the use of Zero-Emission vehicles. Sustainable Communities and Climate Protection Act of 2008 requires the regional reduction in VMTs, which will reduce mobile emissions generations from the Phase 1 Project. SB 1078 and SB 350 will reduce impacts from energy consumption by requiring electrical providers to use renewable resources for up to 50 percent of the electrical generation by 2030. California Building Standards Code would increase energy efficiencies and reduce waste from anticipated development by the Phase 1 Project. The increase in GHG emissions from the implementation of the Phase 1 Project could result in significant and cumulatively considerable GHG impacts.

Significance Determination before Mitigation: Significant

Phase 1 Project Mitigation Measures and Phase 1 Project Cumulative Mitigation Measures

Implementation of Mitigation Measure AQ-2 is required.

GHG-1: The following may be implemented to reduce GHG emissions from activities at the Phase 1 Project developments. These measures were used to quantify reduction based on SJVAPCD's required Best Performance Standards (BPS) and additional CAPCOA reduction measures. Measures beyond what are listed here may be included as additions to or substitutions for the measures indicated below such that, at a minimum, a reduction of 31 percent is achieved for the Phase 1 Project. Detailed reduction assumptions are included in Appendix G.

A. ***Wastewater Treatment Operations***: Eliminate methane emissions from the wastewater treatment operations through the use of an aerobic process.

B. ***Residential Measures***

1. **Pedestrian Oriented Measures -**The following measures are a list of some possible pedestrian oriented measures that will reduce GHG emissions. Not all potential measures are listed and not all are required as long as the overall reductions assumed in Appendix G are achieved.

    a. **Pedestrian Network Measure** (reductions associated with Project such as residential, commercial, and mixed-use land uses, as applicable): The Project provides a pedestrian access network that internally links all uses and connects to existing external streets and pedestrian facilities. Existing facilities are defined as those facilities that are physically constructed and ready for use prior to the first 20% of the Project's occupancy permits being granted. The Project provides a pedestrian access network that internally links all uses for connecting to planned external streets and pedestrian facilities (facilities must be included pedestrian master plan or equivalent).

    b. **Pedestrian Barriers Minimized** (reductions associated with residential, commercial, and mixed-use land uses, as applicable): Site design and building placement minimize barriers to pedestrian access and interconnectivity. Physical barriers such as walls, berms, landscaping, and slopes between residential and non-residential uses that impede bicycle or pedestrian circulation are eliminated. Barriers to pedestrian access of neighboring facilities and sites are minimized. This measure is not meant to prevent the limited use of barriers to ensure public safety by prohibiting access to hazardous areas, etc.

2. **Exceed Title 24 Measure** (reductions associated with residential, commercial, and mixed-use land uses, as applicable). The following measures are a list of some possible pedestrian oriented measures that will reduce GHG emissions. Not all potential measures are listed and not all are required as long as the overall reductions assumed in Appendix G are achieved.

a. **Exceedance:** Project Exceeds Title 24 requirements by 22.5% with measures such as, but not limited to, the installation of renewable energy systems capable of generating a minimum of 2.5% of the Phase 1 Project's annual energy needs.

b. **Energy Star Roof Measure** (reductions associated with residential, commercial, and mixed-use land uses): Install Energy Star labeled roof materials. Energy star qualified roof products reflect more of the sun's rays, decreasing the amount of heat transferred into a building

3. **Solar Orientation Measure** (reductions associated with residential, land uses): Orient 75 or more percent of homes and/or buildings to face either north or south (within 30 degrees of North or South). Building design includes roof overhangs that are sufficient to block the high summer sun, but not the lower winter sun, from penetrating south facing windows. Trees, other landscaping features and other buildings are sited in such a way as to maximize shade in the summer and maximize solar access to walls and windows in the winter.

4. **Electric Lawnmower Measure** (reductions associated with residential land uses): Provide a complimentary electric lawnmower to each residential buyers and install electrical outlets on the exterior of buildings that are accessible so landscaping equipment can be charged.

C. Infrastructure/Program Measures

1. **Neighborhood Electric Vehicle Access** (reductions associated with residential, commercial, and mixed-use land uses): The Project will create local "light" vehicle networks, such as NEV networks. NEVs are classified in the California Vehicle Code as a "low speed vehicle". They are electric powered and must conform to applicable federal automobile safety standards. NEVs offer an alternative to traditional vehicle trips and can legally be used on roadways with speed limits of 35 MPH or less (unless specifically restricted). They are ideal for short trips up to 30 miles in length. To create an NEV network, the Project will implement the necessary infrastructure, including NEV parking, charging facilities, striping, signage, and educational tools. NEV routes will be implemented throughout the Project and will double as bicycle routes. Current studies show that for most trips, NEVs do not replace gas, fueled vehicles as the primary vehicle. This measures also requires the provision for electric vehicle charging for all single family homes and a minimum of 20 percent of parking for multi-family residential developments.

2. **Traffic Calming Measure** (reductions associated with residential, commercial, and mixed-use land uses): Project design includes pedestrian/bicycle safety and traffic calming measures in excess of jurisdiction requirements. Roadways are designed to reduce motor vehicle speeds and encourage pedestrian and bicycle trips by featuring traffic calming measures. Traffic calming measures include: bike lanes, center islands, closures (cul-de-sacs), diverters, education, forced turn lanes, roundabouts, speed humps, etc.

3. **Transit Demand Management Program** (reductions associated with residential, commercial, and mixed-use land uses): The Project shall implement a transit demand management (TDM) program to discourage single-occupancy vehicle trips and encourage alternative modes of transportation such as carpooling, taking transit, walking, and biking. The TDM program shall be designed to encompass the whole Program as a single program and a coordinator employed prior to the completion of the Phase 1 Project construction. The TDM program shall be accessible to all employees and residents of the development and shall include the following at a minimum:
    a. Carpooling encouragement
    b. Ride-sharing program
    c. Preferential carpool parking
    d. Flexible work schedules for carpools (non-residential only)
    e. Half-time transportation coordinator
    f. Vanpool assistance
    g. Bike-sharing program
    h. Trip Reduction Marketing – providing information to residents and employees about the TDM program.

Significance Determination after Mitigation: Less than Significant.

Implementation of BPS required by SJVAPCD in their guidance and CAPCOA Reduction measures as identified in Mitigation Measure GHG-1, will reduce GHG emissions from those presented above. These would bring the Project into compliance with these plans and therefore, the Project would not generate GHG emissions, either directly or indirectly, that may have a significant impact on the environment and the Phase 1 Project would have a less than significant impact. **Table 3.7-4** shows the mitigated forecasted GHG emissions for operation of the Phase 1 Project. While, SJVAPCD's 29 percent reduction in GHG emissions is no longer an applicable reduction standard, with implementation of the BPSs and additional measures and mitigation, the Phase 1 Project emissions would be reduced by approximately 31 percent. This does not include additional measures that will be taken by the State and local jurisdictions to reduce GHG emissions to meet the 2030 requirements and move towards the 2050 goals.

TABLE 3.7-4
TOTAL ANNUAL MITIGATED PHASE 1 PROJECT GHG EMISSIONS

Sector	$MTCO_2e$
Area	1
Energy	404
Mobile	1,535
Stationary	45
Waste	20
Wastewater	41
Water	29
Total Operational Emissions	**2,073**
Amortized Construction Emissions	89
TOTAL Annual Phase 1 Project Emissions	**2,165**

SOURCE: ESA, 2019 (Appendix G).

Impact 3.7-1b: The proposed Program could result in significant and cumulatively considerable effects associated with greenhouse gas emissions because the Program could generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment.

Program Impact Analysis and Program Cumulative Impact Analysis

Construction and Operation GHG Emissions

Construction and operational activities anticipated by the Specific Plan Program may emit GHGs that could, in combination with other regional and global emissions, result in an increase in CO_2e emissions that may result in changes in local and global climate. The following emissions were calculated for the potential construction and operation of the Specific Plan Program. **Table 3.7-5** shows construction emissions on an amortized annual basis.

TABLE 3.7-5
ANNUAL PROGRAM CONSTRUCTION GHG EMISSIONS

Phase	$MTCO_2e$
Site Preparation	420
Grading	1,747
Building Construction	2,905
Paving	468
Architectural Coating	243
Demolition	37
TOTAL Annual Program Emissions	5,783
Total Program Emissions (14 years construction)	86,744
Total Project Emissions (1 year construction)	2,670
Total Proposed Project Emissions (15 years construction)	89,488
Amortized (30 year) Emissions	2,983

SOURCE: ESA, 2019 (Appendix G).

Table 3.7-6 shows the forecasted GHG emissions for operation of the proposed Project at buildout. Based on current methodology, construction emissions are added to operational emissions to determine a total annual emissions inventory.

TABLE 3.7-6
TOTAL ANNUAL PROGRAM GHG EMISSIONS

Sector	$MTCO_2e$
Area	1,350
Energy	6,531
Mobile	28,052
Stationary	43
Waste	421
Wastewater	2,487
Water	356
Total Operational Emissions	**39,241**
Amortized Construction Emissions	2,983
TOTAL Annual Project Emissions	**42,224**

SOURCE: ESA, 2019 (Appendix G).

The CAFE Standards, AB 1493, LCFS, and CARB's Advanced Clean Car Program will reduce impacts from future transportation throughout the County by increasing fuel efficiency of vehicles and promoting the use of Zero-Emission vehicles. Sustainable Communities and Climate Protection Act of 2008 requires the regional reduction in VMTs, which will reduce mobile emissions generations from the Specific Plan Program. SB 1078 and SB 350 will reduce impacts from energy consumption by requiring electrical providers to use renewable resources for up to 50 percent of the electrical generation by 2030. California Building Standards Code would increase energy efficiencies and reduce waste from anticipated development of the Specific Plan Program. However, due to the increasing reduction goals for 2030 and 2050, and the unavailability of applicable numerical thresholds, the Program development may emit GHG emissions that could impede the County's ability to meet 2030 reduction goals. The increase in GHG emissions from the implementation of the Specific Plan Program could result in significant and cumulatively considerable GHG impacts.

Significance Determination before Mitigation: Significant

Program Mitigation Measures and Program Cumulative Mitigation Measures

Implementation of Mitigation Measure AQ-2 and GHG-1 is required.

GHG-2: The following measures may be implemented to reduce GHG emissions from activities at the Program developments. These measures were used to quantify reduction based on SJVAPCD's required Best Performance Standards (BPS) and additional CAPCOA reduction measures. Measures beyond what are listed here may be included as additions to or substitutions for the measures indicated below such that, at a minimum, a reduction of 14 percent is achieved for the Program. Detailed reduction assumptions are included in Appendix G.

A. ***Wastewater Treatment Operations***: Eliminate methane emissions from the wastewater treatment operations through the use of an aerobic process.

B. ***Developed Land Use Measures***

1. **Bicycle Parking**:
    a. Long-term bicycle parking shall be provided at apartment complexes or condominiums that do not have garages. Project shall provide one long-term bicycle parking space for each unit without a garage. Long-term facilities shall consist of one of the following: a bicycle locker, a locked room with standard racks and access limited to bicyclists only, or a standard rack in a location that is staffed and/or monitored by video surveillance 24 hours per day.
    b. Commercial/Mixed-use: Non-residential projects shall provide adequate short-term and long-term bicycle parking facilities to meet peak season maximum demand. Short term facilities shall be provided at a minimum ratio of one bike rack space per 20 vehicle spaces. Long-term facilities shall be provided at a minimum ratio of one long-term bicycle storage space per 20 employee parking spaces.
2. **End of Trip Facilities**: Non-residential projects shall provide "end-of-trip" facilities including showers, lockers, and changing space. Facilities shall be provided in the following ratio: four clothes lockers and one shower provided for every 80 employee parking spaces. For projects with 160 or more employee parking spaces, separate locker/shower facilities are required for each gender. Parking spaces are determined by total spaces allotted in the Specific Plan Program area and not per individual uses. (End of use facilities may be shared by multiple businesses in the same building)
3. **Minimum Parking** (reductions associated with residential, commercial, and mixed-use land uses): Provide minimum amount of parking required. The County shall take into consideration the unique nature and location of the development and the limited commercial/retail opportunities within the development in instituting any reduction in the number of parking spaces within the Town Center and Mixed-Use area of the Project. This measure recognizes the air quality benefit that results when facilities minimize parking needs and establishes an emission reduction value for projects that implement all available parking reductions. Once land uses are determined, the trip reduction factor associated with this measure can be determined by utilizing the Institute of Transportation Engineers (ITE) Parking generation publication70. The reduction in trips can be computed as shown below by the ratio of the difference of minimum parking required by code and ITE peak parking demand to ITE peak parking demand for the land uses multiplied by 50%. The maximum achievable trip reduction is 6%. For projects where retail space occupies 50% or more of the total built space, do not use December specific parking generation rates (from ITE). Percent Trip Reduction

= 50*[(min parking required by code - ITE peak parking demand) / (ITE peak parking demand)].

4. **Residential Density Measure** (reductions associated with residential, land uses): Residential Density with "no transit", Project provides high-density residential development. Emission reduction value is based on the high density and mixed use portion of the Project only and based on between 11 and 20 units per acre.

5. **Other Mixed Use Measure** (reductions associated with residential, land uses). All residential units are within ¼ mile of parks, schools or other civic uses. Civic uses are government facilities that provide services directly to the public (post office, city hall, courthouse, community center, etc.).

6. **Exceed Title 24.** The following measure will reduce GHG emissions in addition to those listed in Mitigation Measure GHG-1. Not all potential measures are listed and not all are required as long as the overall reductions assumed in Appendix G are achieved.

    c. Non Roof Surface Measure (reductions associated with residential, commercial, and mixed-use land uses): Provide shade (within 5 years) and/or use light-colored/high-albedo materials (reflectance of at least 0.3) and/or open grid pavement for at least 30% of the site's non-roof impervious surfaces, including parking lots, walkways, plazas, etc.; OR place a minimum of 50% of parking spaces underground or covered by structured parking; OR use an open-grid pavement system (less than 50% impervious) for a minimum of 50% of the parking lot area. Unshaded parking lot areas, driveways, fire lanes, and other paved areas have a minimum albedo of .3 or greater.

C. Infrastructure/Program Measures

1. **Pedestrian Oriented Measure**- The following measure will reduce GHG emissions in addition to those pedestrian oriented measures identified in Mitigation Measure GHG-1. Not all potential measures are listed and not all are required as long as the overall reductions assumed in Appendix G are achieved.

    a. **Pedestrian Pathway through Parking Measure** (reductions associated with residential, commercial, and mixed-use land uses): Provide a parking lot design that includes clearly marked and shaded pedestrian pathways between transit facilities and building entrances. Pathway must connect to all transit facilities internal or adjacent to Project site. Site plan should demonstrate how the pathways are clearly marked, shaded, and are placed between transit facilities and building entrances.

2. **Orientation toward "planned" transit, bikeway, or pedestrian corridor** (reductions associated with commercial and mixed-use land uses): Project is oriented towards planned transit, bicycle, or pedestrian corridor. Setback distance is minimized. Planned transit, bicycle or pedestrian corridor must be in the MTP, RT Master Plan,

General Plan, or Community Plan. Setback distance between project and existing or planned adjacent uses is minimized or non-existent. Setback distance between different buildings on Project site is minimized. Setbacks between Project buildings and planned or existing sidewalks are minimized. Buildings are oriented towards existing or planned street frontage. Primary entrances to buildings are located along planned or existing public street frontage. Project provides bicycle access to any planned bicycle corridor(s). Project provides pedestrian access to any planned pedestrian corridor(s).

3. **School Bus Program** – the Project will work with the school district to provide school bus services in the Project area and local community, specifically with respect to the onsite elementary school.

Significance Determination after Mitigation: Significant and Unavoidable.

Implementation of Best Performance Standards (BPS) required by SJVAPCD in their guidance and CAPCOA Reduction measures as identified in Mitigation Measure GHG-1 and GHG-2 would bring the Program into compliance with these plans. Implementation of Mitigation Measures GHG-1 and GHG-2 reduces total Program emissions by 14 percent to 36,570 $MTCO_2e$ as shown in **Table 3.7-7**. These reductions conservatively use the lowest reduction percentages of the methodology as the exact buildout scenario is not currently known. Also these reductions do not include additional measures that will be taken by the State and local jurisdictions to reduce GHG emissions to meet the 2030 requirements and move towards the 2050 goals. Therefore, these reported emissions are greater than the reduced emissions that can be achieved with the increased efficiencies and reductions at the state level. While, SJVAPCD's 29 percent reduction in GHG emissions is no longer an applicable reduction standard, due to the more stringent reduction goals of 2030 and 2050, the 14 percent reduction attributed by Mitigation Measures GHG-1 and GHG-2 may not be sufficient to offset the Program's portion of reductions needed by the County. Therefore, the Program would remain significant and unavoidable after mitigation.

TABLE 3.7-7
TOTAL ANNUAL MITIGATED PROGRAM GHG EMISSIONS

Sector	$MTCO_2e$
Area	29
Energy	5,809
Mobile	26,805
Stationary	43
Waste	421
Wastewater	124
Water	365
Total Operational Emissions	**33,588**
Amortized Construction Emissions	2,963
TOTAL Annual Program Emissions	**36,570**

SOURCE: ESA, 2019 (Appendix G).

Conflict with Plan, Policy, or Regulation that Reduces Greenhouse Gas Emissions

Impact 3.7-2a: The Phase 1 Project would result significant and cumulatively considerable effects on a greenhouse gas plan because the Phase 1 Project would not further emission reductions identified within an applicable plan, policy or regulation adopted for the purpose of reducing the emissions of greenhouse gases.

As discussed above, an individual project in and of itself could not alter the climate globally, so climate change impacts are considered only from a cumulative perspective, and therefore, the following evaluations are considered both project and cumulative.

Phase 1 Project and Phase 1 Cumulative Impact Analysis

A significant and unavoidable impact would occur if implementation of the Phase 1 Project would result in conflicts with regulations adopted for the purpose of reducing GHG emissions. Emissions of GHGs throughout the County may increase as anticipated development by the Phase 1 Project occurs thereby resulting in more emissions than existing conditions, potentially conflicting with State Goals of reducing GHG emissions. The Phase 1 Project's compliance with regulations and policies for the reduction of GHG emissions is discussed below

Consistency with 2017 Scoping Plan Update

The Phase 1 Project would be consistent with key state plans and regulatory requirements referenced in the 2017 Scoping Plan Update designed to reduce statewide emissions. According to the 2017 Scoping Plan Update, reductions needed to achieve the 2030 target are expected to be achieved by increasing the RPS to 50 percent of the State's electricity by 2030, greatly increasing the fuel economy of vehicles and the number of zero-emission or hybrid vehicles, reducing the rate of growth in VMT, supporting high speed rail and other alternative transportation options, and increasing the use of high efficiency appliances, water heaters, and HVAC systems. The Phase 1 Project would not impede implementation of these potential reduction strategies identified by CARB, and it would benefit from statewide and utility-provider efforts towards increasing the portion of electricity provided from renewable resources.[7] The Phase 1 Project would also benefit from statewide efforts towards increasing the fuel economy standards of vehicles and reducing the carbon content of fuels. The Phase 1 Project would utilize energy efficient appliances and equipment, as required by Title 24. For these reasons described above, the Phase 1 Project emissions trajectory would decline over time; however, although the Phase 1 Project does not actively conflict with the policies in place for the reduction of GHG emissions, the development on its own does not further emissions reductions that are necessary to meet the 2030 and 2050 goals. Therefore, the Phase 1 Project would not be consistent with the 2017 Scoping Plan Update.

[7] With the passage of SB 100, California's RPS has been increased over what is prescribed by the 2017 Scoping Plan Update, requiring retail sellers and local publicly-owned electric utilities to procure eligible renewable electricity for 44 percent of retail sales by the end of 2024, 52 percent by the end of 2027, and 60 percent by the end of 2030; and requires that CARB should plan for 100 percent eligible renewable energy resources and zero-carbon resources by the end of 2045.

MCTC's 2018 RTP/SCS

Due to the rural nature of the Phase 1 Project, the Project does not actively support increased transit use as there is no local bus or train service within walking distance of the Phase 1 Project. Therefore, while the Phase 1 Project does not actively conflict with the implementation of the RTP/SCS, the Phase 1 Project also does not further the State's ability to reach the State goals. The Phase 1 Project as designed does not conflict with the following goals of the RTP/SCS.

Goal 4 of the 2018 RTP/SCS aims to enhance the transportation system coordination, efficiency, and intermodal connectivity to keep people and goods moving and meet regional transportation goals. The Phase 1 Project will be built along a planned bicycle corridor with connectivity to other bicycle corridors.[8] The improvements to Road 27 associated with the implementation of the Phase 1 Project would provide bicycle lanes along both sides of the Road 27.

Goal 9 of the 2018 RTP/SCS aims to protect the environment and health of County residents by improving air quality and encouraging active transportation (non-motorized transportation such as bicycling and walking). The implementation of the Phase 1 Project will place residential uses in local proximity to parks and open space therefore reducing the need for motorized vehicles to access local recreation. Once the Program is fully built out, residents will be within walking distance of local retail.

Executive Order S-3-05

Executive Order No. S-3-05 established a long-term goal of reducing California's GHG emissions to 80 percent below the 1990 level by the year 2050. The extent to which GHG emissions from mobile sources indirectly attributed to the Phase 1 Project would change in the future depends on the quantity (e.g., number of vehicles, average daily mileage) and quality (i.e., carbon content) of fuel that would be available and required to meet both regulatory standards, and resident and worker needs.

Renewable power requirements, LCFS, and vehicle emissions standards, discussed above, would decrease GHG emissions per unit of energy delivered or per VMT. Due to the uncertainty of technological advancements that could be anticipated over the next 30 years and the unknown parameters of the regulatory framework in 2050, further quantitative analysis of the Phase 1 Project impacts relative to the 2050 target would be speculative. Section 15145 of the CEQA Guidelines directs that "[i]f, after thorough investigation, a Lead Agency finds that a particular impact is too speculative for evaluation, the agency should note its conclusion and terminate discussion of the impact."

Even though the State has not provided a clear regulatory and technological roadmap to achieve the 2050 goal, it has demonstrated the potential pace at which emission reductions can be achieved through new regulations, technology deployments, and market developments. In developing the 2017 Scoping Plan Update, CARB, CEC, CPUC, and the California Independent System Operator (CAISO) commissioned a study to evaluate the feasibility and cost of meeting the 2030 target along the way to reaching the State goal of reducing GHG emissions to 80%

[8] Road 27, Avenue 17, and Road 28 ½ are part of a planned future bicycle corridor.

below 1990 levels by 2050. With input from the agencies, the California State Agencies' PATHWAYS Project explores scenarios for meeting the State long term GHG emissions targets, encompassing the entirety of California economy with detailed representations of the buildings, industry, transportation, and electricity sectors (E3, 2015). While acknowledging the inherent uncertainty associated with its modeling assumptions, the PATHWAYS study emphasizes the need for significant action and continued policy development by the State to support low-carbon technologies and markets for energy efficiency, building electrification, renewable electricity, zero-emission vehicles, and renewable liquid fuels. The study underscores the need for a periodic review of State policies and programs for reducing GHG emissions, as was anticipated by AB 32 in its directive to update the Scoping Plan at least every five years.

A 2018 update to the PATHWAYS study advanced the understanding of what is required for technology deployment and other GHG mitigation strategies if California is to meet its long-term climate goals. The 2018 study concludes that to achieve high levels of consumer adoption of zero-carbon technologies, particularly of electric vehicles and energy efficiency and electric heat in buildings, market transformation is needed to reduce the capital cost and to increase the range of options available. This market transformation can be facilitated by 1) higher carbon prices (which can be created by the Cap and Trade and LCFS programs); 2) codes and standards, regulations and direct incentives, to reduce the upfront cost to the customer; and 3) business and policy innovations to make zero-carbon technology options the cheaper, preferred solutions compared to fossil fueled alternatives (E3, 2018).

Statewide efforts are underway to facilitate the achievement of the EO S-3-05 goals. It is reasonable to expect the GHG emissions from development anticipated by the Phase 1Project would decline over time, as the regulatory initiatives identified by CARB in the 2017 Scoping Plan Update are implemented, and other technological innovations occur. Given the reasonably anticipated decline in Phase 1 Project emissions, the Project would not conflict with or interfere with the ability of the State to achieve the 2050 horizon-year goal of EO S-3-05.

Mobile Source Strategy and Executive Order B-48-18

State goals for ZEVs are expressed in the Advanced Clean Cars Initiative (ACC) and the ZEV mandate established by Executive Order B-16-1, which sets a target of reaching 1.5 million ZEVs (meaning battery electric vehicles and fuel cell electric vehicles) and plug-in hybrid electric vehicles on California's roadways by 2025.

According to EMFAC2017, which incorporates the State ZEV mandate, there will be approximately 31,700,000 passenger cars and light trucks on the road in California by 2030, at which time 1.5 million ZEVs would constitute approximately 4.7 percent of all vehicles.[9] The more aggressive Mobile Source Strategy, included in the 2017 Scoping Plan Update as a

[9] EMFAC2017 estimates the future percentage of the state's ZEVs based on compliance with the State's ZEV mandate. EMFAC2017's forecasted ZEV population for 2030 is approximately 3.6 percent of all passenger and light duty vehicles, but the 3.6 percent figure represents the equivalent percentage of all vehicles operating as a pure zero-emission vehicle (e.g., 100% battery electric), whereas the actual population would include PHEVs that operate partially on fossil fuels.

component of the overall strategy for achieving the 2030 GHG target, calls for 4.2 million ZEVs on the road by 2030, equivalent to about 13.2% of passenger vehicles and light-duty trucks.

The Phase 1 Project would not conflict with the State ZEV mandate as it has no control over the production or sale of vehicles.

Overall Consistency

While the Phase 1 Project does not actively conflict with the policies in place for the reduction of GHG emissions, the development on its own does not further emissions reductions that are necessary to meet the 2030 and 2050 goals, therefore, implementation of the Phase 1 Project would result in significant GHG impacts.

Significance Determination before Mitigation: Significant

Phase 1 Project/Cumulative Mitigation Measures

Implementation of Mitigation Measure GHG-1 is required.

Significance Determination after Mitigation: Less than Significant.

While the Phase 1 Project does not actively conflict with the policies in place for the reduction of GHG emissions, the development on its own does not further emissions reductions that are necessary to meet the 2030 and 2050 goals, therefore without mitigation, the Phase 1 Project would result in significant GHG emissions. Implementation of the mitigation measures would reduce GHG emissions from the wastewater treatment facility as well as the residential and wastewater treatment plant components of the Phase 1 Project. Emissions reductions quantified under Impact 3.7-1 above are minimal reductions possible by implementation of the Phase 1 Project. Additional reductions will be achieved based on the level of participation in the reduction measures by the Phase 1 Project during development as well as through choices of resident occupants. The TDM program as well as the bicycle and pedestrian requirements will reduce VMT and therefore GHG emissions. Energy efficiency measures will reduce emissions from electrical consumption to operate the site. Therefore, the Phase 1 Project would be consistent with all the appropriate goals and policies for the reduction of GHG emissions. While, SJVAPCD's 29 percent reduction in GHG emissions is no longer an applicable reduction standard, with implementation of the BPSs and additional measures and mitigation, the Phase 1 Project emissions would be reduced by approximately 31 percent. This does not include additional measures that will be taken by the State and local jurisdictions to reduce GHG emissions to meet the 2030 requirements and move towards the 2050 goals.

Impact 3.7-2b: The proposed Program could result in significant and cumulatively considerable effects on a greenhouse gas plan because the Program could conflict with an applicable plan, policy or regulation adopted for the purpose of reducing the emissions of greenhouse gases.

Program Impact Analysis and Program Cumulative Impact Analysis

A significant and unavoidable impact would occur if implementation of the Program would result in conflicts with regulations adopted for the purpose of reducing GHG emissions. Emissions of GHGs throughout the County may increase as anticipated development by the proposed Program occurs thereby resulting in more emissions than existing conditions, potentially conflicting with State Goals of reducing GHG emissions. The Program's compliance with regulations and policies for the reduction of GHG emissions is discussed below. Because there is not compliance with strategies to reduce GHG emissions, the Program would result in potentially significant emissions.

Consistency with 2017 Scoping Plan Update

The Program would be consistent with key state plans and regulatory requirements referenced in the 2017 Scoping Plan Update designed to reduce statewide emissions. According to the 2017 Scoping Plan Update, reductions needed to achieve the 2030 target are expected to be achieved by increasing the RPS to 50 percent of the State's electricity by 2030, greatly increasing the fuel economy of vehicles and the number of zero-emission or hybrid vehicles, reducing the rate of growth in VMT, supporting high speed rail and other alternative transportation options, and increasing the use of high efficiency appliances, water heaters, and HVAC systems. The Proposed Project would not impede implementation of these potential reduction strategies identified by CARB, and it would benefit from statewide and utility-provider efforts towards increasing the portion of electricity provided from renewable resources.[10] The Program would also benefit from statewide efforts towards increasing the fuel economy standards of vehicles and reducing the carbon content of fuels. The Proposed Project would utilize energy efficient appliances and equipment, as required by Title 24. For these reasons described above, the Proposed Project emissions trajectory would decline over time; however, although the Specific Plan Program does not actively conflict with the policies in place for the reduction of GHG emissions, the development on its own does not further emissions reductions that are necessary to meet the 2030 and 2050 goals. Therefore, the Specific Plan Program would not be consistent with the 2017 Scoping Plan Update.

MCTC's 2018 RTP/SCS

With the Program development, village center and mixed-use developments will be added along with neighborhood residential, neighborhood park and an elementary school. These land uses support the overarching goal of the RTP/SCS to reduce VMT by providing local retail and recreational activities within walking distance of residential uses. The Program as designed is not consistent with but does not conflict with the following goals of the RTP/SCS:

[10] With the passage of SB 100, California's RPS has been increased over what is prescribed by the 2017 Scoping Plan Update, requiring retail sellers and local publicly-owned electric utilities to procure eligible renewable electricity for 44 percent of retail sales by the end of 2024, 52 percent by the end of 2027, and 60 percent by the end of 2030; and requires that CARB should plan for 100 percent eligible renewable energy resources and zero-carbon resources by the end of 2045.

Goal 4 of the 2018 RTP/SCS aims to enhance the transportation system coordination, efficiency, and intermodal connectivity to keep people and goods moving and meet regional transportation goals. The Project will be built along a planned bicycle corridor with connectivity to other bicycle corridors.

Goal 9 of the 2018 RTP/SCS aims to protect the environment and health of County residents by improving air quality and encouraging active transportation (non-motorized transportation such as bicycling and walking). The implementation of the Program will place residential uses in local proximity to parks, minor retail and open space therefore reducing the need for motorized vehicles to access local recreation and retail.

Executive Order S-3-05

Executive Order No. S-3-05 established a long-term goal of reducing California's GHG emissions to 80 percent below the 1990 level by the year 2050. As with the Phase 1 Project, the extent to which GHG emissions from mobile sources indirectly attributed to the Program would change in the future depends on the quantity (e.g., number of vehicles, average daily mileage) and quality (i.e., carbon content) of fuel that would be available and required to meet both regulatory standards, and resident and worker needs.

As detailed under the Phase 1 Project analysis above, Statewide efforts are underway to facilitate the achievement of the EO S-3-05 goals. It is reasonable to expect the GHG emissions from development anticipated by the Program would decline over time, as the regulatory initiatives identified by CARB in the 2017 Scoping Plan Update are implemented, and other technological innovations occur. Given the reasonably anticipated decline in Program emissions, the Program development would not conflict with or interfere with the ability of the State to achieve the 2050 horizon-year goal of EO S-3-05.

Mobile Source Strategy and Executive Order B-48-18

State goals for ZEVs are expressed in the Advanced Clean Cars Initiative (ACC) and the ZEV mandate established by Executive Order B-16-1, which sets a target of reaching 1.5 million ZEVs (meaning battery electric vehicles and fuel cell electric vehicles) and plug-in hybrid electric vehicles on California's roadways by 2025.

Similar to the Phase 1 Project discussion addressed under Impact 3.7-1 above, the Program at buildout would not conflict with the State ZEV mandate as it has no control over the production or sale of vehicles.

Overall Consistency

While the Specific Plan Program does not actively conflict with the policies in place for the reduction of GHG emissions, the development on its own does not further emissions reductions that are necessary to meet the 2030 and 2050 goals, therefore, implementation of the Specific Plan Program would result in significant GHG impacts.

Significance Determination before Mitigation: Significant

Program/Cumulative Mitigation Measures

Implementation of Mitigation Measures GHG-1 and GHG-2 is required.

Significance Determination after Mitigation: Significant and Unavoidable.

While the proposed Program does not actively conflict with the policies in place for the reduction of GHG emissions, the development on its own does not further emissions reductions that are necessary to meet the 2030 and 2050 goals, therefore without mitigation, the proposed Program would result in significant GHG emissions. Implementation of the mitigation measures would reduce GHG emissions from the wastewater treatment facility as well as the residential and commercial components of the Program. Emissions reductions quantified under Impact 3.7-1 above are minimal with the implementation of the Program. Additional reductions will be achieved based on the level of participation in the reduction measures by the Program during development as well as through choices of residents and commercial occupants. The TDM program as well as the bicycle and pedestrian requirements will reduce VMT and therefore GHG emissions. Energy efficiency measures will reduce emissions from electrical consumption to operate the site. However, because the reductions afforded by implementation of the Program only reduce the Program emissions by 14 percent, and the complete implementation and reductions that will be achieved through implementation of the Program are not known, there is the potential that the reduction achieved by implementation of Mitigation Measures GHG-1 and GHG-2 may not be sufficient to offset the Program's portion of reductions needed by the County. Therefore, the Proposed Program would remain significant and unavoidable after mitigation.

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3.8 Hazards and Hazardous Materials

This section analyzes the potential effects of the proposed Project's impacts related to hazards and hazardous materials. Potential hazards addressed in this section include potential releases of hazardous materials from equipment and materials during construction, demolition, and operation; exposure to hazardous materials in buildings and other structures, soil, and groundwater; airport safety; emergency access and response plans; and, wildland fires. The analyses are based largely on information provided in the Phase I and Phase II Environmental Site Assessments and Phase I Environmental Site Assessment (SES 2007a and 2007b) which are included in **Appendix H-1** and **Appendix H-2** of this Draft EIR. This analysis also relies on a recent assessment, the 2017 Phase I Environmental Site Assessment (McCloskey Consultants, Inc. 2017) which is provided in **Appendix H-3**.

Definition of Hazardous Materials

Definitions of terms used in this section, characterization of baseline conditions, and impact analysis for hazards and hazardous materials are provided below.

Hazardous Material

The term "hazardous material" can have varying definitions depending on the regulatory programs. For the purposes of this Draft EIR, the term refers to both hazardous materials and hazardous wastes. The California Health and Safety Code Section 25501(p) defines hazardous material as: Hazardous material means any material that because of its quantity, concentrations, or physical or chemical characteristics, poses a significant present or potential hazard to human health and safety or to the environment if released into the workplace or the environment. Hazardous materials include, but are not limited to, hazardous substances, hazardous waste, and any material which a handler or the administering agency has a reasonable basis for believing would be injurious to the health and safety of persons or harmful to the environment if released into the workplace or the environment.

Hazardous Waste

A "hazardous waste" is a waste that because of its quantity, concentration, or physical, chemical, or infectious characteristic, causes or significantly contributes to an increase in mortality or illness or poses substantial or potential threats to public health or the environment (42 United States Code [U.S.C.] 6903(5)). Hazardous wastes are further defined under the Resource Conservation and Recovery Act (RCRA) as substances exhibiting the characteristics of ignitability, reactivity, corrosivity, or toxicity. Chemical-specific concentrations used to define whether a material is a hazardous, designated, or nonhazardous waste include Total Threshold Limit Concentrations (TTLCs), Soluble Threshold Limit Concentrations (STLCs), and Toxic Characteristic Leaching Procedure (TCLPs), listed in the California Code of Regulations (CCR) Title 22, Chapter 11, Article 3, Section 66261, and used as waste acceptance criteria for landfills. Waste materials with chemical concentrations above TTLCs, STLCs, and TCLPs must be sent to Class I disposal facilities, may be sent to Class II disposal facilities depending on the waste material, and may not be sent to Class III disposal facilities.

Screening Levels for Hazardous Materials in Soil, Soil Gas, or Groundwater

The United States Environmental Protection Agency (U.S. EPA) Regional Screening Levels (RSLs) and San Francisco Bay Area Regional Water Quality Control Board (RWQCB) Environmental Screening Levels (ESLs) are guidelines used to evaluate the potential risk associated with chemicals found in soil or groundwater where a release of hazardous materials has occurred. Although developed and maintained by the San Francisco Bay Area RWQCB, ESLs are used by regulatory agencies throughout the State. Screening levels have been established for both residential and commercial/industrial land uses, and for construction workers. Residential screening levels are the most restrictive; soil with chemical concentrations below these levels generally would not require remediation and would be suitable for unrestricted uses if disposed of offsite.

Commercial/industrial screening levels are generally less restrictive than residential screening levels because they are based on potential worker exposure to hazardous materials in the soil (and these are generally less than residential exposures). Screening levels for construction workers are also less restrictive than for commercial/industrial workers because construction workers are only exposed to the chemical of concern during the duration of construction, while industrial workers are assumed to be exposed over a working lifetime. Chemical concentrations below these screening levels generally would not require remediation and would be suitable for unrestricted uses. In addition, there are other more specific but similar screening levels used more narrowly focused human health or ecological risk assessment considerations.

3.8.1 Environmental Setting

The 788-acre Specific Plan site that includes the Phase 1 Project site is located in Madera County, in the Central Valley region of California (**Figure 2-1**). The Project area is located approximately one-mile north of the City of Madera, three miles east of Highway 99, and roughly 16 miles south of the City of Chowchilla. Specifically, the Specific Plan area is bound by the Avenue 18 alignment to the north Road 28½ to the east, the alignment of Avenue 17 to the south, Road 27 to the west, and the Burlington Northern Santa Fe (BNSF) railroad line to the southwest (**Figure 2-2**).

The Specific Plan area is relatively flat ranging in elevation from approximately 280 feet NGVD in the northwest corner to approximately 310 feet NGVD at the east end of the Specific Plan area. Currently, the Specific Plan area is used for agricultural production and contains almond and fig orchards, related agricultural support facilities (e.g., equipment storage), wells, and unimproved dirt roadways. Power transmission lines traverse the Project site along the central portion of the site. There are five wells located within the Specific Plan area that draw groundwater from the Madera groundwater basin. Based on data provided by the property owners and engineering estimates, the existing agricultural operations pump approximately 2,800 acre-feet per year (AFY) of groundwater, which is equivalent to nearly 912 million gallons. The Specific Plan area is designated as a New Growth Area (NGA) in the County's General Plan and has a zoning designation of Agricultural Rural Exclusive 40-Acres (ARE-40).

The Phase I/II Environmental Site Assessments were conducted for the entire Project area. Based on the research and testing, the Phase I assessment identified whether any of the following three types of hazardous conditions, defined by ASTM E1527-13, occur on the Project site:

- **Recognized Environmental Conditions (RECs):** The presence or likely presence of any hazardous substances or petroleum products on a property under conditions that indicate an existing release, past release, or a material threat of a release of any hazardous substances or petroleum products into structures on the property or into the ground, groundwater, or surface water of the property. The term is not intended to include *de minimus* conditions that generally do not present a material risk of harm to public health or the environment and that generally would not be the subject of an enforcement action if brought to the attention of appropriate governmental agencies.
- **Controlled Recognized Environmental Conditions (CRECs):** A REC resulting from a past release of hazardous substances or petroleum products that has been addressed to the satisfaction of the applicable regulatory authority (for example, as evidenced by the issuance of a no further action letter or equivalent, or meeting risk-based criteria established by regulatory authority), with hazardous substances or petroleum products allowed to remain in place subject to the implementation of required controls (for example, property use restrictions, activity and use limitations, institutional controls, or engineering controls).
- **Historical Recognized Environmental Conditions (HRECs):** A past release of any substances or petroleum products that has occurred in connection with the property and has been addressed to the satisfaction of the applicable regulatory authority or meeting unrestricted use criteria established by a regulatory authority, without subjecting the property to any required controls (for example, property use restrictions, activities and use limitations, institutional controls, or engineering controls).

Information regarding items of environmental concern are located in **Figures 3.8-1 and 3.8-2**, and are discussed below, as applicable.

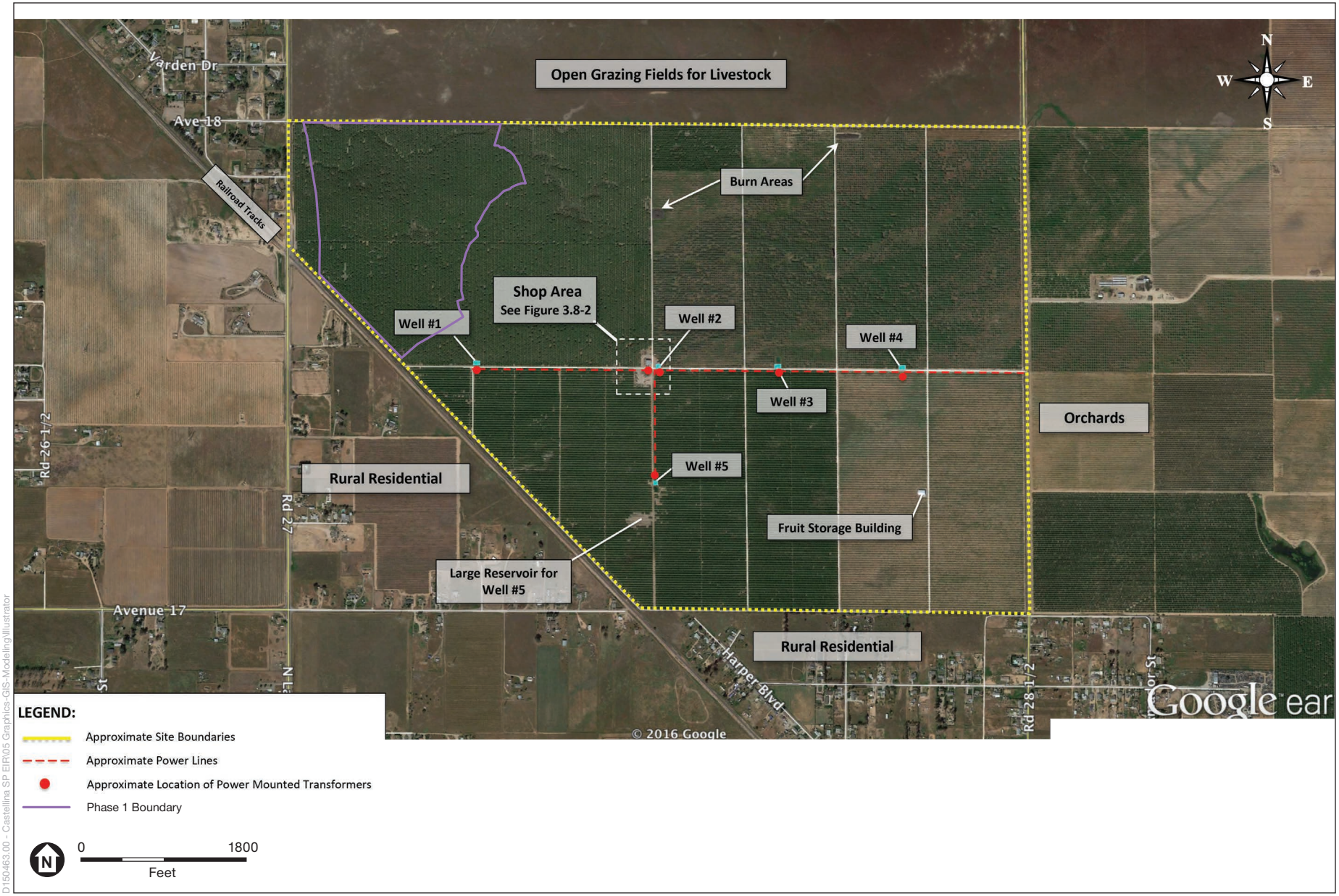
Hazardous Building Materials

Hazardous building materials include but are not limited to asbestos-containing material (ACM), lead-based paint (LBP), and polychlorinated biphenyl (PCB).

Polychlorinated Biphenyls

Typical sources of PCBs include electrical transformer cooling oils, fluorescent light fixture ballasts and hydraulic oil. In 1976, the U.S. EPA banned the manufacture and sale of PCB-containing transformers. Prior to this date, transformers were frequently filled with a dielectric fluid containing PCB-laden oil. By 1985, the US EPA required that commercial property owners with transformers containing more than 500 parts per million (ppm) of PCBs must register the transformer with the local fire department, provide exterior labeling, and remove combustible materials within 16 feet.

Six pole-mounted transformers are located on the Project site (see Figure 3.8-1). One transformer is located at each agricultural well and one at the shop building. No leaking or staining was observed (McCloskey, 2017).



SOURCE: McClosky Consultants, 2016

County of Madera • Castellina Specific Plan • Draft EIR

Figure 3.8-1
Project Site Features and Surrounding Land Uses

ESA

SOURCE: McClosky Consultants, 2016

County of Madera • Castellina Specific Plan • Draft EIR

Figure 3.8-2
Detail of the Shop Area

ESA

Asbestos-Containing Materials and Lead-Based Paint

Asbestos is a naturally-occurring mineral made up of microscopic fibers that has been widely used in the building industry for a variety of uses, including acoustic and thermal insulation and fireproofing. It is often found in ceiling and floor tiles, linoleum, pipes, structural beams and asphalt. However, asbestos can become a hazard when the fibers separate and become airborne. Asbestos has been linked to lung disease cause by inhalation of airborne asbestos fibers. In 1979, a ban on ACMs in building materials was imposed, although it is still possible to detect ACMs in buildings built after 1980.

Lead is a naturally occurring element and heavy metal that was widely used as a major ingredient in most interior and exterior oil-based paints prior to 1950. Lead compounds continued to be used as corrosion inhibitors, pigments, and drying agents from the early 1950s to 1972, when the Consumer Products Safety Commission (CPSC) specified limits on lead content in such products. In 1977, CPSC banned the production of virtually all house paints containing lead and banned its use in commercial buildings in 1978.

An original shop building was constructed onsite in 1978 (Figure 3.8-2). Based on the age of the structures on the Project site, the presence of asbestos-containing building materials and lead-based paint is possible. Soil sampling conducted in the vicinity of the previous shop building did not show significant impact to surrounding soil by flaking lead-based paint (McCloskey, 2017).

Hazardous Materials in Soil and Groundwater

Agricultural Chemicals

Analytical data from the soil samples collected from the cultivated areas, wellheads, and former shop areas in 2007 indicated concentrations of pesticides several orders of magnitude below U.S. EPA Residential Regional Screening Levels (USEPA, 2016) and California Human Health Screening Levels (Cal/EPA, 2005). Lead concentrations were documented below the federal and State regulatory standards and hazardous waste concentrations. Arsenic concentrations were deemed representative of typical background concentrations (McCloskey, 2017).

Petroleum Hydrocarbons

Well Pumps

As described in Chapter 2, Project Description, there are five wells located within the Specific Plan area that draw groundwater from the Madera groundwater basin (see Figure 3.8-1). Aboveground storage tanks (ASTs) were located at each of the agricultural well pumps. Those ASTs were removed and the pumps were converted to electric power. Small drums of motor oil were present at the wellheads. Staining of the concrete slab around the wellhead and pump and on the adjacent soil was observed at Wells #1 and #4.

Shop Building Area

One 2,000-gallon gasoline underground storage tank (UST) and one 5,000-gallon diesel UST and a fuel island were located near the middle of the shop building approximately 11 feet from the eastern wall (SES, 2007). Based on a 1987 aerial photograph of the Project site, the location of the structure appeared to be generally the same as the current location of the shop building but

appeared to be a different structure than the one currently onsite and the previous structure had an adjacent fenced enclosure. The tanks were installed in 1984 and were removed on May 4, 1989 under the oversight of the Madera County Environmental Health Department (MCEHD).

During removal of the USTs, hydrocarbons were observed at the fill end of the tanks (ends closest to the shop building). Following removal of the tanks, verification soil samples were collected from beneath the fill ends of the gasoline and diesel USTs, at 15 and 17 feet, respectively. Analysis of the sample from beneath the diesel UST did not detect the presence of total petroleum hydrocarbons above 10 parts per million (ppm). Analysis of the sample from beneath the gasoline UST detected 22 ppm total volatile hydrocarbons, 0.37 ppm toluene, 0.21 ppm ethylbenzene, and 2.6 ppm xylenes; benzene was not detected above 0.02 ppm (SES, 2007).

Soil from the top, bottom, and sidewalls of the UST excavation was removed and spread on the dirt roads in the fig orchards for aeration. Analytical data for two additional soil samples appearing to be post-aeration samples from the excavated soil, dated September 1989, indicated that residual contaminant concentrations were limited to 14 ppm total petroleum hydrocarbons and 0.17 ppm toluene. A MCEHD document dated October 2, 1989 stated that aerated soil was clean and the file was closed. It is unclear if the aerated soil was replaced into the excavation or disposed offsite. No details on compaction of the fill placed into the excavation were available (SES, 2007).

Additionally, two 10,000-gallon diesel ASTs were observed east of the shop building. and minor staining was observed around spouts/hand pumps for the tanks (see Figure 3.8-2).

Three “lube cube” virgin oil ASTs, one 55-gallon drum of virgin oil, and several 5-gallon buckets and other assorted containers of oil and other miscellaneous equipment maintenance materials were stored within the shop building. Stained concrete was observed in the vicinity of the oil drums, but the underlying soil is protected by the concrete slab.

A hazardous materials storage area was present outside the northwestern corner of the shop building. Eleven 55-gallon drums were stored on soil and one 1,000-gallon waste oil AST was stored on a concrete pad in this area. Stained soil was observed in the drum storage area (see Figure 3.8-2).

Evaluation of soil quality from areas around the well pumps and shop areas where staining was observed documented hydrocarbon impact to soil that was limited to the near-surface areas. The analytical data indicates that releases were not large in nature (SES 2007).

No documentation of removal and/or the performance of verification sampling was found during the 2017 study (McCloskey, 2017).

Groundwater

Groundwater samples were collected from three of the agricultural wells on the Project site and analyzed for contaminants; however, not all current Title 22 compounds were tested during the 2007 study (McCloskey, 2017). Analytical data reportedly did not detect any contaminants at

concentrations exceeding drinking water standards in place at the time. Motor oil was detected in the water sample collected from Well #3 but at a low concentration likely attributable to the oil-lubricated pump, and will degrade by natural processes.

Schools

Additionally, no schools are within one-quarter mile of the Project site. The closest school to the Specific Plan Program area is Berenda Elementary School, located approximately 0.82-mile north of the Project site. The John J. Pershing elementary school is located approximately 0.6-mile south of the Project site, the closest middle school is Jack G. Desmond Middle School, located approximately 1 mile southwest of the Project site, and the closest high schools are located approximately 1.70 miles from the Project site, Mountain Vista High School is south of the Project, while Sherman Thomas Charter High School is southwest.

Hazardous Materials Site Pursuant to Government Code Section 65962.5

The Project site was listed as "Circle K Ranch" on the Leaking Underground Fuel Tank (LUFT) and Cortese databases (SES, 2007). The LUFT database indicates that the case (Case # 5T20000083) was for a release of diesel to soil only due to overfill of an underground storage tank (UST) historically onsite. The release was detected during UST closure activities when soil on top and sides of the UST excavation was reported to be affected. Affected soil was removed from the sidewalls, top, and bottom of the excavation and spread for aeration. Soils samples collected from the base of the excavation reportedly had minimal concentrations of hydrocarbon contamination (SES, 2007).

A review of the Department of Toxic Substances Control's Envirostor database and State Water Resources Control Board's GeoTracker database revealed that the Project site is not listed as a cleanup site.

As of the date of this Draft EIR, the Project site is not listed as a hazardous materials site pursuant to Government Code Section 65962.5.

Wildland Fire Hazards

California Department of Forestry and Fire Protection (Cal Fire) provides maps of the State Responsibility Area (SRA) Fire Hazard Severity Zones (FHSZs), or areas of significant fire hazard, based on fuels, terrain, weather, and the likelihood of buildings igniting. Cal Fire Zones are designated with Very High, High, Moderate, and Other which includes Non-Wildland/Urban and Urban Unzoned hazard classes. The goal of this mapping effort is to create more accurate fire hazard zone designations such that mitigation strategies are implemented in areas where hazards warrant these investments. The fire hazard zones will provide specific designation for application of defensible space and building standards consistent with known mechanisms of fire risk to people, property, and natural resources.

The Project site is not located within or near an area designated as a state responsibility area (CAL FIRE, 2007a) nor is it classified as a very high fire hazard severity zone or located near a very high fire hazard severity zone (VHFHSZ) (CAL FIRE, 2007b). The Project site is mapped as

being within an unincorporated Local Responsibility Area (LRA) designated as unzoned per Cal Fire - Fire Hazard Severity Zone Maps prepared under the Fire and Resource Assessment Program (FRAP) (Cal Fire, 2007a/2007b). There are LRA Moderate zones surrounding the north and west boundary of the Project. The nearest LRA Moderate zones are located north of the Project site right along the Avenue 18, west of the Project right along Road 27, and along the southwest boundary of the Project site.

The closest SRA designated as VHFHSZ is located in Coarsegold, approximately 25 miles northeast of the Project site. The closest SRA High FHSZ is located by Hensley Lake, approximately 11 miles northeast of the Project site. The closest SRA FHSZ is approximately 5 miles north of the Project site and is designated as SRA Moderate FHSZ.

A Wildland-Urban Interface (WUI) Area is defined in Section 702A of the California Building Code (CBC) as a geographical area identified by the State of California as a FHSZ in accordance with Public Resources Code Sections 4201 through 4204 and Government Code Sections 51175 through 51189, or other areas designated by the enforcing agency to be at a significant risk from wildfires. The Project site is not within a WUI.

3.8.2 Regulatory Framework

The use, storage, and disposal of hazardous materials are subject to federal, State, and local regulations as further discussed below.

Federal

Federal agencies with responsibility for hazardous materials management include the United States Environmental Protection Agency (USEPA), Department of Labor (Federal Occupational Health and Safety Administration [OSHA]), and Department of Transportation (US DOT). Major federal laws and issue areas include the following statutes and regulations:

Resources Conservation and Recovery Act (42 USC 6901 et seq.)

Resources Conservation and Recovery Act (RCRA) is the principal law governing the management and disposal of hazardous materials. RCRA is considered a “cradle- to- grave” statute for hazardous wastes in that it addresses all aspects of hazardous materials from creation to disposal. RCRA applies to this Project because RCRA is used to define hazardous wastes and offsite disposal facilities.

Emergency Planning and Community Right-to-Know Act (EPCRA from SARA Title III)

In 1986, Congress adopted the Emergency Planning and Community Right-to-Know Act (42 United States Code [U.S.C.] Sections 11001–11050) as Title III of the federal Superfund Amendments and Reauthorization Act. EPCRA improved community access to information regarding chemical hazards and facilitated the development of business chemical inventories and emergency response plans. EPCRA also established reporting obligations for facilities that store or manage specified chemicals. EPCRA applies to this Project because the use of hazardous materials during Project construction and/or operation (e.g., fuels, paints and thinners, solvents,

etc.) would require the preparation and implementation of written emergency response plans to properly manage hazardous materials and respond to accidental spills.

US DOT Hazardous Materials Transportation Act of 1975 (49 USC 5101)

US DOT, in conjunction with the USEPA, is responsible for enforcement and implementation of federal laws and regulations pertaining to safe storage and transportation of hazardous materials. The Code of Federal Regulations (CFR) 49, 171–180, regulates the transportation of hazardous materials, types of material defined as hazardous, and the marking of vehicles transporting hazardous materials. This Hazardous Materials Transportation Act applies to this Project because contractors and commercial tenants would be required to comply with its storage and transportation requirements to reduce the possibility of spills during Project construction and/or operation.

Occupational Safety and Health Act

OSHA is the federal agency responsible for ensuring worker safety. These OSHA regulations provide standards for safe workplaces and work practices, including those relating to hazardous materials handling and reporting of accidents and occupational injuries (29 CFR 1910). OSHA applies to this Project because contractors would be required to comply with its hazardous materials management and handling requirements that would reduce the possibility of spills.

Toxic Substances Control Act

The Toxic Substances Control Act regulates the use and management of polychlorinated biphenyls in electrical equipment, and sets forth detailed safeguards to be followed during the disposal of such items.

State and local agencies often have either parallel or more stringent rules than federal agencies. In most cases, state law mirrors or overlaps federal law and enforcement of these laws is the responsibility of the state or of a local agency to which enforcement powers are delegated. For these reasons, the requirements of the law and its enforcement are discussed under either the State or local agency section.

State

The primary State agencies with jurisdiction over hazardous chemical materials management are the California Department of Toxic Substances Control (DTSC), State Water Quality Control Board (SWQCB), and Central Valley Regional Water Quality Control Board (CVRWQCB).

Other State agencies involved in hazardous materials management are the Department of Industrial Relations (State OSHA implementation), Office of Emergency Services (OES) – California Accidental Release Prevention (CalARP), California Air Resources Board (CARB), California Department of Transportation (Caltrans), Office of Environmental Health Hazard Assessment (OEHHA – Proposition 65 implementation), and the California Integrated Waste Management Board (CIWMB). Hazardous materials management laws in California include the following statutes and regulations:

Hazardous Waste Control Law (HWCL; California Health and Safety Code [HSC], Section 25100 et seq.)

The HWCL is the State equivalent of RCRA and regulates the generation, treatment, storage, and disposal of hazardous waste. This act implements the RCRA "cradle-to-grave" waste management system in California but is more stringent in its regulation of non-RCRA wastes, spent lubricating oil, small-quantity generators, transportation and permitting requirements, as well as in its penalties for violations. HWCL applies to this Project because contractors will be required to comply with its hazardous waste requirements that would reduce the possibility of spills.

Hazardous Materials Release Response Plans and Inventory Law of 1985 (Business Plan Act)

The California Hazardous Materials Release Response Plan and Inventory Law of 1985 (Business Plan Act) requires the preparation of Hazardous Materials Business Plans (HMBPs) and disclosure of hazardous materials inventories, including an inventory of hazardous materials handled, plans showing where hazardous materials are stored, an emergency response plan, and provisions for employee training in safety and emergency response procedures (California HSC, Division 20, Chapter 6.95, Article 1). Statewide, DTSC has primary regulatory responsibility for management of hazardous materials, with delegation of authority to local jurisdictions that enter into agreements with the state. Local agencies are responsible for administering these regulations. Businesses that would be required to prepare a HMBP would submit it to the local Certified Unified Program Agency, which in this case is the Madera County Environmental Health Division.

California Hazardous Waste Control Act

Under the California Hazardous Waste Control Act, California Health and Safety Code, Division 20, Chapter 6.5, Article 2, Section 25100, et seq., DTSC regulates the generation, transportation, treatment, storage, and disposal of hazardous waste in California. The hazardous waste regulations establish criteria for identifying, packaging, and labeling hazardous wastes; dictate the management of hazardous waste; establish permit requirements for hazardous waste treatment, storage, disposal, and transportation; and identify hazardous wastes that cannot be disposed of in landfills. DTSC is also the administering agency for the California Hazardous Substance Account Act. California Health and Safety Code, Division 20, Chapter 6.8, Sections 25300 et seq., also known as the State Superfund law, providing for the investigation and remediation of hazardous substances pursuant to State law.

Utility Notification Requirements

Title 8, Section 1541 of the CCR requires excavators to determine the approximate locations of subsurface utility installations (e.g., sewer, telephone, fuel, electric, water lines, or any other subsurface installations that may reasonably be encountered during excavation work) prior to opening an excavation. The California Government Code (Section 4216 et seq.) requires owners and operators of underground utilities to become members of and participate in a regional notification center. According to Section 4216.1, operators of subsurface installations who are members of, participate in, and share in the costs of a regional notification center are in compliance with this section of the code. Underground Services Alert of Southern California (known as DigAlert) receives planned excavation reports from public and private excavators and transmits

those reports to all participating members of DigAlert that may have underground facilities at the location of excavation. Members would mark or stake their facilities, provide information, or give clearance to dig (DigAlert, 2017). This requirement would apply to this Project because any excavation would be required to identify underground utilities before excavation.

Senate Bill 1082

In 1993, the State Legislature passed Senate Bill (SB) 1082 to streamline the permitting process for those businesses that use, store, or manufacture hazardous materials. The passage of SB 1082 provided for the designation of a CUPA that would be responsible for the permitting process and collection of fees. The CUPA is responsible for implementing at the local level the Unified Program, which serves to consolidate, coordinate, and make consistent the administrative requirements, permits, inspections, and enforcement activities for the following environmental and emergency management programs:

- Hazardous Waste;
- Hazardous Materials Business Plan;
- California Accidental Release Prevention Program;
- Underground Hazardous Materials Storage Tanks;
- Aboveground Petroleum Storage Tanks/Spill Prevention Control and Countermeasure Plans; and
- Hazardous Waste Generator and Onsite Hazardous Waste Treatment (tiered permitting) Programs.

The Madera County Environmental Health Division is the designated CUPA responsible for implementing the above-listed program elements. The laws and regulations that established these programs require businesses that use or store certain quantities of hazardous materials to submit a Hazardous Materials Inventory and Business Emergency Response Plan that describes the hazardous materials usage, storage, and disposal to the local oversight agency (CUPA).

Asbestos-Containing Materials

Prior to renovation or demolition of buildings containing asbestos, contractors licensed to conduct asbestos abatement work must be retained. Asbestos abatement contractors must follow state regulations where there is asbestos-related work involving 100 square feet or more of asbestos containing material. The San Joaquin Valley Air Pollution Control District (SJVAPCD) and the California Occupational Safety and Health Administration (Cal/OSHA) must be notified 10 days prior to initiating construction and demolition activities. Asbestos encountered during demolition of an existing building must be transported and disposed of at an appropriate facility. The contractor and hauler of the material are required to file a Hazardous Waste Manifest that details the hauling of the material from the site and its disposal. Section 19827.5 of the California HSC, adopted January 1, 1991, requires that local agencies not issue demolition or alteration permits until an applicant has demonstrated compliance with notification requirements under applicable federal regulations regarding hazardous air pollutants, including asbestos.

San Joaquin Valley Air Pollution Control District Rule 4002

SJVAPCD Rule 4002 adopts the National Emissions Standards for Hazardous Air Pollutants, an EPA regulation on asbestos. Rule 4002 regulates asbestos as a toxic material and controls the emissions of asbestos from demolition and renovation activities by specifying agency notifications, appropriate removal procedures, and handling and clean up procedures. Rule 4002 applies to owners and operators involved in the demolition or renovation of structures with asbestos-containing materials, asbestos storage facilities, and waste disposal sites.

Lead and Lead-Based Paints

Regulations to manage and control exposure to lead-based paints (LBP) are described in CFR Title 29, Section 1926.62 and CCR Title 8 Section 1532.1. These regulations cover the demolition, removal, cleanup, transportation, storage and disposal of lead-containing material. The regulations outline the permissible exposure limit, protective measures, monitoring, and compliance to ensure the safety of construction workers exposed to lead-based materials. Cal/OSHA's Lead in Construction Standard requires Project proponents to develop and implement a lead compliance plan when LBP would be disturbed during construction. The plan must describe activities that could emit lead, methods for complying with the standard, safe work practices, and a plan to protect workers from exposure to lead during construction activities. Cal/OSHA requires 24-hour notification if more than 100 square feet of LBP would be disturbed. The regulations to manage and control exposure to LBP pertain to Project construction and include the potential demolition and disposal of lead-containing materials.

The State of California (Title 8 Section 1532. Lead) requires that if LBP with a lead concentration over 600 parts per million (ppm) is to be disturbed, then the individuals performing the work shall have proper lead training and wear personal protective equipment.

California Office of Emergency Services

In order to protect the public health and safety and the environment, the California Office of Emergency Services is responsible for establishing and managing statewide standards for business and area plans relating to the handling and release or threatened release of hazardous materials. Basic information on hazardous materials handled, used, stored, or disposed of (including location, type, quantity, and the health risks) needs to be available to firefighters, public safety officers. Regulatory agencies are included in business plans to prevent or mitigate damage to the health and safety of persons and the environment from the release or threatened release of these materials into the workplace and environment. These regulations are covered under Chapter 6.95 of the California Health and Safety Code Article 1–Hazardous Materials Release Response and Inventory Program (Sections 25500 to 25520) and Article 2–Hazardous Materials Management (Sections 25531 to 25543.3).

Local

Certified Unified Program Agency (CUPA)

The CUPA works to ensure that all businesses in Madera County handle store and dispose of hazardous materials and hazardous wastes in compliance with applicable laws and regulations in

order to protect the health and environment of the citizens of Madera County. The CUPA would be responsible for implementing at the local level the Unified Program, which serves to consolidate, coordinate, and make consistent the administrative requirements, permits, inspections, and enforcement activities. In Madera County, the program consists of:

- Aboveground Petroleum Storage Act;
- Underground Storage Tanks;
- Hazardous Materials Business Plans;
- Hazardous Waste Generator;
- On Site Hazardous Waste Treatment;
- California Accidental Release Program (CalARP);
- Inspections, Permitting and Enforcement;
- Investigation of Complaints regarding Hazardous Materials or Waste;
- Proposition 65 Reporting; and
- Emergency Response.

Businesses must submit this information electronically to the statewide information management system (California Environmental Reporting System, or CERS). For help in doing this, businesses should contact their local implementing agency (Certified Unified Program Agency or CUPA). Once the submittal has been made, the CUPA will verify the information and provide it to agencies responsible for the protection of public health and safety and the environment. These agencies include:

- Fire Departments
- Hazardous Materials Response Teams
- Local Environmental Regulatory Groups (i.e. Tahoe Regional Planning Agency)

In Madera County, The Environmental Health Division is designated as the Certified Unified Program Agency (CUPA).

Hazardous Materials Business Plans/Response Plans

The Madera County Environmental Health Department's Division's Hazardous Materials Business Program seeks to ensure that accurate information is available so that communities may be informed regarding the hazardous materials that are handled and/or stored at a business. Each business that handles 55 gallons or more of a liquid, 500 pounds or more of a solid, or 200 cubic feet or more of a compressed gas, or any quantity of an Acutely Hazardous Material (AHM) must establish a business plan for emergency response to a release or threatened release of a hazardous material. The CUPA provides this information to emergency rescue personnel. The program consists of:

- Permitting, Inspection and Enforcement, and
- Madera County Hazardous Materials Response Plan

Madera County Hazardous Waste Management Plan

In accordance with the Health and Safety Code Section 24135 et seq., Madera County has prepared a Hazardous Waste Management Plan for the management of hazardous waste generated in the County. The County's Hazardous Waste Management Plan identifies hazardous waste generators within the county, amounts and types of waste produced, and projected waste generation. In addition, the plan identifies the need for and potential future locations of treatment, storage, and disposal (TSD) facilities, and includes policies and potential impacts for the management of hazardous waste within the County. The major goal of the Hazardous Waste Management Plan is to reduce the need for new hazardous waste facilities by reducing waste at its source, through recycling, reduced use of hazardous materials, and public education.

Madera County General Plan

The Madera County General Plan contains goals and policies that relate to hazards and hazardous materials that have potential relevance to the Project CEQA review, as listed below (In addition, General Plan Section 6, Health and Safety, contains policies pertaining to hazards associated with seismic and geologic hazards and policies pertaining to flood hazards; these are listed in the Geology and Soils section and Hydrology and Water Quality section of this Draft EIR, respectively.

Policy 1.E.1: The County shall promote new industrial development that has the following characteristics: c. Sufficient buffering from residential areas to avoid impacts associated with noise, odors, and the potential release of hazardous materials.

Policy 5.J.6: The County shall encourage project proponents to consult early in the planning process with the County regarding the applicability of countywide indirect and area wide source programs and transportation control measures (TCM) programs. Project review shall also address energy-efficient building and site designs and proper storage, use, and disposal of hazardous materials.

Goal 6.C: To minimize the risk of loss of life, injury, and damage to property and watershed resources resulting from unwanted fires.

Goal 6.E: To ensure the maintenance of an emergency management program to effectively prepare for, respond to, recover from, and mitigate the effects of natural or technological disasters.

Goal 6.G: To minimize the risk of loss of life, injury, serious illness, damage to property, and economic and social dislocations resulting from the use, transport, treatment, and disposal of hazardous materials and hazardous materials wastes.

Policy 6.G.4: The County shall review all proposed development projects that manufacture, use, or transport hazardous materials for compliance with the County’s Hazardous Waste Management Plan (CHWMP).

Policy 6.G.5: The County shall strictly regulate the storage of hazardous materials and wastes.

Policy 6.G.6: The County shall ensure that industrial facilities are constructed and operated in accordance with current safety and environmental protection standards.

Policy 6.G.7: The County shall require that applications for discretionary development project that will generate hazardous wastes or utilize hazardous materials include detailed information on hazardous waste reduction, recycling, and storage.

Policy 6.G.8: The County shall require that any business that handles a hazardous material prepare a plan for emergency response to a release or threatened release of a hazardous material.

Madera County Office of Emergency Services

The Madera County Office of Emergency Services (OES), which operates as a function of the Madera County Sheriff Department, coordinates emergency evacuation routes and programs for residents and businesses in the County. The OES coordinates evacuation during major disasters, which may result from hazardous materials release.

Madera County Fire Code

According to the Madera County Municipal Code, Madera County has adopted the California Fire Code (CFC) and National Fire Protection Association Code (NFPA Code) which is enforced by the fire chief, who may detail such members of the fire department to enforce the requirements from time to time be necessary. The 2016 California Fire Code defines hazardous materials as those chemicals which are physical hazards or health hazards as defined in Chapter 2 of the CFC, whether the materials are in usable or waste condition. Chapter 50, Hazardous Materials – General Provisions, applies to all hazardous materials. The Madera County Department of Environmental Health regulates and monitors the generation, handling, and disposal of hazardous wastes. It provides permitting, inspection and enforcement of various regulations related to the identification, removal, and disposition of hazardous materials or facilities that may be located on the Project site.

Fire Marshal's Office

The Madera County Fire Marshal's Office (Department of Fire Prevention for Development) provides plan review and inspection services to all unincorporated areas of Madera County in order to implement the fire and life safety regulations and building standards established and adopted by the State Fire Marshal and County Board of Supervisors. The Fire Marshal's Office also performs fire and life safety clearance inspections in State Licensed facilities and is charged with annual inspections of various facilities, including those using or storing acutely hazardous materials.

The Fire Marshal also serves as the appointed "County Fire Warden" and is responsible for ensuring that the regulations stipulated in the California Public Resources Code 4290 are applied to new development and structures in the State Responsibility Areas of Madera County. The department is established within the Resource Management Agency and consists of the four full-

time positions; the Fire Marshal (Department Director), two Fire Prevention Officers (non-sworn), and one clerical position.

3.8.3 Impacts and Mitigation Measures

Significance Criteria

The criteria used to determine the significance of impacts related to hazards and hazardous materials are based on Appendix G of the CEQA Guidelines. The proposed Project would result in a significant impact with respect to hazards or hazardous materials if the proposed Project would:

- Create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials (see Impact 3.8-1, below).
- Create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment (see Impact 3.8-2, below).
- Emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school (see Impact 3.8-3, below).
- Be located on a site which is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5 and, as a result, would it create a significant hazard to the public or the environment (see Impact 3.8-4, below).
- For a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project result in a safety hazard or excessive noise for people residing or working in the project area (see Section 4.1.4 in Chapter 4.0, Other CEQA Considerations).
- Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan (see Impact 3.8-5, below).
- Expose people or structures, either directly or indirectly, to a significant risk of loss, injury or death involving wildland fires (see Impact 3.8-6, below).

Methodology

The analyses are based largely on information provided in the Phase I and Phase II Environmental Site Assessments and Phase I Environmental Site Assessment (SES 2007a and 2007b) which are included in Appendix H-1 and Appendix H-2 of this Draft EIR. This analysis also relies on a recent assessment, the 2017 Phase I Environmental Site Assessment (McCloskey Consultants, Inc., 2017) which is also provided in Appendix H-3.

The Phase I ESA identified the presence of hazardous materials occurring on the Project site, the potential hazards posed by such materials, and recommendations for addressing identified potential hazards.

The Phase I ESA was prepared to American Society for Testing and Materials (ASTM) E 1527-13 requirements for assessing the presence or potential presence of above-ground and subsurface hazardous materials at the Project site, as well with the requirements of 40 CFR, Part 312, Standards and Practices for *All Appropriate Inquiry*.

Various tasks were performed for the Phase I ESA. These tasks included: a review of title information pertaining to the Project site; review and summary of prior environmental documents pertaining to the Project site; an evaluation of standard environmental record sources contained within federal, State and local environmental databases within specific search distances; an evaluation of additional environmental record sources obtained from local regulatory departments/agencies; a qualitative evaluation of the physical characteristics of the Project site through a review of published topographic, geologic, and hydrogeologic maps, published groundwater data, and area observations to characterize surface water flow conditions; an evaluation of past site and adjacent/nearby property uses through a review of historical resources; a physical inspection of the Project site (interior and exterior) conducted to search for conditions indicative of potential environmental concerns (e.g., USTs, ASTs, associated tank piping, stained soil or pavement, equipment that may contain or have historically contained PCBs, etc.); a physical assessment of indications of past uses and visual observations of adjacent surrounding properties to assess potential impacts to the Project site; interviews with the client, a site owner representative, and local regulatory official; and preparation of the Phase I ESA.

Based on the aforementioned research, testing and monitoring, the Phase I ESA identified whether any of the following three types of hazardous conditions, defined by ASTM E 1527-13, occur on the Project site. These three types are discussed above.

- Recognized Environmental Conditions (RECs)
- Controlled Recognized Environmental Conditions (CRECs)
- Historical Recognized Environmental Conditions (HRECs)

The Phase I ESA identified RECs on the Project site in connection with current and previous site uses. The Phase I ESA did not identify any existing off-site sources of releases that would be likely to contribute to a vapor encroachment condition for Project site soils or groundwater.

Impacts Discussion

Routine Use

Impact 3.8-1a: The Phase 1 Project would result in less than significant and less than cumulatively considerable hazards to the public or the environment through the routine transport, use, or disposal of hazardous materials.

Phase 1 Project Impact Analysis

Construction

Construction activities required for the Phase 1 Project would involve trenching, excavation, grading, and other ground-disturbing activities, as well as the removal of the onsite hazardous materials and soils. The construction activities would temporarily require the use of equipment, such as trucks, excavators, and other powered equipment, and would use potentially hazardous materials, such as fuels (gasoline and diesel) and lubricants (oil and greases). In addition, construction may use hazardous materials, such as glues, solvents, paints, thinners, or other chemicals. Such materials would be used only in quantities typically associated with the

construction of a residential development and would be transported, handled, stored, and disposed of in accordance with applicable laws and regulations and manufacturers' instructions.

Regulations establish specific guidelines regarding risk planning and accident prevention, protection from exposure to specific chemicals, and the proper storage of hazardous materials. The Phase 1 Project would be in compliance with applicable federal, State, and local requirements concerning the use, storage, transport and management of hazardous materials. Compliance with regulations, including the HWCA, USDOT's Hazardous Materials Transportation Act of 1975, and other regulations regarding the transportation, use, and disposal of hazardous materials, would reduce the potential risk hazards associated with construction activities. Accordingly, the Phase 1 Project would not increase the probable frequency or severity of consequences to people or property from the potential exposure to hazardous substances. Therefore, compliance with the applicable regulations would ensure that construction of the Phase 1 Project would not create a significant hazard to the public or the environment through the routine transport, use or disposal of hazardous materials. As such, impacts would be less than significant.

Operation

Operation of the Phase 1 Project would consist of residential and open space uses. The Phase 1 Project would include the WWTP. No hazardous materials would be used during operation of the residential and open space uses other than typical housekeeping, vehicle, pool, and landscape maintenance materials, such as cleaning supplies, paints, oil, grease, pesticides, herbicides, water disinfectants, and fertilizers. The use of these materials would be in small quantities and in accordance with the manufacturers' instructions for transport, use, storage, and disposal. Compliance with these standard practices would avoid substantial exposure hazards. There would be low frequency and minimal severity of consequences on people or property from exposure to the limited and commonplace materials used during the operation of the Phase 1 Project.

Operation of the proposed WWTP would require routine transport, storage, use, and disposal of hazardous materials for purposes of treatment of wastewater and solids (e.g., chlorine, sodium hypochlorite, hydrogen peroxide). The use of hazardous materials and substances during operation would be subject to the existing and future federal, State, and local health and safety requirements for the handling, storage, transportation, and disposal of hazardous materials, summarized in the Regulatory Framework above. Further, implementation of the Project would ensure that chemicals are properly stored and handled to minimize spills and protect the environment and public health. A HMBP must be prepared for the Phase 1 Project as required by the MCEHD. The HMBP is intended to minimize hazards to human health and the environment from fires, explosions, or an unplanned release of hazardous substances into air, soil, or surface water. Compliance with all applicable laws, and regulations would minimize the potential impacts to the public or environment due to routine transport, storage, and use of hazardous materials. Impacts would be less than significant.

Significance Determination before Mitigation: Less than Significant

Phase 1 Project Cumulative Impact Analysis

The scope of analysis for cumulative hazardous materials impacts encompasses and is limited to the Phase I Project site and its immediately adjacent area. This is because impacts relative to hazardous materials are generally site-specific and depend on the nature and extent of the hazardous materials release, and existing and future soil and groundwater conditions. For example, hazardous materials incidents tend to be limited to a smaller more localized area surrounding the immediate spill location and extent of the release, and could only be cumulative if two or more hazardous materials releases spatially overlapped.

The Phase 1 Project site is located in a mostly rural agricultural area. As the area continues to develop, the addition of more development could create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials; therefore, cumulative development could result in potentially significant impacts regarding hazardous materials. However, similar to the Phase 1 Project, all cumulative development would be subject to federal, State, and local regulations related to the routine transportation, use, storage, and disposal of hazardous materials. Compliance with all hazardous waste regulations reduce the potential for impacts from cumulative projects to be less than significant. Because the Phase 1 Project would be subject to the federal, State, and local regulations related to the routine transportation, use, storage, and disposal of hazardous materials as discussed above, the Phase 1 Project's contribution to cumulative hazardous materials impacts would be less than cumulatively considerable.

Significance Determination before Mitigation: Less than Significant

Phase 1 Project Mitigation Measures

No mitigation measures are required.

***Significance Determination after Mitigation*:** Less than Significant

Phase 1 Project Cumulative Measures

No mitigation measures are required.

Significance Determination after Mitigation: Less than Significant

Impact 3.8-1b: The proposed Program would result in less than significant and less than cumulatively considerable hazards to the public or the environment through the routine transport, use, or disposal of hazardous materials.

Program Impact Analysis

Construction

Construction activities required for the proposed Program would involve trenching, excavation, grading, and other ground-disturbing activities, as well as the removal of the onsite hazardous materials and soils. The construction activities would temporarily require the use of equipment, such as trucks, excavators, and other powered equipment, and would use potentially hazardous materials, such as fuels (gasoline and diesel) and lubricants (oil and greases). In addition, construction may use hazardous materials, such as glues, solvents, paints, thinners, or other chemicals. Such materials would be used only in quantities typically associated with the

construction of a residential development and would be transported, handled, stored, and disposed of in accordance with applicable laws and regulations and manufacturers' instructions.

Regulations establish specific guidelines regarding risk planning and accident prevention, protection from exposure to specific chemicals, and the proper storage of hazardous materials. The Specific Plan Program would be in compliance with applicable federal, State, and local requirements concerning the use, storage, transport and management of hazardous materials. Compliance with regulations, including the HWCA, USDOT's Hazardous Materials Transportation Act of 1975, and other regulations regarding the transportation, use, and disposal of hazardous materials, would reduce the potential risk hazards associated with construction activities. Accordingly, the proposed Program would not increase the probable frequency or severity of consequences to people or property from the potential exposure to hazardous substances. Therefore, compliance with the applicable regulations would ensure that construction of the proposed Program would not create a significant hazard to the public or the environment through the routine transport, use or disposal of hazardous materials. As such, impacts would be less than significant.

Operation

Operation of the proposed Program would consist of residential, commercial, recreational, educational, and open space uses. No hazardous materials would be used during operation of the residential, commercial, recreation, and educational uses other than typical housekeeping, restaurant, vehicle, pool, and landscape maintenance materials, such as cleaning supplies, paints, oil, grease, pesticides, herbicides, water disinfectants, and fertilizers. The use of these materials would be in small quantities and in accordance with the manufacturers' instructions for transport, use, storage, and disposal. Compliance with these standard practices would avoid substantial exposure hazards. There would be low frequency and minimal severity of consequences on people or property from exposure to the limited and commonplace materials used to operate the Project. Compliance with all applicable laws, and regulations would minimize the potential impacts to the public or environment due to routine transport, storage, and use of hazardous materials. Impacts would be less than significant.

Significance Determination before Mitigation: Less than Significant

Program Cumulative Impact Analysis

The Program vicinity is largely urbanized with residential, commercial, agricultural, and industrial uses. Cumulative growth and development as a result of growth could create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials; therefore, cumulative development could result in potentially significant impacts regarding hazardous materials. However, similar to the proposed Program, all cumulative development would be subject to federal, State, and local regulations related to the routine transportation, use, storage, and disposal of hazardous materials. Compliance with all hazardous waste regulations reduce the potential for impacts to occur to less than significant. Because the proposed Program would be subject to the federal, State, and local regulations related to the routine transportation, use, storage, and disposal of hazardous materials as discussed above, the

proposed Program's contribution to cumulative hazardous materials impacts would be less than cumulatively considerable.

Significance Determination before Mitigation: Less than Significant

Program Mitigation Measures

No mitigation measures are required.

Significance Determination after Mitigation: Less than Significant

Program Cumulative Measures

No mitigation measures are required.

Significance Determination after Mitigation: Less than Significant

Accident Conditions

Impact 3.8-2a: The Phase 1 Project could have significant cumulatively considerable hazards to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment.

Phase 1 Project Impact Analysis

Construction

Construction activities required for the Phase 1 Project would involve trenching, excavation, grading, and other ground-disturbing activities. The construction activities would temporarily require the use of equipment, such as trucks, excavators, and other powered equipment, and would use potentially hazardous materials, such as fuels (gasoline and diesel) and lubricants (oil and greases). In addition, construction may use hazardous materials, such as glues, solvents, paints, thinners, or other chemicals. Such materials would be used only in for specific construction equipment and building materials and would be transported, handled, stored, and disposed of in accordance with applicable laws and regulations and manufacturers' instructions.

Regulations establish specific guidelines regarding risk planning and accident prevention, protection from exposure to specific chemicals, and the proper storage of hazardous materials. The Phase 1 Project would be in compliance with applicable federal, State, and local requirements concerning the use, storage, transport and management of hazardous materials. Compliance with regulations, including the HWCA, USDOT's Hazardous Materials Transportation Act of 1975, and other regulations regarding the transportation, use, and disposal of hazardous materials, would reduce the potential risk hazards associated with construction activities. Accordingly, the Phase 1 Project would not increase the probably frequency or severity of consequences to people or property from the potential exposure to hazardous substances.

Contaminated soils are not known to be within the Phase 1 Project site and are not expected to be encountered during construction. However, it is possible that previously unknown contamination could be encountered during construction. In the absence of proper handling procedures, soil excavations at the proposed onsite areas and offsite improvement areas could expose workers to

elevated concentrations of hazardous materials (that were previously unknown) during Phase 1 Project construction. These unforeseen impacts could be potentially significant.

Operation

Operation of the Phase 1 Project would consist of residential and open space uses. The Phase 1 Project would also include the WWTP. No hazardous materials would be used during operation of the residential and open space uses other than typical housekeeping, vehicle, pool, and landscape maintenance materials, such as cleaning supplies, paints, oil, grease, pesticides, herbicides, water disinfectants, and fertilizers. The use of these materials would be in small quantities and in accordance with the manufacturers' instructions for transport, use, storage, and disposal. Compliance with these standard practices would avoid substantial exposure hazards. There would be low frequency and minimal severity of consequences on people or property from exposure to the limited and commonplace materials used to operate the Phase 1 Project.

Operation of the proposed WWTP would require routine transport, storage, use, and disposal of hazardous materials for purposes of treatment of wastewater and solids (e.g., chlorine, sodium hypochlorite, hydrogen peroxide). The use of hazardous materials and substances during operation would be subject to the existing and future federal, State, and local health and safety requirements for the handling, storage, transportation, and disposal of hazardous materials, summarized in the Regulatory Framework above. Further, implementation of the Phase1 Project would ensure that chemicals are properly stored and handled to minimize spills and protect the environment and public health. A HMBP must be prepared for the proposed WWTP prior to the start of operations as required by the Madera County Environmental Health Division, the local CUPA. The HMBP is intended to minimize hazards to human health and the environment from fires, explosions, or an unplanned release of hazardous substances into air, soil, or surface water. HMBPs are required to include spill response procedures to respond to accidental spills. In addition, the use of these materials would be in accordance with the manufacturers' instructions for transport, use, storage, and disposal of such products. The California Fire Code would also require measures for the safe storage and handling of hazardous materials.

Transportation and disposal of wastes, such as spent cleaning solutions, would also be subject to regulations for the safe handling, transportation, and disposal that would include appropriate containerization and labeling, transportation by licensed hazardous materials haulers, and disposal at licensed facilities permitted to accept the waste.

The required compliance with the numerous laws and regulations discussed above that govern the transportation, use, handling, and disposal of hazardous materials would limit the potential for creation of hazardous conditions due to the use or accidental release of hazardous materials, and would render this impact less than significant.

Significance Determination before Mitigation: Significant

Phase 1 Project Cumulative Impact Analysis

Significant cumulative impacts related to hazards and hazardous material could occur if the incremental impacts of the Phase 1 Project combined with the incremental impacts of one or more

of the cumulative projects substantially increase risk that people or the environment would be exposed to hazardous materials. The high speed rail project is the only cumulative project in the immediate Project vicinity. This project would be subject to the same regulatory requirements discussed for the Phase 1 Project, including the implementation of health and safety plans and soil management plans, as needed. That is, cumulative projects involving releases of or encountering hazardous materials also would be required to remediate their respective sites to established regulatory standards. This would be the case regardless of the number, frequency, or size of the release(s), or the residual amount of chemicals present in the soil from previous spills. While it is possible that the Phase 1 Project and cumulative projects could result in releases of hazardous materials at the same location and time, the responsible party associated with each spill would be required to remediate site conditions to the same established regulatory standards. It is possible that previously unknown contamination could be encountered during construction of cumulative projects. In the absence of proper handling procedures, soil excavations at the cumulative project areas could expose workers to elevated concentrations of hazardous materials (that were previously unknown). These unforeseen impacts could be potentially significant.

Because construction activities associated with the Phase 1 Project could also encounter unknown contamination, soil excavations could also expose workers to elevated concentrations of hazardous materials as discussed above. The Phase 1 Project's contribution to hazardous materials impact could be cumulatively considerable.

Significance Determination before Mitigation: Significant

Phase 1 Project Mitigation Measures

HAZ-1: Prior to the issuance of a grading permit, the applicant shall demonstrate that they have retained a qualified environmental professional to prepare and implement a site-specific Health and Safety Plan in accordance with federal OSHA regulations (29 CFR 1910.120) and Cal/OSHA regulations (8 CCR Title 8, Section 5192). The Health and Safety Plan shall be submitted to Madera County for review and approval. The Health and Safety Plan shall include all required measures to protect construction workers and the general public potentially exposed to hazardous materials by including engineering controls, monitoring, and security measures to prevent unauthorized entry to the construction area and to reduce hazards outside of the construction area. If prescribed contaminant exposure levels or the performance standards in the Health and Safety Plan are exceeded, personal protective equipment shall be required for workers, and remedial actions taken, in accordance with state and federal regulations. The plan shall include designated personnel responsible for implementation of the Health and Safety Plan. Submittal of the Health and Safety Plan to Madera County shall not be construed as approval of the adequacy of the contractor's health and safety professional, the contractor's plan, or any safety measure taken in or near the construction site. The contractor shall be solely and fully responsible for compliance with all laws, rules, and regulations applicable to health and safety during the performance of the construction work.

HAZ-2: The applicant shall retain and consult a qualified environmental professional for excavation and removal of impacted soil that may be encountered during grading

and excavation activities. A site-specific soil management plan (SMP) shall be prepared and submitted to Madera County. The SMP shall be implemented during excavation and grading activities on the onsite and offsite portions of the Project to ensure that any contaminated soils are properly identified, excavated, and disposed of off-site, as follows:

- The SMP shall include the Project site description, including geologic and hydrogeologic setting and the site assessment history.
- The SMP shall address areas of elevated contaminants per the applicable regulatory agency guidelines (e.g., SJVAPCD, DTSC, SWRCB). The cleanup goals shall be based on a screening level evaluation and shall be used to support decisions with respect to the need for and the extent of remediation. Waste profile reports shall be prepared and provide details on the appropriate waste disposal facility for disposal of affected waste (e.g., Class I, Class II, Class III landfills).
- During the Project's excavation phase, the applicant shall remove and properly dispose of impacted materials in accordance with the provisions of the SMP. If soil is stockpiled prior to disposal, it shall be managed in accordance with the Project's Storm Water Pollution Prevention Plan. If applicable, impacted soils shall be managed in accordance with SJVAPCD Rule 4651, Soil Decontamination Operations, as well as applicable requirements of DTSC and Central Valley Regional Water Quality Control Board (CVRWQCB).

Significance Determination after Mitigation: Less than significant

The implementation of Mitigation Measures HAZ-1 and HAZ-2 would include the preparation and implementation of a Health and Safety Plan and a site specific soil management plan that would protect construction personnel and the environment if contaminated soils are encountered. These measures would reduce potential hazardous materials impacts to less than significant.

Phase 1 Project Cumulative Measures

Implementation of Mitigation Measures HAZ-1 and HAZ-2 is required.

Significance Determination after Mitigation: Less than significant

The implementation of Mitigation Measures HAZ-1 and HAZ-2 would include the preparation and implementation of a Health and Safety Plan and a site specific soil management plan if contaminated soils are encountered to protect construction personnel and the environment. These measures would reduce the Phase 1 Project's contribution to potential cumulative hazardous materials impacts to less than cumulatively considerable.

Impact 3.8-2b: The proposed Program could have significant cumulatively considerable hazards to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment.

Program Impact Analysis

Construction

Construction activities required for the proposed Program would involve trenching, excavation, grading, and other ground-disturbing activities, as well as the removal of the onsite hazardous materials and soils. The construction activities would temporarily require the use of equipment, such as trucks, excavators, and other powered equipment, and would use potentially hazardous materials, such as fuels (gasoline and diesel) and lubricants (oil and greases). In addition, construction may use hazardous materials, such as glues, solvents, paints, thinners, or other chemicals. Such materials would be used only in quantities typically associated with the construction of a residential development and would be transported, handled, stored, and disposed of in accordance with applicable laws and regulations and manufacturers' instructions.

Regulations establish specific guidelines regarding risk planning and accident prevention, protection from exposure to specific chemicals, and the proper storage of hazardous materials. The Program would be in compliance with applicable federal, State, and local requirements concerning the use, storage, transport and management of hazardous materials. Compliance with regulations, including the HWCA, USDOT's Hazardous Materials Transportation Act of 1975, and other regulations regarding the transportation, use, and disposal of hazardous materials, would reduce the potential risk hazards associated with construction activities. Accordingly, the Program would not increase the probably frequency or severity of consequences to people or property from the potential exposure to hazardous substances.

As previously mentioned above, under 3.8.1, Environmental Setting, analytical data from the soil samples collected in 2007 from cultivated areas, wellheads, and former shop areas did not identify significantly affected soils. However, a small quantity of shallow impacted soil was identified in the vicinity of the well pumps, waste oil drums, and the fuel ASTs in the Shop Area (Figure 3.8-2). There is no record of the soils being remediated or removed from the Program site. Further, it is possible that previously unknown contamination could be encountered during construction. In the absence of proper handling procedures, soil excavations within the Program area could expose workers to elevated concentrations of hazardous materials (that were previously unknown) during Project construction. Therefore, impacts related to unknown soil contamination could be significant.

The proposed Program would include demolition of existing structures of ages that could contain hazardous building materials (McCloskey Consultants, 2017). Exposure to hazardous building materials during demolition including ACMs, LBP, or other hazardous materials in structures would only occur during demolition activities but could result in adverse health effects if not managed appropriately. Once the structures on a property have been removed, there would be no further exposure during operation of the proposed Program.

As described under Regulatory Setting, above, existing federal, state, and local laws and regulations require that demolition or renovation activities that may disturb or require the removal of materials that consist of, contain, or are coated with ACM, LBP, PCBs, and other hazardous materials must be inspected and/or tested for the presence of hazardous materials. The hazardous materials must be managed and disposed of in accordance with laws and regulations, as described further below.

In the case of ACM and LBP, the identification, removal, and disposal is regulated under 8 CCR 1529 and 5208 for ACM and 8 CCR 1532.1 for LBP. All work must be conducted by a State-certified professional. If ACM and/or LBP is determined to exist on-site, a site-specific hazard control plan must be prepared and submitted to the appropriate agency (the SJVAPCD for asbestos and Cal/OSHA for lead) detailing removal methods and specific instructions for providing protective clothing and equipment for abatement personnel. If necessary, a State-certified LBP and asbestos removal contractor would be retained to conduct the appropriate abatement measures as required by the plan. Wastes from abatement and demolition activities would be disposed of at a landfill(s) licensed to accept such waste. Once all abatement measures have been implemented, the contractor would conduct a clearance examination and provide written documentation that testing and abatement have been completed in accordance with all federal, state, and local laws and regulations.

In the case of PCBs, the identification, removal, and disposal is regulated by the EPA under the Toxic Substances Control Act (Title 40 Chapter 1 Subchapter R Part 761) and California regulations (22 CCR 66263.44). Electrical transformers not previously tested and verified to not contain PCBs must be tested. If PCBs are detected above action levels, the materials must be disposed of at a licensed facility permitted to accept the materials. Upon completion of abatement measures, if applicable, the contractor would provide written documentation to the County that testing and abatement have been completed in accordance with all federal, state, and local laws and regulations.

Existing abatement laws and regulations, combined with enforcement mechanisms by agencies including the SJVAPCD and Cal/OSHA require compliance with applicable federal, state, and local laws and regulations that would prevent the exposure of individuals and the environment to the hazards during demolition. Therefore, exposure to ACMs, LBPs, and/or other hazardous building materials would be less than significant.

Operation

Operation of the proposed Program would consist of residential, commercial, recreational, educational, and open space uses. No hazardous materials would be used during operation of the residential, commercial, recreation, and educational uses other than typical housekeeping, restaurant, vehicle, pool, and landscape maintenance materials, such as cleaning supplies, paints, oil, grease, pesticides, herbicides, water disinfectants, and fertilizers. The use of these materials would be in small quantities and in accordance with the manufacturers' instructions for transport, use, storage, and disposal. Compliance with these standard practices would avoid substantial exposure hazards. There would be low frequency and minimal severity of consequences on people or property from exposure to the limited and commonplace materials used during the operation of the proposed Program. Compliance with all applicable laws, and regulations would

minimize the potential impacts to the public or environment due to routine transport, storage, and use of hazardous materials. Impacts would be less than significant.

Significance Determination before Mitigation: Significant

Program Cumulative Impact Analysis

Significant cumulative impacts related to hazards and hazardous material could occur if the incremental impacts of the proposed Program combined with the incremental impacts of one or more of the cumulative projects substantially increase risk that people or the environment would be exposed to hazardous materials. The high speed rail project is the only cumulative project in the immediate Program vicinity. This project would be subject to the same regulatory requirements discussed for the proposed Program, including the implementation of health and safety plans and soil management plans, as needed. That is, cumulative projects involving releases of or encountering hazardous materials also would be required to remediate their respective sites to established regulatory standards. This would be the case regardless of the number, frequency, or size of the release(s), or the residual amount of chemicals present in the soil from previous spills. While it is possible that the Program and cumulative projects could result in releases of hazardous materials at the same location and time, the responsible party associated with each spill would be required to remediate site conditions to the same established regulatory standards. It is possible that previously unknown contamination could be encountered during construction of cumulative projects. In the absence of proper handling procedures, soil excavations at the cumulative project areas could expose workers to elevated concentrations of hazardous materials (that were previously unknown). These unforeseen impacts could be potentially significant.

Because construction activities associated with the proposed Program could also encounter unknown contamination, soil excavations could also expose workers to elevated concentrations of hazardous materials as discussed above. The proposed Program's contribution to hazardous materials impact could be cumulatively considerable.

Significance Determination before Mitigation: Significant

Program Mitigation Measures

Implementation of Mitigation Measures HAZ-1 and HAZ-2 is required.

HAZ-3: Prior to the issuance of a grading permit, impacted soil identified in the vicinity of the existing well pumps, waste oil drums, and the fuel ASTs in the Shop Area (Figure 3.8-2), shall be removed. Confirmation soil sampling shall be conducted after soil removal to verify the impacted soil was removed.

Significance Determination after Mitigation: Less than Significant

As discussed above, the implementation of Mitigation Measures HAZ-1 through HAZ-3 would include the preparation and implementation of a Health and Safety Plan, a site specific soil management plan, and affected soil removal for the proposed Program, if contaminated soils are encountered to protect construction personnel. These measures would reduce the Program's potential hazardous materials impacts to less than significant.

Program Cumulative Measures

Implementation of Mitigation Measures HAZ-1 through HAZ-3 is required.

Significance Determination after Mitigation: Less than Significant

The implementation of Mitigation Measures HAZ-1 through HAZ-3 would include the preparation and implementation of a Health and Safety Plan, a site specific soil management plan, and affected soil removal for the proposed Program, if contaminated soils are encountered to protect construction personnel. These measures would reduce the proposed Program's contribution to potential cumulative hazardous materials impacts to less than cumulatively considerable.

Schools

Impact 3.8-3a: The Phase 1 Project would have less than significant and less than cumulatively considerable impacts from emitting hazardous emissions or handling hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school.

Phase 1 Project Impact Analysis

Construction

There are no existing schools within 0.25-mile of the proposed construction activities within the Phase 1 Project site. The closest existing school to the Phase 1 Project site is Berenda Elementary School, located approximately 0.82-mile north of the Phase 1 Project site. Since there are no existing schools within 0.25 miles of the Phase 1 Project construction activities, construction is not expected to cause risk to the public or nearby attendees of schools. Therefore, impacts would be less than significant.

Operation

No existing or proposed schools outside of the Specific Plan area are located within 0.25-mile of the Phase 1 Project site. The proposed Program could include an elementary school within 0.1 mile of the proposed neighborhood park and would be approximately 0.4 mile from the proposed WWTP. Although landscape maintenance materials may be used to maintain the park, the amount of materials that could be hazardous would be in relatively small amount so that less than significant hazardous materials impacts would occur. Although the proposed new school would be located more than 0.25-mile from the WWTP, the operation of the WWTP would be required to adhere to all applicable federal, State, and local regulations for the use, storage, transport and disposal of hazardous materials. Therefore, the implementation of the Phase 1 Project would result in less than significant hazardous waste impacts within 0.25-mile of an existing or proposed school.

Significance Determination before Mitigation: Less than Significant

Phase 1 Project Cumulative Impact Analysis

Cumulative projects could be located within 0.25-mile of an existing or proposed school. However, cumulative development would be subject to federal, State, and local regulations

related to the routine transportation, use, storage, and disposal of hazardous materials. Since the proposed Phase 1 Project would not result in potentially significant impacts related to releasing hazardous emissions or materials within one quarter-mile of a school, the Project's contribution to such impacts would be less than cumulatively considerable.

Significance Determination before Mitigation: Less than Significant

Phase 1 Project Mitigation Measures

No mitigation measures are required.

Significance Determination after Mitigation: Less than Significant

Phase 1 Project Cumulative Measures

No mitigation measures are required.

Significance Determination after Mitigation: Less than Significant

Impact 3.8-3b: The proposed Program could have significant and cumulatively considerable impacts from emitting hazardous emissions or handling hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school.

Program Impact Analysis

Construction

As previously discussed in Chapter 2.0, Project Description, of this Draft EIR, the Program includes a proposed elementary school to serve the new population. The school would be owned and operated by the Madera Unified School District. The location of the school site would be determined between the school district and the Project developer, but would be located within areas zoned for Medium Density Residential.

There are currently no existing schools within 0.25-mile of the proposed Program. The closest school to the Program area is John J. Pershing Elementary School, located approximately 0.60-mile south of the Program area.

If the proposed school is constructed before Program buildout, then buildout of the proposed Program could result in construction within 0.25-mile of the existing new school. All potentially hazardous materials required during construction would be used, stored, and disposed of according to manufacturers' specifications and in compliance with applicable federal, state, and local regulations. Thus, the use of such materials would not create a hazard to a nearby school.

As discussed in Impact 3.8-2b above, analytical data from the soil samples collected in 2007 from cultivated areas, wellheads, and former shop areas did not identify significantly affected soils. However, a small quantity of shallow impacted soil was identified in the vicinity of the well pumps, waste oil drums, and the fuel ASTs in the Shop Area (Figure 3.8-2). There is no record of the soils being remediated or removed from the Program site. Further, it is possible that previously unknown contamination could be encountered during construction. In the absence of proper handling procedures, soil excavations in the Program area could expose workers, the public, and the

environment to elevated concentrations of hazardous materials (that were previously unknown) during Program construction. These unforeseen impacts could be potentially significant.

Operation

During operation, the proposed Program would use only common hazardous substances (such as cleaning supplies). These materials are commonly used and would not create emissions that would be dangerous. Therefore, less than significant impacts related to hazardous materials within one-quarter mile of a school would occur. Therefore, impacts would be less than significant.

Significance Determination before Mitigation: Significant

Program Cumulative Impact Analysis

Significant cumulative impacts related to the emission or handling of hazardous materials within one-quarter mile from an existing or proposed school could occur if the incremental impacts of the Program combined with the incremental impacts of one or more of the cumulative projects substantially increase risk that people or the environment would be exposed to hazardous materials. Growth within the County could occur within one-quarter mile of an existing or proposed school where construction activities could result in potential hazardous waste impacts near schools. Therefore, construction activities associated with growth could result in significant cumulative hazardous waste impacts within one-quarter mile of a school. Because the construction activities associated with the proposed Program could also result in significant hazardous waste impacts within one-quarter mile of a school, the Program's contribution to hazardous waste impacts near a school would be cumulatively considerable.

Significance Determination before Mitigation: Significant

Program Mitigation Measures

Implementation of Mitigation Measures HAZ-1 through HAZ-3 is required.

Significance Determination after Mitigation: Less than Significant

The implementation of Mitigation Measures HAZ-1 through HAZ-3 would include the preparation and implementation of a Health and Safety Plan, a site specific soil management plan, and affected soil removal for the proposed Program, if contaminated soils are encountered to protect construction personnel. These measures would reduce the Program's potential hazardous materials impacts to schools within one-quarter mile to less than significant.

Program Cumulative Measures

Implementation of Mitigation Measures HAZ-1 through HAZ-3 is required.

Significance Determination after Mitigation: Less than Significant

The implementation of Mitigation Measures HAZ-1 through HAZ-3 would include the preparation and implementation of a Health and Safety Plan, a site specific soil management plan, and affected soil removal for the proposed Program, if contaminated soils are encountered to

protect construction personnel. These measures would reduce the proposed Program's contribution to potential cumulative hazardous materials impacts to schools within one-quarter mile to less than cumulatively considerable.

Hazardous Materials Site Listing

Impact 3.8-4a: The Phase 1 Project is not located on a site which is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5 and would result in less than significant and less than cumulatively considerable hazard impacts to the public or the environment.

Phase 1 Project Impact Analysis

The Project site is not listed as a hazardous materials site pursuant to Government Code Section 65962.5. However, the Project site was listed as "Circle K Ranch" on the LUFT and Cortese databases (SES, 2007). The LUFT database indicates that the case (Case # 5T20000083) was for a release of diesel to soil only due to overfill of an UST historically onsite. The affected soil was removed from the sidewalls, top, and bottom of the excavation and spread for aeration. Soils samples collected from the base of the excavation reportedly had minimal concentrations of hydrocarbon contamination (SES, 2007). Construction and operational activities associated with the Phase 1 Project would not result in a hazard impact to the public or the environment associated with a site compiled pursuant to Government Code Section 65962.5.

Significance Determination before Mitigation: Less than Significant

Phase 1 Project Cumulative Impact Analysis

Cumulative projects could be located within areas listed as hazardous materials sites pursuant to Government Code Section 65962.5. Therefore, the implementation of cumulative projects could result in significant hazard impacts to the public or the environment associated with a site compiled pursuant to Government Code Section 65962.5. Because the Phase 1 Project site is not on the list of compiled sites pursuant to Government Code Section 65962.5, the Phase 1 Project's contribution to potential hazards to the public or the environment related to a site compiled pursuant to Government Code Section 65962.5 is less than cumulatively considerable.

Significance Determination before Mitigation: Less than Significant

Phase 1 Project Mitigation Measures

No mitigation measures are required.

Significance Determination after Mitigation: Less than Significant

Phase 1 Project Cumulative Measures

No mitigation measures are required.

Significance Determination after Mitigation: Less than Significant

Impact 3.8-4b: The proposed Program is not located on a site which is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5 and would result in less than significant and less than cumulatively considerable hazard impacts to the public or the environment.

Program Impact Analysis

The Project site is not listed as a hazardous materials site pursuant to Government Code Section 65962.5. However, the Project site was listed as "Circle K Ranch" on the LUFT and Cortese databases (SES, 2007). The LUFT database indicates that the case (Case # 5T20000083) was for a release of diesel to soil only due to overfill of an UST historically onsite. The affected soil was removed from the sidewalls, top, and bottom of the excavation and spread for aeration. Soils samples collected from the base of the excavation reportedly had minimal concentrations of hydrocarbon contamination (SES, 2007). Construction and operational activities associated with the proposed Program would not result in a hazard impact to the public or the environment associated with a site compiled pursuant to Government Code Section 65962.5.

Significance Determination before Mitigation: Less than Significant

Program Cumulative Impact Analysis

Cumulative growth could be located within areas listed as hazardous materials sites pursuant to Government Code Section 65962.5. Therefore, the implementation of cumulative projects that are part of future growth could result in significant hazard impacts to the public or the environment associated with a site compiled pursuant to Government Code Section 65962.5. Because the proposed Program site is not on the list of compiled sites pursuant to Government Code Section 65962.5, the proposed Program's contribution to potential hazards to the public or the environment related to a site compiled pursuant to Government Code Section 65962.5 is less than cumulatively considerable.

Significance Determination before Mitigation: Less than Significant

Program Mitigation Measures

No mitigation measures are required.

Significance Determination after Mitigation: Less than Significant

Program Cumulative Measures

No mitigation measures are required.

Significance Determination after Mitigation: Less than Significant.

Emergency Plans

Impact 3.8-5a: The Phase 1 Project would not impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan, and would result in less than significant and less than cumulatively considerable emergency impacts.

Phase 1 Project Impact Analysis

Construction

The Phase 1 Project site currently has one existing access, via Road 27 near the existing railroad tracks. Due to current construction activities associated with the Road 27 overpass at the railroad tracks, construction access would be provided in the northwest corner of the site near Avenue 18. A secondary access for the Phase 1 Project would include the improvement of the existing dirt farm road that extends from Road 28 ½. Construction activities within the Phase 1 Project site may require temporary partial lane closures along Road 27 and Road 28 ½; however, Road 27 and Road 28 ½ currently have adequate shoulder areas for motorists to allow emergency vehicles to pass. If the Road 27 overpass is constructed prior to construction of the Phase 1 Project, Road 27 would include adequate width for motorists to allow emergency vehicles to pass.

As a result, construction of the Phase 1 Project would not interfere with any adopted emergency response plan or emergency evacuation plan. Emergency access would be maintained at all times. Therefore, impacts associated with emergency response and emergency evacuation plans during construction would be less than significant.

Operation

The Phase 1 Project would not include features that would change or interfere with an adopted emergency response plan or emergency evacuation plan. Currently, there is no improved access within the Phase 1 Project area, but there is access via Road 27 and Road 28½ on the west and east sides, respectively. The implementation of the Phase 1 Project would increase access to the Phase 1 Project area and would adhere to local fire and building safety codes to allow for safe and efficient emergency response. The primary access will be provided by Road 27 while a secondary emergency access would be provided to the Phase 1 Project site by Road 28 ½. The proposed Parkway Entry roadway would provide access to the two proposed neighborhoods from Road 27. Additionally, all roadways (cul-de-sacs and turnouts) will be designed to Madera County Fire Department standards and will be ongoing to maintain the roads to enable access for all fire vehicles to and within the Phase 1 Project site. Therefore, implementation of the Phase 1 Project would result in less than significant impacts to an emergency response plan or emergency evacuation plan.

Significance Determination before Mitigation: Less than Significant

Phase 1 Project Cumulative Impact Analysis

With regard to impairment of an adopted emergency response plan or emergency evacuation plan, all of the cumulative projects in the area would be required to provide adequate emergency access in accordance with local building and fire codes prior to the issuance of a building permit. All cumulative projects must comply with land use policies, requirements for emergency access, such as providing several vehicular access points and roadways of sufficient width to allow access and

circulation by large emergency vehicles, such as fire engines. As concluded in the discussion of Project-related impacts, the proposed Phase 1 Project would not interfere with emergency response or emergency evacuation plans. Therefore, the proposed Project, in conjunction with other cumulative development, would not have a significant cumulative impact associated with emergency access, and the proposed Phase 1 Project's contribution would be less than cumulatively considerable.

Significance Determination before Mitigation: Less than Significant

Phase 1 Project Mitigation Measures

No mitigation measures are required.

Significance Determination after Mitigation: Less than Significant

Phase 1 Project Cumulative Measures

No mitigation measures are required.

Significance Determination after Mitigation: Less than Significant

Impact 3.8-5b: The proposed Program would not impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan, and would result in less than significant and less than cumulatively considerable emergency impacts.

Program Impact Analysis

Construction

The Specific Plan Program site currently has two existing accesses, via Road 27 near the existing railroad tracks and Road 28 ½ approximately half way between the future alignment of Avenue 17 and avenue 18. Due to current construction activities associated with the Road 27 overpass at the railroad tracks, construction access would be provided in the northwest corner of the site near Avenue 18. The additional construction access during Program construction activities include Road 28 ½. Construction activities within the Program site may require temporary partial lane closures along Road 27 and Road 28 ½; however, Road 27 and Road 28 ½ currently have adequate shoulder areas for motorists to allow emergency vehicles to pass. If the Road 27 overpass is constructed prior to construction of the first phase of the Specific Plan Program, Road 27 would include adequate width for motorists to allow emergency vehicles to pass.

As a result, construction of the Specific Plan Program would not interfere with any adopted emergency response plan or emergency evacuation plan. Emergency access would be maintained at all times. Therefore, impacts associated with emergency response and emergency evacuation plans during construction would be less than significant.

Operation

The proposed Program would not include features that would change or interfere with an adopted emergency response plan or emergency evacuation plan. Currently, there is no improved access within the proposed Specific Plan Program area, but there is access via Road 27 and Road 28½ on the west and east sides, respectively. The implementation of the proposed Program would

increase access to the Program area and would adhere to local fire and building safety codes to allow for safe and efficient emergency response. During operation, the primary accesses will be provided by Road 27 and Road 28 ½. Additionally, all roadways within the Program site (cul-de-sacs and turnouts) will be designed to Madera County Fire Department standards and will be ongoing to maintain the roads to enable access for all fire vehicles to and within the Specific Plan Program site. Therefore, implementation of the Specific Plan Program would result in less than significant impacts to an emergency response plan or emergency evacuation plan.

Significance Determination before Mitigation: Less than Significant

Program Cumulative Impact Analysis

With regard to impairment of an adopted emergency response plan or emergency evacuation plan, cumulative growth in the vicinity of the Specific Plan Program site would be required to provide adequate emergency access in accordance with local building and fire codes prior to the issuance of a building permit. All cumulative projects must comply with land use policies, requirements for emergency access, such as providing several vehicular access points and roadways of sufficient width to allow access and circulation by large emergency vehicles, such as fire engines. As concluded in the discussion of the Specific Plan Program-related impacts, the proposed Program would not interfere with emergency response or emergency evacuation plans. Therefore, the Specific Plan Program, in conjunction with other cumulative development, would not have a significant cumulative impact associated with emergency access. Because the proposed Program would not result in significant emergency access impacts, the Specific Plan Program's contribution to emergency response plan or emergency evacuation plan impacts would be less than cumulatively considerable.

Significance Determination before Mitigation: Less than Significant

Program Mitigation Measures

No mitigation measures required.

Significance Determination after Mitigation: Less than Significant

Program Cumulative Measures

No mitigation measures required.

Significance Determination after Mitigation: Less than Significant

Wildland Fires

Impact 3.8-6a: The Phase 1 Project would have less than significant and less than cumulatively considerable impact on people or structures, either directly or indirectly, because it would not expose people or structures to a significant risk of loss, injury or death involving wildland fires.

A Wildland-Urban Interface (WUI) Area is defined in Section 702A of the CBC as a geographical area identified by the State of California as a Fire Hazard Severity Zone (FHSZ) in accordance with Public Resources Code Sections 4201 through 4204 and Government Code Sections 51175 through 51189, or other areas designated by the enforcing agency to be at a significant risk from wildfires.

Phase 1 Project Impact Analysis

The Phase 1 Project site is not located within or near an area designated as a state responsibility area (CAL FIRE, 2007a) nor is it classified as a very high fire hazard severity zone or located near a very high fire hazard severity zone (VHFHSZ) (CAL FIRE, 2007b). The Phase 1 Project site is mapped as being within an unincorporated Local Responsibility Area (LRA) designated as unzoned per Cal Fire's Fire Hazard Severity Zone Maps prepared under the Fire and Resource Assessment Program (FRAP) (Cal Fire, 2007a/2007b). There are LRA Moderate zones surrounding the north and west boundary of the Phase 1 Project site. The nearest LRA Moderate zones are located north of the Phase 1 Project site along the Avenue 18, west of the Project along Road 27, and along the southwest boundary of the Phase 1 Project site.

The closest SRA designated as VHFHSZ is located in Coarsegold, approximately 25 miles northeast of the Phase 1 Project site. The closest SRA High FHSZ is located by Hensley Lake, approximately 11 miles northeast of the Phase 1 Project site. The closest SRA FHSZ is approximately 5 miles north of the Phase 1 Project site and is designated as SRA Moderate FHSZ. Therefore, the Phase 1 Project site is not located within a WUI. The Phase 1 Project would not expose people or structures to a significant risk of loss, injury or death involving wildland fires. Impacts would be less than significant.

Significance Determination before Mitigation: Less than Significant

Phase 1 Project Cumulative Impact Analysis

Implementation of cumulative growth in the Phase 1 Project area would increase development in the County and in the Program vicinity. The cumulative growth is expected to be consistent with the current land use designation within the County as well as the future growth of the City of Madera. With regard to cumulative impacts related to exposure of project-related people or structures to a significant risk of loss, injury or death involving wildland fires, given that cumulative projects could be located within or near SRA or LRA Very High FHSZs, within a WUI, and within areas characterized by hills and mountains, those project characteristics would be evaluated and would be required to adhere to State and local Fire Codes to reduce wildland fire risk. Adherence to local Building and Fire Codes would minimize potential impacts related to exposure to and the uncontrolled spread of a wildland fire. As concluded in the discussion of Phase 1 Project-related impacts above, the Phase 1 Project site is not within a WUI, not within a SRA

FHSZ or a LRA FHSZ, and thus would result in less than significant impacts related to exposure of Phase 1 Project-associated occupants to risk from a wildland fire. As a result, the Phase I Project's contribution to the cumulative exposure of people or structures to a significant risk of loss, injury or death involving wildland fires would be less than cumulatively considerable.

Significance Determination before Mitigation: Less than Significant

Phase 1 Project Mitigation Measures

No mitigation measures are required.

Significance Determination after Mitigation: Less than Significant

Phase 1 Project Cumulative Measures

No mitigation measures are required.

Significance Determination after Mitigation: Less than Significant

Impact 3.8-6b: The proposed Program would have less than significant and less than cumulatively considerable wildfire impact on people or structures, either directly or indirectly, because it would not expose people or structures to a significant risk of loss, injury or death involving wildland fires.

Program Impact Analysis

The Specific Plan Program site is not located within or near an area designated as a state responsibility area (CAL FIRE, 2007a) nor is it classified as a very high fire hazard severity zone or located near a VHFHSZ (CAL FIRE, 2007b). The proposed Program site is mapped as being within an unincorporated Local Responsibility Area (LRA) designated as unzoned per Cal Fire's Fire Hazard Severity Zone Maps prepared under the FRAP (Cal Fire, 2007a/2007b). There are LRA Moderate zones surrounding the north and west boundary of the proposed Program site. The nearest LRA Moderate zones are located north of the Program site along the Avenue 18, west of the Program site along Road 27, and along the southwest boundary of the proposed Program site.

The closest SRA designated as VHFHSZ is located in Coarsegold, approximately 25 miles northeast of the Specific Plan Program site. The closest SRA High FHSZ is located by Hensley Lake, approximately 11 miles northeast of the Program site. The closest SRA FHSZ is approximately 5 miles north of the Program site and is designated as SRA Moderate FHSZ. Therefore, the Program site is not located within a Wildland-Urban interface. The proposed Specific Plan Program would not expose people or structures to a significant risk of loss, injury or death involving wildland fires. Impacts would be less than significant.

Significance Determination before Mitigation: Less than Significant

Program Cumulative Impact Analysis

Implementation of cumulative growth in the Program area would increase development in the County and in the Program vicinity. The cumulative growth is expected to be consistent with the current land use designation within the County as well as the future growth of the City of Madera.

With regard to cumulative impacts related to exposure of Program-related people or structures to a significant risk of loss, injury or death involving wildland fires, given that cumulative projects could be located within or near SRA or LRA Very High FHSZs, within a WUI, and within areas characterized by hills and mountains, those project characteristics would be evaluated and would be required to adhere to State and local Fire Codes to reduce wildland fire risk. Adherence to local Building and Fire Codes would minimize potential impacts related to exposure to and the uncontrolled spread of a wildland fire. As concluded in the discussion of Program-related impacts above, the proposed Program site is not within a WUI, not within a SRA FHSZ or a LRA FHSZ, and thus would result in less than significant impacts related to exposure of Program-associated occupants to risk from a wildland fire. As a result, the proposed Program's contribution to the cumulative exposure of Program-related people or structures to a significant risk of loss, injury or death involving wildland fires would be less than cumulatively considerable.

Significance Determination before Mitigation: Less than Significant

Program Mitigation Measures

No mitigation measures are required.

Significance Determination after Mitigation: Less than Significant

Program Cumulative Measures

No mitigation measures are required.

Significance Determination after Mitigation: Less than Significant

3.8.4 References

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3.9 Hydrology and Water Quality

This section describes the hydrologic conditions, including surface water and groundwater conditions, that exist at the Project site and evaluates the potential for the Project to result in significant impacts related to hydrology and water quality. The setting section of this chapter is followed by a discussion of the regulatory framework for the Project, as well as the significance criteria for evaluating significant impacts. This analysis is based, in part, on information provided in the *Castellina Water Management Plan* (House Morgan Consulting, 2019) located in **Appendix I-1** and the *Castellina Water Supply Assessment* (Tully & Young, 2018) located in **Appendix I-2**.

3.9.1 Environmental Setting

The site is located approximately one-mile north of the City of Madera and three miles east of Highway 99. The Specific Plan site is bounded by Road 27 to the west, rangelands to the north, Road 28 ½ to the east, rural residential lands to the south, and the Burlington Northern Santa Fe Railway to the southwest. The site is located in the Kismet and Madera 7.5" U.S. Geological Survey (USGS) quadrangles within sections 5 and 6 of township 11 South, range 18 East. Topographically, the site is relatively level, ranging in elevation from approximately 280 ft National Geodetic Vertical Datum (NGVD) in the northwest corner to approximately 310 ft at the east end of the site. Surrounding land uses include rangelands, orchards, and residences. The site itself consists of an active almond and fig orchard.

The San Joaquin Valley has a Mediterranean climate with warm to hot dry summers and cool winters. Annual precipitation in the general vicinity of the site is highly variable from year to year. Average annual rainfall is approximately 11 inches, most of which falls between November and April (WRCC 2016). Stormwater readily infiltrates the soils of the site; when field capacity has been reached, water may drain west towards the railroad tracks and Road 27 or may perch in onsite depressions or swales.

Regional Hydrology

The proposed Project, located about one mile north-northeast of the City of Madera, is within California's San Joaquin Valley and overlies the San Joaquin Valley Groundwater Basin. The nearest Traditional Navigable Water (TNW) is the Fresno River which is approximately 16 miles east of the City of Madera, and is approximately 4,000 feet to the east and south of the proposed Project site. Further, the proposed Project is located in the Fresno River watershed with the Hydrologic Unit Code of 18040007.

This area of the Central Valley is largely agricultural, with a significant groundwater sub-basin that has been used historically for irrigation and, to a much lesser degree, for municipal demands in the City of Madera and for individual domestic uses scattered throughout the valley. The extent of this sub-basin and its connection with adjacent sub-basins has been assessed by the California Department of Water Resources (DWR). The proposed Project is within the Madera Sub-basin (Basin No. 5-22.06, hereafter "Basin"), as defined by DWR Bulletin 118. The Basin covers an area of 614 square miles and is located entirely within Madera County. It is bound on the south by the San Joaquin River, on the northwest by the southeastern boundary of the Chowchilla Sub-

basin, and on the east by the crystalline basement bedrock of the Sierra Nevada foothills. DWR Bulletin 118 characterizes this Basin as being in critical overdraft since 1980. In January 2016, DWR released an updated list of critically-overdrafted basins, which included this Basin.

The Project site is located in an area of the San Joaquin Valley that historically was dominated by hummocky terrain supporting numerous vernal pool complexes. Historic aerial photography clearly indicates that the site consisted of a mosaic of grassland and vernal pool/vernal swale habitats, not unlike the property bordering the site to the north. Prior to its conversion to an orchard in 1978, the soils of the site would have been deep-ripped to break up any subsurface hardpan that may have been present. While deep ripping and subsequent disking has smoothed out the minor topography associated with vernal pools and the interconnecting swales, the property has retained some of its rolling terrain.

Surface Water

Some alluvial soils of the region developed a subsurface iron-silica hardpan 2-6 ft below the surface. In some places, this is a dominant characteristic of the soil. In others, this hardpan occurs sporadically as hydric inclusions. This water-restricting layer often perches water during the last half of the winter and early spring. In hummocky terrain, perched water creates seasonal pools that are typically known as vernal pools. Extensive vernal pool complexes are known to occur in the open rangeland in the vicinity of the site. Soils suitable for vernal pool development on the site include the Alamo, Atwater, and San Joaquin Series, which are known to possess the subsurface hardpan necessary for vernal pool formation. However, due to the extensive agricultural practices of the site and the deep ripping that has occurred, the underlying hardpan is likely no longer intact.

The existing site contains several minor, unnamed natural drainage features. On the northern portion of the Specific Plan Area, these drainage features enter from the east and drain toward the northwestern corner of the Specific Plan Area, occasionally draining into the Schmidt Creek Tributary. On the southern portion, these ephemeral drainage features also drain to the western edge of the Specific Plan Area, occasionally draining northward to the northwestern corner of the site and into the Schmidt Creek Tributary. A portion of the northeast corner of the site is shown within the Flood Emergency Management Agency (FEMA) Zone A as shown on FEMA Map Panel 06039C0920E. FEMA Zone A areas are areas inundated by 1% annual chance flood, for which FEMA has not determined base flood elevations (BFEs).

The Specific Plan area is relatively flat ranging in elevation from approximately 280 feet National Geodetic Vertical Datum (NGVD) in the northwest corner to approximately 310 feet NGVD at the east end of the Specific Plan area. Currently, the Specific Plan area is used for agricultural production and contains almond and fig orchards, related agricultural support facilities (e.g., equipment storage), wells, and unimproved dirt roadways. There are five wells located within the Specific Plan area that draw groundwater from the Madera groundwater basin. Based on data provided by the property owners and engineering estimates, the existing agricultural operations pump approximately 2,800 acre-feet per year (AFY) of groundwater, which is equivalent to nearly 912 million gallons.

Surface Water Allocation

A few discontinuous swales and low-lying areas at various locations of the site are all that remain of the site's natural topography. Numerous shallow depressions within the orchard capture irrigation runoff during the summer, and these depressions are sometimes characterized by algal mats and/or weedy vegetation that either includes or is made up of wetland indicator species. The soils of such areas, however, are not typically hydric.

Surface Water Quality

The major water quality problems of the San Joaquin River region are a result of many factors, including depleted freshwater flows, municipal and industrial wastewater discharges, salt loads from agricultural drainage and runoff, and other pollutants associated with long-term agricultural irrigation and production, including nutrients, selenium, boron, and organophosphate pesticides (Tully & Young, 2009). The Regional Water Quality Control Board (RWQCB) has authority to regulate water discharges and has set water quality standards for specific water bodies. These standards are discussed below.

Total Maximum Daily Load

Section 303(d) of the CWA requires that each state identify water bodies or segments of water bodies that are "impaired" (i.e., do not meet one or more of the water quality standards established by the state). These waters are identified on the Section 303(d) list as waters that are polluted and need further attention to support their beneficial uses. Once the water body or segment is listed, the state is required to establish a total maximum daily load (TMDL) for the pollutant. The TMDL is the maximum amount of a pollutant that a water body can receive and still meet the water quality standards. Typically, a TMDL is the sum of the allowable loads of a single pollutant from all contributing point and nonpoint sources. According to the SWRCB, the Fresno River from southeast of the Project site (above elevation 295 feet) to Hensley Reservoir is listed as impaired by invasive species, however, storm flows from the Project site would be conveyed to the west and would not contribute to the impaired portion of the Fresno River located southeast of the Project site (CVRWQCB, 2008).

Wastewater

The Specific Plan area is not near a public wastewater system or non-community wastewater system, and there is no existing onsite sewage disposal system. To meet wastewater treatment and disposal needs of the proposed community, a qualified entity, retained by the Applicant, would construct and operate a wastewater treatment plant (WWTP) within the Specific Plan area. The WWTP would include collection, treatment, disposal, and redistribution of treated reclaimed water. Wastewater would be collected and conveyed through a gravity system of pipes, supplemented by one or more lift station(s), if required, and flow to the onsite WWTP, which would be located at or near a low elevation point in the northwest corner of the Specific Plan area (within the Phase 1 Project area). The wastewater network has been sized based on the conceptual land use plan, and will be refined based on more detailed design.

Recycled Water Facilities

The County General Plan goals and policies require new development to install non-potable recycled water infrastructure for irrigation of landscaped common areas where feasible and cost effective. Wastewater from the proposed WWTP would be treated to a tertiary-quality effluent level that would meet State Title 22 recycling criteria for unrestricted irrigation uses. A portion of the treated water would be used for irrigation within the Specific Plan area, including parks and open space areas, commercial areas, and landscaped roadway medians, while remaining portions would be conveyed offsite for agricultural irrigation use elsewhere in the area.

Groundwater

The classification system for groundwater was developed by the California Department of Water Resources, and divides groundwaters into hydrologic regions, basins, and sub-basins (California Department of Water Resources 2003). Hydrologic regions are areas defined by physical hydrologic features such as watershed boundaries (California Department of Conservation 2010).

DWR generated groundwater elevation contours for fall 2016 (the most recent available) from DWR monitored wells suggest that the groundwater gradient (flow direction) in the vicinity of the proposed Project is generally from the southeast to northwest. Groundwater elevation contours from fall 2016 indicate elevations range from 20 feet above mean sea level (msl) in the southeastern portion of the proposed Project, to near mean sea level in the northwestern portion of the Project, or approximately 287 to 292 feet below ground surface (bgs), respectively.

Groundwater elevation data from two DWR monitored wells in the vicinity of the proposed Project provide a historical perspective on groundwater use and conditions. These two wells are located 0.8 mile southwest of the Project site near Ellis Street, and 0.8-mile south of the Project site near the Fresno River. Groundwater level data were accessed from DWR's Water Data Library (WDL) for the two DWR monitored wells with historical groundwater elevation data, 10S/16E-25F2 and 12S/17E-04L1. Hydrographs prepared from this data illustrate the amount of decline in groundwater levels. The 10S/16E-25F2 hydrograph indicates that groundwater levels have declined by approximately 75 feet between 1970 and 2016. Since 1990, groundwater levels have declined at rates of approximately two to four feet per year. The hydrograph for DWR monitored well MID 09, located less than one-mile north of the Project, indicates that groundwater at this location was at an elevation of approximately 37 feet above msl (or 270 feet bgs) in Spring 2012, and had declined to approximately two feet above msl (or 306 feet bgs) in Spring 2016, at an average rate of nine feet per year during the recent drought. The elevation contours suggest that groundwater in the Specific Plan Area flows towards the northwest, away from the Fresno River.

The Basin has experienced significant declines in groundwater elevations for several decades. Regional declines in the groundwater basin have varied between approximately 60 and 200 feet since 1970. Current groundwater extraction rates within the Basin will likely continue for the foreseeable future. However, regional efforts to stabilize the Basin are now legally required with a sustainability plan due to the State by January 31, 2020.

It is important to note that California experienced a statewide drought from 2012 through 2016, which may have exacerbated rates of groundwater decline in some portions of the sub-basin over the past few years, most notably in areas where groundwater extraction increased to supplement reduced or nonexistent surface water supply. It is also important to recognize that the land proposed for development has been actively irrigated as an orchard using groundwater. The parcel's current and historic use to serve irrigated agriculture is reflected in the representative Basin groundwater conditions.

Madera County is the Groundwater Sustainability Agency (GSA) for the portion of the County that includes the Project. In accord with California's Sustainable Groundwater Management Act, a Groundwater Sustainability Plan must be prepared and adopted prior to January 31, 2020 identifying how the GSA will sustainably manage groundwater by 2040.

In August 2017, the County adopted an ordinance directed at aiding with long-term groundwater sustainability in the Madera Sub-basin. The County's ordinance added a chapter to the County Code, entitled Large Scale Development Groundwater Balance. The County's strategy is to assure that new developments do not impact existing or planned future uses and directs urban development projects of a certain size to demonstrate a groundwater balance as defined in the ordinance. This ordinance directs a large development, such as the Project, to "…*quantify, tabulate and calculate a Groundwater Balance…"* (Madera County Code 13.110.050) and, *"[p]rior to the issuance of entitlements for a Large Scale Development, the applicant for such entitlements shall demonstrate to the satisfaction of the County a Groundwater Balance for the development…"* (Madera County Code 13.110.060).

Groundwater Quality

Groundwater in the San Joaquin Valley area is considered suitable, or potentially suitable, for municipal and domestic supply, agricultural supply, industrial service supply, and industrial process supply. To protect these beneficial uses, the RWQCB has established water quality standards, described as objectives. Objectives are set for surface waters in the water quality control plan (Basin Plan) for the following:

- Bacteria
- Biostimulatory substances
- Chemical constituents
- Color
- Dissolved oxygen
- Floating material
- Oil and grease
- pH
- Pesticides
- Radioactivity
- Salinity
- Sediment
- Settleable material
- Suspended material
- Tastes and odors
- Temperature
- Toxicity
- Turbidity

As shown above, groundwater objectives have been established for bacteria, chemical constituents, radioactivity, tastes and odors, and toxicity. The RWQCB considers these objectives when issuing a NPDES permit for a discharge, such as from a wastewater treatment plant where effluent is discharged to nearby surface waters.

An important attribute of the Basin is the base of freshwater. This term describes the interface of freshwater and brackish water in an aquifer system. An often referenced study from 1973 characterized the base of freshwater in the San Joaquin Valley by mapping salinity levels in various wells throughout the region. Using data from this study, the base of freshwater occurs at an elevation of approximately 1,200 feet below msl beneath the middle of the Specific Plan Project site, or at a depth of approximately 1,500 feet bgs.

Given the approximate groundwater elevation of 10 feet above msl beneath the Specific Plan Project site in fall 2016, the data suggest that there is nearly 1,200 feet of saturated freshwater-bearing aquifer material in the immediate vicinity of the proposed Project area. If the Sub-basin experiences the same rate of decline over this timeframe, the projected decline over the next 30 years would be 300 feet using a conservative rate of groundwater decline of 10 feet per year. The base of freshwater is reported to be at a depth of approximately 1,500 feet, as discussed above, indicating there is currently approximately 1,200 feet of saturated aquifer available. The rate of decline in this portion of the Sub-basin can be expected to slow or even stabilize during the next sequence of consecutive "wet" years, as well as a result through the development and implementation of the proposed Project's groundwater management strategies.

Total Dissolved Solids (TDS)

Total dissolved solids (TDS) is the total concentration of dissolved substances in water. TDS is made up of inorganic salts, as well as a small amount of organic matter. Common inorganic salts that can be found in water include calcium, magnesium, potassium and sodium, which are all cations, and carbonates, nitrates, bicarbonates, chlorides and sulfates, which are all anions (SDWF, 2019)

Nitrate

Nitrite is a chemical similar to nitrate, differing only slightly in its chemical structure. Once consumed, nitrate is converted into nitrite in the body. Nitrates can cause negative health impacts, especially for babies and children, if consumed at higher levels than recommended (CDPH, 2014).

Nitrate contamination can be found in drinking water supplies and in groundwater, especially when associated with septic systems, confined animal feeding operations or fertilizer use. These sources of nitrate contamination are more associated with rural settings. Nitrates are also present in treated wastewater, and as such can be present in surface water, or in treated wastewater used in groundwater recharge projects. These sources can pose risks to urban drinking water supplies (CDPH, 2014).

Elevated concentrations of nitrate are widespread in the San Joaquin Valley. Where elevated concentrations of nitrates are present, it is likely a result of overlying land uses, such as applied fertilizer, septic systems, leaky sewer systems (including transmission lines, storage, and

wastewater treatment plants), and high-density animal enclosures, such as dairies (Provost and Pritchard, 2014).

Imported Water

Recharged groundwater does not recognize political boundaries, and agencies that import surface water often see their groundwater flow to other areas. Thus groundwater supplies can change over time as neighboring areas change their practices, so the available groundwater and overdraft needs to be periodically re-evaluated (Provost and Pritchard, 2014).

Local water projects, such as the San Joaquin River Restoration project, in Madera County will continue to reduce available surface water to the County of Madera. Declines in surface water allotments will likely result in additional groundwater extraction to meet water demands. Reduction in imported surface water deliveries can cause a shift to increasing reliance on groundwater supplies to provide for total water demand. Reductions related to year-to-year climatic changes (drought years and wet years) and environmental issues could reduce the amount of water delivered each year. As surface water imports decline, increased groundwater pumping can cause groundwater levels to decline at an increased rate (Provost and Pritchard, 2014).

Recycled Water

The California Water Code defines recycled water (alternatively called reclaimed water) as "water which, as a result of treatment of waste [water], is suitable for a direct beneficial use or a controlled use that would not otherwise occur." Recycled water is wastewater that has been highly purified through multiple stages of treatment to meet stringent and protective health and safety standards set by the California Department of Public Health (CDPH).

Stormwater

The EPA defines stormwater as the runoff from rain and snowmelt events flows over land and impervious surfaces without seeping into the ground. Stormwater is often considered a nuisance because it mobilizes pollutants such as motor oil and trash and often flows directly to water bodies through sewer systems, contributing a major source of pollution to these water bodies. Stormwater discharges in California are regulated through National Pollutant Discharge Elimination System (NPDES) permits. However, stormwater may also act as a resource for recharge to groundwater when properly managed (RWQCB, 2019).

3.9.2 Regulatory Framework

Federal

Clean Water Act

The CWA established the basic structure for regulating discharges of pollutants into the waters of the United States and gave the USEPA the authority to implement pollution control programs such as setting wastewater standards for industry. The CWA sets water quality standards for all contaminants in surface waters. The statute employs a variety of regulatory and non-regulatory tools to reduce direct pollutant discharges into waterways, finance municipal wastewater treatment facilities, and manage polluted runoff. USACE has jurisdiction over all waters of the United States

including, but not limited to, perennial and intermittent streams, lakes, and ponds, as well as wetlands in marshes, wet meadows, and side hill seeps. Under Section 401 of the CWA, every applicant for a federal permit or license for any activity that may result in a discharge to a water body must obtain State Water Quality Certification that the proposed activity would comply with state water quality standards. Accordingly, the CWA applies to the proposed Project.

Federal Emergency Management Agency

Under Executive Order 11988, FEMA is responsible for the management and mapping of areas subject to flooding during a 100-year flood event (i.e., one percent chance of occurring in a given year). FEMA requires that local governments covered by federal flood insurance pass and enforce a floodplain management ordinance that specifies minimum requirements for any construction within the 100-year floodplain. The northwestern portion of the Project site is located within the 100-year floodplain as delineated by FEMA (FEMA, 2019).

State

Porter-Cologne Water Quality Control Act

The Porter-Cologne Act (Division 7 of the California Water Code) provides the basis for water quality regulation within California and defines water quality objectives as the limits or levels of water constituents that are established for reasonable protection of beneficial uses. The SWRCB administers water rights, water pollution control, and water quality functions throughout the state, while the Central Valley RWQCB conducts planning, permitting, and enforcement activities. The Porter-Cologne Act requires RWQCB to establish water quality objectives, while acknowledging that water quality may be changed to some degree without unreasonably affecting beneficial uses. Beneficial uses, together with the corresponding water quality objectives, are defined as standards, per federal regulations. Therefore, the regional plans form the regulatory references for meeting state and federal requirements for water quality control. Changes in water quality are only allowed if the change is consistent with the maximum beneficial use of the state, does not unreasonably affect the present or anticipated beneficial uses, and does not result in water quality less than that prescribed in the water quality control plans. Accordingly, this act would apply to the proposed Project.

Clean Water Act Section 401 Water Quality Certification

Section 401 of the CWA requires an applicant for any federal permit that proposes an activity which may result in a discharge to "waters of the United States" obtain certification from the state that the discharge would comply with other provisions of the Act. Certification is provided by the RWQCB. Any local or jurisdictional water quality programs must also be addressed when constructing in areas that influence the quality of surface and groundwater.

Senate Bill 1263

SB 1263 was adopted on September 29, 2016. SB 1263 requires a person submitting an application for a new public water system to first submit a preliminary technical report to the State Water Resources Control Board at least 6 months before initiating construction of any water-related improvement.

Senate Bill 610

Senate Bill 610 (Costa; Chapter 643, Stats. 2001) ("SB 610"), requires public water agencies, parties or purveyors that may supply water to certain proposed development projects to prepare a Water Supply Assessment (WSA) for use by the city or county in environmental documentation for such projects, pursuant to the California Environmental Quality Act ("CEQA"). The goal of the WSA is to evaluate whether the water agency's total projected water supplies available during normal, single-dry and multiple-dry water years during a 20-year projection are sufficient to meet the projected water demand associated with the proposed Project, in addition to the water agency's existing and planned future uses, including agricultural and manufacturing uses.

Regional

Central Valley Regional Water Quality Control Plan

The Central Valley Regional Water Quality Control Board (CVRWQCB) prepared and adopted the Central Valley Regional Water Quality Control Plan (Basin Plan) which is required by the California Water Code (Section 13240) and supported by the CWA. Section 303(d) of the CWA requires states to adopt water quality standards which "consist of the designated uses of the navigable waters involved and the water quality criteria for such waters based upon such uses." According to Section 13050 of the California Water Code, Basin Plans consist of a designation or establishment for the waters within a specified area of beneficial uses to be protected, water quality objectives to protect those uses, and a program of implementation needed for achieving the objectives. Because beneficial uses, together with their corresponding water quality objectives, can be defined per federal regulations as water quality standards, the Basin Plans are regulatory references for meeting the state and federal requirements for water quality control. One significant difference between the state and federal programs is that California's Basin Plans establish standards for groundwater in addition to surface water. Adoption or revision of surface water standards is subject to the approval of the USEPA.

The beneficial uses designated in the Basin Plan applicable to the proposed Project are for the San Joaquin River, Reach 74, for which is located from the Hidden Reservoir to San Joaquin River. **Table 3.9-1** defines the beneficial uses designated in the Basin Plan.

TABLE 3.9-1
DEFINITIONS OF SELECTED BENEFICIAL USES OF SURFACE WATERS

Beneficial Use	Description
Agricultural Supply (AGR)	Uses of water for farming, horticulture, or ranching including, but not limited to, irrigation (including leaching of salts), stock watering, or support of vegetation for range grazing.
Municipal and Domestic Supply (MUN)	Uses of water for community, military, or individual water supply systems including, but not limited to, drinking water supply.
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.
Wildlife Habitat (WILD)	Uses of water that support terrestrial or wetland ecosystems including, but not limited to, preservation and enhancement of terrestrial habitats or wetlands, vegetation, wildlife (e.g., mammals, birds, reptiles, amphibians, invertebrates), or wildlife water and food sources.

Beneficial Use	Description
Water Contact Recreation (REC 1)	Uses of water for recreational activities involving body contact with water, where ingestion of water is reasonably possible. These uses include, but are not limited to, swimming, wading, water-skiing, skin and scuba diving, surfing, white water activities, fishing, or use of natural hot springs.
Non-Contact Water Recreation (REC 2)	Uses of water for recreational activities involving proximity to water, but where there is generally no body contact with water, nor any likelihood of ingestion of water. These uses include, but are not limited to, picnicking, sunbathing, hiking, beachcombing, camping, boating, tidepool and marine life study, hunting, sightseeing, or aesthetic enjoyment in conjunction with the above activities.

SOURCE: CVRWQCB, 2018.

General Order for Dewatering and Other Low Threat Discharge to Surface Waters Permit

If dewatering is required during construction, the discharge of construction water would require permits either from RWQCB for discharge to surface creeks and groundwater, or from local agencies for discharge to storm or sanitary sewers. The contractor would be required to obtain necessary permits for dewatering to comply with requirements for sampling and monitoring of the groundwater to identify water quality and suitability for discharge to creeks or canal systems, thereby protecting surface water quality. However, the existing groundwater level at the Project site is relatively deep, and therefore, the need for dewatering is considered very unlikely.

Recycled Water

The California Water Code defines recycled water (alternatively called reclaimed water) as "water which, as a result of treatment of waste [water], is suitable for a direct beneficial use or a controlled use that would not otherwise occur." Recycled water is wastewater that has been highly purified through multiple stages of treatment to meet stringent and protective health and safety standards set by the California Department of Public Health (CDPH). Federal laws provide regulation of recycled water through the Water Pollution Control Act of 1972 (also referred to as the CWA) and its related amendments. However, California has primary responsibility for the development of regulations regarding the treatment and distribution of recycled water and operation of recycled water facilities. The following laws govern the use of recycled water in California:

- California Health and Safety Code (Division 104; Part 12);
- California Water Code (Division 7; Chapters 2, 6, 7, and 22);
- California Code of Regulations, Title 22 (Division 4; Chapters 1, 2, and 3); and
- California Code of Regulations, Title 17 (Division 1; Chapter 5).

Recycled water laws are enforced by CDPH and the RWQCB. Recycled water must meet CDPH water quality reuse criteria, as specified in Sections 60301 through 60355 of Title 22 of the CCR. These regulations provide specific treatment requirements as well as water quality criteria appropriate for the intended use of the recycled water. In addition, the order specifies prohibitions

on the application of recycled water to ensure that this water does not enter a surface water body or otherwise degrade surface or groundwater quality. Recycled water that is treated to higher standards (i.e., advanced treatment) can be discharged to surface water bodies, including water bodies that allow body-contact water recreational activities (Section 60301.620).

An agency that produces recycled water must submit a notice of intent and technical report to both the RWQCB and CDPH, including a description of the existing or proposed treatment, storage, and transmission facilities for water reuse; the types of applications for which the recycled water will be used; a description of the agency's water reuse permit program; a description of the reuse program administration specifying how the permitting system for regulating users will be implemented and how compliance with the CDPH reuse criteria will be approved; and any additional site-specific information that is appropriate. The order becomes effective upon written approval of the notice of intent by the RWQCB.

The producer of recycled water must establish and enforce rules and regulations for recycled water uses that govern the design and construction of recycled water facilities and the reuse of recycled water in accordance with CDPH reuse criteria. The producer must also develop a water reuse monitoring program in accordance with the self-monitoring requirements of the order, submit an annual monitoring report to the RWQCB, and conduct periodic inspections of the user's facilities and operations to monitor and assure compliance with the conditions of the producer's permit.

In groundwater basins that are a significant source of drinking water, the RWQCB can require a salt management plan if there is a likely potential for salt buildup from irrigation with recycled water. In addition, the CDPH has prepared draft Groundwater Recharge Reuse regulations for the use of recycled water for recharge of groundwater by surface spreading or subsurface injection, and a separate NPDES permit is required for use of recycled water for these purposes.

NPDES General Construction Storm Water Permit

RWQCB administers the NPDES stormwater permitting program in the Central Valley region. Construction activities disturbing one acre or more of land are subject to the permitting requirements of the NPDES General Permit for Discharges of Storm Water Runoff Associated with Construction Activity (NDPES General Construction Permit). The County must submit a Notice of Intent to RWQCB to be covered by the General Construction Permit prior to the beginning of construction. The NDPES General Construction Permit requires the preparation and implementation of a SWPPP. The SWPPP must be prepared before construction begins.

Waste Discharge Requirements Permit

RWQCB administers the Waste Discharge Requirements (WDRs) Permit Program pursuant to California Water Code Section 13260, which states that persons discharging or proposing to discharge waste that could affect the quality of the waters of the state, other than into a community sewer system, shall file a Report of Waste Discharge containing information which may be required by RWQCB. These discharge would fall under the Phase II Small Municipal Separate Storm Sewer System (MS4) Permit.

Local

Madera County General Plan

The Madera County General Plan contains the following policies that are relevant to storm drainage, hydrology, and water quality standards:

Storm Drainage and Flood Control Policies

Policy 3.E.1: The County shall provide for expansion and development of storm drainage systems to meet the needs of existing and planned development.

Policy 3.E.2: The County shall require new development to pay its fair share of the costs of Madera County storm drainage and flood control improvements.

Policy 3.E.3: The County shall encourage project designs that minimize drainage concentrations and impervious coverage and maintain, to the extent feasible, natural drainage conditions.

Policy 3.E.4: The County shall preserve creeks and rivers, as feasible, to maintain existing floodplain capacity. The County shall continue to require a drainage permit for any project that would potentially alter a watercourse.

Policy 3.E.5: Future drainage system discharges shall comply with applicable state and federal pollutant discharge requirements.

Policy 3.E.7: The County shall encourage the use of natural stormwater drainage systems to preserve and enhance natural features.

Policy 3.E.7: The County shall consider recreational opportunities and aesthetics in the design of stormwater ponds and conveyance facilities.

Water Resource Policies

Policy 5.C.1: The County shall protect and preserve areas with groundwater recharge capabilities and minimize placement of potential sources of pollution in such areas.

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 groundwater 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 that storm drainage systems use BMPs.

Policy 5.C.5: The County shall approve only wastewater disposal facilities that will not contaminate groundwater or surface water.

Policy 5.C.6: The county shall require that natural watercourses are integrated into new development in such a way that they are accessible to the public and provide a positive visual element.

Policy 5.C.8: 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.

Policy 5.C.9: The County shall support the policies of the San Joaquin River Parkway Plan to protect the San Joaquin River as an aquatic habitat and a water source.

Flood Hazard Policies

Policy 6.B.1: The County shall prohibit uses in designated floodways except those that do not adversely affect flood elevations or velocities, and are tolerant of occasional flooding, such as agriculture, outdoor recreation, mineral extraction, and natural resource areas.

Policy 6.B.2: The County shall require evaluation of potential flood hazards prior to approval of development projects and shall regulate development in urban and urbanizing areas per State law addressing 100-year and 200-year level of protection consistent with the current Central Valley Flood Protection Plan or the Federal Emergency Management Agency (FEMA) standard of flood protection.

Policy 6.B.3: The County shall not approve any new development agreement, building permit or entitlement, or tentative or parcel map, or any other entitlement, unless it finds one of the following:

(1) The flood control facilities provide a 100-year level of protection consistent with the current Central Valley Flood Protection Plan or the Federal Emergency Management Agency (FEMA) standard of flood protection;

(2) Conditions imposed on the development will protect the property at a 100-year level of protection consistent with the current Central Valley Flood Protection Plan or the Federal Emergency Management Agency (FEMA) standard of flood protection.; or

(3) The local flood management agency has made "adequate progress" on the construction of a flood protection system which will result in protection equal or greater than the a 100-year level of protection consistent with the

current Central Valley Flood Protection Plan or the Federal Emergency Management Agency (FEMA) standard of flood protection.

Policy 6.B.4: The County shall require, for areas protected by levees, all new developments to include a notice within the deed that the property is protected from flooding by a levee and that the property can be subject to flooding if the levee fails or is overwhelmed.

Policy 6.B.5: The County shall require project applicants to secure an encroachment permit from the Central Valley Flood Protection Board for any project that falls within the jurisdiction regulated by the Board (e.g., levees, designated floodways). Project Design

Policy 6.B.6: The County shall require flood-proofing of structures in areas subject to flooding and shall require that all development within special flood hazard areas (SFHA) 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.

Castellina Specific Plan

Development under the NGA General Plan designation requires the adoption of an Area Plan, which in this case comprises the Specific Plan Area. Planning staff will use the Area Plan as a policy and land use planning guide. A specific plan implements the goals and policies of the General Plan and Area Plan, serves as an extension of the General Plan, and can be used as both a policy and a regulatory document. The Castellina Area Plan (CAP) is consistent with the Madera County General Plan, and the Castellina Specific Plan's new Zoning Districts are in turn consistent with the Castellina Area Plan's Land Use Designations. The Castellina Specific Plan serves to implement the new Zoning Districts as set forth in this Specific Plan document.

The following goal and policies are included in the Castellina Specific Plan:

Goal: To protect and conserve the natural resources of the Specific Plan Area and surrounding area including surface and groundwater supplies.

NEF-1: Consistent with Madera County goals and sound water conservation practices, plan to comply with County water extraction and recharge policies and requirements.

NEF-2: Minimize water waste through water conservation techniques, including: effective management of stormwater runoff through groundwater recharge and Low Impact Development (L.I.D.); use of drought-tolerant landscaping; and use of efficient irrigation practices, such as low-water use equipment, moisture sensors, and design irrigation that prevents overspray.

NEF-3: Maximize the potential for energy and water conservation through appropriate design including passive solar orientation, shading, and minimizing heat islands.

NEF-4: Adopt green building practices for site and building design that focus on resource and energy efficiency. Where feasible, capture and treat irrigation and stormwater runoff through natural, landscape-based processes.

NEF-5: Promote environmental stewardship through the inclusion of progressive energy programs and standards in construction and ongoing operation of buildings within the Specific Plan Area.

NEF-6: Use reclaimed water for landscape irrigation in such public areas as parks, parkways, schools, and other open space areas within the community.

NEF-7: Work with federal, State, and regional agencies to address the treatment of any potential on-site environmental features.

3.9.3 Impacts and Mitigation Measures

Significance Criteria

The criteria used to determine the significance of impacts related to hydrology and water quality are based on Appendix G of the *CEQA Guidelines*. The proposed Phase 1 Project and proposed Program would result in a significant impact to hydrology or water quality if it would:

- Violate any water quality standards or waste discharge requirements or otherwise substantially degrade surface or ground water quality (see Impact 3.9-1, below);
- Substantially decrease groundwater supplies or interfere substantially with groundwater recharge such that the project may impede sustainable groundwater management of the basin) (see Impact 3.9-2, below);
- Substantially alter the existing drainage pattern of a site or area, including through the alteration of the course of a stream or river or through the addition of imperious surfaces, in a manner which would (see Impact 3.9-3, below):
    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 off- site;
    iii. Create or contribute runoff water that would exceed the capacity of existing or planned stormwater, drainage systems or provide substantial additional sources of polluted runoff;
    iv. Impede or redirect flood flows;
- In flood hazard, tsunami, or seiche zones, risk or release of pollutants due to project inundation (see Impact 3.9-4, below);
- Conflict with or obstruct implementation of a water control plan or sustainable groundwater management plan (see Impact 3.9-5, below);

Methodology

The following analysis considers Project plans, current conditions at the Project site, and applicable regulations and guidelines. Much of the analysis is based on information contained in the Castellina Specific Plan (Appendix B), the Water Supply Assessment (WSA) (Appendix I-2)

developed for this Project, and the Castellina Water Management Plan (Appendix I-1), which, combined, provided preliminary design standards for the proposed Project including stormwater management, groundwater recharge, wastewater treatment, and water supply. The analysis below describes the rigorous regulatory measures that currently exist to protect groundwater and receiving surface waters from any impairment associated with new development and new sources of discharge such as a wastewater treatment plant.

Impacts Discussion

Water Quality Standards and Waste Discharge Requirements

Impact 3.9-1a: The Phase 1 Project would have less than significant and less than cumulatively considerable water quality impacts when compared to water quality standards or waste discharge requirements and would not substantially degrade surface or ground water quality.

Phase 1 Project Impact Analysis

Construction

The Phase 1 Project area contains orchard trees, and elevations range from approximately 280 feet above msl to approximately 310 feet above msl. Generally, the Phase 1 Project area slopes from east to west. Phase 1 Project construction includes residences, retention basins, streets, utilities, and wastewater treatment plant facilities. Construction activities such as removal of orchard trees, grubbing, grading, excavation, and stockpiling would loosen soil structure and expose bare soil, making it potentially more easily eroded by wind and rain. In addition, construction activities will include the drilling of one well to extract water for dust suppression. In 2017, water samples obtained from agricultural wells within the vicinity of the Phase 1 Project site were tested and analyzed for the complete Title 22 drinking water constituents to determine the likely water quality of the proposed wells. The sampling results indicated that no contaminants were detected that would pose a health risk. Based on water quality testing of the groundwater, no treatment is required, and therefore, the use of groundwater for dust suppression would result in less than significant water quality impacts to downstream receiving areas.

Construction of the proposed structures and the associated street and utility improvements within the Phase 1 Project area would require the use of heavy equipment and construction-related chemicals, such as fuels, oils, grease, solvents and paints that would be stored in limited quantities on-site. In the absence of proper controls, these construction activities could result in accidental spills or disposal of potentially harmful materials used during construction that could wash into and pollute surface waters on-site and/or worsen water quality of downstream receiving waters. Materials that could potentially contaminate the construction area from a spill or leak include diesel fuel, gasoline, lubrication oil, hydraulic fluid, antifreeze, transmission fluid, lubricating grease, concrete, and other fluids.

Because construction would disturb more than one acre of soil, the developer would be required to comply with the NPDES Construction General Permit. In compliance with this permit, a SWPPP would be prepared and implemented, which would require erosion control, sediment control, non-stormwater and waste and material management BMPs, such as routine inspection

and maintenance of equipment, that would prevent construction chemicals used within the Phase 1 Project site from washing into downstream surface waters. Prior to issuance of a grading permit for construction, the developer would be required to submit a SWPPP to the County of Madera. The SWPPP would specify the BMPs that would be used to prevent construction pollutants from contacting stormwater, with the intent of keeping sedimentation or any other pollutants from moving outside the Phase 1 Project limits and into receiving waters. The County of Madera would review the proposed BMPs within the SWPPP and determine if the BMPs are appropriate for the portions of the Phase 1 Project. After determining that the BMPs are appropriate, the County of Madera can issue a grading permit. Representative BMPs include the following:

- Limiting grading to the minimum area necessary for construction and operation of the Phase 1 Project (erosion control);
- Limiting vegetation disturbance/removal to the maximum extent practicable (erosion control);
- Implementing fiber rolls and sand bags around drainage areas and the site disturbance perimeter (sediment control);
- Stockpiling soil properly (sediment control);
- Installation of a stabilized construction entrance/exit and stabilization of disturbed areas (sediment control);
- Proper protections for fueling and maintenance of equipment and vehicles (non-stormwater);
- Managing waste, aggressively controlling litter, and implementing sediment controls (non-stormwater); and
- Bio-retention and detention basins and associated directional swales (post-construction).

Implementation of BMPs such as those identified above have proven effective in protecting water quality of receiving waters during construction. The County of Madera will review the BMPs that are included within their respective SWPPP to determine if the BMPs are in compliance with the SWPPP requirements. As a result, the BMPs that comply with the SWPPP requirements would reduce potential water quality impacts during construction to less than significant.

Operation

Operation of the Phase 1 Project could also adversely impact water quality. Through the development of the proposed uses and the associated street and utility improvements on the existing site that contains orchards, additional and/or new potential sources of pollutants would be introduced to the Phase 1 Project area. The proposed urban uses could result in additional sources of various pesticides and increases in sediment and nutrients (from landscaping), fuels and metals (from vehicles), and trash and debris.

The Phase 1 Project would include several source control (structural and non-structural) and treatment control BMPs during its operation as required by the Phase II Small Municipal Separate Storm Sewer System (MS4) General Permit (Phase II MS4 Permit). Source control BMPs would prevent the pollution of stormwater runoff from coming into contact with potential pollutants such as sediment and chemicals. Structural source control BMPs would include, but would not be limited to, maximization of permeable areas, incorporation of landscaped areas throughout the

Phase 1 Project area, planting of native/drought tolerant vegetation, storm drain signage, rain shutoff devices on irrigation, and appropriate design of trash receptacle areas. Non-structural source control BMPs would include resident and employee water education, activity restrictions, and street sweeping. Treatment control BMPs would allow for the treatment of runoff that may contain pollutants prior to it exiting the site. Treatment control BMPs would include the proposed retention basins where the runoff will be allowed to settle and then conveyed to proposed underground reinforced concrete pipes that eventually lead to the northwest corner of the site and exit under Road 27 through the existing culvert. These facilities would be regularly maintained. Together, these BMPs would achieve a reduction of pollutants within runoff.

The proposed stormwater system that include the detention basins within the Phase 1 Project area would detain the differential runoff between the pre-development and post-development condition. Under the 100-year storm event, the pre-development condition of the peak runoff for Sub-basin J-K3, which exits the site at the culvert under Road 27, is 84 cfs and the post-development condition is 59 cfs. Under the 25-year storm event at Sub-basin J-K3, the pre-development condition is 36 cfs and the post-development condition is 20 cfs.

As specified in the NPDES permit, the proposed Project would be required to prepare a final WQMP in accordance with the Phase II MS4 Permit requirements that would finalize Project-specific site design, source control, and treatment control BMPs, as well as a BMP operation and maintenance plan to ensure their continued efficiency throughout the Project lifetime. These BMPs would be aimed at controlling post-development runoff rates and urban runoff pollution. The final Water Quality Management Plan (WQMP) would demonstrate that BMPs will detain the incremental increase of runoff from storm events.

The Project operator would be required to include a BMP operation and maintenance plan to ensure continued efficiency of water quality control features throughout the Project lifetime. The final WQMP would be submitted to the County of Madera for review and approval prior to the beginning of construction. As a result of adherence to these BMP requirements, operational impacts to water quality would be less than significant.

Project operation also includes the treatment of wastewater generated within the Phase 1 Project area. Wastewater would be conveyed to the onsite wastewater treatment plant by pipelines and treated at a tertiary level. Once treated, the water is used as reclaimed water for landscaping within the Phase 1 Project area. Any remaining reclaimed water would be conveyed to the existing orchards that are located south of the Phase 1 Project area and within the Specific Plan Program area or conveyed to the farmlands near the Phase 1 Project site for irrigation. During storm events, the reclaimed water could result in urban runoff and conveyed to downstream drainages. However, since the reclaimed water is treated at a tertiary level for irrigation purposes, reclaimed water that enters into downstream areas would not substantially degrade stormwater quality and would result in less than significant impacts on downstream areas. Furthermore, prior to exiting the Phase 1 Project site at Road 27, there are various operational BMPs as discussed above that would further improve the stormwater quality.

Significance Determination before Mitigation: Less than Significant

Phase 1 Project Cumulative Impact Analysis

The geographic scope for cumulative impacts related to water quality include the projects identified in Table 3.0-1 in Section 3.0.2 that have the potential to contribute to pollutant loading during construction and operation, which could potentially result in cumulative impacts to water quality. However, like the Phase 1 Project, all new construction would be subject to the NPDES permit Waste Discharge Requirements for both construction, and, where applicable, to dewatering activities. Each related project greater than one-acre in size would be required to develop a SWPPP for construction and grading activities. In addition, all new construction plans would be evaluated individually to determine the appropriate BMPs and treatment measures to minimize the related projects impacts to water quality. Operation of the related projects would implement operational BMPs to address the quality of water runoff from surfaces such as streets, driveways and parking lots. With compliance to the NPDES and incorporation of operational BMPs, related projects would result in less than significant water quality impacts. Because the proposed Project would also comply with the NPDES and include BMPs, the Phase 1 Project's contribution to potential cumulative water quality impacts would be less than cumulatively considerable.

Significance Determination before Mitigation: Less than Significant

Phase 1 Project Mitigation Measures

No mitigation measures are required.

Significance Determination after Mitigation: Less than Significant

Phase 1 Project Cumulative Measures

No mitigation measures are required.

Significance Determination after Mitigation: Less than Significant

Impact 3.9-1b: The proposed Program would have less than significant and less than cumulatively considerable water quality impacts when compared to water quality standards or waste discharge requirements and would not substantially degrade surface or ground water quality.

Program Impact Analysis

Construction

As discussed above for the Phase 1 Project, the Program area also contains orchard trees. Elevations within the Program area range from approximately 280 feet above msl to approximately 310 feet above msl. As with the Phase 1 Project area, the Program area also slopes from east to west. Construction within the Program area includes residences, mixed uses and commercial, a school, parks and recreational facilities, open space and retention basins, streets, utilities, and expansion of the wastewater treatment plant facilities proposed as part of the Phase 1 Project. Construction activities such as removal of orchard trees, grubbing, grading, excavation, and stockpiling would loosen soil structure and expose bare soil, making it potentially more easily eroded by wind and rain. In addition, construction activities will include the drilling of additional wells to extract water for dust suppression. As discussed above, water samples obtained in 2017 from agricultural wells within the Program area were tested and analyzed for the

complete Title 22 drinking water constituents to determine the likely water quality of the proposed wells. The sampling results indicated that no contaminants were detected that would pose a health risk. Based on water quality testing of the groundwater, no treatment is required, and therefore, the use of groundwater for dust suppression would result in less than significant water quality impacts to downstream receiving areas.

Construction of the proposed structures and the associated street and utility improvements within the Program area would require the use of heavy equipment and construction-related chemicals, such as fuels, oils, grease, solvents and paints that would be stored in limited quantities on-site. In the absence of proper controls, these construction activities could result in accidental spills or disposal of potentially harmful materials used during construction that could wash into and pollute surface waters on-site and/or worsen water quality of downstream receiving waters. Materials that could potentially contaminate the construction area from a spill or leak include diesel fuel, gasoline, lubrication oil, hydraulic fluid, antifreeze, transmission fluid, lubricating grease, concrete, and other fluids.

Because construction of the various phases within the Program area would disturb more than one acre of soil, the developer would be required to comply with the NPDES Construction General Permit. In compliance with this permit, a SWPPP would be prepared and implemented, which would require erosion control, sediment control, non-stormwater and waste and material management BMPs, such as routine inspection and maintenance of equipment, that would prevent construction chemicals used within the Program area from washing into downstream surface waters. Prior to issuance of a grading permit for each phase, the developer would be required to submit a SWPPP to the County of Madera. The SWPPP would specify the BMPs that would be used to prevent construction pollutants from contacting stormwater, with the intent of keeping sedimentation or any other pollutants from moving outside the Project limits and into receiving waters. The County of Madera would review the proposed BMPs within the SWPPP and determine if the BMPs are appropriate for the specific phase of development. After determining that the BMPs are appropriate, the County of Madera can issue a grading permit. Representative BMPs include the following:

- Limiting grading to the minimum area necessary for construction and operation of the Phase 1 Project (erosion control);
- Limiting vegetation disturbance/removal to the maximum extent practicable (erosion control);
- Implementing fiber rolls and sand bags around drainage areas and the site disturbance perimeter (sediment control);
- Stockpiling soil properly (sediment control);
- Installation of a stabilized construction entrance/exit and stabilization of disturbed areas (sediment control);
- Proper protections for fueling and maintenance of equipment and vehicles (non-stormwater);
- Managing waste, aggressively controlling litter, and implementing sediment controls (non-stormwater); and
- Bio-retention and detention basins and associated directional swales (post-construction).

Implementation of BMPs such as those identified above have proven effective in protecting water quality of receiving waters during construction. The County of Madera will review the BMPs that are included within their respective SWPPP to determine if the BMPs are in compliance with the SWPPP requirements. As a result, the BMPs that comply with the SWPPP requirements would reduce potential water quality impacts during construction to less than significant.

Operation

Operation of the proposed Program uses could also adversely impact water quality. Through the development of the proposed uses and the associated street and utility improvements on the existing Program site that contains orchards, additional and/or new potential sources of pollutants would be introduced to the Project area. The proposed urban uses could result in additional sources of various pesticides and increases in sediment and nutrients (from landscaping), fuels and metals (from vehicles), and trash and debris.

The proposed Program would include several source control (structural and non-structural) and treatment control BMPs during its operation as required by the Phase II MS4 Permit. Source control BMPs would prevent the pollution of stormwater runoff from coming into contact with potential pollutants such as sediment and chemicals. Structural source control BMPs would include, but would not be limited to, maximization of permeable areas, incorporation of landscaped areas throughout the Program area, planting of native/drought tolerant vegetation, storm drain signage, rain shutoff devices on irrigation, and appropriate design of trash receptacle areas. Non-structural source control BMPs would include resident and employee water education, activity restrictions, and street sweeping. Treatment control BMPs would allow for the treatment of runoff that may contain pollutants prior to it exiting the site. Treatment control BMPs would include the proposed retention basins where the runoff will be allowed to settle and then conveyed to proposed underground reinforced concrete pipes that eventually lead to the northwest corner of the site and exit under Road 27 through the existing culvert. These facilities would be regularly maintained. Together, these BMPs would achieve a reduction of pollutants within runoff.

The proposed stormwater system that include the detention basins within the Program area would detain the differential runoff leaving the Program site at Road 27 between the pre-development and post-development condition. Under the 100-year storm event, the pre-development condition of the peak runoff for Sub-basin J-K3, which exits the site at the culvert under Road 27, is 84 cfs and the post-development condition is 70 cfs. Under the 25-year storm event at Sub-basin J-K3, the pre-development condition is 36 cfs and the post-development condition is 20 cfs, which is the same as under the Phase 1 Project.

As specified in the NPDES permit, the proposed Project would be required to prepare a final WQMP in accordance with the Phase II MS4 Permit requirements that would finalize Project-specific site design, source control, and treatment control BMPs, as well as a BMP operation and maintenance plan to ensure their continued efficiency throughout the Project lifetime. These BMPs would be aimed at controlling post-development runoff rates and urban runoff pollution. The final Water Quality Management Plan (WQMP) would demonstrate that BMPs will detain the incremental increase of runoff from storm events.

The Project operator would be required to include a BMP operation and maintenance plan to ensure continued efficiency of water quality control features throughout the Project lifetime. The final WQMP would be submitted to the County of Madera for review and approval prior to the beginning of construction. As a result of adherence to these BMP requirements, operational impacts to water quality would be less than significant.

Project operation also includes the treatment of wastewater generated within the northwest corner of the Program area. The wastewater treatment plant within the Phase 1 Project area would be expanded to accommodate the wastewater flows generated by the uses from buildout of the Program area. Wastewater would be conveyed to the onsite wastewater treatment plant by pipelines and treated at a tertiary level. Once treated, the water will be used as reclaimed water for landscaping within the Program area. Any remaining reclaimed water would be conveyed to the farmlands adjacent to the Program Area for irrigation. During storm events, the reclaimed water could result in runoff and conveyed to downstream drainages. However, since the reclaimed water is treated at a tertiary level for irrigation purposes, reclaimed water that enters into downstream areas would not substantially degrade stormwater quality and would result in less than significant impacts on downstream areas. Furthermore, prior to exiting the Project site at Road 27, there are various operational BMPs as discussed above that would further improve the stormwater quality.

Significance Determination before Mitigation: Less than Significant

Program Cumulative Impact Analysis

The geographic scope for cumulative impacts related to water quality include the growth projections listed in Table 3.0-2 in Section 3.0.2. Future growth has the potential to contribute to pollutant loading during construction and operation, which could potentially result in cumulative impacts to water quality. However, like the Phase 1 Project, all new construction would be subject to the NPDES permit Waste Discharge Requirements for both construction, and, where applicable, to dewatering activities. Each related project greater than one-acre in size would be required to develop a SWPPP for construction and grading activities. In addition, all new construction plans would be evaluated individually to determine the appropriate BMPs and treatment measures to minimize future growth impacts to water quality. Operation of the future growth projects would implement operational BMPs to address the quality of water runoff from surfaces such as streets, driveways and parking lots. With compliance to the NPDES and incorporation of operational BMPs, growth projects would result in less than significant water quality impacts. Because the proposed Program would also comply with the NPDES and include BMPs, the Program's contribution to potential cumulative water quality impacts would be less than cumulatively considerable.

Significance Determination before Mitigation: Less than Significant

Program Mitigation Measures

No mitigation measures are required.

Significance Determination after Mitigation: Less than Significant

Program Cumulative Mitigation Measures

No mitigation measures required.

Significance Determination after Mitigation: Less than Significant

Groundwater Supplies and Recharge

Impact 3.9-2a: The Phase 1 Project would have less than significant and less than cumulatively considerable groundwater impacts due to decreases in groundwater supplies or interfering with groundwater recharge such that the Phase 1 Project may impede sustainable groundwater management of the basin.

Phase 1 Project Impact Analysis

Construction

Construction activities associated with the Phase 1 Project would include excavation activities during grading. Because the groundwater levels are approximately 1,500 feet below ground surface (bgs), construction would not physically impact groundwater. In addition, construction activities would include the use of groundwater for dust suppression. Based on the Water Supply Assessment that was prepared for the Specific Plan Program, approximately 4 AFY was estimated to be used during construction activities. Because construction activities for the Phase 1 Project would occur over an approximately one year, approximately 4 AF would be used. The use of 4 AF of groundwater would not be considered substantial, and therefore, construction activities associated with the Phase 1 Project would result in a less than significant impact on groundwater supplies.

Operation

The operational activities associated with the Phase 1 Project would require groundwater for potable use as well as recycled water for irrigation. A Water Supply Assessment was prepared for the Specific Plan Program because according to WSA Law (Senate Bill 610), projects with a water demand of greater than 500 residential units would require an assessment of whether projected water supplies identified to serve a project will be sufficient to meet existing and planned water demands over a 20-year horizon. Because the Phase 1 Project includes 117 residential units, a specific WSA for the Phase 1 Project is not required. Although a WSA was not prepared specifically for the Phase 1 Project, information from the WSA was used to determine water use associated with the Phase 1 Project.

The Phase 1 Project includes 67 low density and 50 very low density residential units. The potable water demand for the units (indoor and outdoor use) is approximately 25 AFY (0.37 AFY x 67 units) and approximately 30 AFY (0.59 AFY x 50 units) for a total residential demand of 55 AFY. In addition to residential, the Phase 1 Project includes a 5-acres neighborhood park and 34 acres of open space that includes the wastewater treatment plant. The 5-acres neighborhood park is estimated to demand approximately 2 AFY (1.73 AFY x 5.0 acres x 0.75 of the park requiring irrigation water) of recycled water. The 34 acres of open space is projected to demand 2.6 AFY primarily to establish the plant species for a total of approximately 88 AFY of recycled water. Therefore, the Phase 1 Project would demand approximately 145 AFY of water until the plant species within the open space area are established. After they are established and the long-term water use of the Phase 1 Project would demand 57 AFY (145 AFY minus 88 AFY).

To reduce the amount of groundwater that would be required for the Phase 1 Project, stormwater would be captured and retained within the proposed onsite basins and recharged into the groundwater basin. Based on the stormwater capture rates provided in the WSA, the 50 units of very low density residential would encompass approximately 18 acres, have a runoff rate of 0.33 per acre, and result in a total stormwater capture of 6 AFY. The 67 acres of low density residential would encompass approximately 16.6 acres, have a runoff rate of 0.41 AFY, and result in a total stormwater capture of 7 AFY. Therefore, the combined total stormwater capture for the residential areas within the Phase 1 Project would be 13 AFY; however, based on a loss of approximately 10 percent to evaporation, approximately 12 AFY would be available for groundwater recharge. In addition to stormwater capture and recharge of the groundwater basin, the Phase 1 Project would generate approximately 25 AFY (total indoor water use of 26 AFY minus approximately 1 percent, 1 AFY, of water consumed by residents) of wastewater that would be used as recycled water.

Therefore, the initial net total groundwater required for the Phase 1 Project would be approximately 107 AFY until the plant species within the open space are established and at that time, the long-term use of groundwater for the Phase 1 Project would require approximately 57 AFY as discussed above. With the capture and recharge of stormwater into the groundwater, the long-term water demand of 57 AFY would be reduced to 45 AFY (57 AFY minus 12 AFY of groundwater recharge from the collected stormwater). The County of Madera has been preparing the County of Madera Groundwater Sustainability Plan for the Madera Sub-basin that lies under the Phase 1 Project site. Although a sustainable yield has not been officially adopted by the County of Madera, the value of 0.5 acre-feet per acre per year has been formally presented in the County of Madera Groundwater Sustainability Plan. Based on the 0.5 acre-feet per acre per year sustainable yield, the Phase 1 Project site (approximately 1 acres) would have a credit of 46 AFY. Therefore, the Phase 1 Project would result in an approximately 1 AFY of groundwater surplus per year within the Madera Sub-basin. With a sustainable groundwater use from the Madera Sub-basin, the Phase 1 Project would result in a less than significant impacts on groundwater supplies.

Furthermore, the Phase 1 Project would include the development of impervious surfaces that would interfere with groundwater recharge. However, the proposed stormwater system with recharge basins as well as the development of a wastewater treatment plant, that would treat the wastewater at a tertiary level to allow the treated water (recycled water) to be used for non-residential irrigation, would allow for groundwater to be recharged. Therefore, the Phase 1 Project would result in a less than significant impact on groundwater recharge.

Significance Determination before Mitigation: Less than Significant

Phase 1 Project Cumulative Impact Analysis

The geographic scope for cumulative impacts related to groundwater supplies include all projects within the Madera Sub-basin including the projects identified in Table 3.0-1 in Section 3.0.2 as well as major subdivisions within the southern portion of the County of Madera such as Tesoro Viejo that includes over 5,000 residential units and Riverstone that includes approximately 6,600 residential units. The majority of the cumulative projects listed in Table 3.0-1 are not considered major subdivision because each project would not generate a demand for water that is equivalent

to 500 residential units. The implementation of each of these smaller projects would result in a less than significant impact on groundwater supplies.

The Ventana Specific Plan project within Table 3.0-1 includes approximately 857 units which is considered a major subdivision. Each of the major subdivisions that would be constructed within the Madera Sub-basin (including Tesoro Viejo and Riverstone) are required to demonstrate long-term groundwater sustainability so that each project would result in a less than significant impact on groundwater supplies. Although a sustainable yield has not been officially adopted by the County of Madera, the value of 0.5 acre-feet per acre per year has been formally presented in the County of Madera Groundwater Sustainability Plan. Because each major subdivision project is required to demonstrate a groundwater balance, the implementation of the cumulative major subdivision projects would result in a less than significant impact on groundwater supplies. Therefore, cumulative projects would result in a less than significant impact on groundwater supplies.

Because the Phase 1 Project would not result in a substantial increase in the use of groundwater and the impact on groundwater supplies would be less than significant, the contribution of the Phase 1 Project's impact on groundwater would be less than cumulative considerable.

Significance Determination before Mitigation: Less than Significant

Phase 1 Project Mitigation Measures

No mitigation measures are required.

Significance Determination after Mitigation: Less than Significant

Phase 1 Cumulative Mitigation Measures

No mitigation measures are required.

Significance Determination after Mitigation: Less than Significant

Impact 3.9-2b: The proposed Program would have less than significant and less than cumulatively considerable groundwater impacts due to decreases in groundwater supplies or interfering with groundwater recharge such that the Project may impede sustainable groundwater management of the basin.

Program Impact Analysis

Construction

Construction activities associated with the proposed Program would include excavation activities during grading. Because the groundwater levels are approximately 1,500 feet below ground surface (bgs), construction would not physically impact groundwater. In addition, construction activities would include the use of groundwater for dust suppression. Based on the Water Supply Assessment that was prepared for the Specific Plan Program, approximately 4 AFY was estimated to be used during construction activities. The 4 AFY of water used for dust suppression will be a combination of groundwater and recycled water over the 15 years of construction activities. The use of groundwater (less than 4 AFY) for dust suppression activities would not be

considered substantial, and therefore, construction activities associated with the proposed Program would result in a less than significant impact on groundwater supplies.

Operation

The water demand from the proposed Program land uses would be met by groundwater and recycled water. Recycled water would be generated from the proposed treated wastewater flow produced from the Program's indoor residential and non-residential uses and treated at a tertiary level at the proposed onsite wastewater treatment plant.

As discussed above, a WSA was prepared for the proposed Program because the Program includes more than 500 residential units. The WSA includes a discussion of whether projected water supplies identified to serve the Program will be sufficient to meet existing and planned water demands over a 20-year horizon. Furthermore, the County of Madera adopted the Large Scale Development Groundwater Balance ordinance in August 2017 that requires a large project, such as the proposed Program, to quantify, tabulate, and calculate a groundwater balance prior to issuance of entitlements. Because the proposed Program is not within a service area of a public purveyor, the WSA evaluated the potential groundwater withdrawal impacts on the Madera Subbasin which encompasses 614 square miles.

The proposed uses within the Specific Plan Program result in a demand for groundwater withdrawal during a normal year of 1,107 AFY and a demand of 154 AFY during a normal year for recycle (non-potable) water. The Program requires a total demand of 1,261 AFY during a normal year as shown in **Table 3.9-2**.

TABLE 3.9-2
SPECIFIC PLAN PROGRAM WATER DEMAND UNDER NORMAL CONDITIONS

Potable and Non-Potable Water Demand Type	Water Demand (in Acre-Feet Per Year)
Potable Water	
Residential Indoor Demand	611
Residential Outdoor Demand	349
Non-Residential Outdoor Demand	36
Water System leaks for Residential and Non-Residential Uses	111
Total Potable Demand	1,107
Non-Potable Water	
Non-Residential Outdoor Demand	139
Water System Leaks	15
Total Non-Potable Water Demand	154
Total Program Demand	1,261

SOURCE: Tully & Young, 2019

Although the Specific Plan Program water demand for a normal year is 1,261 AFY, the WSA identified the water demand under multiple dry-year conditions. As shown in **Table 3.9-3**, the total demand for ranges from 1,135 AFY to 1,324 AFY.

TABLE 3.9-3
SPECIFIC PLAN PROGRAM WATER DEMAND UNDER MULTIPLE DRY-YEAR CONDITIONS

Type of Water	Normal (in AFY)	Single Dry Year (5% Increase vs. Normal Year) (in AFY)	Multiple Dry Year (in AFY)		
			Year 1 (5% Increase vs. Normal Year)	Year 2 (0% Increase vs Normal Year)	Year 3 (10% Decrease vs. Normal Year)
Potable	1,107	1,162	1,162	1,107	996
Non-Potable	154	162	162	154	139
Total Demand	1,261	1,324	1,324	1,261	1,135

SOURCE: Tully & Young, 2019

In addition to generating a water demand, the proposed Program would also generate a supply of water through a stormwater capture and recharge system as well as a wastewater treatment system that generates recycled water. These two water supplies would provide offsets to the Program groundwater withdrawal.

The water supply from the stormwater capture and recharge system is based on the amount of stormwater conveyed from the proposed land uses within the Program. As shown in **Table 3.9-4**, the total stormwater that is captured to infiltrate back into the groundwater basin is 337 AFY. The infiltration of 337 AFY constitutes an offset to groundwater withdrawal.

TABLE 3.9-4
SPECIFIC PLAN PROGRAM STORMWATER CAPTURE AND RECHARGE

Land Use	Stormwater Capture (in AFY)
Residential	218
Mixed Use	18
Open Space/Parks	12
Active Adult Amenity Center	1
Elementary School	1
Roads and Others	97
Total Stormwater Capture	**347**
Evaporation from Retention Ponds	-10
Total Groundwater Recharge	**337**

SOURCE: Tully & Young, 2019

The water supply from the treatment of wastewater and the generation of recycled water is based on the amount of wastewater generated by the onsite land uses as well as some loss of water within the sewer conveyance system and during the processing of biosolids. As shown in **Table 3.9-5**, the total amount of wastewater generated from the onsite uses is 647 AFY and the amount of recycled water generated after treatment is 629 AFY. As discussed above, the total water demand for recycled water within the Specific Plan Program is 154 AFY. As a result, the remaining amount of recycled water (475 AFY) would be available for use by farmlands in the vicinity of the Specific Plan Program site. The provision of recycled water to the adjacent farmlands would allow the operators of the adjacent farmlands to reduce pumping of groundwater and use recycled water. The provision of 475 AFY of recycled water off of the Specific Plan Program site would constitute an offset to groundwater withdrawal.

Based on the groundwater withdrawal and the groundwater supply that constitutes offsets, the Program's effect on the Madera Sub-basin can be identified. In addition, the County of Madera has been preparing the County of Madera Groundwater Sustainability Plan for the Madera Sub-basin that lies under the Specific Plan Program site. Although a sustainable yield has not been officially adopted by the County of Madera, the value of 0.5 acre-feet per acre per year has been formally presented in the County of Madera Groundwater Sustainability Plan. Therefore, based on 0.5 acre-foot per acre per year, the Program site would result in a groundwater sustainable yield credit of 396 AFY. **Table 3.9-6** provides a summary of the groundwater withdrawal and recharge that would result from the implementation of the proposed Specific Plan Program.

TABLE 3.9-5
SPECIFIC PLAN PROGRAM GENERATION OF WASTEWATER AND RECYCLED WATER

Wastewater/Recycled Water	Stormwater Capture (in AFY)
Wastewater Generated	
Residential	611
Non-Residential	36
Total Wastewater	**647**
Water Loss Within Sewer Conveyance System	-6
Water Loss from Biosolids Processing	-12
Total Recycled Water	**629**
Recycled Water - Onsite	154
Recycled Water - Offsite	475

SOURCE: Tully & Young, 2019

TABLE 3.9-6
SPECIFIC PLAN PROGRAM EFFECT ON MADERA SUB-BASIN

Groundwater Withdrawal/Groundwater Credits	Water (in AFY)
Total Specific Plan Program Groundwater Withdrawal	**-1,107**
Total Groundwater Recharge Credits	**938**
Stormwater Capture After Evaporation from Retention Ponds	(337)
Onsite Potable Water System Leakage	(111)
Onsite Recycled Water System Leakage	(15)
Recycled Water Conveyed Offsite	(475)
Sustainable Yield Credit	396
Total Effect on Madera Subbasin	**227 (Surplus)**

SOURCE: Tully & Young, 2019

As shown in Table 3.9-6, the Madera Sub-basin would experience a surplus of 227 AFY at full buildout of the proposed Specific Plan Program. As a result, the Program would result in less than significant impacts on groundwater supplies and groundwater recharge.

Significance Determination before Mitigation: Less than Significant

Program Cumulative Impact Analysis

The geographic scope for cumulative impacts related to groundwater supplies include the growth projections listed in Table 3.0-2 in Section 3.0.2. The growth assumptions account for small-scale as well as large-scale development or subdivisions. Some of the current large-scale subdivisions that are included in the growth projections include Ventana Specific Plan that has approximately 857 residential units, Tesoro Viejo that has over 5,000 residential units and Riverstone that has approximately 6,600 residential units. The greatest impact on the groundwater basin would result from the development of the large-scale subdivisions. As a result, the County of Madera approved the Large Scale Development Groundwater Balance Ordinance (Madera County Code 13.110.060) that requires a large-scale project to quantify, tabulate, and calculate a groundwater balance for the Madera Sub-basin prior to providing entitlements to a project. Because each of the large-scale project is required to demonstrate a groundwater balance, the implementation of cumulative growth would result in a less than significant impact on groundwater supplies and groundwater recharge.

Because the Madera Sub-basin would experience a surplus of 227 AFY at full buildout of the proposed Specific Plan Program, the Program's contribution to the cumulative impact on groundwater supplies and groundwater recharge would be less than cumulatively considerable.

Significance Determination before Mitigation: Less than Significant

Program Mitigation Measures

No mitigation measures are required.

Significance Determination after Mitigation: Less than Significant

Program Cumulative Measures

No mitigation measures are required.

Significance Determination after Mitigation: Less than Significant

Drainage Patterns

Impact 3.9-3a: The Phase 1 Project would have less than significant and less than cumulatively considerable drainage impacts due to potentially altering the existing drainage pattern of a site or area, including the alteration of the course of a stream or river or through the addition of imperious surfaces, in a manner that would:

- **Result in substantial erosion or siltation on- or off- site;**
- **Substantially increase the rate or amount of surface runoff in a manner which would result in flooding on- or off- site;**
- **Create or contribute runoff water that would exceed the capacity of existing or planned stormwater, drainage systems or provide substantial additional sources of polluted runoff;**
- **Impede or redirect flood flows**

Phase 1 Project Impact Analysis

Construction

The Phase 1 Project area contains orchard trees, and elevations range from approximately 280 feet above msl to approximately 310 feet above msl. Generally, the Phase 1 Project area slopes from east to west. Phase 1 Project construction includes residences, retention basins, streets, utilities, and wastewater treatment plant facilities. Construction activities such as removal of orchard trees, grubbing, grading, excavation, and stockpiling would loosen soil structure and expose bare soil, making it potentially more easily eroded by wind and rain and result in potential downstream siltation. As discussed in 3.9-1a above, the Phase 1 Project area would disturb more than one acre of soil. The developer would be required to comply with the NPDES Construction General Permit. In compliance with this permit, a SWPPP would be prepared and implemented, which would require erosion control and sediment control. Prior to issuance of a grading permit for construction, the developer would be required to submit a SWPPP to the County of Madera. The SWPPP would specify the BMPs that would be used to prevent erosion and siltation of soils from moving outside the Phase 1 Project limits and into downstream areas as well as reducing the conveyance of stormwater flows so that flows do not exceed existing stormwater flows off of the Phase 1 Project site and would not impact downstream stormwater facilities. In addition, the flood flows that currently extend across the northwest portion of the Phase 1 Project site would be impeded during construction of the entrance road; however, BMPs would be required to ensure that no increase in downstream flood flows would occur during construction activities.

The County of Madera would review the proposed BMPs within the SWPPP and determine if the BMPs are appropriate for the portions of the Phase 1 Project. After determining that the BMPs

are appropriate, the County of Madera can issue a grading permit. Representative BMPs include the following:

- Limiting grading to the minimum area necessary for construction and operation of the Phase 1 Project (erosion control);
- Limiting vegetation disturbance/removal to the maximum extent practicable (erosion control);
- Implementing fiber rolls and sand bags around drainage areas and the site disturbance perimeter (sediment control);
- Stockpiling soil properly (sediment control);
- Installation of a stabilized construction entrance/exit and stabilization of disturbed areas (sediment control);

Implementation of BMPs such as those identified above have proven effective in controlling erosion, reducing sediment, and reducing stormwater flows leaving a construction site. The County of Madera will review the BMPs that are included within their respective SWPPP to determine if the BMPs are in compliance with the SWPPP requirements. As a result, the BMPs that comply with the SWPPP requirements would reduce potential erosion, sedimentation, and downstream stormwater impacts during construction to less than significant.

Operation

Operation of the Phase 1 Project would increase the amount of impervious surfaces on the site and thus increase surface water flow during storm events. The Phase 1 Project would include several BMPs during its operation. Structural source control BMPs would include, but would not be limited to, maximization of permeable areas, incorporation of landscaped areas throughout the Phase 1 Project area, planting of native/drought tolerant vegetation, and rain shutoff devices on irrigation. The implementation of these BMPs would reduce the potential for erosion to occur on the site. The Phase 1 Project also includes proposed retention basins where stormwater runoff volumes could be reduced and conveyed downstream a lower rates compared to existing flows. As discussed in Impact 3.9-1a above, the proposed detention basins would detain the differential runoff between the pre-development and post-development condition. Under the 100-year storm event, the pre-development condition of the peak runoff for Sub-basin J-K3, which exits the site at the culvert under Road 27, is 84 cfs and the post-development condition is 59 cfs. Under the 25-year storm event at Sub-basin J-K3, the pre-development condition is 36 cfs and the post-development condition is 20 cfs. A final Water Quality Management Plan (WQMP) to be prepared as part of the Phase 1 Project would be required to demonstrate that BMPs will detain the incremental increase of runoff from storm events. The detaining of stormwater runoff would reduce potential stormwater flow impacts on downstream drainage facilities to less than significant.

In addition, the flood flows that currently extend across the northwest portion of the Phase 1 Project site could be impeded with the development of the entrance road. An evaluation of the Project's impact on the existing floodplain was prepared to demonstrate that the Project would not increase the base flood elevations more than 1-foot and assure that the flood carrying capacity within the altered portion of the tributary in the northwest corner of the site (Schmidt Creek Tributary) is maintained as required by the County of Madera. Based on the analysis, the Phase 1 Project

includes a retention basin on the upstream side of the proposed entrance road that would reduce storm flow rates prior to releasing the stormwater downstream. The Phase 1 Project also includes a 10-foot by 3-foot wide culvert that would extend under the proposed entrance road so that flood flows are not significantly impeded. After stormwater passes through the culvert, the Phase 1 Project includes a wide flow path to convey stormwater to the 6-foot by 3-foot culvert under Road 27 prior to exiting the Phase 1 Project site. These Project design measure which are also BMPs would reduce the potential for erosion, reduce storm flow rates, and provide flood carrying capacity so that less than significant impacts to downstream drainage facilities would occur.

Significance Determination before Mitigation: Less than Significant

Phase 1 Cumulative Impact Analysis

The geographic scope for cumulative impacts related to drainage patterns include the projects identified in Table 3.0-1 in Section 3.0.2 that have the potential to contribute to stormwater flows during construction and operation. Based on a review of Table 3.0-1, there are no projects located upstream of the Phase 1 Project site. There are downstream cumulative projects that could contribute stormwater within Schmidt Creek or eventually within the Fresno River. These cumulative project would be required to include BMPs in accordance with NPDES and WQMPs to reduce the potential for erosion impacts, increases in surface runoff, potential impacts to downstream drainage facilities and impacts on flood flows to less than significant. Therefore, drainage pattern impacts from the implementation of cumulative impacts would result in less than significant impacts.

Because the Phase 1 Project would result in less than significant impacts related to erosion, increases in the rate of runoff downstream of the site, and flood flows, the Phase 1 Project's contribution to cumulative drainage pattern impacts would be less than cumulatively considerable.

Significance Determination before Mitigation: Less than Significant

Phase 1 Project Mitigation Measures

No mitigation measures are required.

Significance Determination after Mitigation: Less than Significant

Phase 1 Project Cumulative Mitigation Measures

No mitigation measures are required.

Significance Determination after Mitigation: Less than Significant

Impact 3.9-3b: The proposed Program would have less than significant and less than cumulatively considerable drainage impacts due to potentially altering the existing drainage pattern of a site or area, including the alteration of the course of a stream or river or through the addition of imperious surfaces, in a manner that would:

- **Result in substantial erosion or siltation on- or off- site;**
- **Substantially increase the rate or amount of surface runoff in a manner which would result in flooding on- or off- site;**

- **Create or contribute runoff water that would exceed the capacity of existing or planned stormwater, drainage systems or provide substantial additional sources of polluted runoff;**
- **Impede or redirect flood flows**

Program Impact Analysis

Construction

The Specific Plan Program area contains orchard trees, and elevations range from approximately 280 feet above msl to approximately 310 feet above msl. Generally, the Program area slopes from east to west. Construction under the proposed program includes residences, commercial, school, parks, retention basins, streets, utilities, and wastewater treatment plant facilities. Construction activities such as removal of orchard trees, grubbing, grading, excavation, and stockpiling would loosen soil structure and expose bare soil, making it potentially more easily eroded by wind and rain and result in potential downstream siltation. As discussed in 3.9-1b above, the individual development that would be part of the Program would disturb more than one acre of soil. The developer would be required to comply with the NPDES Construction General Permit. In compliance with this permit, a SWPPP would be prepared and implemented, which would require erosion control and sediment control. Prior to issuance of a grading permit for construction, the developer would be required to submit a SWPPP to the County of Madera. The SWPPP would specify the BMPs that would be used to prevent erosion and siltation of soils from moving outside the Specific Plan Program limits and into downstream areas as well as reducing the conveyance of stormwater flows so that flows do not exceed existing stormwater flows off of the Program site and would not impact downstream stormwater facilities. In addition, the flood flows that currently extend across the northwest portion of the Program site would be impeded during construction of the entrance road during Phase 1; however, BMPs would be required to ensure that no increase in downstream flood flows would occur during construction activities.

The County of Madera would review the proposed BMPs within the SWPPP and determine if the BMPs are appropriate for the portions of the Program proposed for construction. After determining that the BMPs are appropriate, the County of Madera can issue a grading permit. Representative BMPs include the following:

- Limiting grading to the minimum area necessary for construction and operation of the Phase 1 Project (erosion control);
- Limiting vegetation disturbance/removal to the maximum extent practicable (erosion control);
- Implementing fiber rolls and sand bags around drainage areas and the site disturbance perimeter (sediment control);
- Stockpiling soil properly (sediment control);
- Installation of a stabilized construction entrance/exit and stabilization of disturbed areas (sediment control);

Implementation of BMPs such as those identified above have proven effective in controlling erosion, reducing sediment, and reducing stormwater flows leaving a construction site. The

County of Madera will review the BMPs that are included within their respective SWPPP to determine if the BMPs are in compliance with the SWPPP requirements. As a result, the BMPs that comply with the SWPPP requirements would reduce potential erosion, sedimentation, and downstream stormwater impacts during construction to less than significant.

Operation

Operation of the Specific Plan Program would increase the amount of impervious surfaces on the site and thus increase surface water flow during storm events. The proposed Program would include several BMPs during its operation. Structural source control BMPs would include, but would not be limited to, maximization of permeable areas, incorporation of landscaped areas throughout the Program area, planting of native/drought tolerant vegetation, and rain shutoff devices on irrigation. The implementation of these BMPs would reduce the potential for erosion to occur on the site. The Specific Plan Program also includes proposed retention basins where stormwater runoff volumes could be reduced and conveyed downstream a lower rates compared to existing flows. As discussed in Impact 3.9-1b above, the proposed detention basins would detain the differential runoff between the pre-development and post-development condition. Under the 100-year storm event, the pre-development condition of the peak runoff for Sub-basin J-K3, which exits the site at the culvert under Road 27, is 84 cfs and the post-development condition is 59 cfs. Under the 25-year storm event at Sub-basin J-K3, the pre-development condition is 36 cfs and the post-development condition is 20 cfs. A final Water Quality Management Plan (WQMP) to be prepared as part of each phase of development under the Specific Plan Program would be required to demonstrate that BMPs will detain the incremental increase of runoff from storm events. The detaining of stormwater runoff would reduce potential stormwater flow impacts on downstream drainage facilities to less than significant.

In addition, the flood flows that currently extend across the northwest portion of the Specific Plan Program site could be impeded with the development of the entrance road. An evaluation of the Project's impact on the existing floodplain was prepared to demonstrate that the Project would not increase the base flood elevations more than 1-foot and assure that the flood carrying capacity within the altered portion of the tributary in the northwest corner of the site (Schmidt Creek Tributary) is maintained as required by the County of Madera. Based on the analysis, the proposed Program includes a retention basin on the upstream side of the proposed entrance road that would reduce storm flow rates prior to releasing the stormwater downstream. The Program also includes a 10-foot by 3-foot wide culvert that would extend under the proposed entrance road so that flood flows are not significantly impeded. After stormwater passes through the culvert, the Specific Plan Program includes a wide flow path to convey stormwater to the 6-foot by 3-foot culvert under Road 27 prior to exiting the Specific Plan Program site. These Project design measure which are also BMPs would reduce the potential for erosion, reduce storm flow rates, and provide flood carrying capacity so that less than significant impacts to downstream drainage facilities would occur.

Significance Determination before Mitigation: Less than Significant

Program Cumulative Impact Analysis

The geographic scope for cumulative impacts related to drainage patterns include growth identified in Table 3.0-2 in Section 3.0.2 that have the potential to contribute to stormwater flows

during construction and operation. Based on a review of Table 3.0-2 as well as the County General Plan Land Use Map, there are no urban uses planned upstream of the Specific Plan Program site. There is growth planned downstream of the Specific Plan Program site that could contribute stormwater within Schmidt Creek or eventually within the Fresno River. These cumulative project would be required to include BMPs in accordance with NPDES and WQMPs to reduce the potential for erosion impacts, increases in surface runoff, potential impacts to downstream drainage facilities and impacts on flood flows to less than significant. Therefore, drainage pattern impacts from the implementation of cumulative impacts from growth would result in less than significant impacts.

Because the Specific Plan Program would result in less than significant impacts related to erosion, increases in the rate of runoff downstream of the site, and flood flows, the proposed Program's contribution to cumulative drainage pattern impacts would be less than cumulatively considerable.

Significance Determination before Mitigation: Less than Significant

Program Mitigation Measures

No mitigation measures are required.

Significance Determination after Mitigation: Less than Significant

Program Cumulative Mitigation Measures

No mitigation measures are required.

Significance Determination after Mitigation: Less than Significant

Release of Pollutants in Flood Hazard, Tsunami, or Seiche Zones

Impact 3.9-4a: The Phase 1 Project would have less than significant and less than cumulatively considerable impacts because the Phase 1 Project would not release substantial pollutants due to inundation within flood hazard, tsunami, or seiche zones.

Phase 1 Project Impact Analysis

Tsunamis are earthquake-induced surge waves that can cause severe coastal flooding. However, the Phase 1 Project site is located inland and is not at risk from a tsunami. Seiches are waves caused by large-scale, short-duration oscillation of confined bodies of water (such as reservoirs and lakes) during earthquakes that may damage low-lying adjacent areas, although not as severely as a tsunami. The closest enclosed body of water that could result in earthquake-induced seiche is Madera Lake, which is located approximately three miles northeast of the Phase 1 Project site. Because the Fresno River is located immediately south of Madera Lake, potential seiches within Madera Lake would be primarily conveyed to the Fresno River which extends approximately two-miles south of the Phase 1 Project site. Due to the distance, potential seiche impacts on the Phase 1 Project site would be less than significant.

The majority of the Phase 1 Project site is located outside of the 100-year flood zone. The northwestern portion of the site adjacent to the Schmidt Creek tributary is located within the 100-

year flood zone. As discussed above, the Phase 1 Project includes BMPs that would reduce the potential for pollutants to be conveyed downstream of the site. The Phase 1 Project includes a basin adjacent to the northern boundary of the site to retain stormwater prior to releasing the stormwater to the proposed culvert under the proposed entrance road. After being conveyed under the entrance road, the stormwater would be conveyed along a wide flow path to the 6-foot by 3-foot culvert under Road 27 prior to exiting the Phase 1 Project site. As discussed under Impact 3.9-1a, the Project would be required to prepare a final WQMP in accordance with the Phase II MS4 Permit requirements that would finalize Project-specific site design, source control, and treatment control BMPs, as well as a BMP operation and maintenance plan to ensure their continued efficiency throughout the project lifetime. These BMPs would be aimed at controlling post-development runoff rates and urban runoff pollution. Therefore, implementation of the Phase 1 Project would result in a less than significant increase in pollutants due to inundation within the onsite flood zone.

Significance Determination before Mitigation: Less than Significant

Phase 1 Cumulative Impact Analysis

The geographic scope for cumulative impacts related to the release of substantial pollutants during inundation include the projects identified in Table 3.0-1 in Section 3.0.2 that have the potential to contribute to stormwater flows. Based on a review of Table 3.0-1, there are no projects located upstream of the Phase 1 Project site. There are downstream cumulative projects that could contribute stormwater within Schmidt Creek or eventually within the Fresno River. These cumulative project would be required to include BMPs in accordance with NPDES and WQMPs to reduce the potential for discharging pollutants to downstream drainage facilities. Therefore, with adherence to NPDES and WQMPs, the implementation of cumulative projects would result in less than significant releases of substantial pollutants during inundation.

Because the Phase 1 Project would result in less than significant releases of pollutants due to inundation, the Phase 1 Project's contribution to cumulative pollutant impacts due to inundation would be less than cumulatively considerable.

Significance Determination before Mitigation: Less than Significant

Phase 1 Project Mitigation Measures

No mitigation measures are required.

Significance Determination after Mitigation: Less than Significant

Phase 1 Project Cumulative Mitigation Measures

No mitigation measures are required.

Significance Determination after Mitigation: Less than Significant

Impact 3.9-4b: The proposed Program would have less than significant and less than cumulatively considerable impacts because the Program would not release substantial pollutants due to inundation within flood hazard, tsunami, or seiche zones.

Program Impact Analysis

As with the Phase 1 Project site, the Specific Plan Program site is located substantially inland away from the coast and would not be impacted by tsunamis. The Program site is located approximately two miles from Madera Lake that could experience seiches during an earthquake. However, as discussed above, the Fresno River is located immediately south of Madera Lake and potential seiches within Madera Lake would be primarily conveyed to the Fresno River which extends approximately 0.7-mile south of the southeast corner of the Program site. Due to the distance from Madera Lake as well as the distance from the Fresno River, potential seiche impacts on the Specific Plan Program site would be less than significant.

The majority of the Program site is located outside of the 100-year flood zone. The northwestern portion of the site adjacent to the Schmidt Creek tributary is located within the 100-year flood zone. As discussed above, the proposed Program includes BMPs that would reduce the potential for pollutants to be conveyed downstream of the site. The Specific Plan Program includes a basin adjacent to the northern boundary of the site to retain stormwater prior to releasing the stormwater to the proposed culvert under the proposed entrance road. After being conveyed under the entrance road, the stormwater would be conveyed along a wide flow path to the 6-foot by 3-foot culvert under Road 27 prior to exiting the Specific Plan Program site. As discussed under Impact 3.9-1b, the Project would be required to prepare a final WQMP in accordance with the Phase II MS4 Permit requirements that would finalize Project-specific site design, source control, and treatment control BMPs, as well as a BMP operation and maintenance plan to ensure their continued efficiency throughout the Project lifetime. These BMPs would be aimed at controlling post-development runoff rates and urban runoff pollution. Therefore, implementation of the Specific Plan Program would result in a less than significant increase in pollutants due to inundation within the onsite flood zone.

Significance Determination before Mitigation: Less than Significant

Program Cumulative Impact Analysis

The geographic scope for cumulative impacts related to the release of substantial pollutants during inundation include the growth identified in Table 3.0-2 in Section 3.0.2 that has the potential to contribute to stormwater flows. Based on a review of Table 3.0-2, there are no urban land uses planned in areas that are located upstream of the Specific Plan Program site. Potential growth anticipated downstream of the Program site could contribute stormwater within Schmidt Creek or eventually within the Fresno River. Cumulative projects resulting from the anticipated growth would be required to include BMPs in accordance with NPDES and WQMPs to reduce the potential for discharging pollutants to downstream drainage facilities. Therefore, with adherence to NPDES and WQMPs, the implementation of cumulative growth would result in less than significant releases of substantial pollutants during inundation.

Because the Specific Plan Program would result in less than significant releases of pollutants due to inundation, the proposed Program's contribution to cumulative pollutant impacts due to inundation would be less than cumulatively considerable.

Significance Determination before Mitigation: Less than Significant

Program Mitigation Measures

No mitigation measures are required.

Significance Determination after Mitigation: Less than Significant

Program Cumulative Mitigation Measures

No mitigation measures are required.

Significance Determination after Mitigation: Less than Significant

Water Quality and Groundwater Plans

Impact 3.9-5a: The Phase 1 Project would have less than significant and less than cumulatively considerable impacts on water quality plans and groundwater plans because the Phase 1 Project would not conflict with or obstruct implementation of a water quality control plan or sustainable groundwater management plan.

Phase 1 Project Impact Analysis

The applicable water quality control plan for the Phase 1 Project site is the Water Quality Control Plan for the Central Valley Region (Basin Plan). The Basin Plan identifies water quality objectives to limit the levels of water quality constituents or characteristics which are established for the reasonable protection of beneficial uses of water. The nearest surface water body that is addressed within the Basin Plan is the Fresno River from Hidden Reservoir located approximately 11 miles northeast of the Phase 1 Project site to the confluence with the San Joaquin River that is located approximately 30 miles northwest of the Phase 1 Project site. Based on a review of the impaired waters identified by the Central Valley Regional Water Quality Control Board (CVRWQCB), the Fresno River below Hidden Reservoir to approximately elevation 295 feet which is located southeast of the Phase 1 Project site is identified as impaired for invasive species (CVRWQCB, 2016). This area of impaired waters is located upstream of the location that stormwater flows from the Phase 1 Project site would contribute to the Fresno River, and therefore, the Phase 1 Project would not contribute to potential impairment impacts. As discussed above in Impact 3.9-1a, water samples obtained in 2017 from agricultural wells within the vicinity of the Phase 1 Project site were tested and analyzed for the complete Title 22 drinking water constituents to determine the likely water quality of the proposed wells. The sampling results indicated that no contaminants were detected that would pose a health risk. The implementation of the proposed urban uses could result in additional sources of various pesticides and increases in sediment and nutrients (from landscaping), fuels and metals (from vehicles), and trash and debris. However, the Phase 1 Project would include several source control (structural and non-structural) and treatment control BMPs during its operation as required by the Phase II MS4 Permit. In addition, the Phase 1 Project would also collect wastewater that would be treated

to a tertiary-quality effluent level that would meet State Title 22 recycling criteria for unrestricted irrigation uses. The provision of tertiary treated water would be consistent with the water quality objectives identified in the Basin Plan. As a result, the implementation of the Phase 1 Project would not conflict or obstruct the implementation of the Basin Plan.

The County of Madera has been preparing the County of Madera Groundwater Sustainability Plan for the Madera Sub-basin that lies under the Phase 1 Project site. Although a sustainable yield has not been officially adopted by the County of Madera, the value of 0.5 acre-feet per acre per year has been formally presented in the County of Madera Groundwater Sustainability Plan. Based on the evaluated provided in Impact 3.9-2a above, the BMP and the elements of the Phase 1 Project would result in the long-term operation that would have a surplus of 1 AFY of groundwater within the Madera Sub-basin. This projected surplus would provide a beneficial groundwater balance and would not conflict or obstruct the implementation of the County's future sustainable groundwater management plan.

In summary, the long-term operation of the Phase 1 Project would not conflict or obstruct the implementation of the applicable water quality control plan or sustainable groundwater management plan, and therefore, the Phase 1 Project would result in a less than significant impact related to these plans.

Significance Determination before Mitigation: Less than Significant

Phase 1 Project Cumulative Impact Analysis

The geographic scope for cumulative impacts related to conflicting or obstructing the implementation of the water quality control plan (Basin Plan) or the sustainable groundwater management plan includes the projects identified in Table 3.0-1 in Section 3.0.2. The nearest surface water body to the cumulative projects listed in Table 3.0-1 that is addressed within the Basin Plan is the Fresno River from Hidden Reservoir to the confluence with the San Joaquin River. Based on a review of the impaired waters identified by the Central Valley Regional Water Quality Control Board (CVRWQCB), the Fresno River below Hidden Reservoir to approximately elevation 295 feet which is located southeast of the Phase 1 Project site is identified as impaired for invasive species (CVRWQCB, 2016). This area of impaired waters is located upstream of the location that stormwater flows from cumulative projects listed in Table 3.0-1 would contribute to the Fresno River, and therefore, the cumulative projects would not contribute to potential impairment impacts. Therefore, the implementation of the cumulative projects would not conflict or obstruct the implementation of the Basin Plan.

As identified in Impact 3.9-2a, the majority of the cumulative projects listed in Table 3.0-1 are not considered major subdivision because each project would not generate a demand for water that is equivalent to 500 residential units. The implementation of each of these smaller projects would result in a less than significant impact on groundwater supplies. The Ventana Specific Plan project within Table 3.0-1 includes approximately 857 units which is considered a major subdivision. Each of the major subdivisions that would be constructed within the Madera Sub-basin (including Tesoro Viejo and Riverstone) are required to demonstrate long-term groundwater sustainability so that each project would result in a less than significant impact on

groundwater supplies. Although a sustainable yield has not been officially adopted by the County of Madera, the value of 0.5 acre-feet per acre per year has been formally presented in the County of Madera Groundwater Sustainability Plan. Because each major subdivision project is required to demonstrate a groundwater balance, the implementation of the cumulative major subdivision projects would result in a less than significant impact on groundwater supplies. Therefore, cumulative projects would not conflict or obstruct with the County of Madera Groundwater Sustainability Plan.

In summary, the long-term operations of the cumulative projects would not conflict or obstruct the implementation of the applicable water quality control plan or sustainable groundwater management plan, and therefore, cumulative projects would result in a less than significant impact related to these plans.

Because the Phase 1 Project would also result in less than significant impacts related to these plans, the Phase 1 Project's contribution to cumulative plan impacts would be less than cumulatively considerable.

Significance Determination before Mitigation: Less than Significant

Phase 1 Project Mitigation Measures

No mitigation measures are required.

Significance Determination after Mitigation: Less than Significant

Phase 1 Project Cumulative Mitigation Measures

No mitigation measures are required.

Significance Determination after Mitigation: Less than Significant

Impact 3.9-5b: The proposed Program would have less than significant and less than cumulatively considerable impacts on water quality plans and groundwater plans because the proposed Program would not conflict with or obstruct implementation of a water quality control plan or sustainable groundwater management plan.

Program Impact Analysis

As with the Phase 1 Project site discussed above, the applicable water quality control plan for the Specific Plan Program site is the Water Quality Control Plan for the Central Valley Region (Basin Plan). The Basin Plan identifies water quality objectives to limit the levels of water quality constituents or characteristics which are established for the reasonable protection of beneficial uses of water. The nearest surface water body that is addressed within the Basin Plan is the Fresno River from Hidden Reservoir located approximately 10 miles northeast of the Specific Plan Program site to the confluence with the San Joaquin River that is located approximately 30 miles northwest of the Specific Plan Program site. As discussed above, based on a review of the impaired waters identified by the Central Valley Regional Water Quality Control Board (CVRWQCB), the Fresno River below Hidden Reservoir to approximately elevation 295 feet which is located southeast of the Specific Plan Program site is identified as impaired for invasive

species (CVRWQCB, 2016). This area of impaired waters is located upstream of the location that stormwater flows from the Specific Plan Program site would contribute to the Fresno River, and therefore, the proposed Program would not contribute to potential impairment impacts.

In addition, as discussed above in Impact 3.9-1b, water samples obtained in 2017 from agricultural wells within the Specific Plan Program site were tested and analyzed for the complete Title 22 drinking water constituents to determine the likely water quality of the proposed wells. The sampling results indicated that no contaminants were detected that would pose a health risk. The implementation of the proposed urban uses could result in additional sources of various pesticides and increases in sediment and nutrients (from landscaping), fuels and metals (from vehicles), and trash and debris. However, the Specific Plan Program would include several source control (structural and non-structural) and treatment control BMPs during its operation as required by the Phase II MS4 Permit. In addition, the Specific Plan Program would also collect wastewater that would be treated to a tertiary-quality effluent level that would meet State Title 22 recycling criteria for unrestricted irrigation uses. The provision of tertiary treated water would be consistent with the water quality objectives identified in the Basin Plan. As a result, the implementation of the Specific Plan Program would not conflict or obstruct the implementation of the Basin Plan.

As discussed above, the County of Madera has been preparing the County of Madera Groundwater Sustainability Plan for the Madera Sub-basin that lies under the Specific Plan Program site. Although a sustainable yield has not been officially adopted by the County of Madera, the value of 0.5 acre-feet per acre per year has been formally presented in the County of Madera Groundwater Sustainability Plan. Based on the evaluation provided in Impact 3.9-2b above, the BMP and the elements of the Specific Plan Program would result in the long-term operation that would have a surplus of 227 AFY of groundwater within the Madera Sub-basin. This projected surplus would provide a beneficial groundwater balance and would not conflict or obstruct the implementation of the County's future sustainable groundwater management plan.

In summary, the long-term operation of the Specific Plan Program would not conflict or obstruct the implementation of the applicable water quality control plan or sustainable groundwater management plan, and therefore, the Specific Plan Program would result in a less than significant impact related to these plans.

Significance Determination before Mitigation: Less than Significant

Program Cumulative Impact Analysis

The geographic scope for cumulative impacts related to conflicting or obstructing the implementation of the water quality control plan (Basin Plan) or the sustainable groundwater management plan includes the growth identified in Table 3.0-2 in Section 3.0.2. The nearest surface water body to the cumulative growth identified in in Table 3.0-2 that is addressed within the Basin Plan is the Fresno River from Hidden Reservoir to the confluence with the San Joaquin River. Based on a review of the impaired waters identified by the Central Valley Regional Water Quality Control Board (CVRWQCB), the Fresno River below Hidden Reservoir to approximately elevation 295 feet which is located southeast of the Specific Plan Program site is identified as impaired for invasive species (CVRWQCB, 2016). This area of impaired waters is located

upstream of the location that stormwater flows from cumulative growth identified in Table 3.0-2, and therefore, the cumulative projects would not contribute to potential impairment impacts. Therefore, the implementation of the cumulative projects would not conflict or obstruct the implementation of the Basin Plan.

Because the water quality within the Fresno River is not identified as impaired for any constituents and groundwater quality is good, the implementation of the cumulative growth is expected to result in less than significant impacts to water quality because each project that is implemented as a result of the projected growth is required to include BMPs during its operation as required by the Phase II MS4 Permit. Therefore, the implementation of the cumulative growth would not conflict or obstruct the implementation of the Basin Plan.

As identified in Impact 3.9-2b, the growth assumptions account for small-scale as well as large-scale development or subdivisions. Some of the current large-scale subdivisions that are included in the growth projections include Ventana Specific Plan that has approximately 857 residential units, Tesoro Viejo that has over 5,000 residential units and Riverstone that has approximately 6,600 residential units. The greatest impact on the groundwater basin would result from the development of the large-scale subdivisions. As a result, the County of Madera approved the Large Scale Development Groundwater Balance Ordinance (Madera County Code 13.110.060) that requires a large-scale project to quantify, tabulate, and calculate a groundwater balance for the Madera Sub-basin prior to providing entitlements to a project. Because each of the large-scale project is required to demonstrate a groundwater balance, the implementation of cumulative growth would not conflict or obstruct the implementation of the County of Madera Groundwater Sustainability Plan.

In summary, the long-term operations of cumulative growth would not conflict or obstruct the implementation of the applicable water quality control plan or sustainable groundwater management plan, and therefore, cumulative growth would result in a less than significant impact related to these plans.

Because the Specific Plan Program would also result in less than significant impacts related to these plans, the Specific Plan Program's contribution to cumulative plan impacts would be less than cumulatively considerable.

Significance Determination before Mitigation: Less than Significant

Program Mitigation Measures

No mitigation measures are required.

Significance Determination after Mitigation: Less than Significant

Program Cumulative Mitigation Measures

No mitigation measures are required.

Significance Determination after Mitigation: Less than Significant

3.9.4 References

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3.10 Land Use and Planning

This section identifies the existing and surrounding land uses, analyzes the compatibility of the Project with existing land uses, and evaluates the consistency of the Project with relevant plans and policies. The setting section is followed by a discussion of the regulatory framework for the Project as well as the significance criteria for evaluating significant impacts.

3.10.1 Environmental Setting

Project Area

The Project is located in Madera County, in the Central Valley region of California. The Project area is located approximately one-mile north of the City of Madera, three miles east of Highway 99, and approximately 16 miles south of the City of Chowchilla. Specifically, the Specific Plan area is bound by the Avenue 18 alignment to the north Road 28½ to the east, the alignment of Avenue 17 to the south, Road 27 to the west, and the Burlington Northern Santa Fe (BNSF) railroad line to the southwest

The Specific Plan area is currently used for agricultural production and contains almond and fig orchards, related agricultural support facilities (e.g., equipment storage), wells, and unimproved dirt roadways. The Specific Plan area is designated as a New Growth Area (NGA) in the Madera County's General Plan and has a zoning designation of Agricultural Rural Exclusive 40-Acres (ARE-40).

Surrounding Land Uses

Similar to the Specific Plan area, many of the surrounding lands have been highly modified for agricultural purposes or otherwise developed as roads, individual residences, residential subdivisions, and commercial centers. Adjacent land uses to the Specific Plan area include rangelands to the north, orchards to the east, and rural residential land uses to the south and west (refer to Figure 2-2 of Chapter 2, Project Description). Surrounding land use designations include Agricultural Exclusive (AE), Rural Residential (RR), Very Low Density Residential (VLDR), and Agricultural Residential (AR). Surrounding zoning designations include ARE-40, Agricultural Rural 5-Acre (AR-5), and Rural Residential Single Family/ Manufactured Housing Architectural Districts (RRS/MHA Districts). The extension of Avenue 17 does not presently exist and Avenue 18 terminates at Road 27. The Specific Plan area can be accessed via Road 27 and Road 28½ on the west and east sides, respectively (refer to Figure 2-2).

3.10.2 Regulatory Framework

State

California law (Government Code Section 65302, et seq.) requires cities and counties to include as part of their General Plans a land use element that designates the proposed general distribution and general location and extent of the uses of the land for housing, business, industry, open space, including agriculture, natural resources, recreation, and enjoyment of scenic beauty, education, public buildings and grounds, solid and liquid waste disposal facilities, greenways, as defined in

Section 816.52 of the Civil Code, and other categories of public and private uses of land. The Madera's County's General Plan was adopted on October 24, 1995.

Regional

The 2018 Regional Transportation Plan/Sustainable Communities Strategy Amendment No. 1

The Madera County Transportation Commission (MCTC) is required to update the Regional Transportation Plan (RTP) to reflect the existing and future regional transportation system in Madera County. The 2018 Update reflects the horizon year of 2042, ensuring the region's transportation system and implementation policies and programs will safely and efficiently accommodate growth envisioned in the Land Use Elements of the cities of Chowchilla and Madera and Madera County, in the RTP, and in the Sustainabile Communities Strategy (SCS).

Each of the local, State and federal agencies, as well as other stakeholders were invited to become members of the MCTC 2018 RTP/SCS Roundtable and were involved in development of the RTP/SCS beginning in September 2017. Over the course of four Roundtable meetings, MCTC gained insight into their transportation, land use and environmental issues and needs. In addition, a series of public workshop and environmental justice events were held to receive input from the general public. The 2018 RTP/SCS Amendment No. 1 was adopted on March 20, 2019 (VRPA, 2019).

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 RTP considers the role of transportation including economic factors, quality of life issues, and environmental factors. The RTP provides an opportunity to identify transportation strategies today that address mobility needs for the future. The RTP is updated every four years to reflect changes in economic trends, State and federal project and funding requirements, progress made toward project implementation, and current socioeconomic trends. Transportation must be included in the RTP to qualify for federal and State funding. The latest RTP was adopted by MCTC's Policy Board in July 2014 and was amended in June 2017. The next RTP Update will be due in 2022. Regional transportation plans (RTPs) are developed by Regional Transportation Planning Agencies (RTPAs) and Metropolitan Planning Organizations (MPOs) in cooperation with the California Department of Transportation (Caltrans) and other stakeholders (VRPA, 2019).

The SCS is a newer element of the RTP that demonstrates the integration of land use, transportation strategies, and transportation investments within the RTP. This is the second SCS prepared for Madera County to address requirements set forth with the passage of Senate Bill (SB) 375, with the goal of ensuring that the MCTC region can meet its regional greenhouse gas reduction targets set by the California Air Resources Board (CARB). In 2018, CARB issued emission reduction targets to each of the eight MPOs in the San Joaquin Valley including MCTC. The targets included a percentage reduction of greenhouse gas (GHG) emissions from 2005 of 5 percent by the year 2020 and a reduction in GHG emissions of 10 percent by the year 2035. Developing the SCS requires meaningful collaboration with each of the three local governments, as well as stakeholders to identify land-use and transportation opportunities around the region that will address the needs of the growing population and ensure compliance with State and federal requirements (VRPA, 2019).

Local

Madera County General Plan

The Madera County General Plan (County General Plan), adopted on October 24, 1995, consists of two documents: the countywide General Plan and a set of more detailed area plans covering specific areas of the unincorporated areas of Madera County. The County General Plan provides an overall framework for development of the County and protection of its natural and cultural resources. The goals and policies contained in the County General Plan are applicable throughout the County, except to the extent that County authority is preempted by cities within their corporate limits. Area plans, adopted in the same manner as the countywide General Plan, provide a more detailed focus on specific geographic areas within the unincorporated county. The goals and policies contained in the area plans supplement and elaborate on, but do not supersede the goals and policies of the Policy Document (Madera County, 1995).

The countywide General Plan consists of two documents: the Background Report and the Policy Document. In addition, the adopted Housing Element addresses housing issues on a countywide basis. The Background Report inventories and analyzes existing conditions and trends in Madera County. It provides the formal supporting documentation for general plan policy, addressing ten subject areas: land use; population; economic conditions and fiscal considerations, transportation and circulation, public services, public facilities, recreational and cultural resources, natural resources, noise, and safety (Madera County, 1995).

On February 24, 2014, the Madera County Board of Supervisors approved Resolution 2014-012, changing the land use designation for the Specific Plan Area from Agricultural Exclusive (AE) to New Growth Area (NGA). The NGA designation applies to areas where extensive new developments are planned to serve as significant new growth areas in Madera County. All development under this designation shall be approved pursuant to an adopted area plan. As these area plans are approved, the New Growth Area designation shall be replaced by other land use designations. Prior to adoption and implementation of an area plan, allowable uses shall include those specified under the Agriculture (A) and Open Space (OS) designations.

Madera County Zoning Code

The Madera County Zoning Code (Zoning Code) provides a countywide framework of regulations that address topics such as permitted uses, conditional uses, and development standards. The Specific Plan area is currently within the zoning designation of Agricultural Rural Exclusive 40-Acres (ARE-40). The purpose of the ARE zones is to accommodate a wide range of agricultural uses. Specifically, ARE-40 permits agricultural uses, one single family dwelling, a dormitory or attached farm labor housing unit accommodating up to five families on parcels of 36 acres or larger, and a second single family dwelling subject to parcel size requirements and development standards.

City of Madera General Plan

The City of Madera General Plan, adopted October 7, 2009, is a broad framework for planning the future of the City of Madera (City). The City of Madera General Plan is the official policy statement of the City Council to guide private and public development of the City, as well as the

City's own operations and decisions. The General Plan covers the following elements: Community Design, Circulation, Conservation, Health and Safety, Housing, Land Use, Noise, Historic and Cultural Resources, and Sustainability. Together, these elements provide the City's policies on a broad range of issues related to the future of the City, its livability, and its desire to become a model for other Central Valley communities (City of Madera, 2009).

The City of Madera General Plan designated both the Phase 1 Project site and the Specific Plan Program site as Village Reserve. The Village Reserve land use designation applies to lands in Villages which require additional comprehensive planning prior to the submission of development projects. Per Policy LU-34, all planning for areas designated on the Land Use Map as Village Reserve shall implement the 3-step planning process: Step 1: Comprehensive Land Use and Implementation Planning; Step 2: Detailed Neighborhood Plans; and Step 3: Development Proposals. The planning process is intended to provide progressively more detailed plans for Village Reserve areas, Neighborhoods, and individual development projects (City of Madera, 2009). Because the Project site is located in unincorporated Madera County, the Project is being processed through the County of Madera, the City of Madera General Plan goals and policies are not applicable to the Project; however, it is important to note that the City envisioned urban development on the Project site.

Castellina Specific Plan

The Draft Castellina Specific Plan (Specific Plan), June 2021, proposes the development of up 3,072 single-family and multi-family residential units, including an active adult community; up to 21 acres of commercial-residential mixed-use, civic, office, and recreational uses; and approximately 132 acres of parks, play fields, trails, plazas, amenity centers, community gardens, landscape buffers, retention areas, and other open space. The Specific Plan implements the goals and policies of the County General Plan, serves as an extension of the County General Plan, and can be used as both a policy and a regulatory document. The purpose of the Specific Plan is to implement the proposed Project's vision by providing goals, policies, programs, development standards and design guidelines to direct future development within the Specific Plan Program area. The Specific Plan provides for a balance between growth and public infrastructure/services such that development within the planning area pays its fair share of infrastructure, public facility, and public service costs; and is fiscally self-supporting (Kimley Horn, 2021).

3.10.3 Impacts and Mitigation Measures

Significance Criteria

The criteria used to determine the significance of impacts related to Land Use and Planning are based on Appendix G of the *CEQA Guidelines*. The proposed Project would result in a significant impact to Land Use and Planning if it would:

- Physically divide an established community (see Impact 3.10-1 below);
- Cause a significant environmental impact due to a conflict with any land use plan, policy, or regulation adopted for the purposed of avoiding or mitigating an environmental effect (see Impact 3.10-2 below);

Methodology

Evaluation of potential land use and planning effects was based on a review of planning documents pertaining to the Project area, primarily the 2018 RTP/SCS Amendment No. 1 and the County's General Plan and Zoning Code. The following analysis considers potential impacts associated with Phase 1 Project and the Specific Plan Program in regards to land use and planning.

Impacts Discussion

Divide an Established Community

Impact 3.10-1a: The Phase 1 Project would result in no individual impact and would not contribute to cumulative impacts from physically dividing an established community.

Phase 1 Project Impact Analysis

The Phase 1 Project area is currently used for agricultural production and contains almond and fig orchards, related agricultural support facilities (e.g., equipment storage), wells, and unimproved dirt roadways. Similar to the Phase 1 Project area, many of the surrounding lands have been highly modified for agricultural purposes or otherwise developed as roads, individual residences, residential subdivisions, and commercial centers. Adjacent land uses to the Phase 1 Project include rangelands to the north, orchards to the east, and rural residential land uses to the south and west. The existing established communities in the Project vicinity include the existing rural community of Madera Acres that is located west and northwest of the Phase 1 Project site, the rural residences located south and southeast of the site that could represent a rural community, and the rural community located west of the existing railroad tracks. Each of these rural communities are physically separated from each other. The development of the Phase 1 Project would not result in physically dividing these established communities.

Significance Determination before Mitigation: No Impact

Phase 1 Project Cumulative Impact Analysis

Based on a review of the cumulative projects listed on Table 3.0-1 in Section 3.0-2, the cumulative projects are primarily located within or adjacent to urbanized areas; however, the High Speed Rail Project could further physically divide established communities that could represent a significant impact. Because the Phase 1 Project would not divide an establish community, the Phase 1 Project would not contribute to cumulative impacts resulting in the division of established communities.

Significance Determination before Mitigation: No Impact

Phase 1 Project Mitigation Measures

No mitigation measures are required.

Significance Determination after Mitigation: No Impact

Phase 1 Project Cumulative Measures

No mitigation measures are required.

Significance Determination after Mitigation: No Impact

Impact 3.10-1b: The proposed Program would result in no individual impact and would not contribute to cumulative impacts from physically dividing an established community.

Program Impact Analysis

The proposed Program area is currently used for agricultural production and contains almond and fig orchards, related agricultural support facilities (e.g., equipment storage), wells, and unimproved dirt roadways. Similar to the Specific Plan Program area, many of the surrounding lands have been highly modified for agricultural purposes or otherwise developed as roads, individual residences, residential subdivisions, and commercial centers. Adjacent land uses to the Program area include rangelands to the north, orchards to the east, and rural residential land uses to the south and west. The existing established communities in the Program vicinity include the existing rural community of Madera Acres that is located west and northwest of the Specific Plan Program site, the rural residences located south and southeast of the site that could represent a rural community, and the rural community located west of the existing railroad tracks. Each of these rural communities are physically separated from each other. The development of the Specific Plan Program would not result in physically dividing these established communities.

Significance Determination before Mitigation: No Impact

Program Cumulative Impact Analysis

The cumulative growth identified on Table 3.0-2 in Section 3.0-2 is anticipated to occur in accordance with existing General Plans. This growth is primarily planned within or adjacent to urbanized areas; however, the High Speed Rail Project could further physically divide established communities that could represent a significant impact. Because the Specific Plan Program would not divide an establish community, the Program would not contribute to cumulative impacts resulting in the division of established communities.

Significance Determination before Mitigation: No Impact

Program Mitigation Measures

No mitigation measures are required.

Significance Determination after Mitigation: No Impact

Program Cumulative Measures

No mitigation measures are required.

Significance Determination after Mitigation: No Impact

Conflict with Applicable Plans, Policies, or Regulations

Impact 3.10-2a: The Phase 1 Project would result in less than significant and less than cumulatively considerable environmental impacts associated with a land use plan, policy, or regulation of an agency with jurisdiction over the Phase 1 Project.

Phase 1 Project Impact Analysis

2018 RTP/SCS Amendment No. 1

Development of the RTP goals and objectives was a key step during the preparation of the 2018 RTP/SCS Amendment No. 1. The RTP Roundtable developed the set of goals and objectives based on an extensive review and consideration of the MCTC's vision of the regional transportation system over the next 24 years, along with input from the public. Results obtained during the public outreach effort provided the Roundtable with additional information needed to refine the goals and objectives. The goals are intended to guide MCTC in its pursuit of quality growth and highly integrated transportation systems, reflective of the four "Principles to Success" which include improved quality of life, prosperity, cultural diversity, and health and environment. The goals are broad policy statements that describe the purpose of the plan.

Table 3.10-1 evaluates the Phase 1 Project's consistency with relevant 2018 RTP/SCS Amendment No. 1 goals. As discussed therein, the County of Madera and the Project Applicant are coordinating with the High Speed Rail Authority regarding the construction of overpasses of Road 27 and Avenue 17 over the existing railroad tracks. The right-of-way for Road 27 has extended into the original Specific Plan area which includes the Phase 1 Project site. The Phase 1 Project is supporting regional transportation by providing the necessary land needed for the right-of-way of the high-speed rail. In addition, the circulation system within the Phase 1 Project area would be designed as a comprehensive road network that provides both vehicular and non-vehicular mobility throughout the community. Some streets would be designed for multiple modes of transportation, including walking, bicycling, or driving a local use vehicle (LUV) or automobile which is consistent with the goals of the 2018 RTP/SCS Amendment No. 1. Overall, the Phase 1 Project is consistent with the 2018 RTP/SCS Amendment No. 1 goals and would result in less than significant land use impacts related to the RTP/SCS.

TABLE 3.10-1
2018 RTP/SCS AMENDMENT NO.1 CONSISTENCY ANALYSIS (PHASE 1 PROJECT)

Goal Number	Goal	Statement of Consistency, Non-Consistency, or Not Applicable
Goal 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.	**Consistent.** The circulation system within the Phase 1 Project area would be designed as a comprehensive road network that provides both vehicular and non-vehicular mobility throughout the community. Some streets would be designed for multiple modes of transportation, including walking, bicycling, or driving a LUV or automobile. Additionally, a network of interconnected pedestrian and bike pathways are proposed throughout the residential, commercial, and park and open space areas to increase walkability and connectivity throughout the community. Madera County and the Project Applicant are coordinating with the High Speed Rail Authority regarding the construction of Road 27 and Avenue 17

TABLE 3.10-1
2018 RTP/SCS AMENDMENT NO.1 CONSISTENCY ANALYSIS (PHASE 1 PROJECT)

Goal Number	Goal	Statement of Consistency, Non-Consistency, or Not Applicable
		design and construction of the overpasses at the railroad tracks. The first segment of the new high speed railway begins north of the Specific Plan area and extends southward. Construction has been authorized for the high-speed rail line which calls for the construction of new railway overpasses over Road 27 and over Avenue 17, which includes construction of Avenue 17 to Road 28 ½. The right-of-way for Road 27 has extended into the original Specific Plan area, which includes the Phase 1 Project site. The Project Applicant has provided the necessary land needed for the right-of-way. The Phase 1 Project is consistent with this goal.
Goal 5:	To maintain the efficiency, safety, and security of the region's transportation system.	**Consistent.** See response to Goal 2 above for details. The Phase 1 Project is consistent with this goal.
Goal 6:	To improve the quality and sustainability of the natural and human built environment through regional cooperation of transportation systems planning activities.	**Consistent.** See response to Goal 2 above for details. The Phase 1 Project is consistent with this goal.
Goal 7:	To maximize funding to maintain and improve the transportation network.	**Consistent.** See response to Goal 2 above for details. The Phase 1 Project is consistent with this goal.
Goal 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).	**Consistent.** See response to Goal 2 above for details. The Phase 1 Project is consistent with this goal.

SOURCE: ESA, 2020.

Madera County General Plan

The Specific Plan area, including the Phase 1 Project site, is designated as NGA in the County's General Plan. As part of the County General Plan's Land Use Element, the County designated "New Growth Areas" (NGAs), which are areas designated for extensive new mixed-use development for which an area plan must be prepared and adopted. The goal of a NGA is to ensure that areas are comprehensively planned and developed as well-balanced, independent communities. The Specific Plan has been prepared as the policy and regulatory documents for the Specific Plan area to guide new development as designated by the NGA land use. Following the approval of the Area Plan and the Specific Plan, the NGA designation would be replaced by the land use and zoning designations identified in the proposed Specific Plan and Area Plan. **Table 3.10-2** evaluates the Phase 1 Project's consistency with the Madera County General Plan. Each of the land use goals and policies are discussed in Table 3.10-2. These goals and policies are either consistent, not consistent or not applicable. As discussed below, the Phase 1 Project is consistent with the goals and polices of the County's General Plan, and therefore, the Phase 1 Project would result in less than significant land use impacts related to the County General Plan.

TABLE 3.10-2
MADERA COUNTY GENERAL PLAN LAND USE CONSISTENCY ANALYSIS (PHASE 1 PROJECT)

Goal/Policy Number	Goal/Policy	Statement of Consistency, Non-Consistency, or Not Applicable
General Land Use Goals and Policies		
Goal 1.A:	To promote the wise, efficient, and environmentally-sensitive use of Madera County land use to meet the present and future needs of Madera County residents and businesses.	**Consistent.** The Phase 1 Project will provide 117 dwelling units which includes 50 very low density residential units and 67 low density residential units, a neighborhood park, 42.9 acres of open space areas for stormwater retention, trails and other uses, wells and water tanks, and the first phase of a wastewater treatment plant (WWTP). The right-of-way for Road 27 has been extended into the original Specific Plan area, which includes the Phase 1 Project site. The Project Applicant has been provided the necessary land for the right-of-way needed for the construction of the high-speed rail line. The Phase 1 Project is consistent with this goal.
Policy 1.A.1:	The County shall promote the efficient use of land and natural resources.	**Consistent.** The right-of-way for Road 27 has extended into the original Specific Plan area, which includes the Phase 1 Project site. The Project Applicant has provided the necessary land for the right-of-way needed for the construction of the high-speed rail line. The Phase 1 Project would be served with a combination of potable groundwater and recycled water. A Water Supply Assessment (WSA), consistent with the requirements of Water Code Section 10910 et seq, has been conducted and identifies that the water supplies for the Project will be sufficient to meet the water demands over a 20-year horizon as discussed in Section 3.9, Hydrology and Water Quality and Section 3.16, Utilities and Service Systems in this EIR. To limit water use, the Specific Plan includes the incorporation of water conserving features that meet the requirements of the CAL Green Code for indoor infrastructure and go beyond the State's Model Water Efficient Landscape Ordinance (MWELO) and current County of Madera water efficiency ordinance for landscape efficiency. The Phase 1 Project is consistent with this policy.
Policy 1.A.2:	The County shall designate sufficient land to accommodate projected population and employment growth in Madera County.	**Consistent**. The County designated the Phase 1 Project area as a "New Growth Areas" (NGA), which are areas designated for extensive new mixed-use development for which an area plan must be prepared and adopted The Phase 1 Project will provide 117 dwelling units which includes 50 very low density residential units and 67 low density residential units. These proposed residential uses could accommodate growth projected in Madera County. The Phase 1 Project is consistent with this policy.
Policy 1.A.3:	New development should be centered in existing communities and designated new growth areas.	**Consistent.** On February 24, 2014, the Madera County Board of Supervisors approved Resolution 2014-012, changing the land use designation for the Specific Plan Area from Agricultural Exclusive (AE) to New Growth Area (NGA). The NGA designation applies to areas where extensive new development is planned such as the Phase 1 Project. The Specific Plan has been prepared as the policy and regulatory documents for the Specific Plan area to guide new development as designated by the NGA land use. The Specific Plan provides for a balance between growth and public infrastructure/services such that development within the planning area pays its fair share of infrastructure, public facility, and public service costs; and is fiscally self-supporting. The Phase 1 Project is consistent with this policy.

Goal/Policy Number	Goal/Policy	Statement of Consistency, Non-Consistency, or Not Applicable
Policy 1.A.6:	The County shall promote patterns of development that facilitate the efficient and timely provision of infrastructure and services.	**Consistent.** On February 24, 2014, the Madera County Board of Supervisors approved Resolution 2014-012, changing the land use designation for the Specific Plan Area from AE to NGA. The NGA designation applies to areas where extensive new development is planned such as the Phase 1 Project. The Specific Plan has been prepared as the policy and regulatory documents for the Specific Plan area to guide new development as designated by the NGA land use. The Specific Plan provides for a balance between growth and public infrastructure/services such that development within the planning area pays its fair share of infrastructure, public facility, and public service costs; and is fiscally self-supporting. The Phase 1 Project is consistent with this policy.
Policy 1.A.7:	The County shall address local land use and public facility issues of existing and new unincorporated communities through the preparation and adoption of the adoption of area plans.	**Consistent.** See response to Policy 1.A.3 above for details. The Phase 1 Project is consistent with this policy.
Policy 1.A.8:	The County shall require that new rural and suburban development be designed to preserve and maintain the rural character and quality of the County.	**Consistent.** See response to Policy 1.A.3 above for details. The Phase 1 Project is consistent with this policy.
New Growth Areas Goals and Policies		
Goal 1.B:	To ensure that new growth areas are comprehensively planned and developed as well balanced, independent communities.	**Consistent.** See response to Policy 1.A.3 above for details. The Phase 1 Project is consistent with this goal.
Policy 1.B.1:	The County shall require that designated new growth areas be comprehensively planned as single units rather than as individual property ownerships. Each designated new growth area shall be developed according to an adopted Area Plan. New growth areas include Gunner Ranch West area, Rio Mesa area, and State Center Community College area.	**Consistent.** See response to Policy 1.A.3 above for details. The Phase 1 Project is consistent with this policy.
Policy 1.B.2:	The County shall require that the planning and design of new growth areas carries out the following objectives: a. Concentrate higher-density residential uses and appropriate support services along segments of the transportation system with good road and possible transit connections to the remainder of the region; b. Support concentrations of medium and high-density residential uses and higher intensities of non-residential uses near existing or future transit stops along trunk lines of major transportation systems; c. Support the development of integrated mixed-use areas by mixing residential, retail, office, open space, and public uses while making it possible to travel by transit, bicycle, or foot, as well as by automobile; and d. Provide buffers between residential and incompatible non-residential land uses.	**Consistent.** The Phase 1 Project will provide 117 dwelling units which includes 50 very low density residential units and 67 low density residential units. The Phase 1 Project does not include a high-density residential, medium density residential, retail or office component. The right-of-way for Road 27 has extended into the original Specific Plan area, which includes the Phase 1 Project site. The Project Applicant has provided the necessary land for the right-of-way needed for the construction of the high-speed rail line. The circulation system within the Phase 1 Project area would be designed as a comprehensive road network that provides both vehicular and non-vehicular mobility. Some streets would be designed for multiple modes of transportation, including walking, bicycling, or driving a LUV or automobile. Additionally, a network of interconnected pedestrian and bike pathways are proposed throughout the residential, park and open space areas to increase walkability and connectivity throughout the community. The project entry feature and multi-use open space area within the Phase 1 Project site provides a landscape buffer separating the residential uses from Road 27, the existing railroad tracks, and the future high-speed rail. The Phase 1

Goal/Policy Number	Goal/Policy	Statement of Consistency, Non-Consistency, or Not Applicable
		Project site is less than two miles from the existing Amtrak station on Road 26. The Phase 1 Project is consistent with this policy.
Residential Land Use Goals and Policies		
Goal 1.C:	To provide adequate land in a range of residential densities to accommodate the housing needs of all income groups expected to reside in Madera County.	**Consistent.** The Phase 1 Project will provide 117 dwelling units which includes 50 very low density residential units and 67 low density residential units. The Phase 1 Project is consistent with this goal.
Policy 1.C.1:	The County shall maintain an adequate supply of residential land in appropriate land use designations and zoning categories to accommodate projected household growth, maintain normal vacancy rates, and minimize residential land costs.	**Consistent.** The Phase 1 Project will provide 117 dwelling units which includes 50 very low density residential units (18.0 acres) and 67 low density residential units (16.6 acres). Following the approval of the Area Plan and the Specific Plan, the NGA designation would be replaced by the land use and zoning designations identified in the proposed Specific Plan and Area Plan. The Phase 1 Project is consistent with this policy.
Policy 1.C.2:	The County shall promote the development of higher-density residential development along major transportation corridors and transit routes.	**Not Applicable.** The Phase 1 Project does not include higher-density residential developments, and therefore, this policy is not applicable to the Phase 1 Project.
Policy 1.C.3:	The County shall promote the development of affordable housing in areas served by the adequate public facilities and services.	**Not Applicable.** The Phase 1 Project will provide 117 dwelling units which includes 50 very low density residential units and 67 low density residential units. The Phase 1 Project does not include an affordable housing component. This policy is not applicable to the Phase 1 Project.
Policy 1.C.4:	The County shall encourage the concentration of multi-family housing in and near downtowns, major commercial areas, community and village cores, and neighborhood commercial centers.	**Not Applicable.** The Phase 1 Project does not include multi-family housing, or commercial. This policy is not applicable to the Phase 1 Project.
Policy 1.C.5:	The County shall encourage the planning and design of new residential subdivisions to emulate the best characteristics (for example, form, scale, and general character) of existing, nearby neighborhoods.	**Consistent.** The Specific Plan includes both Site and Architecture Design Guidelines and Landscape Design Guidelines. These Guidelines were designed to create consistency with the surrounding area and will regulate all development within the Phase 1 Project site, including without limitation the scale and size of all structures. The Phase 1 Project is consistent with this policy.
Policy 1.C.6:	The County shall ensure that residential land uses are separated and buffered from such major facilities as landfills, airports, and sewage treatment plants.	**Consistent.** The Project entry feature and multi-use open space area within the Phase 1 Project site provides a landscape buffer separating the residential uses from the proposed wastewater treatment plant, Road 27, the existing railroad tracks, and the future high-speed rail. The Phase 1 Project is not located within the vicinity of a landfill or airport. The Phase 1 Project is consistent with this policy.
Policy 1.C.7:	The County shall require residential project design to reflect and consider natural features, noise exposure of residents, circulation, access, and the relationship of the project to surrounding uses. Residential densities and lot patterns will be determined by these and other factors. As a result, the maximum density specified by General Plan designations or zoning for a given parcel of land may not be realized.	**Consistent.** See response to Policy 1.A.3 above for details. Refer to Section 3.11, Noise and Vibration, for a discussion on noise. Refer to Chapter 2, Project Description and Section 3.15, Transportation and Traffic for a discussion of the proposed circulation system and access. Similar to the Phase 1 Project area, many of the surrounding lands have been highly modified for agricultural purposes or otherwise developed as roads, individual residences, residential subdivisions, and commercial centers. Adjacent land uses to the Specific Plan area include rangelands to the north, orchards to the east, and rural residential land uses to the south and west.

Goal/Policy Number	Goal/Policy	Statement of Consistency, Non-Consistency, or Not Applicable
		Following the approval of the Area Plan and the Specific Plan, the NGA designation would be replaced by the land use and zoning designations identified in the proposed Specific Plan and Area Plan. The Phase 1 Project is consistent with this policy.
Policy 1.C.8:	The County shall require residential subdivisions to be designed to provide well-connected internal and external streets, bikeways, and pedestrian systems.	**Consistent.** See response to Policy 1.A.3 above for details. The circulation system within the Phase 1 Project area would be designed as a comprehensive road network that provides both vehicular and non-vehicular mobility. Some streets would be designed for multiple modes of transportation, including walking, bicycling, or driving a LUV or automobile. Additionally, a network of interconnected pedestrian and bike pathways are proposed throughout the residential, park and open space areas to increase walkability and connectivity throughout the community. The Phase 1 Project is consistent with this policy.
Commercial Land Use Goals and Policies		
Goal 1.D:	To designate adequate commercial land for and promote development of commercial uses to meet the present and future needs of Madera County residents and visitors and maintain economic vitality.	**Not Applicable.** The Phase 1 Project does not include a commercial component. This policy is not applicable to the Phase 1 Project.
Policy 1.D.1:	The County shall require that new community commercial centers locate adjacent to major activity nodes and major transportation corridors.	**Not Applicable.** The Phase 1 Project does not include a commercial component. This policy is not applicable to the Phase 1 Project.
Policy 1.D.2:	The County shall encourage existing and new commercial centers to provide a variety of goods and services, both public and private.	**Not Applicable.** The Phase 1 Project does not include a commercial component. This policy is not applicable to the Phase 1 Project..
Policy 1.D.3:	The County shall promote new commercial development that is designed to encourage and facilitate pedestrian circulation within and between commercial sites and nearby residential areas rather than being designed only to serve vehicular circulation.	**Not Applicable.** The Phase 1 Project does not include a commercial component. This policy is not applicable to the Phase 1 Project.
Policy 1.D.4:	The County shall promote new commercial development in rural communities that provide for the immediate needs of the local residents and services to tourists and travelers. The scale and character of such commercial development should be compatible with and complement the surrounding area.	**Not Applicable.** The Phase 1 Project does not include a commercial component. This policy is not applicable to the Phase 1 Project.
Policy 1.D.5:	The County shall encourage significant new office developments to locate near major transportation corridors and concentrations of residential uses. New office development may serve as buffers between residential uses and higher-intensity commercial uses.	**Not Applicable.** The Phase 1 Project does not include a commercial component. This policy is not applicable to the Phase 1 Project.
Economic Development Goals and Policies		
Goal 1.E:	To designate adequate land for and promote development of industrial uses to meet the present and future needs of Madera County residents for jobs and maintain economic vitality.	**Not Applicable.** The Phase 1 Project does not include an industrial use component. This policy is not applicable to the Phase 1 Project.

Goal/Policy Number	Goal/Policy	Statement of Consistency, Non-Consistency, or Not Applicable
Policy 1.E.3:	The County shall encourage the retention, expansion, and development of new businesses, especially those that provide primary wage-earner jobs, by designating adequate land and providing infrastructure in areas where resources and public facilities and services can accommodate employment generators.	**Not Applicable.** The Phase 1 Project does not include a commercial component and would not create jobs. This policy is not applicable to the Phase 1 Project.
Policy 1.E.4:	The County shall endeavor to protect the natural resources upon which the County's basic economy (for example, agriculture, forestry, recreation, and tourism) is dependent, and shall promote economic expansion based on Madera County's unique recreational opportunities and natural resources.	**Consistent.** On February 24, 2014, the Madera County Board of Supervisors approved Resolution 2014-012, changing the land use designation for the Specific Plan Area from AE to NGA. The NGA designation applies to areas where extensive new development is planned such as the Phase 1 Project. The Phase 1 Project is consistent with Policy 1.E.4.
Policy 1.E.5:	The County shall focus economic development efforts on projects that will maximize long-term net revenues to the County.	**Consistent.** The Phase 1 Project does not include a commercial component and would not create jobs. However, the development of the 117 dwelling units would generate property taxes for the County. The Phase 1 Project is consistent with this policy.
Policy 1.E.6:	The County shall encourage flexibility in development standards to accommodate uses that provide a substantial economic benefit to the community.	**Consistent.** See response to Policy 1.E.5 above for details. The Phase 1 Project is consistent with this policy.
Policy 1.E.7:	The County shall support the development of primary wage-earner job opportunities in Madera County to provide residents an alternative to commuting to Fresno.	**Not Applicable.** The Phase 1 Project does not include a commercial component and would not create jobs. This policy is not applicable to the Phase 1 Project.
Jobs-Housing Balance		
Goal 1.F:	To work toward a jobs-housing balance in existing urban areas and new growth areas.	**Consistent.** The Phase 1 Project will provide 117 dwelling units which includes 50 very low density residential units and 67 low density residential units. Although the Phase 1 Project does not include a commercial center, construction jobs will be created during development of the Phase 1 Project and new utility and other trades jobs will be created to construct, operate and maintain the wastewater treatment plant, other public facilities, and private residences. The Phase 1 Project is consistent with this goal.
Policy 1.F.2	The County shall designate and encourage the development of employment-generating uses in appropriate areas near existing and designed residential development.	**Consistent.** The Phase 1 Project will create new construction jobs during development of the Phase 1 Project and new utility and other trades jobs will be created to construct, operate and maintain the wastewater treatment plant, other public facilities, and private residences. The Phase 1 Project is consistent with this goal.
Public and Quasi-Public Facilities Goals and Policies		
Goal 1.G:	To designate adequately sized, well-located areas for the development of public facilities to serve both community and regional needs.	**Consistent**. The Madera County Fire Department (MCFD) contracts with the California Department of Forestry and Fire Protection (CAL FIRE) to provide fire protection and emergency medicals services to the Phase 1 Project area. To ensure adequate fire protection, the Phase 1 Project Applicant will comply with the recommendations and conditions of the MCFD including, but not limited to, location and spacing of fire hydrants; minimum fire flow; water system design; emergency access roads and entry systems; location of fire and fuel breaks and easements; dedication of land for fire station sites; specific provisions for land divisions in hazardous fire areas; and payment of applicable development fees; refer Section 3.13, Public Services.

Goal/Policy Number	Goal/Policy	Statement of Consistency, Non-Consistency, or Not Applicable
		Police protection for the Phase 1 Project area is provided by the Madera County Sheriff's Department (MCSD). To ensure adequate public safety, the Phase 1 Project Applicant will comply with recommendations and conditions of the MCSD including, but not limited to, design features such as street design, points of access, landscaping, fencing and park design for adequate surveillance, park and residential design that promotes "eyes on the street", and lighting key locations; refer Section 3.13, Public Services. The Project Applicant will coordinate with the Madera Unified School District (MUSD) to determine the most appropriate way to meet the educational needs of the Phase 1 Project, which would include, but not be limited to, payment of SB 50 fees, the Project Applicant will coordinate with the MUSD; refer Section 3.13, Public Services. The Phase 1 Project is consistent with this goal.
Policy 1.G.1:	The County will encourage the clustering of public and quasi-public facilities such as schools, parks, child care facilities, and community activity centers. Joint use of public facilities shall be promoted and agreements for sharing costs and operational responsibilities among public service providers shall be encouraged.	**Not Applicable**. The Phase 1 Project would provide a 5-acre neighborhood park. However, this park is intended to serve the two neighborhoods located within the Phase 1 Project area. This policy is not applicable to the Phase 1 Project.
Policy 1.G.4:	The County shall encourage new regional facilities (e.g., stadiums, schools) to locate within urban cores of communities, provide adequate on-site parking, and to use materials and methods of construction that are reflective of the community in which they are located and exhibit continuity of history and culture, as symbols of local character and community identity.	**Not Applicable.** The Phase 1 Project does not include a stadium or school component. This policy is not applicable to the Phase 1 Project.

SOURCE: ESA, 2020.

Madera County Zoning Code

Currently, the Phase 1 Project site has a zoning designation of Agricultural Rural Exclusive 40-Acres (ARE-40). A Zoning Amendment and Zoning Map Amendment would be required to identify the Phase 1 Project area as "Castellina Specific Plan" and establish zoning regulations applicable to the Phase 1 Project area. These actions would be adopted by ordinance. The Specific Plan includes a variety of land use designations and zoning districts, consisting of residential and commercial uses as well as open space and recreational uses. The Specific Plan would define land use designations applicable to the Castellina area only. In addition, the Specific Plan would establish zoning districts and provisions that will implement the land use designations. Upon approval of the Specific Plan, the County of Madera Zoning Map will be amended to identify the Phase 1 Project area as the Castellina Specific Plan and the zoning as set forth in the Castellina Specific Plan would apply. As such, the Phase 1 Project would be consistent with the Madera County Zoning Code, and the Phase 1 Project would result in less than significant land use impacts related to the County Zoning Code.

Significance Determination before Mitigation: Less than Significant

Phase 1 Project Cumulative Impact Analysis

Cumulative projects located in the general vicinity of the Phase 1 Project could, along with the Phase 1 Project, result in cumulative land use impacts. However, such impacts would not lead to significant physical effects on the environment that are cumulative in nature because all future projects that develop within the area of the Phase 1 Project would be subject to Madera County, or City of Madera, land use regulations, including the General Plan. Therefore, cumulative land use impacts would be less than significant.

The Phase 1 Project does not conflict with the 2018 RTP/SCS Amendment No. 1, the County General Plan, or the County Zoning Code as the Phase 1 Project is consistent with the goals and policies of each plan. Because the Phase 1 Project would not conflict with the 2018 RTP/SCS Amendment No. 1, the County General Plan, or the County Zoning Code, the Phase 1 Project's contribution to potential cumulative land use impacts would be less than cumulatively considerable.

Significance Determination before Mitigation: Less than Significant

Phase 1 Project Mitigation Measures

No mitigation measures are required.

Significance Determination after Mitigation: Less than Significant

Phase 1 Project Cumulative Measures

No mitigation measures are required.

Significance Determination after Mitigation: Less than Significant

Impact 3.10-2b: The proposed Program would result in less than significant and less than cumulatively considerable environmental impacts associated with a land use plan, policy, or regulation of an agency with jurisdiction over the program.

Program Impact Analysis

2018 RTP/SCS Amendment No. 1

Table 3.10-3 evaluates the consistency of the Specific Plan Program with relevant 2018 RTP/SCS Amendment No. 1 goals. As discussed therein, the County of Madera and the Project Applicant are coordinating with the High Speed Rail Authority regarding the construction of overpasses of Road 27 and Avenue 17 over the existing railroad tracks. The right-of-way for Road 27 and Avenue 17 have extended into the original Specific Plan area, which includes the Specific Plan Program area. The Specific Plan Program is supporting regional transportation by providing the necessary land needed for the right-of-way of the high-speed rail. In addition, the circulation system within the Specific Plan Program area would be designed as a comprehensive road network that provides both vehicular and non-vehicular mobility throughout the community. Some streets would be designed for multiple modes of transportation, including walking, bicycling, or driving a LUV or automobile which is consistent with the goals of the 2018 RTP/SCS Amendment No. 1. Overall, the Specific Plan Program is consistent with the 2018 RTP/SCS Amendment No. 1 goals, and would result in less than significant land use impacts related to the RTP/SCS.

TABLE 3.10-3
2018 RTP/SCS AMENDMENT NO.1 CONSISTENCY ANALYSIS (SPECIFIC PLAN PROGRAM)

Goal Number	Goal	Statement of Consistency, Non-Consistency, or Not Applicable
Goal 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.	**Consistent.** The circulation system within the Specific Plan Program area would be designed as a comprehensive road network that provides both vehicular and non-vehicular mobility throughout the community. Some streets would be designed for multiple modes of transportation, including walking, bicycling, or driving a LUV or automobile. Additionally, a network of interconnected pedestrian and bike pathways are proposed throughout the residential, commercial, and park and open space areas to increase walkability and connectivity throughout the community. At least one bus stop with a bus shelter is proposed to be provided in a convenient and accessible location in the proposed Town Center within the Specific Plan Program area. Madera County and the Project Applicant are coordinating with the High Speed Rail Authority regarding the construction of Road 27 and Avenue 17 design and construction of the overpasses at the railroad tracks. The first segment of the new high speed railway begins north of the Specific Plan area and extends southward. Construction has been authorized for the high-speed rail line which calls for the construction of new railway overpasses over Road 27 and over Avenue 17, which includes construction of Avenue 17 to Road 28 ½. The right-of-way for Road 27 and Avenue 17 has been extended into the original Specific Plan area, including the Specific Plan Program area. The Project Applicant has been provided the necessary land needed for the right-of-way. The Specific Plan Program is consistent with this goal.
Goal 5:	To maintain the efficiency, safety, and security of the region's transportation system.	**Consistent.** See response to Goal 2 above for details. The Specific Plan Program is consistent with this goal.
Goal 6:	To improve the quality and sustainability of the natural and human built environment through regional cooperation of transportation systems planning activities.	**Consistent.** See response to Goal 2 above for details. The Specific Plan Program is consistent with this goal.
Goal 7:	To maximize funding to maintain and improve the transportation network.	**Consistent.** See response to Goal 2 above for details. The Specific Plan Program is consistent with this goal.
Goal 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).	**Consistent.** See response to Goal 2 above for details. The Specific Plan Program is consistent with this goal.

SOURCE: ESA, 2020.

Madera County General Plan

The Specific Plan Program area is designated as NGA in the County's General Plan. As part of the County General Plan's Land Use Element, the County designated NGAs, which are areas designated for extensive new mixed-use development for which an area plan must be prepared and adopted. The goal of a NGA is to ensure that areas are comprehensively planned and developed as well-balanced, independent communities. The Specific Plan has been prepared as the policy and regulatory documents for the Specific Plan area to guide new development as designated by the NGA land use. Following the approval of the Area Plan and the Specific Plan, the NGA designation would be replaced by the land use and zoning designations identified in the proposed Specific Plan and Area Plan. **Table 3.10-4** evaluates the consistency of the Specific Plan Program with the Madera County General Plan. Each of the land use goals and policies are discussed in Table 3.10-4. These goals and policies are either consistent, not consistent or not applicable. As discussed below, the Specific Plan Program is consistent with the goals and polices of the County's General Plan, and therefore, the Specific Plan Program would result in less than significant land use impacts related to the County General Plan.

TABLE 3.10-4
MADERA COUNTY GENERAL PLAN LAND USE CONSISTENCY ANALYSIS (SPECIFIC PLAN PROGRAM)

Goal/Policy Number	Goal/Policy	Statement of Consistency, Non-Consistency, or Not Applicable
General Land Use Goals and Policies		
Goal 1.A:	To promote the wise, efficient, and environmentally-sensitive use of Madera County land use to meet the present and future needs of Madera County residents and businesses.	**Consistent.** The Specific Plan Program will provide 3,072 dwelling units (90 very low density units, 1,104 low density units, 402 Active Adult units, 1,026 medium density units, 248 high density units, and 202 high density units as part of the mixed use land use), and a mix of commercial, office, retail, civic, and institutional uses. Additionally, mixed-use buildings will be provided that could include a public safety facility, library, community center, post office, retail shops, dining and entertainment, and professional offices. The Specific Plan Program will also include a 15-acre elementary school site, 66 acres of public parks and recreational facilities, and 18.1 acres of open space areas. The right-of-way for Avenue 17 has been extended into the original Specific Plan area, which includes the Specific Plan Program area. The Project Applicant has been provided the necessary land for the right-of-way needed for the construction of the high-speed rail line. The Specific Plan Program is consistent with this goal.
Policy 1.A.1:	The County shall promote the efficient use of land and natural resources.	**Consistent.** The rights-of-way for Avenue 17 and Road 27 have extended into the original Specific Plan area, which includes the Specific Plan Program. The Project Applicant has been provided the necessary land for the right-of-way needed for the construction of the high-speed rail line. The Specific Plan Program would be served with a combination of potable groundwater and recycled water. A WSA has been conducted and identifies that the water supplies for the Specific Plan Program will be sufficient to meet the water demands over a 20-year horizon as discussed in Section 3.9, Hydrology and Water Quality and Section 3.16, Utilities and Service Systems in this EIR. To limit water use, the Specific Plan includes the

Goal/Policy Number	Goal/Policy	Statement of Consistency, Non-Consistency, or Not Applicable
		incorporation of water conserving features that meet the requirements of the CAL Green Code for indoor infrastructure and go beyond the State's MWELO and current County of Madera water efficiency ordinance for landscape efficiency. The Specific Plan Program is consistent with this policy.
Policy 1.A.2:	The County shall designate sufficient land to accommodate projected population and employment growth in Madera County.	**Consistent.** The Specific Plan Program will provide 3,072 dwelling units (90 very low density units, 1,104 low density units, 402 Active Adult units, 1,026 medium density units, 248 high density units, and 202 high density units as part of the mixed use land use), and a mix of commercial, office, retail, civic, and institutional uses. Additionally, mixed-use buildings could include a public safety facility, library, community center, post office, retail shops, dining and entertainment, professional offices The Specific Plan Program will also include a 15-acre elementary school site, 66 acres of public parks and recreational facilities, and 18.1 acres of open space areas. The rights-of-way for Avenue 17 and Road 27 have extended into the original Specific Plan area, which includes the Specific Plan Program. The Project Applicant has provided the necessary land for the right-of-way needed for the construction of the high-speed rail line. Development of the high-speed rail line would provide opportunities for residents to commute to jobs. The Specific Plan Program is consistent with this policy.
Policy 1.A.3:	New development should be centered in existing communities and designated new growth areas.	**Consistent.** On February 24, 2014, the Madera County Board of Supervisors approved Resolution 2014-012, changing the land use designation for the Specific Plan Area from Agricultural Exclusive (AE) to New Growth Area (NGA). The NGA designation applies to areas where extensive new development is planned such as the Specific Plan Program. The Specific Plan has been prepared as the policy and regulatory documents for the Specific Plan area to guide new development as designated by the NGA land use. The Specific Plan provides for a balance between growth and public infrastructure/services such that development within the planning area pays its fair share of infrastructure, public facility, and public service costs; and is fiscally self-supporting. The Specific Plan Program is consistent with this policy.
Policy 1.A.6:	The County shall promote patterns of development that facilitate the efficient and timely provision of infrastructure and services.	**Consistent.** On February 24, 2014, the Madera County Board of Supervisors approved Resolution 2014-012, changing the land use designation for the Specific Plan Area from AE to NGA. The NGA designation applies to areas where extensive new development is planned such as the Specific Plan Program. The Specific Plan has been prepared as the policy and regulatory documents for the Specific Plan area to guide new development as designated by the NGA land use. The Specific Plan provides for a balance between growth and public infrastructure/services such that development within the planning area pays its fair share of infrastructure, public facility, and public service costs; and is fiscally self-supporting. The right-of-ways for Avenue 17 and Road 27 have extended into the original Specific Plan area, which includes the Specific Plan Program. The Project Applicant has been provided the necessary land for the right-of-way needed for the construction of the high-speed rail line. The Specific Plan Program is consistent with this policy.

Goal/Policy Number	Goal/Policy	Statement of Consistency, Non-Consistency, or Not Applicable
Policy 1.A.7:	The County shall address local land use and public facility issues of existing and new unincorporated communities through the preparation and adoption of the adoption of area plans.	**Consistent.** See response to Policy 1.A.3 above for details. The Specific Plan Program is consistent with this policy.
Policy 1.A.8:	The County shall require that new rural and suburban development be designed to preserve and maintain the rural character and quality of the County.	**Consistent.** See response to Policy 1.A.3 above for details. The Specific Plan Program is consistent with this policy.
New Growth Areas Goals and Policies		
Goal 1.B:	To ensure that new growth areas are comprehensively planned and developed as well balanced, independent communities.	**Consistent.** See response to Policy 1.A.3 above for details. The Specific Plan Program is consistent with this goal.
Policy 1.B.1:	The County shall require that designated new growth areas be comprehensively planned as single units rather than as individual property ownerships. Each designated new growth area shall be developed according to an adopted Area Plan. New growth areas include Gunner Ranch West area, Rio Mesa area, and State Center Community College area.	**Consistent.** See response to Policy 1.A.3 above for details. The Specific Plan Program is consistent with this policy.
Policy 1.B.2:	The County shall require that the planning and design of new growth areas carries out the following objectives: a. Concentrate higher-density residential uses and appropriate support services along segments of the transportation system with good road and possible transit connections to the remainder of the region; b. Support concentrations of medium and high-density residential uses and higher intensities of non-residential uses near existing or future transit stops along trunk lines of major transportation systems; c. Support the development of integrated mixed-use areas by mixing residential, retail, office, open space, and public uses while making it possible to travel by transit, bicycle, or foot, as well as by automobile; and d. Provide buffers between residential and incompatible non-residential land uses.	**Consistent.** The Specific Plan Program will provide 3,072 dwelling units (90 very low density units, 1,104 low density units, 402 Active Adult units, 1,026 medium density units, 248 high density units, and 202 high density units as part of the mixed use land use), and a mix of commercial, office, retail, civic, and institutional uses. Additionally, mixed-use buildings could include a public safety facility, library, community center, post office, retail shops, dining and entertainment, professional offices The Specific Plan Program will also include a 15-acre elementary school site, 66 acres of public parks and recreational facilities, and 18.1 acres of open space areas. The rights-of-way for Avenue 17 and Road 27 have extended into the original Specific Plan area, which includes the Specific Plan Program. The Project Applicant has been provided the necessary land for the right-of-way needed for the construction of the high-speed rail line. The circulation system within the Specific Plan Program area would be designed as a comprehensive road network that provides both vehicular and non-vehicular mobility. Some streets would be designed for multiple modes of transportation, including walking, bicycling, or driving a LUV or automobile. Additionally, a network of interconnected pedestrian and bike pathways are proposed throughout the residential, park and open space areas to increase walkability and connectivity throughout the community. At least one bus stop with a bus shelter is proposed to be provided in a convenient and accessible location in the proposed Town Center. If requested, an additional bus stop with a shelter would be provided at the Active Adult Center. The location of these bus stop(s) or shelter(s) would be identified in coordination with Madera County Connection and the City of Madera Transit Services. Within a civic building or other appropriate location in the Town Center, a bulletin board would be provided for the purposes of posting bus schedules, park-and-ride facility locations, and notices of availability for alternative

Goal/Policy Number	Goal/Policy	Statement of Consistency, Non-Consistency, or Not Applicable
		transportation services (e.g., airport shuttle). A bulletin board would also be located in the Active Adult Center. The multi-use open space area within the Specific Plan Program area provides a landscape buffer separating the residential uses from Avenue 17 and Road 27, the existing railroad tracks, and the future high-speed rail. The Phase 1 Project site is less than two miles from the existing Amtrak station on Road 26. The Specific Plan Program is consistent with this policy.
Residential Land Use Goals and Policies		
Goal 1.C:	To provide adequate land in a range of residential densities to accommodate the housing needs of all income groups expected to reside in Madera County.	**Consistent.** The Specific Plan Program will provide 3,072 dwelling units (90 very low density units, 1,104 low density units, 402 Active Adult units, 1,026 medium density units, 248 high density units, and 202 high density units as part of the mixed use land use). The Specific Plan Program is consistent with this goal.
Policy 1.C.1:	The County shall maintain an adequate supply of residential land in appropriate land use designations and zoning categories to accommodate projected household growth, maintain normal vacancy rates, and minimize residential land costs.	**Consistent.** See response to Goal 1.C above for details. Following the approval of the Area Plan and the Specific Plan, the NGA designation would be replaced by the land use and zoning designations identified in the proposed Specific Plan and Area Plan. The Specific Plan Program is consistent with this policy.
Policy 1.C.2:	The County shall promote the development of higher-density residential development along major transportation corridors and transit routes.	**Consistent.** The Specific Plan Program will provide 248 high density units and mixed-use buildings with up to 202 high-density residential units. At least one bus stop with a bus shelter is proposed to be provided in a convenient and accessible location in the proposed Town Center. If requested, an additional bus stop with a shelter would be provided at the Active Adult Center. The location of these bus stop(s) or shelter(s) would be identified in coordination with Madera County Connection and the City of Madera Transit Services. Within a civic building or other appropriate location in the Town Center, a bulletin board would be provided for the purposes of posting bus schedules, park-and-ride facility locations, and notices of availability for alternative transportation services (e.g., airport shuttle). A bulletin board would also be located in the Active Adult Center. The rights-of-way for Avenue 17 and Road 27 have extended into the original Specific Plan area, which includes the Specific Plan Program. The Project Applicant has been provided the necessary land for the right-of-way needed for the construction of the high-speed rail line. The Specific Plan Program is consistent with this policy.
Policy 1.C.3:	The County shall promote the development of affordable housing in areas served by the adequate public facilities and services.	**Not Applicable.** The Specific Plan Program will provide 3,072 dwelling units (90 very low density units, 1,104 low density units, 402 Active Adult units, 1,026 medium density units, 248 high density units, and 202 high density units as part of the mixed use land use). The Specific Plan Program does not provide affordable housing. However, the Specific Plan Program will offer a mix of residential types with a range of housing costs. The Specific Plan Program is not applicable with this policy.
Policy 1.C.4:	The County shall encourage the concentration of multi-family housing in and near downtowns, major commercial areas, community and village cores, and neighborhood commercial centers.	**Consistent.** On February 24, 2014, the Madera County Board of Supervisors approved Resolution 2014-012, changing the land use designation for the Specific Plan Area from AE to NGA. The NGA designation applies to areas where extensive new development is planned such as the Specific Plan Program.

Goal/Policy Number	Goal/Policy	Statement of Consistency, Non-Consistency, or Not Applicable
		The Specific Plan includes a Conceptual Village Structure, which is comprised of five villages (Village A, B, C, D, and Town Center Mixed Use), each with a mix of land uses and residential densities and its own distinctive character. The Town Center Mixed Use village has a target density of 10 residential dwelling units per acre and allows for either vertical or horizontal mixed uses with commercial and retail enterprises. Also permitted in the Town Center are public uses, such as a safety facility, a library, a community center, and a post office. The intent is to create an active town center for living and gathering. The Specific Plan Program also includes a 15-acre elementary school site and 132 acres of parks and open space. The Specific Plan Program is consistent with this policy.
Policy 1.C.5:	The County shall encourage the planning and design of new residential subdivisions to emulate the best characteristics (for example, form, scale, and general character) of existing, nearby neighborhoods.	**Consistent.** The Specific Plan includes both Site and Architecture Design Guidelines and Landscape Design Guidelines. These Guidelines were designed to create consistency with the surrounding area and will regulate all development within the Specific Plan Program site, including without limitation the scale and size of all structures. The Specific Plan Program is consistent with this policy.
Policy 1.C.6:	The County shall ensure that residential land uses are separated and buffered from such major facilities as landfills, airports, and sewage treatment plants.	**Consistent.** The multi-use open space area within the Specific Plan Program area provides a landscape buffer separating the residential uses from the proposed wastewater treatment plant, Avenue 17, Road 27, the existing railroad tracks, and the future high-speed rail. The Specific Plan Program is not located within the vicinity of a landfill, or airport. The Specific Plan Program is consistent with this policy.
Policy 1.C.7:	The County shall require residential project design to reflect and consider natural features, noise exposure of residents, circulation, access, and the relationship of the project to surrounding uses. Residential densities and lot patterns will be determined by these and other factors. As a result, the maximum density specified by General Plan designations or zoning for a given parcel of land may not be realized.	**Consistent.** See response to Policy 1.A.3 above for details. Refer to Section 3.11, Noise and Vibration, for a discussion on noise. Refer to Chapter 2, Project Description and Section 3.15, Transportation and Traffic for a discussion of the proposed circulation system and access. Similar to the Specific Plan Program, many of the surrounding lands have been highly modified for agricultural purposes or otherwise developed as roads, individual residences, residential subdivisions, and commercial centers. Adjacent land uses to the Specific Plan area include rangelands to the north, orchards to the east, and rural residential land uses to the south and west. Following the approval of the Area Plan and the Specific Plan, the NGA designation would be replaced by the land use and zoning designations identified in the proposed Specific Plan and Area Plan. The Specific Plan Program is consistent with this policy.
Policy 1.C.8:	The County shall require residential subdivisions to be designed to provide well-connected internal and external streets, bikeways, and pedestrian systems.	**Consistent.** See response to Policy 1.A.3 above for details. The circulation system within the Specific Plan Program area would be designed as a comprehensive road network that provides both vehicular and non-vehicular mobility. Some streets would be designed for multiple modes of transportation, including walking, bicycling, or driving a LUV or automobile. Additionally, a network of interconnected pedestrian and bike pathways are proposed throughout the residential, park and open space areas to increase walkability and connectivity throughout the community. The Specific Plan Program is consistent with this policy.

Goal/Policy Number	Goal/Policy	Statement of Consistency, Non-Consistency, or Not Applicable
Commercial Land Use Goals and Policies		
Goal 1.D:	To designate adequate commercial land for and promote development of commercial uses to meet the present and future needs of Madera County residents and visitors and maintain economic vitality.	**Consistent.** The Specific Plan Program will provide a mix of commercial, office, retail, civic, and institutional uses. Additionally, mixed-use buildings will be provided that could include a public safety facility, library, community center, post office, retail shops, dining and entertainment, professional offices, and up to 220 high-density residential units. The Specific Plan Program will also include a 15-acre elementary school site. The Specific Plan Program is consistent with this goal.
Policy 1.D.1:	The County shall require that new community commercial centers locate adjacent to major activity nodes and major transportation corridors.	**Consistent.** See response to Goal 1.D. above for details. The rights-of-way for Avenue 17 and Road 27 have extended into the original Specific Plan area, which includes the Specific Plan Program. The Project Applicant has been provided the necessary land for the right-of-way needed for the construction of the high-speed rail line. The Specific Plan Program is consistent with this policy.
Policy 1.D.2:	The County shall encourage existing and new commercial centers to provide a variety of goods and services, both public and private.	**Consistent.** See response to Goal 1.D. above for details. The Specific Plan Program is consistent with this policy.
Policy 1.D.3:	The County shall promote new commercial development that is designed to encourage and facilitate pedestrian circulation within and between commercial sites and nearby residential areas rather than being designed only to serve vehicular circulation.	**Consistent.** See response to Goal 1.D. above for details. The circulation system within the Specific Plan Program area would be designed as a comprehensive road network that provides both vehicular and non-vehicular mobility. Some streets would be designed for multiple modes of transportation, including walking, bicycling, or driving a LUV or automobile. Additionally, a network of interconnected pedestrian and bike pathways are proposed throughout the residential, park and open space areas to increase walkability and connectivity throughout the community. The Specific Plan Program is consistent with this policy.
Policy 1.D.4:	The County shall promote new commercial development in rural communities that provide for the immediate needs of the local residents and services to tourists and travelers. The scale and character of such commercial development should be compatible with and complement the surrounding area.	**Consistent.** See response to Goal 1.D. above for details. The Specific Plan Program is consistent with this policy. The Specific Plan provides for the construction of up to 134,000 square of commercial, retail, and public facility uses. The Town Center, a mixed-use area, includes a Village Green and the surrounding streets have been designed for temporary closure, permitting for community activities and gatherings. The Specific Plan Program is consistent with this policy.
Policy 1.D.5:	The County shall encourage significant new office developments to locate near major transportation corridors and concentrations of residential uses. New office development may serve as buffers between residential uses and higher-intensity commercial uses.	**Consistent.** The Specific Plan Program will provide 3,072 dwelling units (90 very low density units, 1,104 low density units, 402 Active Adult units, 1,026 medium density units, 248 high density units, and 202 high density units as part of the mixed use land use).. The Specific Plan Program would also include office uses and mixed-use buildings that could include professional offices. The Specific Plan Program is consistent with this policy.
Economic Development Goals and Policies		
Goal 1.E:	To designate adequate land for and promote development of industrial uses to meet the present and future needs of Madera County residents for jobs and maintain economic vitality.	**Not Applicable.** The Specific Plan Program does not include an industrial use component. The Specific Plan Program is not applicable with this goal.

Goal/Policy Number	Goal/Policy	Statement of Consistency, Non-Consistency, or Not Applicable
Policy 1.E.3:	The County shall encourage the retention, expansion, and development of new businesses, especially those that provide primary wage-earner jobs, by designating adequate land and providing infrastructure in areas where resources and public facilities and services can accommodate employment generators.	**Consistent.** The Specific Plan Program will provide a mix of commercial, office, retail, civic, and institutional uses. Additionally, mixed-use buildings will be provided that could include a public safety facility, library, community center, post office, retail shops, dining and entertainment, professional offices, and up to 220 high-density residential units. The Specific Plan Program will also include a 15-acre elementary school site. Also, see response to Goal 1.G. below for details. The Specific Plan Program is consistent with this policy.
Policy 1.E.4:	The County shall endeavor to protect the natural resources upon which the County's basic economy (for example, agriculture, forestry, recreation, and tourism) is dependent, and shall promote economic expansion based on Madera County's unique recreational opportunities and natural resources.	**Consistent.** On February 24, 2014, the Madera County Board of Supervisors approved Resolution 2014-012, changing the land use designation for the Specific Plan Area from AE to NGA. The NGA designation applies to areas where extensive new development is planned such as the Specific Plan Program. The Specific Plan Program is consistent with this policy.
Policy 1.E.5:	The County shall focus economic development efforts on projects that will maximize long-term net revenues to the County.	**Consistent**. The Specific Plan Program will provide a mix of commercial, office, retail, civic, and institutional uses. Additionally, mixed-use buildings will be provided that could include a public safety facility, library, community center, post office, retail shops, dining and entertainment, and professional offices. The Specific Plan Program will also include a 15-acre elementary school site. In addition, the development of the 3,072 dwelling units would generate property taxes for the County. The Specific Plan Program is consistent with this policy.
Policy 1.E.6:	The County shall encourage flexibility in development standards to accommodate uses that provide a substantial economic benefit to the community.	**Consistent.** See response to Policy 1.E.5 above for details. The Specific Plan Program is consistent with this policy.
Policy 1.E.7:	The County shall support the development of primary wage-earner job opportunities in Madera County to provide residents an alternative to commuting to Fresno.	**Consistent.** See response to Policy 1.E.5 above for details. The Specific Plan Program is consistent with this policy.
Jobs-Housing Balance		
Goal 1.F:	To work toward a jobs-housing balance in existing urban areas and new growth areas.	**Consistent.** The Specific Plan Program will provide 3,072 dwelling units (90 very low density units, 1,104 low density units, 402 Active Adult units, 1,026 medium density units, 248 high density units, and 202 high density units as part of the mixed use land use).), and a mix of commercial, office, retail, civic, and institutional uses. Additionally, mixed-use buildings will be provided that could include a public safety facility, library, community center, post office, retail shops, dining and entertainment, and professional offices. The Specific Plan Program will also include a 15-acre elementary school site. The Specific Plan Program is consistent with this goal.
Policy 1.F.2	The County shall designate and encourage the development of employment-generating uses in appropriate areas near existing and designed residential development.	**Consistent.** See response to Goal 1.F above for details. The Specific Plan Program is consistent with this policy.

Goal/Policy Number	Goal/Policy	Statement of Consistency, Non-Consistency, or Not Applicable
Public and Quasi-Public Facilities Goals and Policies		
Goal 1.G:	To designate adequately sized, well-located areas for the development of public facilities to serve both community and regional needs.	**Consistent**. The MCFD contracts with CAL FIRE to provide fire protection and emergency medicals services to the Specific Plan Program area. To ensure adequate fire protection, the applicant for each development within the Specific Plan Program site will comply with the recommendations and conditions of the MCFD including, but not limited to, location and spacing of fire hydrants; minimum fire flow; water system design; emergency access roads and entry systems; location of fire and fuel breaks and easements; dedication of land for fire station sites; specific provisions for land divisions in hazardous fire areas; and payment of applicable development fees; refer Section 3.13, Public Services. Police protection for the Specific Plan Program area is provided by the MCSD. To ensure adequate public safety, the applicant for each development within the Specific Plan Program site will comply with recommendations and conditions of the MCSD including, but not limited to, design features such as street design, points of access, landscaping, fencing and park design for adequate surveillance, park and residential design that promotes “eyes on the street”, and lighting key locations; refer Section 3.13, Public Services. The applicant for each development within the Specific Plan Program site will coordinate with the MUSD to determine the most appropriate way to meet the educational needs of the Specific Plan Program, which would include, but not be limited to, payment of SB 50 fees; refer Section 3.13, Public Services. Additionally, a 15-acre elementary school site will be made available and could be developed on one of the designated residential parcels. The school would be owned and operated by the MUSD. The location of the school site will be determined between the school district and the Project Applicant. The mixed-used buildings within the Specific Plan Program could include civic uses such a public safety facility, library, and community center. The Specific Plan Program is consistent with this goal.
Policy 1.G.1:	The County will encourage the clustering of public and quasi-public facilities such as schools, parks, child care facilities, and community activity centers. Joint use of public facilities shall be promoted and agreements for sharing costs and operational responsibilities among public service providers shall be encouraged.	**Consistent.** The Specific Plan Program will provide a mix of civic uses, institutional uses, a public safety facility, library, community center, a 15-acre elementary school site, 66 acres of public parks and recreational facilities, and 18.1 acres of open space areas. The Specific Plan Program is consistent with this policy.
Policy 1.G.4:	The County shall encourage new regional facilities (e.g., stadiums, schools) to locate within urban cores of communities, provide adequate on-site parking, and to use materials and methods of construction that are reflective of the community in which they are located and exhibit continuity of history and culture, as symbols of local character and community identity.	**Consistent**. The Specific Plan Program would include a 15-acre elementary school site will be made available and could be developed on one of the designated residential parcels. The school would be owned and operated by the MUSD. The location of the school site will be determined between the school district and the Project Applicant**.** The Specific Plan Program is consistent with this policy.

SOURCE: ESA, 2020.

Madera County Zoning Code

Currently, the Specific Plan Program site has a zoning designation of ARE-40. A Zoning Amendment and Zoning Map Amendment would be required to identify the Specific Plan Program area as "Castellina Specific Plan" and establish zoning regulations applicable to the Specific Plan Program area. These actions would be adopted by ordinance. The Specific Plan includes a variety of land use designations and zoning districts, consisting of residential and commercial uses as well as open space and recreational uses. The Specific Plan would define land use designations applicable to the Castellina area only. In addition, the Specific Plan would establish zoning districts and provisions that will implement the land use designations. Upon approval of the Specific Plan, the County of Madera Zoning Map will be amended to identify the Specific Plan Program Area as the Castellina Specific Plan and the zoning as set forth in the Castellina Specific Plan would apply. As such, the Specific Plan Program would be consistent with the Madera County Zoning Code and the Program would result in less than significant land use impacts related to the County Zoning Code.

Significance Determination before Mitigation: Less than Significant

Program Cumulative Impact Analysis

Cumulative projects located in the general vicinity of the Specific Plan Program could, along with the Specific Plan Program, result in cumulative land use impacts. However, such impacts would not lead to significant physical effects on the environment that are cumulative in nature because all future projects that develop within the area of the Specific Plan Program would be subject to Madera County, or City of Madera, land use regulations, including the General Plan. Therefore, cumulative land use impacts would be less than significant.

The Specific Plan Program does not conflict with the 2018 RTP/SCS Amendment No. 1, the County General Plan, or the County Zoning Code as the Specific Plan Program is consistent with the goals and policies of each plan. Because the Specific Plan Program would not conflict with the 2018 RTP/SCS Amendment No. 1, the County General Plan or the County Zoning Code, the Specific Plan Program's contribution to potential cumulative land use impacts would be less than cumulatively considerable.

Significance Determination before Mitigation: Less than Significant

Program Mitigation Measures

No mitigation measures are required.

Significance Determination after Mitigation: Less than Significant

Program Cumulative Measures

No mitigation measures are required.

Significance Determination after Mitigation: Less than Significant

3.10.4 References

City of Madera. 2009. City of Madera General Plan, Adopted October 7, 2009.

Kimley Horn. 2021. Castellina Specific Plan. June 2021.

Madera County. 1995. Madera County General Plan, Policy Document. Adopted October 24, 1995.

VRPA. 2019. 2018 Regional Transportation Plan/Sustainable Communities Strategy Amendment No. 1. Adopted March 20, 2019.

3.11 Noise and Vibration

This section evaluates the potential for noise and ground-borne vibration impacts that may result from implementation of the proposed Project. The analysis provides an overview of the fundamental principles of noise and vibration, describes the existing noise environment in the Project vicinity, presents a summary of applicable regulations, estimates future noise levels at surrounding land uses resulting from construction and operation of the proposed Project, identifies the potential for significant impacts, and, where necessary, provides mitigation measures to address significant impacts.

Data used to prepare this analysis were obtained from the County of Madera General Plan Noise Element, the County of Madera County Code, as well as noise measurements conducted in the Project vicinity.

3.11.1 Environmental Setting

Noise Principles and Descriptors

Sound can be described as the mechanical energy of a vibrating object transmitted by pressure waves through a liquid or gaseous medium (e.g., air). Noise is generally defined as unwanted sound (i.e., loud, unexpected, or annoying sound). Acoustics is defined as the physics of sound. In acoustics, the fundamental scientific model consists of a sound (or noise) source, a receiver, and the propagation path between the two. The loudness of the noise source and obstructions or atmospheric factors affecting the propagation path to the receiver determines the sound level and characteristics of the noise perceived by the receiver. Acoustics addresses primarily the propagation and control of sound.[1]

Sound, traveling in the form of waves from a source, exerts a sound pressure level (referred to as sound level) that is measured in decibels (dB), which is the standard unit of sound amplitude measurement. The dB scale is a logarithmic scale that describes the physical intensity of the pressure vibrations that make up any sound, with 0 dB corresponding roughly to the theoretical threshold of human hearing and 120 to 140 dB corresponding to the threshold of feeling and pain, respectively. Pressure waves traveling through air exert a force registered by the human ear as sound.[2]

Sound pressure fluctuations can be measured in units of hertz (Hz), which correspond to the frequency of a particular sound. Typically, sound does not consist of a single frequency, but rather a broad band of frequencies varying in levels of magnitude. When all the audible frequencies of a sound are measured, a sound spectrum is plotted consisting of a range of frequency spanning 20 to 20,000 Hz. The typical human ear is not equally sensitive to this frequency range. As a consequence, when assessing potential noise impacts, sound is measured using an electronic filter that deemphasizes the frequencies below 1,000 Hz and above 5,000 Hz in a manner corresponding to the human ear's decreased sensitivity to these extremely low and extremely high frequencies. This method of frequency filtering or weighting is referred to as A-weighting, expressed in units of A-weighted

1 M. David Egan, *Architectural Acoustics*, Chapter 1, March 1988.
2 M. David Egan, *Architectural Acoustics*, Chapter 1.

decibels (dBA), which is typically applied to community noise measurements.[3] Some representative common outdoor and indoor noise sources and their corresponding A-weighted noise levels are shown in **Figure 3.11-1**. All noise levels presented below are A-weighted unless otherwise stated.

Noise Exposure and Community Noise

An individual's noise exposure is a measure of noise over a period of time; a noise level is a measure of noise at a given instant in time, as presented in Figure 3.11-1. However, noise levels rarely persist at that level over a long period of time. Rather, community noise varies continuously over a period of time with respect to the sound sources contributing to the community noise environment. Community noise is primarily the product of many distant noise sources, which constitute a relatively stable background noise exposure, with many of the individual contributors unidentifiable. The background noise level changes throughout a typical day, but does so gradually, corresponding with the addition and subtraction of distant noise sources, such as changes in traffic volume. What makes community noise variable throughout a day, besides the slowly changing background noise, is the addition of short-duration, single-event noise sources (e.g., aircraft flyovers, motor vehicles, sirens), which are readily identifiable to the individual.[4]

These successive additions of sound to the community noise environment change the community noise level from instant to instant, requiring the noise exposure to be measured over periods of time to legitimately characterize a community noise environment and evaluate cumulative noise impacts. The following noise descriptors are used to characterize environmental noise levels over time, which are applicable to the Project.[5]

L_{eq}: The equivalent sound level over a specified period of time, typically, 1 hour (L_{eq}). The L_{eq} may also be referred to as the average sound level.

L_{max}: The maximum, instantaneous noise level experienced during a given period of time.

L_{min}: The minimum, instantaneous noise level experienced during a given period of time.

L_x: The noise level exceeded a percentage of a specified time period. For instance, L_{50} and L_{90} represent the noise levels that are exceeded 50 percent and 90 percent of the time, respectively.

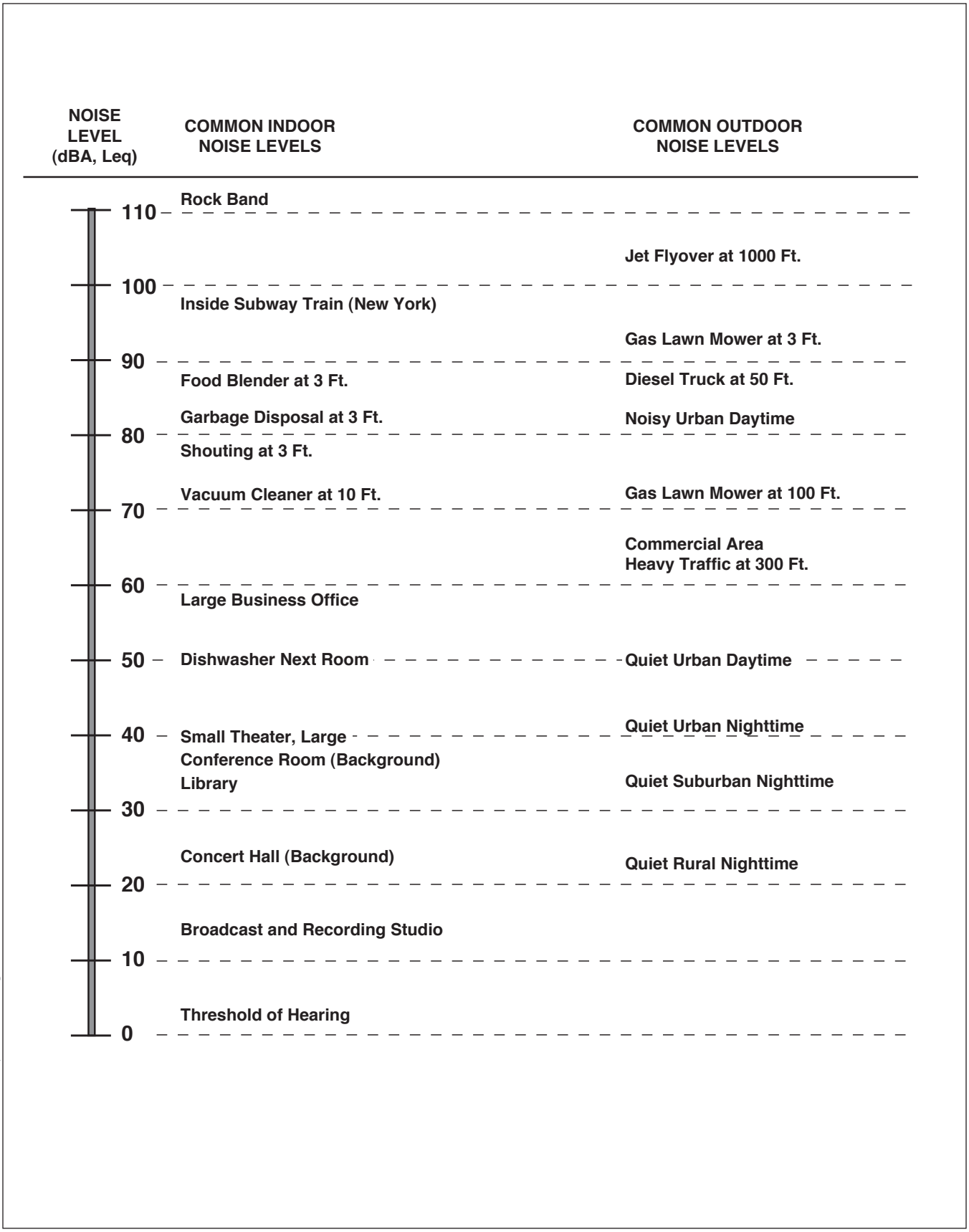
L_{dn}: The average A-weighted noise level during a 24-hour day, obtained after an addition of 10 dB to measured noise levels between the hours of 10:00 p.m. to 7:00 a.m. to account nighttime noise sensitivity. The L_{dn} is also termed the day-night average noise level (DNL).

CNEL: The Community Noise Equivalent Level (CNEL) is the average A-weighted noise level during a 24-hour day that includes an addition of 5 dB to measured noise levels between the hours of 7:00 a.m. to 10:00 p.m. and an addition of 10 dB to noise levels between the hours of 10:00 p.m. to 7:00 a.m. to account for noise sensitivity in the evening and nighttime, respectively.

3 M David Egan, Architectural Acoustics, Chapter 1.

4 California Department of Transportation, Technical Noise Supplement (TeNS), Section 2.2.2.1, September, 2013.

5 California Department of Transportation, TeNS, Section 2.2.2.2.



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SOURCE: State of California, Department of Transportation (Caltrans), Technical Noise Supplement (TeNS). October 1998. Available: http://www.dot.ca.gov/hq/env/noise/pub/Technical Noise Supplement.pdf

Figure 3.11-1
Decibel Scale and Common Noise Sources

ESA

Effects of Noise on People

Although exposure to high noise levels has been demonstrated to cause physical and physiological effects, the principal human responses to typical environmental noise exposure are related to subjective effects and interference with activities. Activities most affected by noise include rest, relaxation, recreation, study, and communications.[6]

With regard to the subjective effects, the responses of individuals to similar noise events are diverse and influenced by many factors, including the type of noise, the perceived importance of the noise, the appropriateness of the noise to the setting, the duration of the noise, the time of day and the type of activity during which the noise occurs, and individual noise sensitivity. Overall, there is no completely satisfactory way to measure the subjective effects of noise, or the corresponding reactions of annoyance and dissatisfaction on people. A wide variation in individual thresholds of annoyance exists, and different tolerances to noise tend to develop based on an individual's past experiences with noise. Thus, an important way of predicting a human reaction to a new noise environment is the way it compares to the existing environment to which one has adapted (i.e., comparison to the ambient noise environment). In general, the more a new noise level exceeds the previously existing ambient noise level, the less acceptable the new noise level will be judged by those hearing it. With regard to increases in A-weighted noise level, the following relationships generally occur:[7]

- Except in carefully controlled laboratory experiments, a change of 1 dBA in ambient noise levels cannot be perceived;
- Outside of the laboratory, a 3 dBA change in ambient noise levels is considered to be a barely perceivable difference;
- A change in ambient noise levels of 5 dBA is considered to be a readily perceivable difference; and
- A change in ambient noise levels of 10 dBA is subjectively heard as doubling of the perceived loudness.

These relationships occur in part because of the logarithmic nature of sound and the decibel scale. The human ear perceives sound in a non-linear fashion; therefore, the dBA scale was developed. Because the dBA scale is based on logarithms, two noise sources do not combine in a simple additive fashion, but rather logarithmically. Under the dBA scale, a doubling of sound energy corresponds to a 3 dBA increase. In other words, when two sources are each producing sound of the same loudness, the resulting sound level at a given distance would be approximately 3 dBA higher than one of the sources under the same conditions. For example, if two identical noise sources produce noise levels of 50 dBA, the combined sound level would be 53 dBA, not 100 dBA. Under the dB scale, three sources of equal loudness together produce a sound level of approximately 5 dBA louder than one source, and ten sources of equal loudness together produce a sound level of approximately 10 dBA louder than the single source.[8]

6 California Department of Transportation, TeNS, Section 2.2.4.2.
7 California Department of Transportation, TeNS, Section 2.2.1.
8 California Department of Transportation, TeNS, Section 2.2.1.1.

Noise Attenuation

When noise propagates over a distance, the noise level reduces with distance depending on the type of noise source and the propagation path. Noise from a localized source (i.e., point source) propagates uniformly outward in a spherical pattern, referred to as "spherical spreading." Stationary point sources of noise, including stationary mobile sources such as idling vehicles, attenuate (i.e., reduce) at a rate between 6 dBA for acoustically "hard" sites and 7.5 dBA for "soft" sites for each doubling of distance from the reference measurement, as their energy is continuously spread out over a spherical surface (e.g., for hard surfaces, 80 dBA at 50 feet attenuates to 74 at 100 feet, 68 dBA at 200 feet, etc.). Hard sites are those with a reflective surface between the source and the receiver, such as asphalt or concrete surfaces or smooth bodies of water. No excess ground attenuation is assumed for hard sites, and the reduction in noise levels with distance (drop-off rate) is simply the geometric spreading of the noise from the source. Soft sites have an absorptive ground surface, such as soft dirt, grass, or scattered bushes and trees, which in addition to geometric spreading, provides an excess ground attenuation value of 1.5 dBA (per doubling distance).[9]

Roadways and highways consist of several localized noise sources on a defined path, and hence are treated as "line" sources, which approximate the effect of several point sources. Noise from a line source propagates over a cylindrical surface, often referred to as "cylindrical spreading."[10] Line sources (e.g., traffic noise from vehicles) attenuate at a rate between 3 dBA for hard sites and 4.5 dBA for soft sites for each doubling of distance from the reference measurement.[11] Therefore, noise due to a line source attenuates less with distance than that of a point source with increased distance.

Additionally, receptors located downwind from a noise source can be exposed to increased noise levels relative to calm conditions, whereas locations upwind can have lowered noise levels. Atmospheric temperature inversion (i.e., increasing temperature with elevation) can increase sound levels at long distances (e.g., more than 500 feet). Other factors such as air temperature, humidity, and turbulence can also have significant effects on noise levels.[12]

Fundamentals of Vibration

As described in the Federal Transit Administration's (FTA's) *Transit Noise and Vibration Impact Assessment* (FTA 2018), ground-borne vibration can be a serious concern for nearby neighbors of a transit system route or maintenance facility, causing buildings to shake and rumbling sounds to be heard. In contrast to airborne noise, ground-borne vibration is not a common environmental problem. It is unusual for vibration from sources such as buses and trucks to be perceptible, even in locations close to major roads. Some common sources of ground-borne vibration are trains,

9 California Department of Transportation, TeNS, Section 2.1.4.2.
10 California Department of Transportation, TeNS, Section 2.1.4.1
11 California Department of Transportation, TeNS, Section 2.1.4.1.
12 California Department of Transportation, TeNS, Section 2.1.4.3.

buses on rough roads, and construction activities such as blasting, pile driving, and the operation of heavy earthmoving equipment.[13]

There are several different methods that are used to quantify vibration. The peak particle velocity (PPV) is defined as the maximum instantaneous peak of the vibration signal. The PPV is most frequently used to describe vibration impacts to buildings. The root mean square (RMS) amplitude is most frequently used to describe the effect of vibration on the human body. The RMS amplitude is defined as the average of the squared amplitude of the signal. Decibel notation (VdB) is commonly used to measure RMS. The decibel notation acts to compress the range of numbers required to describe vibration. The relationship of PPV to RMS velocity is expressed in terms of the "crest factor," defined as the ratio of the PPV amplitude to the RMS amplitude. PPV is typically a factor of 1.7 to 6 times greater than RMS vibration velocity.[14] Typically, ground-borne vibration generated by man-made activities attenuates rapidly with distance from the source of the vibration. Sensitive receptors for vibration include structures (especially older masonry structures), people (especially residents, students, the elderly, and the sick), and vibration-sensitive equipment.[15]

The effects of ground-borne vibration include movement of building floors, rattling of windows, shaking of items on shelves or hanging on walls, and rumbling sounds. In extreme cases, the vibration can cause damage to buildings. Building damage is not a factor for most projects, with the occasional exception of blasting and pile driving during construction. Annoyance from vibration often occurs when the vibration exceeds the threshold of perception by only a small margin. A vibration level that causes annoyance will be well below the damage threshold for normal buildings. The FTA measure of the threshold of architectural damage for conventional sensitive structures is 0.2 inch per second (in/sec) PPV.[16]

In residential areas, the background vibration velocity level is usually around 50 VdB (approximately 0.0013 in/sec PPV). This level is well below the vibration velocity level threshold of perception for humans, which is approximately 65 VdB. A vibration velocity level of 75 VdB is considered to be the approximate dividing line between barely perceptible and distinctly perceptible levels for many people.[17]

Phase 1 Project and Specific Plan Program Area

Existing Land Uses

Some land uses are more sensitive to noise levels than others because of the types of activities typically associated with the uses. Noise-sensitive land uses generally include schools, hospitals, rest homes, long-term care facilities, mental care facilities, residential uses, places of worship, libraries, and passive recreation areas. These sensitive land uses, when compared to non-sensitive

[13] California Department of Transportation, Transportation and Construction Vibration Guidance Manual, page 1, September 2013.
[14] Federal Transit Administration, Transit Noise and Vibration Impact Assessment, Section 7.2, September 2018.
[15] Federal Transit Administration, Transit Noise and Vibration Impact Assessment, Section 6.4, September 2018.
[16] Federal Transit Administration, Transit Noise and Vibration Impact Assessment, Section 7.2, September 2018.
[17] Federal Transit Administration, Transit Noise and Vibration Impact Assessment, Section 6.2, September 2018.

uses such as commercial and industrial land uses, depend on a low-level noise environment to promote the well-being of their occupants and visitors.

The Phase 1 Project site and the Specific Plan Program site are relatively flat. The Program area ranges in elevation from approximately 280 feet National Geodetic Vertical Datum (NGVD) in the northwest corner to approximately 310 feet NGVD at the east end of the Specific Plan Program area. Currently, the Specific Plan Program area is used for agricultural production and contains almond and fig orchards, related agricultural support facilities (e.g., equipment storage), wells, and unimproved dirt roadways. There are five wells located within the Specific Plan Program area that draw groundwater from the Madera groundwater basin. Based on data provided by the property owners and engineering estimates, the existing agricultural operations pump approximately 2,800 acre-feet per year (AFY) of groundwater, which is equivalent to nearly 912 million gallons. The Specific Plan Program area is designated as a New Growth Area (NGA) in the County's General Plan and has a zoning designation of Agricultural Rural Exclusive 40-Acres (ARE-40).

Surrounding Land Uses

Similar to the Specific Plan Program area, many of the surrounding lands have been highly modified for agricultural purposes or otherwise developed as roads, individual residences, and residential subdivisions. There are some commercial uses further from the Specific Plan Program area and along the roadways where noise levels were evaluated. Adjacent land uses to the Specific Plan Program area include rangelands to the north, orchards to the east, and rural residential land uses to the south and west. Surrounding land use designations include Agricultural Exclusive (AE), Rural Residential (RR), Very Low Density Residential (VLDR), and Agricultural Residential (AR). Surrounding zoning designations include ARE-40, Agricultural Rural 5-Acre (AR-5), and Rural Residential Single Family/ Manufactured Housing Architectural Districts (RRS/MHA Districts). The extension of Avenue 17 does not presently exist and Avenue 18 terminates at Road 27. The Specific Plan Program area can be accessed via Road 27 and Road 28½ on the west and east sides, respectively.

Ambient Noise Levels

The predominant existing noise source on the Phase 1 Project Site, the Specific Plan Program site, and surrounding areas is traffic noise from the surrounding streets and rail noise along the adjacent railroad tracks.

On Wednesday, November 20, 2019, short-term (15-minute duration) daytime ambient noise measurements were conducted at locations identified below that represent the ambient noise environment at or in the vicinity of the nearby noise sensitive receptors. Additionally, one longer term (2 hours in duration) measurement was taken at one location from 7:22 a.m. to 9:21 a.m., November 20, 2019. A summary of noise measurements is provided in **Table 3.11-1**, *Summary of Ambient Noise Measurements*, and details are included in **Appendix J** of this Draft EIR.

The representative ambient noise measurement (NM) locations (NM-1 through NM-6) are described as follows:

- Measurement Location NM-1: Existing noise environment of the southwest corner of the Project site along Avenue 17, and is next to the existing railroad tracks.
- Measurement Location NM-2: Existing residences south of Avenue 17 and the Project site, at the north end of Harper Boulevard.
- Measurement Location NM-3: Existing residences at the southeast corner of the Project site, south of Avenue 17 and west of Road 28 1/2.
- Measurement Location NM-4: Existing noise environment of the residential use located on the east side of Road 28 ½, between Avenue 17 and Avenue 18.
- Measurement Location NM-5: Existing residences at the northwest corner of the Project site, west of Road 27 and north of Avenue 18.
- Measurement Location NM-6: Existing residences west of the Project site, south of the railroad tracks and west of Road 27.

TABLE 3.11-1
SUMMARY OF AMBIENT NOISE MEASUREMENTS AND ESTIMATED AMBIENT NOISE LEVELS

		Ambient Noise Levels			
Measurement Locations	**Primary Noise Source**	**Date and Time**	**Measurement Duration**	**Distance from Measurement Location to Primary Noise Source (in feet)**	**Average L_{eq}**
Ambient Noise Measurements					
NM-1	Various trains	11/20/19 (7:26 A.M. to 9:22 A.M.)	2-hour	65	72.0
NM-2	One Amtrak train and one freight train	11/20/19 (9:18 A.M. to 9:33 A.M.)	15-minute	194	71.8
NM-3	Street traffic	11/20/19 (8:28 A.M. to 8:43 A.M.)	15-minute	22	67.8
NM-4	Street traffic	11/20/19 (8:09 A.M. to 8:24 A.M.)	15-minute	50	74.3
NM-5	One freight train and one construction truck along Road 27	11/20/19 (7:43 A.M. to 7:58 A.M.)	15-minute	1,025[a]	63.3
NM-6	Street traffic	11/20/19 (8:55 A.M. to 9:10 A.M.)	15-minute	685	60.4

NOTE: The ambient noise measurements were conducted using the Larson-Davis 820 Precision Integrated Sound Level Meter, which is a Type 1 standard instrument as defined in the American National Standard Institute S1.4. All instruments were calibrated and operated according to the applicable manufacturer specifications. The microphone was placed at a height of 5 feet above the local grade at the following locations.

[a] Distance to railroad.

SOURCE: ESA, 2019

A summary of noise measurement data is provided in Table 3.11-1 and details are included in Appendix J of this Draft EIR. Average noise levels range from 60.4 dBA L_{eq} to 74.3 dBA L_{eq}.

Among the six noise measurement sites, NM-4 was located along Road 28 1/2 that had vehicles traveling at a relatively high speed including large trucks, and the peak level registered reached 114.5 dBA. NM-5 was near the construction site for the Road 27 railroad overpass with a freight train passing by as well as a large construction truck along Road 27 passing by and registered a peak noise level of 102.7 dBA. R2 was in the vicinity of the railroad tracks with an Amtrak train and a freight train passing by during the measurement and registered a peak noise level of 102.5 dBA.

During the two hours of recording, noise levels at noise measurement site NM-1 showed the peak noise levels exceeding 100 dBA six different times which potentially showed the number of times a train passes by this noise monitoring location. During the 15-minute measurement period at NM-2 and NM-5, it shows one time that noise level exceeded 100 dBA at this monitoring location. Noise measurement locations NM-3 and NM-5 did not record any peak noise levels exceeding 100 dBA during their 15-minute measurement period, but showed many of the peak noise levels exceeded 90 dBA. For measurement location NM-4, there were 11 occurrences of peak noise levels exceeding 100 dBA, mostly due to truck passby and other nearby activities.

Based on the data obtained from the noise measurement locations, the ambient noise levels at 23 receptors surrounding the Specific Plan Program site were estimated. **Table 3.11-2** provides the estimated ambient noise levels.

TABLE 3.11-2
SUMMARY OF ESTIMATED AMBIENT NOISE LEVELS AT SENSITIVE RECEPTORS

Receptor Locations	Primary Noise Source	Distance Between Primary Noise Source and Receptor	Average L_{eq}
R1 (26971 Avenue 18)	Trains	905	64.1[e]
R2 (26935 Avenue 18)	Trains	860	64.4[e]
R3 (26936 Avenue 18)	Trains	610	66.7[e]
R4 (26935 Tremaine Avenue)	Trains	360	70.1[e]
R5 (26936 Tremaine Avenue)	Trains	235	72.9[e]
R6 (17654 Road 27)	Trains	325	65.3[f]
R7 (17636 Road 27)	Trains	375	64.3[f]
R8 (17574 Road 27)	Trains	470	62.9[f]
R9 (17555 Road 27)	Trains	850	59.0[f]
R10 (17393 Road 27)	Trains	260	66.7[f]
R11 (17220 Alonzo Court)	Trains	500	58.7[a]
R12 (17217 Alonzo Court)	Trains	690	56.6[a]
R13 (27461 Alonzo Court)	Trains	670	56.8[a]
R14 (27477 Alonzo Court)	Trains	445	59.5[a]
R15 (27527 Avenue 17)	Trains	365	60.8[a]
R16 (27538 Avenue 17)	Trains	500	58.7[a]

Receptor Locations	Primary Noise Source	Distance Between Primary Noise Source and Receptor	Average L_{eq}
R17 (16863 Tuolume Street)	Trains	255	70.0[b]
R18 (16886 Road 28 ½)	Roadway	145	55.5[c]
R19 (16868 Road 28 ½)	Roadway	120	56.7[c]
R20 (16887 Road 28 ½)	Roadway	25	67.0[c]
R21 (16867 Road 28 ½)	Roadway	165	54.7[c]
R22 (16855 Road 28 ½)	Roadway	90	58.6[c]
R23 (17269 Road 28 ½)	Roadway	765	56.5[d]

NOTES:

[a] Estimated ambient noise at this receptor was interpolated from Noise Measurement NM-1
[b] Estimated ambient noise at this receptor was interpolated from Noise Measurement NM-2
[c] Estimated ambient noise at this receptor was interpolated from Noise Measurement NM-3
[d] Estimated ambient noise at this receptor was interpolated from Noise Measurement NM-4
[e] Estimated ambient noise at this receptor was interpolated from Noise Measurement NM-5
[f] Estimated ambient noise at this receptor was interpolated from Noise Measurement NM-6

SOURCE: ESA, 2020

Existing Traffic Noise Levels

To characterize the Project area's existing day/night noise environment along roadway segments, the noise levels attributed to existing traffic volumes on local roadways were estimated using a spreadsheet model developed based on the methodologies provided in Federal Highway Administration's (FHWA) Traffic Noise Model (TNM) Technical Manual.[18]

In addition, the Caltrans Technical Noise Supplement (TeNS) document states that the peak hour traffic noise level would be equivalent to the L_{dn} level based on the assumptions of 1) the peak hour traffic volume would be 10 percent of the average daily traffic volume, and 2) the split of daytime and nighttime average daily traffic volume is 85/15 percent.[19] Further, the CNEL level would be 0.3 dBA higher than L_{dn} level based on the assumption of 80 percent in daytime and 5 percent in evening time.

Table 3.11-3 presents the calculated existing CNEL levels from the existing traffic volumes in the vicinity of the Specific Plan Program site. Table 3.11-3 shows that existing traffic noise levels range from 61.3 dBA CNEL to 70.3 dBA CNEL along roadway segments in the vicinity of the Specific Plan Program area.

[18] FHWA, *Federal Highway Administration's Traffic Noise Model, Version 1.0 Technical Manual.* February 1998 https://www.fhwa.dot.gov/environment/noise/traffic_noise_model/old_versions/tnm_version_10/tech_manual/index.cfm.

[19] Caltrans, Technical Noise Supplement to the Traffic Noise Analysis Protocol, September, 2013. http://www.dot.ca.gov/hq/env/noise/pub/TeNS_Sept_2013B.pdf.

TABLE 3.11-3
ROADWAY TRAFFIC NOISE - EXISTING BASELINE

Street	Roadway Segment	Existing Land Uses Located Along Roadway Segment	Existing Traffic Noise Levels (dBA CNEL)
Avenue 15	Road 28 ½ to Tozer St (Road 28)	Commercial	63.5
Avenue 15 1/2	State Route 99 SB off-ramp to Country Club Dr	Commercial	71.9
Avenue 15 1/2	Country Club Dr to Road 27	Commercial/Residential	68.3
Avenue 15 1/2	Road 27 to Road 28 1/2	Residential/Religious	68.0
Avenue 17	State Route 99 interchange to Road 26	Residential/Religious	67.8
Avenue 17	Road 26 to Road 27	Commercial/Residential	65.6
Road 27	Avenue 21 to Avenue 18	Residential/Agricultural	62.4
Road 27	Avenue 18 to Avenue 17	Residential/Agricultural	65.0
Road 27	Avenue 17 to Cleveland Avenue	Residential/Educational/ Religious/Commercial	65.9
Road 28 1/2	Avenue 21 to Avenue 17 1/2	Agricultural	69.3
Road 28 1/2	Avenue 17 1/2 to Avenue 17	Agricultural	67.0
Road 28 1/2	Avenue 17 to Cleveland Avenue	Residential/Agricultural	65.6
State Route 145/ Yosemite Ave	Gateway Drive to Lake Street	Commercial	68.3
State Route 145/ Yosemite Ave	Lake Street to Fig Street	Commercial/Residential	67.9
State Route 145/ Yosemite Ave	Fig Street to Tozer Street	Commercial/Religious	67.9

SOURCE: Kimley Horn 2021; ESA 2021

Existing Ground-borne Vibration Conditions

Aside from periodic construction work that may occur throughout the County of Madera, other sources of ground-borne vibration in the Project site vicinity include heavy-duty vehicular travel (e.g., refuse trucks, delivery trucks, and transit buses) on local roadways. Trucks and buses typically generate ground-borne vibration velocity levels of around 63 VdB, and these levels could reach 72 VdB where trucks and buses pass over bumps in the road. In terms of PPV levels, a heavy-duty vehicle traveling at a distance of 50 feet can result in a vibration level of approximately 0.001 inch per second.[20]

3.11.2 Regulatory Framework

Federal

Noise Standards

There are no federal noise standards that directly regulate environmental noise related to the construction or operation of the Specific Plan Program. With regard to noise exposure and workers,

[20] Federal Transit Authority, Transit Noise and Vibration Impact Assessment, Figure 6-4, September 2018.

OSHA regulations safeguard the hearing of workers exposed to occupational noise. Federal regulations also establish noise limits for medium and heavy trucks (more than 4.5 tons, gross vehicle weight rating) under 40 Code of Federal Regulations, Part 205, Subpart B. The federal truck pass-by noise standard is 80 dBA at 15 meters (or approximately 50 feet) from the vehicle pathway centerline. These controls are implemented through regulatory controls on truck manufacturers.

Vibration Standards

The FTA has adopted vibration standards that can be used to evaluate potential building damage impacts related to construction activities. The vibration damage criteria adopted by the FTA are shown in **Table 3.11-4**.

TABLE 3.11-4
CONSTRUCTION VIBRATION DAMAGE CRITERIA

Building Category	Vibration Levels that May Cause Damage	
I. Reinforced-concrete, steel or timber (no plaster)	0.5 in/sec PPV	102 VdB
II. Engineered concrete and masonry (no plaster)	0.3 in/sec PPV	98 VdB
III. Non-engineered timber and masonry buildings	0.2 in/sec PPV	94 VdB
IV. Buildings extremely susceptible to vibration damage	0.12 in/sec PPV	90 VdB

In/sec – inches per second
PPV – Peak particle velocity
VdB – Vibration decibel
SOURCE: FTA, 2018.

In addition, the FTA has also adopted standards associated with human annoyance for ground-borne vibration impacts for the following three land use categories: (1) Vibration Category 1 – High Sensitivity, (2) Vibration Category 2 – Residential, and (3) Vibration Category 3 – Institutional. The FTA defines Category 1 as buildings where vibration would interfere with operations within the building, including vibration-sensitive research and manufacturing facilities, hospitals with vibration-sensitive equipment, and university research operations. Vibration-sensitive equipment includes, but is not limited to, electron microscopes, high-resolution lithographic equipment, and normal optical microscopes. Category 2 refers to all residential land uses and any buildings where people sleep, such as hotels and hospitals. Category 3 refers to institutional land uses such as schools, churches, other institutions, and quiet offices that do not have vibration-sensitive equipment but still have the potential for activity interference.

Under conditions where there are an infrequent number of events per day, the FTA has established thresholds of 65 VdB for Category 1 buildings, 80 VdB for Category 2 buildings, and 83 VdB for Category 3 buildings.[21] Under conditions where there are an occasional number of events per day, the FTA has established thresholds of 65 VdB for Category 1 buildings, 75 VdB for Category 2 buildings, and 78 VdB for Category 3 buildings.[22] No thresholds have been adopted or recommended for commercial and office uses.

[21] "Infrequent events" is defined by the FTA as being fewer than 30 vibration events of the same kind per day.
[22] "Occasional events" is defined by the FTA as between 30 and 70 vibration events of the same source per day.

Based on Table 8-3 in the FTA's *Transit Noise and Vibration Impact Assessment* (FTA 2018), interpretation of vibration criteria for detailed analysis is 78 VdB for residential uses during daytime hours. During nighttime hours, the vibration criterion is 72 VdB. For office and office buildings, the FTA guidelines suggest that a vibration level of 84 VdB should be used for detailed analysis.

State

Noise Standards

The California Department of Health Services (DHS) has established guidelines for evaluating the compatibility of various land uses as a function of community noise exposure. These guidelines for land use and noise exposure compatibility are shown in **Table 3.11-5**. In addition, Section 65302(f) of the California Government Code requires each county and city in the state to prepare and adopt a comprehensive long-range General Plan for its physical development, with Section 65302(g) requiring a noise chapter to be included in the General Plan. The noise chapter must: (1) identify and appraise noise problems in the community; (2) recognize Office of Noise Control guidelines; and (3) analyze and quantify current and projected noise levels.

TABLE 3.11-5
COMMUNITY NOISE EXPOSURE LEVEL (CNEL)

Land Use	Normally Acceptable[a]	Conditionally Acceptable[b]	Normally Unacceptable[c]	Clearly Unacceptable[d]
Single-family, Duplex, Mobile Homes	50–60	55–70	70–75	above 75
Multi-Family Homes	50–65	60–70	70–75	above 75
Schools, Libraries, Churches, Hospitals, Nursing Homes	50–70	60–70	70–80	above 80
Transient Lodging – Motels, Hotels	50–65	60–70	70–80	above 80
Auditoriums, Concert Halls, Amphitheaters	---	50–70	---	above 65
Sports Arena, Outdoor Spectator Sports	---	50–75	---	above 70
Playgrounds, Neighborhood Parks	50–70	---	67 - 75	above 72
Golf Courses, Riding Stables, Water Recreation, Cemeteries	50–75	---	70–80	above 80
Office Buildings, Business and Professional Commercial	50–70	67–78	above 75	---
Industrial, Manufacturing, Utilities, Agriculture	50–75	70–80	above 75	---

All CNEL measurements are expressed in dBA.

[a] Normally Acceptable: Specified land use is satisfactory, based upon the assumption that any buildings involved are of normal conventional construction without any special noise insulation requirements.

[b] Conditionally Acceptable: New construction or development should be undertaken only after a detailed analysis of the noise reduction requirements is made and needed noise insulation features included in the design. Conventional construction, but with closed windows and fresh air supply systems or air conditioning will normally suffice.

[c] Normally Unacceptable: New construction or development should generally be discouraged. If new construction or development does proceed, a detailed analysis of the noise reduction requirements must be made and needed noise insulation features included in the design.

[d] Clearly Unacceptable: New construction or development should generally not be undertaken.

SOURCE: OPR, 2003 (in coordination with the California DHS).

The State of California also establishes noise limits for vehicles licensed to operate on public roads. For heavy trucks, the state pass-by standard is consistent with the federal limit of 80 dBA at 15 meters. The state pass-by standard for light trucks and passenger cars (less than 4.5 tons, gross vehicle rating) is also 80 dBA at 15 meters (or approximately 50 feet) from the centerline. These standards are implemented through controls on vehicle manufacturers and by legal sanction of vehicle operators by state and local law enforcement officials.

The state has also established noise insulation standards for new multifamily residential units, hotels, and motels that would be subject to relatively high levels of transportation-related noise. These requirements are collectively known as the California Noise Insulation Standards (Title 24, California Code of Regulations). The noise insulation standards set forth an interior standard of 45 dBA CNEL/L_{dn} in any habitable room and requires an acoustical analysis demonstrating how dwelling units have been designed to meet this interior standard where such units are proposed in areas subject to noise levels greater than 60 dBA CNEL/L_{dn}. Title 24 standards are typically enforced by local jurisdictions through the building permit application process.

Vibration Standards

There are no federal or state vibration standards applicable to the proposed Project. Moreover, according to the California Department of Transportation (Caltrans) *Transportation- and Construction-Induced Vibration Guidance Manual* (2013) which is based on the Federal Transit Authority (FTA), there are no official Caltrans standards for vibration. However, this manual provides guidelines for assessing vibration damage potential to various types of buildings, ranging from 0.08 to 0.12 in/sec PPV for extremely fragile historic buildings, ruins, and ancient monuments to 0.50 to 2.0 in/sec PPV for modern industrial/commercial buildings, as shown below in **Table 3.11-6**.

TABLE 3.11-6
GUIDELINE VIBRATION DAMAGE POTENTIAL THRESHOLD CRITERIA

	Maximum PPV (inch/sec)	
Structure and Condition	**Transient Sources[1]**	**Continuous/Frequent Intermittent Sources[2]**
Extremely fragile historic buildings, ruins, ancient monuments	0.12	0.08
Fragile buildings	0.20	0.10
Historic and some old buildings	0.50	0.25
Older residential structures	0.50	0.30
New residential structures	1.00	0.50
Modern industrial/commercial buildings	2.00	0.50

inch/sec = inches per second

PPV = peak particle velocity

1 Transient sources create a single, isolated vibration event, such as blasting or drop balls.

2 Continuous/frequent intermittent sources are defined by the FTA and include impact pile drivers, pogo-stick compactors, crack-and-seat equipment, vibratory pile drivers, and vibratory compaction equipment.

SOURCE: Table 19, Transportation and Construction Vibration Guidance Manual (Caltrans 2013).

Local

Local noise issues are addressed through implementation of General Plan policies, including noise and land use compatibility guidelines, and through enforcement of noise ordinance standards. A city or county's noise ordinance will typically include regulations that restrict the amount and duration of noise from various noise sources occurring within its jurisdiction as well as prescribe noise limits for different land use types. Noise regulations and standards of the County of Madera are considered with respect to evaluating the Phase 1 Project and Specific Plan Program's noise impacts on the surrounding environment.

Madera County General Plan Noise Element and Standards

The Madera County Noise Element of the General Plan sets compatibility standards for operational transportation-related noise sources and operational stationary noise sources. Public roadways are considered operational transportation noise sources. Noise sources not related to traffic on public roadways, railroads or aircraft in flight are considered to be operational stationary noise sources. Such sources generally include commercial uses and stationary equipment.

The County of Madera in the General Plan Noise Element (County of Madera, 1995) has adopted the State of California noise/land use compatibility standards. Pursuant to these standards, exterior noise levels for residential ranging up to 65 dBA CNEL are classified as "normally acceptable," based upon the assumption that the homes are built with normal conventional construction. Exterior noise levels for schools and office space ranging up to 70 dBA CNEL are classified as "normally acceptable. Exterior noise levels ranging up to 70 dBA CNEL at residential uses are "conditionally acceptable." "Conditionally acceptable" means that noise levels are acceptable only when a detailed noise analysis is conducted and needed noise insulation features are included in the design. Noise levels above 70 dBA CNEL for residential and schools and 75 dBA CNEL for office uses are normally unacceptable and development of these land uses in noise environments are discouraged.

Also of concern are Project-generated impacts to sensitive receptors in the Project area. The County of Madera defines sensitive receptors of noise as residences, schools, libraries, hospitals, churches, etc. "Noise impacted projects" are defined as residential projects, or portions thereof, which are exposed to an exterior noise level of 60 dBA CNEL or greater. The State of California's noise/land use compatibility standards categorize residential outdoor noise levels of up to 60 dBA CNEL as normally acceptable. If outdoor noise levels are expected to exceed 60 dBA CNEL, a detailed noise analysis may be required.

Transportation Noise

The County of Madera has established standards and guidelines for noise-sensitive land uses, including residential uses, schools, hospitals and convalescent homes. The noise sensitive land uses shall not be exposed to transportation noise sources that exceed 60 dB L_{dn} for outdoor activity areas and 45 dB L_{dn} for interior spaces. However, if the noise sensitive uses are located near the mainlines of the railroad (i.e., BNSF), an exterior noise level standard of 65 dB L_{dn} will be applied (see **Table 3.11-7**). Outdoor activity areas generally include backyards of single-family residences and individual patios or decks of multi-family developments. The intent of the

exterior noise level requirement is to provide an acceptable noise environment for outdoor activities and recreation. The intent of the interior noise level standard is to provide an acceptable noise environment for indoor communication and sleep.

TABLE 3.11-7
COUNTY OF MADERA TRANSPORTATION NOISE SOURCE STANDARDS

Land Use	Exterior Noise Level	Interior Noise Level
Areas Not Adjacent to State Route 99 and Mainlines of Railroads (SPRR, BNSF)		
Residential, Schools, Hospitals, Convalescent Homes	60 dB L_{dn}	45 dB L_{dn}
Areas Adjacent to State Route 99 and Mainlines of Railroads (SPRR, BNSF)		
Residential, Schools, Hospitals, Convalescent Homes	65 dB L_{dn}	45 dB L_{dn}

SOURCE: Madera County General Plan, Noise Element, Policy 7.A.1, October 1995

Stationary Noise

For operational stationary noise sources, the Noise Element establishes noise compatibility criteria in terms of the hourly equivalent sound level (L_{eq}) and maximum sound level (L_{max}). The standards are more restrictive during the nighttime hours, defined as 10:00 p.m. to 7:00 a.m. The Noise Element standards for stationary noise sources are summarized in **Table 3.11-8**.

TABLE 3.11-8
COUNTY OF MADERA NOISE ELEMENT STANDARDS FOR OPERATIONAL STATIONARY SOURCES

Sound Level	Daytime (7:00 a.m.-10:00 p.m.)	Nighttime (10:00 p.m.-7:00 a.m.)
Hourly Equivalent Sound Level (L_{eq}), dBA	50	45
Maximum Sound Level (L_{max}), dBA	70	65

SOURCE: Madera County General Plan, Noise Element, 1995

Vibration

Madera County has established a vibration perception threshold. The minimum ground or structure-based vibrational motion necessary to cause a normal person to be aware of the vibration by such direction means as, but not limited to, sensation by touch or visual observation of moving objects. The perception threshold shall be presumed to be a motion velocity of one-tenth (0.1) inches per second over the range of one to one hundred Hertz.

Although Madera County has established a vibration perception threshold, the County has not identified a threshold for structural damage resulting from construction or operational activities causing vibration. A frequently used structural damage vibration thresholds in other jurisdictions within California are the standards published by the Federal Transit Administration (FTA) from transit activities. Although the FTA guidelines are to be applied to transit activities, they may be reasonably applied to the assessment of the potential for structural damage resulting from other activities. To prevent structural damage from vibration, a vibration velocity level of 75 VdB or

less is suggested when there are occasional (between 30 and 70) vibration events such as train pass-bys.

Construction Noise and Vibration

Noise due to construction activities is generally considered to be less than significant if the construction activity is temporary, use of heavy equipment and noisy activities is limited to daytime hours, no pile driving or surface blasting is proposed, and all industry-standard noise abatement measures are implemented for noise-producing equipment. These general parameters acknowledge that people are not as likely to be annoyed by activities that are perceived as being necessary for normal commerce, so long as the inconveniences due to noise are of relatively short duration and all practical measures are being implemented to reduce the impacts of noise-producing activities.

The recently updated Madera County noise standards identified performance standards applicable to land uses affected by heavy industrial use. The performance standards for residential uses is 60 dB during the daytime (7 am to 10 pm) and 55 dB for the nighttime standard (10 pm to 7 am). These standards are ambiguous in that they do not specify the noise level descriptor associated with the numeric standard. Given the magnitude of the standard, it is assumed that they are intended to represent average noise levels (L_{eq}) that are not to be exceeded at the property line of the receiving use.

Madera County Noise Ordinance

Section 9.58.020 of the Madera County Code contains general noise regulations for noise sources located within Madera County. This section contains general regulations geared towards residences, schools, generation of motor vehicles, horns, etc., but does not contain numeric noise level standards for use in evaluating the compatibility of new projects with its surroundings. Therefore, the County Noise Element standards (described above) and the CEQA guidelines (described below) are used to assess noise impacts for this Project.

Construction activities are limited to the hours of seven a.m. to seven p.m. Monday through Friday and nine a.m. to five p.m. on Saturdays. Construction activities are prohibited on Sundays.

Substantial Noise Increases

CEQA does not define what constitutes a substantial increase in noise levels. Some guidance is provided by the 1992 findings of the Federal Interagency Committee on Noise (FICON), which assessed changes in ambient noise levels resulting from aircraft operations. The FICON recommendations are based upon studies that relate aircraft and traffic noise levels to the percentage of persons highly annoyed by the noise. The rationale for the FICON recommendations is that it is possible to consistently describe the annoyance of people exposed to transportation noise in terms of the DNL (or CNEL). Annoyance is a summary measure of the general adverse reaction of people to noise that results in speech interference, sleep disturbance, or interference with other daily activities.

Although the FICON recommendations were specifically developed to address aircraft noise impacts, they are used in this analysis for transportation noise sources that are described in terms of cumulative noise exposure metrics such as the DNL. **Table 3.11-9** summarizes the FICON recommendations.

For noise sources that are not transportation related, which usually includes commercial or industrial activities and other stationary noise sources, it is common to assume that a 3-5 dBA increase in noise levels represents a substantial increase in ambient noise levels. This is based on laboratory tests that indicate that a 3 dBA increase is the minimum change perceptible to most people, and that a 5 dBA increase is perceived as a "definitely noticeable change."

TABLE 3.11-9
SUBSTANTIAL NOISE INCREASE FOR OPERATIONAL TRANSPORTATION SOURCES

Ambient Noise Level	Significant Impact Assumed to Occur if
Without Project (DNL/CNEL)	The Project Increases Ambient Noise Levels by:
<60 dBA	+5 dBA or more
60-65 dBA	+3 dBA or more
>65 dBA	+1.5 dBA or more

SOURCE: FICON, 1992, as applied by ESA, 2019.

3.11.3 Impacts and Mitigation Measures

Significance Criteria

Consistent with the CEQA *Guidelines* Appendix G, the proposed Project would result in a significant impact on the environment if it would result in:

- Generation of a substantial temporary or permanent increase in ambient noise levels in the vicinity of the project in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies (see Impact 3.11-1 below);
- Generation of excessive ground-borne vibration or ground-borne noise levels (see Impact 3.11-2 below);
- For a project located within the vicinity of a private airstrip or 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 (see Section 4.1.6 in Chapter 4.0, Other CEQA Considerations);

Noise Criteria

The proposed Project is located in the County of Madera. As such, for the purpose of determining whether the proposed Project would exceed established noise standards, the standards that will be used to determine if the Project's construction noise levels would result in a significant impact are those contained in the construction noise regulations of the County of Madera. Furthermore, operational noise from the proposed Project could cause operational impacts. Operational impacts are compared to noise standards and thresholds established in the municipal codes, noise elements, and noise ordinances of the County of Madera.

County of Madera

In addition to a violation of established noise regulations or an exceedance of established noise standards, the Project's construction activities are also assessed to determine whether the noise levels generated would result in a temporary substantial increase in the ambient noise environment. The *CEQA Guidelines* do not define the levels at which temporary increases in ambient noise are considered "substantial." Therefore, with regard to temporary construction noise, the significance of the proposed Project's noise impacts can be determined by comparing estimated construction-related noise levels to existing non-construction noise levels. Generally speaking, the average healthy ear can barely perceive a noise level change of 3 dBA. A change from 3 to 5 dBA may be noticed by some individuals who are sensitive to changes in noise. A 5 dBA increase is readily noticeable, while the human ear perceives a 10 dBA increase as a doubling of sound. As such, for the purpose of the Project's construction noise analysis, it is assumed that a significant impact on nearby off-site sensitive receptors from Project construction would occur if the noise levels would cause the ambient noise level measured at the property line of a noise-sensitive receptor to increase by 5 dBA.

Vibration Criteria

Construction Vibration Structural Damage

The County of Madera does not have local standards regarding construction-related vibration, and there are no binding state or federal standards that would apply to this impact. For this Draft EIR, the County of Madera relies on the guidelines regarding construction-related vibration impacts on buildings based on the age and/or condition of the structures that are located in proximity to construction activity that have been developed by the FTA. Based on the FTA criteria (as shown in Table 3.11-6), construction impacts relative to ground-borne vibration would be considered significant if any of the following were to occur:

- Project construction activities would cause a PPV ground-borne vibration level to exceed 2.0 inch per second at a modern industrial/commercial structure.
- Project construction activities would cause a PPV ground-borne vibration level to exceed 1.0 inch per second at a new residential structure.
- Project construction activities would cause a PPV ground-borne vibration level to exceed 0.5 inch per second at a reinforced concrete, steel, or timber building.
- Project construction activities would cause a PPV ground-borne vibration level to exceed 0.3 inch per second at any engineered concrete and masonry building.
- Project construction activities would cause a PPV ground-borne vibration level to exceed 0.2 inch per second at any non-engineered timber and masonry buildings.
- Project construction activities would cause a PPV ground-borne vibration level to exceed 0.12 inch per second at any buildings "extremely susceptible to vibration damage" (e.g., a historical building).

As a conservative estimate, nearby buildings are assumed to be at least non-engineered timber and masonry buildings and the 0.2 in/sec PPV threshold would be applied to assess potential structural damage.

In terms of ground-borne vibration impacts associated with human annoyance, this analysis of construction activities uses the FTA's vibration impact threshold of 75 VdB for residences under conditions where there are an infrequent number of events per day (FTA 2018).

Operational Vibration

During its operation, the proposed Project would not involve the use of heavy machinery or generate heavy-duty truck trips that are often sources of vibration levels. As such, no sources of "excessive" ground-borne vibration or noise levels are anticipated during Project operations.

Methodology

Construction Noise Levels

Construction noise levels were estimated using equipment noise levels identified in the Federal Highway Administration's (FHWA) Roadway Construction Noise Model (RCNM). For the purpose of conducting a conservative analysis, it is assumed that up to three pieces of construction equipment used at the Project site would be operating in proximity to the nearest off-site sensitive receptors to the west and south. The estimated construction noise levels resulting from the development of the Phase 1 Project or the proposed Program at the nearby off-site sensitive receptors were then analyzed against the construction noise standards established in the municipal codes of the County of Madera (where the Project site and the nearest off-site sensitive receiver are located) to determine whether an exceedance of allowable noise levels would occur across any adjacent property boundaries. Additionally, the estimated construction noise levels at the off-site sensitive receptors were also assessed against the estimated ambient noise levels at the selected off-site sensitive receptor locations shown in Table 3.11-1 to determine the anticipated increase in the noise environment during Project construction. Existing noise-sensitive receptors in the vicinity of the Project site include residential uses located to the west and south of the Specific Plan Program site.

Off-site construction noise levels by mobile sources were estimated using the FHWA Traffic Noise Model and the Caltrans Technical Noise Supplement (TeNS) method based on vehicle trip volume data for the Project, consistent with the construction data used for the Project's air quality analysis in Section 3.2, Air Quality, and included in Appendix C of this Draft EIR. This method allows for the definition of roadway configurations, barrier information (if any), and receiver locations.

Operational Noise Levels

Operations of the Project would involve on-site stationary (loading/unloading activity associated with proposed on-site commercial uses and HVAC equipment associated with residential units) and off-site mobile sources (vehicular traffic). The estimated operational noise levels resulting from the proposed Project at the nearby off-site sensitive receptors were then analyzed against the noise standards at the off-site sensitive receptor locations to determine whether there will be any violation of the noise code during Project operation. Existing noise-sensitive receptors surrounding the Project site include residential uses located to the west and south of the Specific Plan Program site.

Construction Equipment Vibration

Ground-borne vibration levels resulting from construction activities at the Project site were estimated using data published by the FTA in its *Transit Noise and Vibration Impact Assessment* (2018) document. Potential vibration levels resulting from construction of the Project facilities are identified for off-site locations that are sensitive to vibration, including the existing residences, based on their distance from construction activities. In contrast to noise-sensitive receptor distances that are measured to the nearest property line, the distance to vibration sensitive receptors was measured from the construction activity to the closest structure due to the sensitivity of human response to groundborne vibration in an outdoor environment.

Operational Vibration Levels

Operations of the Project would involve on-site stationary (loading/unloading activity associated with proposed on-site commercial uses and HVAC equipment associated with residential units) and off-site mobile sources (vehicular traffic). The estimated operational vibration levels resulting from the proposed Project at the nearby off-site sensitive receptors were then analyzed against the vibration standards at the off-site sensitive receptor locations to determine whether there will be any structural damage or human annoyance during Project operation. Existing sensitive receptors surrounding the Project site include residential uses located to the west and south of the Specific Plan Program site.

Impacts Discussion

Exceedance of Established Noise Standards

Impact 3.11-1a: The Phase 1 Project could have significant and cumulatively considerable impacts on the generation of a substantial temporary or permanent increase in ambient noise levels in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies in the vicinity of the Project.

Phase 1 Project Impact Analysis

Construction Noise

Construction of the Phase 1 Project would require the use of heavy equipment during site preparation, grading, trenching, excavation, and building activities at the Project site. Development activities would also involve the use of smaller power tools, generators, and other sources of noise. During each stage of development, there would be a different mix of equipment. As such, construction activity noise levels at and near the Phase 1 Project site would fluctuate depending on the particular type, number, and duration of use of the various pieces of construction equipment. Construction-related material haul trips would increase noise levels along haul routes depending on the number of haul trips made and types of vehicles used.

Table 3.11-10 shows the anticipated noise levels (L_{max}) produced by some of the various types of construction equipment that would be used during the Phase 1 Project construction at the site based on a distance of 50 feet between the equipment and the noise receptor. It should be noted that L_{max} noise levels associated with the construction equipment would only be generated when equipment is operated at full power. Typically, the operating cycle for a piece of construction equipment would involve 1 or 2 minutes of full power operation followed by 3 or 4 minutes at

lower power settings. As such, the L_{max} noise levels shown in Table 3.11-10 would occur only occasionally and intermittently throughout the construction day.

TABLE 3.11-10
MAXIMUM NOISE LEVELS FROM CONSTRUCTION EQUIPMENT

Construction Equipment	Noise Level at 50 Feet (dBA, L_{max})
Air Compressor	78
Backhoe	78
Blasting	94
Bore/Drill Rig	79
Cement/Mortar Mixer	79
Cranes	81
Dozers	82
Dump/Haul Trucks	76
Excavator	81
Forklift	75
Front End Loader	79
Generator Sets	81
Graders	85
Paving Equipment	85
Pickup Truck	75
Pumps	81
Scraper	84
Tractor/Loader/Backhoe	80
Vacuum Street Sweeper	82
Water Trucks	80
Welders	74

SOURCE: Federal Highway Administration, 2006.

Based on the noise levels identified above as well as a construction assumption that two pieces of the noisiest equipment are assumed to have 50 percent usage factor each and their highest noise level (L_{max}) is used for the entire time, construction noise would result in 83 dBA L_{eq} at 50 feet as shown in **Table 3.11-11**. During other construction phases, composite construction noise levels would be 80 dBA L_{eq} at 50 feet.

Based on the composite construction noise levels identified above, **Table 3.11-12** provides a summary of the estimated ambient and construction noise levels as well as noise level increases from construction noise at the sensitive receptors located in the vicinity of the Phase 1 Project site. As shown, the distance of these sensitive receptors to the site ranges from 190 feet to 850 feet.

TABLE 3.11-11
CONSTRUCTION EQUIPMENT AND COMPOSITE SITE NOISE LEVELS

Construction Phase	Loudest Construction Equipment	Equipment Noise Level (dBA) at 50 feet	Composite Site Noise Level (dBA) at 50 feet
Demolition, Site Clearing, and Excavation	Grader Excavator	85 81	83
Building Erection	Derrick Crane Cement Mixer	81 79	80
Mechanical Equipment Installation	Derrick Crane Air Compressor	81 79	80

SOURCE: FHWA, 2006; ESA, 2019.

TABLE 3.11-12
SUMMARY OF ESTIMATED AMBIENT NOISE LEVELS AT SENSITIVE RECEPTORS NEAR PHASE 1 PROJECT SITE

Receptor Locations	Distance from Phase 1 Project Site	Estimated Existing Ambient Noise Level at Receptor Location Average L_{eq}	Estimated Maximum Noise Level During Construction at Receptor Location L_{max}	Estimated Composite Noise Level of Ambient Plus Phase 1 Project Construction Average L_{eq}	Noise Level Increase from Existing Ambient Noise Level Average L_{eq}
R1 (26971 Avenue 18)	190	64.1	71.4	72.1[e]	8.0
R2 (26935 Avenue 18)	365	64.4	65.7	68.1[e]	3.7
R3 (26936 Avenue 18)	295	66.7	67.6	70.1[e]	3.4
R4 (26935 Tremaine Avenue)	295	70.1	67.6	72.0[e]	1.9
R5 (26936 Tremaine Avenue)	265	72.9	68.5	74.2[e]	1.3
R6 (17654 Road 27)	850	65.3	58.4	66.1[f]	0.8
R7 (17636 Road 27)	360	64.3	65.9	68.2[f]	3.9
R8 (17574 Road 27)	836	62.9	58.5	64.2[f]	1.3
R9 (17555 Road 27)	304	59.0	67.3	67.9[f]	8.3
R10 (17393 Road 27)	750	66.7	59.5	67.6[f]	0.9

NOTES:

[a] Estimated ambient noise at this receptor was interpolated from Noise Measurement NM-1

[b] Estimated ambient noise at this receptor was interpolated from Noise Measurement NM-2

[c] Estimated ambient noise at this receptor was interpolated from Noise Measurement NM-3

[d] Estimated ambient noise at this receptor was interpolated from Noise Measurement NM-4

[e] Estimated ambient noise at this receptor was interpolated from Noise Measurement NM-5

[f] Estimated ambient noise at this receptor was interpolated from Noise Measurement NM-6

SOURCE: ESA, 2020.

As shown in Table 3.11-12, the estimated composite construction noise levels at the surrounding sensitive receptors is estimated to range from 64.2 dBA L_{eq} to 74.2 dBA L_{eq} and result in an

ambient noise level increase of 0.8 dBA to 8.3 dBA. Of the 10 sensitive receptors evaluated, two receptors (R1 and R9) would experience construction noise level increases greater than 5.0 dBA which is considered significant.

Operational Noise

Railway Noise from High Speed Rail, Amtrak, and Freight Trains Along BNSF Railroad

The following is based on the noise study included in the *High Speed Rail (HSR) Merced to Fresno Draft EIR-EIS\ 99.1 Noise and Vibration Technical Report*. The selected alternative for the HSR in the immediate vicinity of the Phase 1 Project site as well as the Program site is the HSR-BNSF Alternative. According to the FRA Office of Safety (2010), train traffic on UPRR has maintained 20 to 24 trains per day since the recording began in 1970. The BNSF database shows that for the past 10 years, they have had about 20 to 24 trains, 12 of which have been Amtrak trains and the remaining have been freight trains. Based on research of the existing Amtrak passenger trains, there are 7 trains traveling north and 7 trains traveling south per day (14 total). Existing measurements were conducted on December 7, 2009 and April 30, 2010. The measurements taken that were near the Project site were the same for both the BNSF Alternative and the Hybrid Alternative (Long-term [LT] measurements – 24-hour; Short-term [ST] measurements – 15 to 60 minutes). The measurements that were taken identified segments along the railroad. Long-term measurement 26 represented noise levels along the railroad from Avenue 19 to Road 27 (this is just northwest of the site). Long-term measurement 27 and short-term measurement 11 represented noise levels along the railroad from Road 27 to Raymond (this is adjacent to the site and extends south of the site). The noise levels that were measured were as follows:

LT 26 – 26226 Wayside Drive, contributing noise (BNSF, local traffic),
L_{dn} – 69 dBA, L_{eq} – 66 dBA

LT 27 – 16494 Harper Blvd, Contributing noise (BNSF, local traffic),
L_{dn} – 59 dBA, L_{eq} – 59 dBA

ST 11 – 16587 Harper Blvd, Contributing noise (local traffic),
L_{eq} – 56 dBA, L_{dn} – 54 dBA

Based on the above measurements, the *High Speed Rail Merced to Fresno Draft EIR-EIS\ 99.1 Noise and Vibration Technical Report* projected a noise level of 78 dBA L_{eq} at 69 feet along railroad tracks adjacent to the Project site. Using this noise level projection and based on the nearest Phase 1 Project residence that would be located approximately 478 feet from the railroad track, the residence would experience a noise level 61 dBA L_{eq} which is also represented as 61 dBA L_{dn}. This noise level would not exceed the County of Madera Transportation Noise Source Standard of 65 dB L_{dn} identified in Table 3.11-7 above. Therefore, railway noise levels would represent a less than significant impact on Phase 1 residences.

Wastewater, Recycled Water, and Water System

The Phase 1 Project site is not within a public wastewater system or non-community wastewater system, and there is no existing onsite sewage disposal system. To meet wastewater treatment and disposal needs of the proposed community, the Phase 1 Project includes the construction of a wastewater treatment plant (WWTP). The WWTP would include collection, treatment, disposal,

and redistribution of treated reclaimed water. Wastewater would be collected and conveyed through a gravity system of pipes, supplemented by one or more lift station(s), if required, and flow to the onsite WWTP, which would be located at or near a low elevation point in the northwest corner of the Phase 1 Project site.

Facilities included as part of the WWTP within the Phase 1 Project includes a pumping station (as required); effluent disinfection; biosolids digestion, dewatering, and hauling; effluent pumping and storage for reuse; administration and laboratory; and electrical supply, distribution, instrumentation. The WWTP building would incorporate odor minimizing features and architectural features to screen the plant from surrounding land uses. This would include such measures as enclosing the WWTP with fencing and landscaping and designing the building consistent with the design guidelines as described in the Specific Plan. Biosolids removed during the treatment process would be transferred via truck to a local landfill or other appropriate facility for disposal.

Two of the potential noise-generating sources associated with the WWTP are the pumping station and trucks transferring the biosolids from the Phase 1 Project site. The anticipated pumps that would serve the Phase 1 Project include the following:

Wastewater and Recycling Water Processes:

- Influent Pumping (two 200 gpm pumps, 5 hp each)
- Recycled Water Pumps (two 200 gpm pumps, 20 hp each)

Water System:

- Pump Station (two 150 gpm pumps within Block Building)
- Booster Pump Station (two 150 gpm pumps, each 15 hp)

Since the Pump Station for the Water System would be located entirely within a Block Building that would shield most of the pump noise from adjacent receivers, no analysis would be required for the Pump Station associated with the Water System because noise levels would be adequately attenuated by the block building and less therefore, less than significant noise impacts on the nearby residents would occur.

Based on Noise Control for Buildings and Manufacturing Plants (Bolt, Beranek and Newman, Inc., Layman N. Miller, 1981), sound power level associated with pumps varies with its horse power and the speed range. For the Phase 1 Project, the nearest sensitive receivers would be the proposed residential uses in the Phase 1 Project site that are approximately 600 feet from the pumps associated with the Wastewater and Recycling Water Process and the Water System. Based on calculations provided in Appendix J that assume the nearest residence would be at a distance of 600 feet, the sound pressure level would be 51 dBA lower than the sound power level from the source. The pump noise at the nearest residence within the Phase 1 Project area would be as follows for each type of facility as well as a composite noise level.

- Influent Pumping – 24 dBA
- Recycle Water Pumps – 30 dBA

- Booster Pump Station – 29 dBA
- Composite Pump Noise Level – 33 dBA

The composite pump noise level of 33 dBA would be below existing ambient noise levels and would represent a less than significant noise impact to the nearest noise sensitive uses.

The truck trips that transport the biosolids to offsite locations would be nominal compared to the existing daily vehicular trips along the roadways in the vicinity of the Phase 1 Project. The contribution of these truck trips would periodically add to the existing daily traffic noise in the Phase 1 Project area; however, the additional truck noise would be nominal and less than 1 dBA. Therefore, the transport truck noise associated with the Phase 1 Project would be less than significant.

Existing Plus Phase 1 Project Traffic Noise Levels

To characterize the Phase 1 Project area's day/night noise environment for the Existing Plus Phase 1 Project scenario, the noise levels resulting from traffic volumes on local roadways were estimated using a spreadsheet model developed based on the methodologies provided in Federal Highway Administration's (FHWA) Traffic Noise Model (TNM) Technical Manual.[23] In addition, the traffic noise levels were based on peak hour and traffic volume split assumptions. The Caltrans Technical Noise Supplement (TeNS) document states that the peak hour traffic noise level would be equivalent to the L_{dn} level based on the assumptions of 1) the peak hour traffic volume would be 10 percent of the average daily traffic volume, and 2) the split of daytime and nighttime average daily traffic volume is 85/15 percent.[24] Further, the CNEL level would be 0.3 dBA higher than L_{dn} level based on the assumption of 80 percent in daytime and 5 percent in evening time.

Table 3.11-13 lists the Existing and Existing plus Phase 1 Project traffic noise levels. As shown below, traffic noise levels would increase to 62.5 dBA L_{eq} to 71.9 dBA L_{eq}.

As shown in Table 3.11-13, the addition of Phase 1 Project traffic to the existing conditions would result in changes in the traffic noise levels from a decrease of 2.8 dBA to an increase of 0.7 dBA. Decreases in noise levels occur due to decreases in anticipated traffic volumes along specific roadway links. These decreases could occur due to providing or increasing capacity along certain roadway links. This range of noise level changes is less than the 3 dBA increase that is normally considered to have potentially significant noise impact. Therefore, the Phase 1 Project would result in less than significant traffic noise impacts along the surround roadways.

[23] FHWA, *Federal Highway Administration's Traffic Noise Model, Version 1.0 Technical Manual.* February 1998 https://www.fhwa.dot.gov/environment/noise/traffic_noise_model/old_versions/tnm_version_10/tech_manual/index.cfm.

[24] Caltrans, Technical Noise Supplement to the Traffic Noise Analysis Protocol, September, 2013. http://www.dot.ca.gov/hq/env/noise/pub/TeNS_Sept_2013B.pdf.

TABLE 3.11-13
ROADWAY TRAFFIC NOISE - EXISTING + PHASE 1 PROJECT

Street	Roadway Segment	Existing Land Uses Located Along Roadway Segment	Traffic Noise Levels (dBA CNEL)			Significant Impact?
			Existing	Existing with Phase 1	Increase over Existing	
Avenue 15	Road 28 ½ to Tozer St (Road 28)	Commercial	63.5	63.5	0.1	No
Avenue 15 1/2	State Route 99 SB off-ramp to Country Club Dr	Commercial	71.9	71.9	0.0	No
Avenue 15 1/2	Country Club Dr to Road 27	Commercial/Residential	68.3	68.3	0.1	No
Avenue 15 1/2	Road 27 to Road 28 1/2	Residential/Religious	68.0	68.0	0.0	No
Avenue 17	State Route 99 interchange to Road 26	Residential/Religious	67.8	67.9	0.1	No
Avenue 17	Road 26 to Road 27	Commercial/Residential	65.6	65.9	0.3	No
Road 27	Avenue 21 to Avenue 18	Residential/Agricultural	62.4	62.5	0.1	No
Road 27	Avenue 18 to Avenue 17	Residential/Agricultural	65.0	65.7	0.7	No
Road 27	Avenue 17 to Cleveland Avenue	Residential/Educational/ Religious/Commercial	65.9	66.2	0.4	No
Road 28 1/2	Avenue 21 to Avenue 17 1/2	Agricultural	69.3	69.3	0.0	No
Road 28 1/2	Avenue 17 1/2 to Avenue 17	Agricultural	67.0	67.2	0.2	No
Road 28 1/2	Avenue 17 to Cleveland Avenue	Residential/Agricultural	65.6	65.7	0.1	No
State Route 145/Yosemite Ave	Gateway Drive to Lake Street	Commercial	68.3	65.6	-2.8	No
State Route 145/ Yosemite Ave	Lake Street to Fig Street	Commercial/Residential	67.9	66.5	-1.4	No
State Route 145/ Yosemite Ave	Fig Street to Tozer Street	Commercial/Religious	67.9	66.5	-1.4	No

SOURCE: Kimley Horn 2021; ESA 2021

Significance Determination before Mitigation: Significant

Phase 1 Project Cumulative Impact Analysis

The implementation of the cumulative projects identified in Table 3.0-1 in Section 3.0-2 would increase construction and operational noise levels within the County. The majority of the cumulative projects are not located in the vicinity of the Phase 1 Project, and therefore, construction noise levels on the sites would not affect the same receivers. The High Speed Rail project that is located along the railroad at Road 27 could contribute construction noise levels on the same receivers as those affected by the Phase 1 Project. These potential cumulative construction noise impacts could be significant. Because the Phase 1 Project would result in substantial construction noise increases at the receptors, R1 (northwest corner of Road 27 and Avenue 18) and R10 (southeast of the railroad and Road 27 intersection), the Phase 1 Project's contribution to cumulative construction noise levels at these two residences would be cumulatively considerable.

Operational noise levels associated with the cumulative projects would occur at the sites of the cumulative projects and vehicular noise levels would occurs along roadways due to increases in traffic volumes. Cumulative vehicular noise levels in the vicinity of the Phase 1 Project site is evaluated in **Table 3.11-14**.

TABLE 3.11-14
PHASE 1 PROJECT PLUS CUMULATIVE ROADWAY TRAFFIC NOISE

Street	Roadway Segment	Existing Land Uses Located Along Roadway Segment	Traffic Noise Levels (dBA CNEL)			Significant Impact?
			Cumulative	Phase 1 Project Plus Cumulative	Increase over Cumulative	
Avenue 15	Road 28 ½ to Tozer St (Road 28)	Commercial	63.8	63.8	0.0	No
Avenue 15 1/2	State Route 99 SB off-ramp to Country Club Dr	Commercial	72.3	72.3	0.0	No
Avenue 15 1/2	Country Club Dr to Road 27	Commercial/Residential	68.9	68.9	0.0	No
Avenue 15 1/2	Road 27 to Road 28 1/2	Residential/Religious	67.8	67.8	0.0	No
Avenue 17	State Route 99 interchange to Road 26	Residential/Religious	68.3	68.3	0.0	No
Avenue 17	Road 26 to Road 27	Commercial/Residential	66.8	66.8	0.0	No
Road 27	Avenue 21 to Avenue 18	Residential/Agricultural	62.8	62.8	0.0	No
Road 27	Avenue 18 to Avenue 17	Residential/Agricultural	67.4	67.4	0.0	No
Road 27	Avenue 17 to Cleveland Avenue	Residential/Educational/ Religious/Commercial	67.1	67.1	0.0	No
Road 28 1/2	Avenue 21 to Avenue 17 1/2	Agricultural	69.8	69.8	0.0	No
Road 28 1/2	Avenue 17 1/2 to Avenue 17	Agricultural	67.3	67.3	0.0	No
Road 28 1/2	Avenue 17 to Cleveland Avenue	Residential/Agricultural	64.4	64.4	0.0	No
State Route 145/Yosemite Ave	Gateway Drive to Lake Street	Commercial	68.8	68.8	0.0	No
State Route 145/Yosemite Ave	Lake Street to Fig Street	Commercial/Residential	68.2	68.2	0.0	No
State Route 145/Yosemite Ave	Fig Street to Tozer Street	Commercial/Religious	68.2	68.2	0.0	No

[a] Significant noise impacts are based on noise standards provided in Table 3.11-9.

SOURCE: Kimley Horn 2021; ESA 2021

As shown in Table 3.11-14, the addition of Phase 1 Project traffic noise to the cumulative traffic noise levels would not increase cumulative without Phase 1 Project traffic noise levels. Therefore, the Phase 1 Project's contribution to cumulative traffic noise levels would be less than cumulatively considerable.

Significance Determination before Mitigation: Significant

Phase 1 Project Mitigation Measures

N-1: Prior to issuance of a grading permit and during the first week of the initial activities for each construction phase (demolition, site clearing, excavation, building erection, and mechanical equipment installation) within the Phase 1 Project site, noise monitoring shall be performed in proximity to R1 and R9 to determine noise impacts on R1 and R9. If ambient noise levels increase by more than 5.0 dBA at R1 and R9, the applicant shall install temporary sound barriers on the Phase 1 Project site to attenuate construction noise levels reaching the residences at R1 and R9. The temporary sound barriers shall attenuate onsite construction noise so that ambient noise levels do not increase more than 5.0 dBA at R1 and R9. Noise monitoring shall occur subsequent to installation of the temporary sound barriers to demonstrate that noise levels do not increase more than 5.0 dBA at R1 or R9.

N-2: During construction, the applicant shall implement the following best management measures to reduce noise levels.

- During construction, applicant shall provide evidence to the County that all equipment, fixed or mobile, are equipped with properly operating and maintained exhaust and intake mufflers, consistent with manufacturers' standards.
- Impact tools (e.g., jack hammers, pavement breakers, and rock drills) used for construction shall be hydraulically or electrically powered wherever possible to avoid noise associated with compressed air exhaust from pneumatically powered tools. Where use of pneumatic tools is unavoidable, an exhaust muffler on the compressed air exhaust shall be used. External jackets on the tools themselves shall be used where feasible. Quieter procedures, such as use of drills rather than impact tools, shall be used whenever feasible.
- Stationary noise sources that could affect adjacent receptors shall be located as far from adjacent receptors as possible.
- Construction activities shall be limited to the hours of seven a.m. and seven p.m. Monday through Friday and nine a.m. and five p.m. on Saturdays and Sundays.

Significance Determination after Mitigation: Less than Significant

Phase 1 Project Cumulative Measures

Implementation of Mitigation Measures N-1 and N-2 is required.

Significance Determination after Mitigation: Less than Significant

Impact 3.11-1b: The proposed Program could have significant and cumulatively considerable impacts on the generation of a substantial temporary or permanent increase in ambient noise levels in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies in the vicinity of the Program.

Program Impact Analysis

Construction Noise

Construction of the proposed Program would require the use of heavy equipment during site preparation, grading, trenching, excavation, and building activities at the Project site. Development activities would also involve the use of smaller power tools, generators, and other sources of noise. During each stage of development, there would be a different mix of equipment. As such, construction activity noise levels at and near the proposed Program site would fluctuate depending on the particular type, number, and duration of use of the various pieces of construction equipment. Construction-related material haul trips would increase noise levels along haul routes depending on the number of haul trips made and types of vehicles used.

Table 3.11-10 above provides the anticipated noise levels (L_{max}) produced by some of the various types of construction equipment that would be used during the proposed Program construction at the site. It should be noted that L_{max} noise levels associated with the construction equipment would only be generated when equipment is operated at full power. Typically, the operating cycle for a piece of construction equipment would involve 1 or 2 minutes of full power operation followed by 3 or 4 minutes at lower power settings. As such, the L_{max} noise levels shown in Table 3.11-10 would occur only occasionally and intermittently throughout the construction day.

Based on the noise levels identified in Table 3.11-10 as well as a construction assumption that two pieces of the noisiest equipment are assumed to have 50 percent usage factor each and their highest noise level (L_{max}) is used for the entire time, construction noise would result in 83 dBA L_{eq} at 50 feet as shown in Table 3.11-11 above. During other construction phases, composite construction noise levels would be 80 dBA L_{eq} at 50 feet.

Based on the composite construction noise levels identified in Table 3.11-11 above, **Table 3.11-15** provides a summary of the estimated ambient and construction noise levels as well as noise level increases from construction noise at the sensitive receptors located in the vicinity of the Specific Plan Program site. As shown, the distance of these sensitive receptors to the site ranges from as close as 5 feet at the southeastern corner of the proposed Program site to 850 feet northwest of the Program site west of Road 27 and south of the railroad tracks.

As shown in Table 3.11-15, the construction noise levels at the surrounding residences would range from approximately 60.9 dBA L_{eq} to 103 dBA L_{eq}. The existing residence located immediately south of the Specific Plan site and along Road 28 ½ would experience the maximum construction noise levels of 103 dBA L_{eq}. There are 11 residences that surround the Specific Plan Program site that would experience construction noise level increases of more than 5 dBA L_{eq} which represents a significant noise level increase. Therefore, construction activities associated with the proposed Program would result in significant noise impacts.

TABLE 3.11-15
SUMMARY OF ESTIMATED AMBIENT NOISE LEVELS AT SENSITIVE RECEPTORS NEAR SPECIFIC PLAN PROGRAM SITE

Receptor Locations	Distance from Phase 1 Project Site	Estimated Existing Ambient Noise Level at Receptor Location Average L_{eq}	Estimated Maximum Noise Level During Construction at Receptor Location L_{max}	Estimated Composite Noise Level of Ambient Plus Phase 1 Project Construction Average L_{eq}	Noise Level Increase from Existing Ambient Noise Level Average L_{eq}
R1 (26971 Avenue 18)	190	64.1	71.4	72.1[e]	8.0
R2 (26935 Avenue 18)	365	64.4	65.7	68.1[e]	3.7
R3 (26936 Avenue 18)	295	66.7	67.6	70.1[e]	3.4
R4 (26935 Tremaine Avenue)	295	70.1	67.6	72.0[e]	1.9
R5 (26936 Tremaine Avenue)	265	72.9	68.5	74.2[e]	1.3
R6 (17654 Road 27)	850	65.3	58.4	66.1[f]	0.8
R7 (17636 Road 27)	360	64.3	65.9	68.2[f]	3.9
R8 (17574 Road 27)	836	62.9	58.5	64.2[f]	1.3
R9 (17555 Road 27)	304	59.0	67.3	67.9[f]	8.3
R10 (17393 Road 27)	445	66.7	64.0	68.5[f]	1.8
R11 (17220 Alonzo Court)	635	58.7	60.9	63.0[a]	4.3
R12 (17217 Alonzo Court)	570	56.6	61.9	63.0[a]	6.4
R13 (27461 Alonzo Court)	705	56.8	60.0	61.8[a]	5.0
R14 (27477 Alonzo Court)	445	59.5	64.0	65.3[a]	5.8
R15 (27527 Avenue 17)	465	60.8	63.6	65.4[a]	4.6
R16 (27538 Avenue 17)	630	58.7	61.0	63.0[a]	4.3
R17 (16863 Tuolume Street)	140	70.0	74.1	75.6[b]	5.6
R18 (16898 Road 28 ½)	5	55.5	103.0	103.0	47.5
R18 (16886 Road 28 ½)	30	55.5	87.4	87.4[c]	31.9
R19 (16868 Road 28 ½)	154	56.7	73.2	73.3[c]	16.6
R20 (16887 Road 28 ½)	93	67.0	77.6	78.0[c]	11.0
R21 (16867 Road 28 ½)	170	54.7	72.4	72.5[c]	17.8
R22 (16855 Road 28 ½)	264	58.6	68.5	68.9[c]	10.3
R23 (17269 Road 28 ½)	793	56.5	59.0	60.9[d]	4.4

[a] Estimated ambient noise at this receptor was interpolated from Noise Measurement NM-1
[b] Estimated ambient noise at this receptor was interpolated from Noise Measurement NM-2
[c] Estimated ambient noise at this receptor was interpolated from Noise Measurement NM-3
[d] Estimated ambient noise at this receptor was interpolated from Noise Measurement NM-4
[e] Estimated ambient noise at this receptor was interpolated from Noise Measurement NM-5
[f] Estimated ambient noise at this receptor was interpolated from Noise Measurement NM-6
SOURCE: ESA, 2020.

Operational Noise

Railway Noise from High Speed Rail, Amtrak, and Freight Trains Along BNSF Railroad

As discussed above for the Phase 1 Project, the *High Speed Rail (HSR) Merced to Fresno Draft EIR-EIS\ 99.1 Noise and Vibration Technical Report* included noise projections for the future operational activities along the railroad tracks including the High Speed Rail. These noise projections included a noise level of 78 dBA L_{eq} at 69 feet along railroad tracks adjacent to the Specific Plan Program site. The nearest residential use within the Program site to the railroad tracks is approximately 251 feet. Based on the noise level at 69 feet shown above, the nearest residence would be exposed to 67 dBA L_{eq} which would exceed the County of Madera outdoor noise level standard of 65 dBA L_{eq}. Therefore, the proposed Program could result in significant railway noise impacts.

Wastewater, Recycled Water, and Water System

The Specific Plan Program includes the construction of a wastewater treatment plant (WWTP). The WWTP would include collection, treatment, disposal, and redistribution of treated reclaimed water. Wastewater would be collected and conveyed through a gravity system of pipes, supplemented by one or more lift station(s), if required, and flow to the onsite WWTP, which would be located at or near a low elevation point in the northwest corner of the Specific Plan Program site.

Facilities included as part of the WWTP includes a pumping station (as required); effluent disinfection; biosolids digestion, dewatering, and hauling; effluent pumping and storage for reuse; administration and laboratory; and electrical supply, distribution, instrumentation. The WWTP building would incorporate odor minimizing features and architectural features to screen the plant from surrounding land uses. This would include such measures as enclosing the WWTP with fencing and landscaping and designing the building consistent with the design guidelines as described in the Specific Plan. Biosolids removed during the treatment process would be transferred via truck to a local landfill or other appropriate facility for disposal.

Two of the potential noise-generating sources associated with the WWTP are the pumping station and trucks transferring the biosolids from the proposed Program site. The anticipated pumps that would serve the Specific Plan Program include the following:

Wastewater and Recycling Water Processes:

- Influent Pumping (two 800 gpm pumps, 10 hp each)
- Recycled Water Pumps (two 800 gpm pumps, 75 hp each)

Water System:

- Pump Station (two 1,250 gpm pumps within Block Building)
- Booster Pump Station (three 1,250 gpm pumps, each 100 hp)

Since the Pump Station for the Water System would be located entirely within a Block Building that would shield most of the pump noise from adjacent receivers, no analysis would be required

for the Pump Station associated with the Water System because noise levels would be adequately attenuated by the block building and less therefore, less than significant noise impacts on the nearby residents would occur.

Based on Noise Control for Buildings and Manufacturing Plants (Bolt, Beranek and Newman, Inc., Layman N. Miller, 1981), sound power level associated with pumps varies with its horse power and the speed range. For the Phase 1 Project, the nearest sensitive receivers would be the proposed residential uses in the Phase 1 Project site that are approximately 600 feet from the pumps associated with the Wastewater and Recycling Water Process and the Water System. Based on calculations provided in Appendix J that assume the nearest residence would be at a distance of 600 feet, the sound pressure level would be 51 dBA lower than the sound power level from the source. The pump noise at the nearest residence within the Specific Plan Program area would be as follows for each type of facility as well as a composite noise level.

- Influent Pumping – 21 dBA
- Recycle Water Pumps – 30 dBA
- Booster Pump Station – 35 dBA
- Composite Pump Noise Level – 37 dBA

The composite pump noise level of 37 dBA would be below existing ambient noise levels and would represent a less than significant noise impact to the nearest noise sensitive uses.

The truck trips that transport the biosolids to offsite locations would be nominal compared to the existing daily vehicular trips along the roadways in the vicinity of the Specific Plan Program. The contribution of these truck trips would periodically add to the existing daily traffic noise in the Program area; however, the additional truck noise would be nominal and less than 1 dBA. Therefore, the transport truck noise associated with the Specific Plan Program would be less than significant.

Existing Plus Specific Plan Program Traffic Noise Levels

To characterize the Specific Plan Program area's day/night noise environment for the Existing Plus Specific Plan Program scenario, the noise levels resulting from traffic volumes on local roadways were estimated using a spreadsheet model developed based on the methodologies provided in Federal Highway Administration's (FHWA) Traffic Noise Model (TNM) Technical Manual.[25] In addition, the traffic noise levels were based on peak hour and traffic volume split assumptions. The Caltrans Technical Noise Supplement (TeNS) document states that the peak hour traffic noise level would be equivalent to the L_{dn} level based on the assumptions of 1) the peak hour traffic volume would be 10 percent of the average daily traffic volume, and 2) the split of daytime and nighttime average daily traffic volume is 85/15 percent.[26] Further, the CNEL level

[25] FHWA, *Federal Highway Administration's Traffic Noise Model, Version 1.0 Technical Manual.* February 1998 https://www.fhwa.dot.gov/environment/noise/traffic_noise_model/old_versions/tnm_version_10/tech_manual/index.cfm.

[26] Caltrans, Technical Noise Supplement to the Traffic Noise Analysis Protocol, September, 2013. http://www.dot.ca.gov/hq/env/noise/pub/TeNS_Sept_2013B.pdf.

would be 0.3 dBA higher than L_{dn} level based on the assumption of 85 percent in daytime and 15 percent in evening time.

Table 3.11-16 lists the Existing and Existing plus Specific Plan Program traffic noise levels. Adding the Program traffic to the existing conditions would result in changes in the traffic noise levels from 0.3 dBA CNEL to 6.9 dBA CNEL. This range of noise level changes includes increases greater than the 3 dBA increase that is normally considered to have potentially significant noise impact. The proposed Program would contribute significant increases in noise levels along five roadway segments. Therefore, the Specific Plan Program would result in significant roadway noise impacts.

Significance Determination before Mitigation: Significant

Program Cumulative Impact Analysis

The implementation of the cumulative growth identified in Table 3.0-2 in Section 3.0-2 would increase construction and operational noise levels within the County. Construction activities resulting from the cumulative growth would temporarily increase ambient noise levels. Because the proposed Program would result in significant construction noise impacts, the proposed Program's contribution to cumulative construction noise would be cumulatively considerable.

Operational noise levels generated by future traffic volumes would increase along roadway segments. These future noise levels are based on 2035 roadway traffic volumes presented in the Transportation Impact Analysis provided in Appendix K. **Table 3.11-17** provides the 2035 Cumulative noise levels and the 2035 plus Program noise levels as well as the Program's contribution to the cumulative noise levels.

As shown in Table 3.11-17, the addition of Program traffic would result in noise level increases of 0.2 dBA CNEL to 6.7 dBA CNEL along the analyzed roadway segments. The proposed Program would contribute significant increases in noise levels along three roadway segments. Therefore, the Specific Plan Program would result in significant roadway noise impacts.

Significance Determination before Mitigation: Significant

TABLE 3.11-16
EXISTING PLUS SPECIFIC PLAN PROGRAM ROADWAY TRAFFIC NOISE

Street	Roadway Segment	Existing Land Uses Located Along Roadway Segment	Traffic Noise Levels (dBA CNEL)			Significant Impact?
			Existing	Existing with Program	Increase over Existing	
Avenue 15	Road 28 ½ to Tozer St (Road 28)	Commercial	63.5	65.2	1.7	No
Avenue 15 1/2	State Route 99 SB off-ramp to Country Club Dr	Commercial	71.9	72.2	0.3	No
Avenue 15 1/2	Country Club Dr to Road 27	Commercial/Residential	68.3	69.0	0.7	No
Avenue 15 1/2	Road 27 to Road 28 1/2	Residential/Religious	68.0	68.7	0.7	No
Avenue 17	State Route 99 interchange to Road 26	Residential/Religious	67.8	70.1	2.3	Yes
Avenue 17	Road 26 to Road 27	Commercial/Residential	65.6	70.5	4.9	Yes
Road 27	Avenue 21 to Avenue 18	Residential/Agricultural	62.4	63.8	1.4	No
Road 27	Avenue 18 to Avenue 17	Residential/Agricultural	65.0	68.1	3.1	Yes
Road 27	Avenue 17 to Cleveland Avenue	Residential/Educational/Religious/Commercial	65.9	69.1	3.2	Yes
Road 28 1/2	Avenue 21 to Avenue 17 1/2	Agricultural	69.3	69.7	0.4	No
Road 28 1/2	Avenue 17 1/2 to Avenue 17	Agricultural	67.0	73.9	6.9	Yes
Road 28 1/2	Avenue 17 to Cleveland Avenue	Residential/Agricultural	65.6	68.8	3.2	Yes
State Route 145/ Yosemite Ave	Gateway Drive to Lake Street	Commercial	68.3	69.1	0.8	No
State Route 145/ Yosemite Ave	Lake Street to Fig Street	Commercial/Residential	67.9	68.7	0.8	No
State Route 145/ Yosemite Ave	Fig Street to Tozer Street	Commercial/Religious	67.9	68.7	0.8	No

SOURCE: Kimley Horn 2021; ESA 2021

TABLE 3.11-17
ROADWAY TRAFFIC NOISE - 2035 CUMULATIVE + PROGRAM BUILDOUT

Street	Roadway Segment	Existing Land Uses Located Along Roadway Segment	Traffic Noise Levels (dBA CNEL)			Significant Impact?
			2035 Cumulative	2035 Cumulative + Program Buildout	Increase over 2035 Cumulative	
Avenue 15	Road 28 ½ to Tozer St (Road 28)	Commercial	64.5	65.9	1.4	No
Avenue 15 1/2	State Route 99 SB off-ramp to Country Club Dr	Commercial	73.2	73.4	0.2	No
Avenue 15 1/2	Country Club Dr to Road 27	Commercial/Residential	70.2	70.7	0.5	No
Avenue 15 1/2	Road 27 to Road 28 1/2	Residential/Religious	69.0	69.5	0.5	No
Avenue 17	State Route 99 interchange to Road 26	Residential/Religious	70.2	71.8	1.6	Yes
Avenue 17	Road 26 to Road 27	Commercial/Residential	67.0	71.2	4.2	Yes
Road 27	Avenue 21 to Avenue 18	Residential/Agricultural	62.5	63.8	1.3	No
Road 27	Avenue 18 to Avenue 17	Residential/Agricultural	65.2	68.2	3.0	Yes
Road 27	Avenue 17 to Cleveland Avenue	Residential/Educational/Religious/ Commercial	66.5	69.4	2.9	Yes
Road 28 1/2	Avenue 21 to Avenue 17 1/2	Agricultural	71.3	71.5	0.2	No
Road 28 1/2	Avenue 17 1/2 to Avenue 17	Agricultural	67.0	73.7	6.7	Yes
Road 28 1/2	Avenue 17 to Cleveland Avenue	Residential/Agricultural	64.2	68.2	4.0	Yes
State Route 145/ Yosemite Ave	Gateway Drive to Lake Street	Commercial	69.7	70.3	0.6	No
State Route 145/ Yosemite Ave	Lake Street to Fig Street	Commercial/Residential	69.3	69.8	0.5	No
State Route 145/ Yosemite Ave	Fig Street to Tozer Street	Commercial/Religious	69.3	69.8	0.5	No

SOURCE: Kimley Horn 2021; ESA 2021

Program Mitigation Measures

Implementation of Mitigation Measures N-1 and N-2 is required.

N-3: Prior to the issuance of residential building permits within the residential areas along the railroad tracks, the applicant shall demonstrate that future railway noise levels at the exterior of the proposed residences do not exceed 65 dBA L_{eq} and interior noise levels do not exceed 45 dBA L_{eq}. The projected future railway noise (combination of operational activities from Amtrak, freight trains and High Speed Rail) is 78 dBA L_{eq} at 69 feet, and the noise levels can be attenuated through a setback of at least 508 feet from the railroad tracks. Alternatively, the combination of a setback and either a soundwall, berm or both would attenuate noise levels. With a residential property setback by 251 feet, the combination of a setback of 251 feet, that could achieve an attenuation of 8 dBA, and a 5-foot sound wall along the residential property lines, that could achieve an additional attenuation of 5 dBA, would attenuate exterior noise levels by 13 dBA from 78 dBA L_{eq} to 65 dBA L_{eq}. If the projected railway activities are implemented prior to the issuance of residential building permits within the residential areas along the railroad tracks, the attenuation of the railway noise shall be based on ambient noise levels at the time of the issuance of building permits associated with the individual projects.

Significance Determination after Mitigation: Significant and Unavoidable

Implementation of Mitigation Measures N-1 and N-2 would reduce potential construction impact to less than significant. The implementation of Mitigation Measure N-3 would reduce potential railway noise on future onsite residences to less than significant. No feasible measures are available to reduce noise levels along the affected roadway segments and therefore impacts would be significant and unavoidable.

Program Cumulative Measures

Implementation of Mitigation Measure N-1 through N-3 is required.

Significance Determination after Mitigation: Significant and Unavoidable

Implementation of Mitigation Measures N-1 and N-2 would reduce the Program's contribution to potential cumulative construction impact to less than cumulatively considerable. The implementation of Mitigation Measure N-3 would reduce the potential cumulative railway noise on future onsite residences to less than cumulatively considerable. No feasible measures are available to reduce noise levels along the affected roadway segments and therefore Program impacts would be significant and unavoidable.

Generation of Vibration Levels

Impact 3.11-2a: The Phase 1 Project would have a less than significant and less than cumulatively considerable impacts from the generation of ground-borne vibration or ground-borne noise levels.

Ground-borne Vibration Levels

Phase 1 Project Impact Analysis

As shown in **Table 3.11-18**, use of a bore/drill rig during Program construction would generate vibration levels of up to 0.089 in/sec PPV or 87 VdB at a distance of 25 feet. Loaded trucks could also result in vibration levels of 0.076 in/sec PPV and 86 VdB along haul routes. As stated above, operation of the Program uses would not involve any equipment that would cause high levels of vibration and much of the Program uses would not cause discernible vibration above ambient levels. Therefore, construction vibration is the only impact considered in this analysis.

TABLE 3.11-18
VIBRATION VELOCITIES FOR CONSTRUCTION EQUIPMENT

Equipment Activity	PPV at 25 Feet (inches/second)[a]	RMS at 25 Feet (VdB)[b]
Bore/Drill Rig	0.089	87
Loaded Trucks	0.076	86

NOTES:
[a] Buildings can be exposed to ground-borne vibration levels of 0.2 in/sec PPV without experiencing structural damage.
[b] The human annoyance response level is 80 VdB.

SOURCE: FTA, 2018.

Construction Equipment Vibration

In regard to off-road equipment, the nearest building structures would be as close as 200 feet to the southwest of the Phase 1 Project site. The vibration level was estimated to be 0.0039 in/sec PPV and 60 VdB from bore/drill rig operation. Haul trucks would travel on major arterials and would be 50 feet or more from surrounding residences. These residential receptors could be exposed to 0.027 in/sec PPV and 77 VdB, which is less than impact threshold of 0.2 in/sec PPV for structural impacts and 80 VdB for human annoyance. Other residential and recreational receptors would be located at a greater distance from equipment and trucks and would be exposed to lower vibration levels. Overall, vibration impacts would be less than significant.

Significance Determination before Mitigation: Less than significant

Phase 1 Project Mitigation Measures

No mitigation measure is required.

Significance Determination after Mitigation: Less than Significant

Phase 1 Project Cumulative Impact Analysis

Construction Equipment Vibration

In regard to off-road equipment, the nearest building structures would be as close as 200 feet to the south of the Program area of the Project site. The vibration level was estimated to be 0.0039 in/sec PPV and 60 VdB from bore/drill rig operation. Haul trucks would travel on major arterials and would be 50 feet or more from surrounding residences. These residential receptors could be exposed to 0.027 in/sec PPV and 77 VdB, which is less than impact threshold of 0.2 in/sec PPV for structural impacts and 80 VdB for human annoyance. Other residential and recreational receptors would be located at a greater distance from equipment and trucks and would be exposed to lower vibration levels. Other cumulative projects would be located at a distance away from the Project area and would not cumulatively add to the vibration level generated by the proposed Project. Overall, vibration impacts would be less than significant.

Operation

Project operation would not result in any significant vibration-generating activity, except for Project related traffic trips along the access routes. Although traffic associated with other development has the potential to significantly affect vibration levels along access roads, compared to the regular traffic flow on the access roads, Project-related traffic would be small and would not result in any significant change in vibration level along the access routes. No significant cumulative vibration impact would occur and no mitigation is required.

Significance Determination before Mitigation: Less than significant

Phase 1 Project Mitigation Measures

No mitigation measure is required.

Significance Determination after Mitigation: Less than significant

Phase 1 Project Cumulative Measures

No mitigation measure is required.

Significance Determination after Mitigation: Less than significant

Impact 3.11-2b: The proposed Program could have significant and cumulatively considerable impacts from the generation of ground-borne vibration or ground-borne noise levels.

Program Impact Analysis

Construction Equipment Vibration

In regard to off-road equipment, the nearest building structures would be as close as 5 feet at the southwest corner of the Specific Plan Program site and 200 feet south of the Program site. The existing residence immediately adjacent to the Specific Plan Program site is located west of Road 28 ½ and located along the future alignment of Avenue 17. Although the residence is located along the future alignment of Avenue 17, if construction activities occur on the Program site prior to Avenue 17 is constructed, the residence could experience vibration levels of 1.02 in/sec PPV and 108 Vdb. These vibration levels would exceed the structural impact threshold of 0.2 in/sec

PPV and the human annoyance threshold of 80 dVdB. Therefore, construction activities could result in significant impacts to this residence. The next closest residence is located approximately 200 feet from the Program site and the potential vibration level at this residence was estimated to be 0.0039 in/sec PPV and 60 VdB from bore/drill rig operation. Haul trucks would travel on major arterials and would be 50 feet or more from surrounding residences. The residential structure that is 200 feet from the Program site could be exposed to 0.027 in/sec PPV and 77 VdB, which is less than impact threshold of 0.2 in/sec PPV for structural impacts and 80 VdB for human annoyance. Other residential and recreational receptors would be located at a greater distance from equipment and trucks and would be exposed to lower vibration levels. Overall, vibration impacts would be considered significant.

Significance Determination before Mitigation: Significant

Program Cumulative Impact Analysis

Construction Equipment Vibration

Cumulative growth in the Program vicinity could contribute to vibration impacts to the same receptors as the proposed Program. These potential cumulative vibration impacts could exceed structural damage and annoyance thresholds. As a result, cumulative growth could result in significant vibration impacts. Because the proposed Program would result in significant vibration impacts to one residence immediately south of the Program site, the proposed Program's contribution to cumulative construction vibration impact would be cumulatively considerable.

Operation

Cumulative growth could increase vibration during operational activities. Because the Program site is located within an area that is planned for residential development and agricultural farmlands, substantial operational vibration is not associated with these types of uses. Therefore, cumulative growth would result in less than significant operational vibration impacts. Because the proposed Program would result in less than significant operational vibration impacts, the Program's contribution to cumulative operational vibration impacts would be less than cumulatively considerable.

Significance Determination before Mitigation: Significant

Program Mitigation Measures

N-4: Prior to the issuance of a grading permit for areas within the southeast portion of the Specific Plan Program site that are within 200 feet of an existing structure, the applicant shall demonstrate that construction activities would be reduced to less than the structural damage (0.2 in/sec PPV) and human annoyance (80 VdB) thresholds. The reduction in the size of the construction equipment can reduce the vibration levels.

Significance Determination after Mitigation: Less than Significant

Program Cumulative Measures

Implementation of Mitigation Measure N-4 is required.

Significance Determination after Mitigation: Less than Significant

3.11.4 References

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3.12 Population and Housing

This section evaluates the potential population growth impacts of the Project. This section describes the existing and projected population, housing and employment conditions, and evaluates the Project's potential to induce unplanned population growth. Information in this section uses the baseline year of 2017 and is primarily based on the Madera County Transportation Commission (MCTC) 2018 Regional Transportation Plan/Sustainable Communities Strategy (RTP/SCS), the State of California Employment Development Department (EDD) and the U.S. Census demographic information, and the Castellina Specific Plan.

3.12.1 Environmental Setting

Population

The County of Madera is located in the Central Valley region of California. **Table 3.12-1** depicts the population growth that occurred between 2010 and 2017 in the Project vicinity. As shown, the greatest percentage increase (6.12 percent) in population occurred between 2010 and 2017 in the City of Madera. The City of Chowchilla had a slight decrease of 206 residents in 2017 due to a reduction of more than 880 group quarter residents, which include prison residents. Overall, the County of Madera, as a whole, has shown a population increase between 2010 and 2017.

TABLE 3.12-1
POPULATION GROWTH FOR MADERA COUNTY

Geographic Area	2010[1]	2017[1]	Change	% Change
City of Chowchilla	18,720	18,514	-206[2]	-0.01%
City of Madera	61,416	65,172	3,756	6.12%
Unincorporated Areas	70,729	73,277	2,548	3.60%
Madera County	150,865	156,963	6,098	4.04%

[1] California Department of Finance, Table 2: E-5 City/County Population and Housing Estimates, 2010-2017.

[2] The reduction in population was attributed to a reduction of more than 880 group quarter residents that include prison residents.

SOURCES: DOF, 2010; DOF, 2017.

Housing

According to the California Department of Finance, Madera County had 50,125 housing units as of 2017. Among these units, 45,266, or 90 percent were occupied, including 79 percent consisting of single detached units and 1.3 percent single attached occupied units (DOF, 2017). **Table 3.12-2** provides the existing 2017 housing characteristics for Madera County and cities within the Project vicinity. As shown, the housing vacancy rate ranges from 4.3% to 10.9 %. The total unoccupied housing units within Madera County in 2017 was approximately 4,859.

TABLE 3.12-2
EXISTING 2017 HOUSING CHARACTERISTICS FOR MADERA COUNTY

Geographic Area	Total Units[1]	Occupied Units[1]	Unoccupied Units	Vacancy Rate[1]
City of Chowchilla	4,360	3,885	475	10.9%
City of Madera	17,649	16,882	767	4.3%
Madera County	50,125	45,266	4,859	9.7%

[1] Table 2: E-5 City/County Population and Housing Estimates, 2017.

SOURCES: DOF, 2017

Employment

The County of Madera is considered a housing rich region due to the substantial number of housing units within the region compared to the number of employment opportunities within the region. **Table 3.12-3** shows the labor force for Madera County and cities within the Project vicinity as well as the number of unemployed persons who are part of the labor force. In addition, Table 3.12-3 depicts the unemployment rate for the jurisdictions which ranges from 7.3% to 12.6%. The unemployment rate has decreased each year in the City of Chowchilla, City of Madera, and Madera County since 2013 due to the recovery of the economy during the recession.

TABLE 3.12-3
EMPLOYMENT AND LABOR FORCE FOR MADERA COUNTY & CITIES WITHIN THE PROJECT VICINITY

	2013	2014	2015	2016	2017
City of Chowchilla					
Labor Force	5,000	5,000	4,800	5,000	4,400
Employed Labor Force	4,400	4,400	4,300	4,500	4,000
Unemployed Labor Force	600	600	500	500	400
Unemployment Rate	12.6%	11.2%	10.5%	9.2%	9.0%
City of Madera					
Labor Force	27,000	26,900	26,100	26,800	26,900
Employed Labor Force	24,100	24,300	23,800	24,700	25,000
Unemployed Labor Force	2,900	2,600	2,400	2,100	2,000
Unemployment Rate	10.9%	9.7%	9.0%	7.9%	7.3%
Madera County					
Labor Force	62,300	61,900	60,000	61,500	61,500
Employed Labor Force	54,400	55,000	53,700	55,800	56,500
Unemployed Labor Force	7,800	6,900	6,300	5,600	4,900
Unemployment Rate	12.6%	11.2%	10.5%	9.2%	8.0%

NOTE:

SOURCE: Employment Development Department, 2013, 2014, 2015, 2016, 2017.

Population, Household, and Unemployed Labor Force Projections

Table 3.12-4 shows the population, household and unemployed labor force projections for the jurisdictions in the Project vicinity for 2020 and 2035. The projections for unemployed labor force was based on a constant unemployment rate from the 2017 rate for each jurisdiction as shown in Table 3.12-3. To derive the total unemployed labor force, the projected employed labor force for 2020 and 2035 was based on the ratio of 2017 employed labor force to population. As shown, each jurisdiction is projected to increase in population, housing and unemployed labor force.

TABLE 3.12-4
POPULATION, HOUSING, AND UNEMPLOYED LABOR FORCE PROJECTIONS FOR MADERA COUNTY AND CITIES IN THE PROJECT VICINITY

	2017	2020	2017-2020 Change	2035	2017-2035 Change
City of Chowchilla					
Population	18,514[1]	19,643[4]	1,129	22,569[4]	4,055
Housing Units	4,360[2]	4,974[5]	614	5,882[5]	1,522
Unemployed Labor Force	400[3]	424[6]	21	488[6]	83
City of Madera					
Population	65,172[1]	70,200[4]	5,028	85,723[4]	20,551
Housing Units	17,649[2]	18,845[3]	1,196	21,832[5]	4,183
Unemployed Labor Force	2,000[3]	2,154[6]	145	2,620[6]	620
Madera County					
Population	156,963[1]	172,606[4]	15,643	209,362[4]	52,339
Housing Units	50,125[2]	50,698[5]	573	65,241[5]	15,116
Unemployed Labor Force	4,900[3]	5,413[6]	513	6,566[6]	1,666

1 Table 3.12-1

2 Table 3.12-2

3 Table 3.12-3

4 Total population was derived by using the MCTC 2016-2042 RTP/SCS City of Madera, Chowchilla, and Madera County Projections for 2020 and 2035 and adding the 2017 projected group quarter population from Table 2:E-5

5 Total housing units were derived by adding total households provided in the MCTC 2016-2042 RTP/SCS to the number of projected unoccupied units. The total unoccupied units were derived based on the assumption that the vacancy rate in 2020 and 2035 would be similar to the vacancy rate in 2017 shown in Table 3.12-2.

6 The 2020 and 2035 projections for unemployed labor force was based on a constant unemployment rate from the 2017 rate for each jurisdiction as shown in Table 3.12-3. To derive the total unemployed labor force, the projected employed labor force for 2020 and 2035 was based on the ratio of 2017 unemployed labor force to population.

SOURCES: DOF, 2010; DOF, 2017.

3.12.2 Regulatory Framework

State

State of California Housing Element Requirements

California Housing Element Law (Government Code Section 65580, et seq.) requires cities and counties to include, as part of their general plans, a housing element to address housing conditions and needs in the community. The housing element law requires the California Department of Housing and Community Development, in consultation with each regional council of governments, to determine each region's existing and projected housing need. The regional council of governments in turn develops a regional housing allocation plan that includes the actual allocation of housing need to the cities and counties within the region.

Regional

The 2018 Regional Transportation Plan/Sustainable Communities Strategy Amendment No. 1

In 2019, the Madera County Transportation Commission (MCTC) adopted the 2018 Regional Transportation Plan (RTP)/Sustainable Communities Strategy (SCS) to reflect the existing and future regional transportation system in Madera County to the horizon year of 2042. This update is to ensure that the region's transportation system and implementation policies and programs will safely and efficiently accommodate growth envisioned in the Land Use Elements of the cities of Chowchilla and Madera and Madera County, in the RTP, and in the Sustainable Communities Strategy (SCS). 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 RTP considers the role of transportation including economic factors, quality of life issues, and environmental factors. The RTP provides an opportunity to identify transportation strategies today that address mobility needs for the future. The SCS is newer element of the RTP that demonstrates the integration of land use, transportation strategies, and transportation investments within the RTP. This is second SCS prepared for Madera County to address requirements set forth with the passage of Senate Bill (SB) 375, with the goal of ensuring that the MCTC region can meet its regional greenhouse gas reduction targets set by the California Air Resources Board (CARB).

Local

Madera County General Plan

Goals and policies of the Madera County General Plan that are related to growth and are relevant to the Project include the following (Madera County, 1995):

New Growth Areas Goals and Policies

Goal 1.B: To ensure that new growth areas are comprehensively planned and developed as well-balanced, independent communities.

Policy 1.B.1: The County shall require that designated new growth areas be comprehensively planned as single units rather than as individual property ownerships. Each designated new growth area shall be developed according to an adopted area plan.

Policy 1.B.2: The County shall require that the planning and design of new growth areas carries out the following objectives:

a. Concentrate higher-density residential uses and appropriate support services along segments of the transportation corridor with good road and possible transit connections to the remainder of the region;

b. Support concentrations of medium and high-density residential uses and higher intensities of non-residential uses near existing or future transit stops along trunk lines of major transportation systems;

c. Support the development of integrated mixed use areas by mixing residential, retail, office, open space, and public uses while making it possible to travel by transit, bicycle, or foot, as well as by automobile; and

d. Provide buffers between residential and incompatible non-residential land uses.

Residential Land Use Goal

Goal 1.C: To provide adequate land in a range of residential densities to accommodate the housing needs of all income groups expected to reside in Madera County.

Jobs/Housing Balance Goal

Goal 1.F: To work toward a jobs-housing balance in existing urban areas and new growth areas.

Madera County Housing Element

The Housing Element is a required element of the Madera County General Plan under California state law. The 2009-2014 Housing Element for the Madera County General Plan provides goals and programs for the provision of housing throughout Madera County through 2014 and until the next Housing Element is adopted. The 2009-2014 Housing Element also identifies and analyzes the existing and projected housing needs of the County and provides the County's housing goals, objectives, and programs. Objectives and policies in the 2009-2014 Housing Element that are relevant to the Project are presented below.

New Construction

Goal 1: To encourage new residential development in suitable locations that meet the projected needs of all economic segments of the community.

Encourage and Maintain Affordable Housing

Goal 2: To encourage and maintain affordable housing in Madera County for all income groups.

Policy 2.1: The County shall create and maintain housing for all income levels.

Program 2.1.2: The County shall comply with State Density Bonus law. The County Planning Department shall review its development standards such as street width, setback coverage, heights, parking and lot size requirements and amend zoning and development standards as necessary to ensure the ability to achieve high density.

Job/Housing Balance

Goal 7: To provide a well-balanced and diverse economy that provides an adequate number of jobs to support the local population.

Policy 7.1.2: As a means to encourage that the new growth areas have a balance of residential and commercial uses, the County shall continue to use its job-housing policy in the new growth areas.

3.12.3 Impacts and Mitigation Measures

Significance Criteria

The criteria used to determine the significance of impacts related to Population and Housing are based on Appendix G of the *CEQA Guidelines*. The Phase 1 Project and proposed Program would result in a significant impact to Population and Housing if the Phase 1 Project and proposed Program would:

- Induce substantial unplanned population growth in an area, either directly (for example, by proposing new homes and businesses) or indirectly (for example, through extension of roads or other infrastructure) (see Impact 3.12-1 below); or
- Displace substantial numbers of existing people or housing, necessitating the construction of replacement housing elsewhere (see Section 4.1.8 in Chapter 4.0, Other CEQA Considerations).

Methodology

The focus of environmental analysis prepared under CEQA is a project's potential to cause effects on the physical environment.[1] Accordingly, the *CEQA Guidelines* state that while economic or social information may be included in an EIR, or may be presented in whatever form the lead agency desires; social and economic effects shall not be treated as significant effects on the environment.[2] The *CEQA Guidelines* make clear that there must be a physical change resulting from the proposed project directly or indirectly for an impact to be considered significant.[3]

Social and economic effects, including employment, are relevant CEQA issues to the extent that a chain of cause and effect can be traced from a proposed project through anticipated social and economic changes resulting from the project, to physical changes caused in turn by the economic and social changes (*CEQA Guidelines*, Sections 15131(a) and 15064(f)). If a project's physical impacts would cause social or economic effects, the magnitude of the social or economic effects may be relevant in determining whether a physical impact is "significant" (*CEQA Guidelines* Section 15131(b)). If the physical change causes adverse economic or social effects on people,

1 "Environment" means the physical conditions which exist within the area which will be affected by a proposed project, including land, air, water, minerals, flora, fauna, noise, and objects of historic or aesthetic significance (Pub. Res. Code §21060.5).

2 *CEQA Guidelines* §15131(a) and 15064(f); see also Public Resources Code §21100 and 21151. "Significant effect on the environment" means a substantial, or potentially substantial adverse change in the environment (Pub. Res. Code §21068).

3 See discussion following *CEQA Guidelines* §15131.

those adverse effects may be used as the basis for determining that the physical change is significant (*CEQA Guidelines*, Section 15064(f)).

The Project area's population and employment growth that would result from Project implementation was examined in the context of existing and projected population, housing and employment for Madera County. If the Project would exceed growth projections, the resulting growth would be determined to be "substantial." However, the determination of whether the Project represents a significant impact is whether the Project would induce additional growth that would result in significant impacts to the environment.

Impacts Discussion

Population Growth

Impact 3.12-1a: The Phase 1 Project would not induce substantial unplanned population growth in the Project vicinity either directly (for example, by proposing new homes and businesses) or indirectly (for example, through extension of roads or infrastructure) and would result in less than significant and less than cumulatively considerable inducement impacts.

Phase 1 Project Impact Analysis

Implementation of the Phase 1 Project would result in an increase in population and employment opportunities within the Phase 1 Project area. As previously mentioned in Chapter 2, *Project Description*, of this Draft EIR, the Phase I Project would include the development of 34.6 acres with 117 residential lots, an entry road and collector roads encompassing approximately 9.4 acres, a neighborhood park encompassing 5.0 acres, the wastewater treatment plant site and stormwater management area consisting of 26.6 acres, and detention/retention basins encompassing 16.3 acres. As shown in **Table 3.12-5**, the Phase 1 Project would result in a residential population of approximately 433 persons. This population estimate is based an estimated 3.7 persons per unit generation rate. This rate was extrapolated from the persons per unit within the jurisdictions in the Project vicinity that were identified by the California Department of Finance (DOF). The generation rate was used to forecast the persons per house occupancy rate for the very low and low residential uses proposed within the Phase 1 Project. The 3.7 persons per unit generation rate used is very similar to the incorporated areas of the County of Madera which is 3.72 (California Department of Finance, 2018).

The Phase 1 Project would comprise approximately 2.7 percent of MCTC's RTP/SCS estimated population increase of 15,643 people between 2017 and 2020 throughout the County. The Phase 1 Project would comprise approximately 0.8 percent of MCTC's RTP/SCS estimated population increase of 52,339 people between 2017 and 2035 throughout the County. The Phase 1 Project-related population growth in the County is well within the projections for 2020 and 2035 as well as within the goals of the Madera County General Plan and the Madera County Housing Element. Therefore, the implementation of the Phase 1 Project would not be considered unplanned growth because the increase in population resulting from the development of the Phase 1 Project is within the 2020 and 2035 population projections and the site has been identified as a New Growth Area within the Madera County General Plan.

TABLE 3.12-5
PHASE 1 PROJECT POPULATION ESTIMATE

Land Use	Population/ Unit Factor	Phase 1 Project	
		Units	Population
Very Low Density Residential	3.7[1]	50	185
Low Density Residential	3.7[1]	67	248
Medium Density Residential	3.7[1]	0	0
High Density Residential	2.0[2]	0	0
Active Adult	2.0[2]	0	0
Mixed Use	2.0[2]	0	0
Total	NA	NA	433

NA – Not Applicable

1 The 3.7 persons per house occupancy rate is an estimate based on a review of the 2018 persons per household for the County of Madera, City of Madera, unincorporated areas of Madera County, incorporated areas of Madera County, and the State of California from the California Department of Finance demographics forecasting. The County of Madera persons per house occupancy rate is 3.34, the City of Madera is 3.87, the unincorporated and incorporated areas of the County of Madera are 3.0 and 3.73, respectively, and the State of California is 2.97. The estimated 3.7 persons per house occupancy rate for the very low and low density residential uses proposed within the Phase 1 Project is very similar to the incorporated areas of the County of Madera which is 3.72.

2 The 2.0 persons per house occupancy rate for the high density, active adult and mixed use categories are based on an estimated reduced persons per house occupancy rate due to the housing units being smaller in size and within an area of higher density. These housing units are typically occupied by one, two or three persons, and therefore, an average of 2.0 persons is appropriate.

SOURCE: California Department of Finance, 2018

As shown in **Table 3.12-6**, the Phase 1 Project would result in approximately two employees associated with the proposed wastewater treatment plant as shown in Table 3.12-6 below.

TABLE 3.12-6
PHASE 1 PROJECT EMPLOYEE ESTIMATE

Land Use	Phase 1 Project	
	Acres	Employees
WWTP	26.6	2[1]

1 Estimated based on number of employees at the Oakhurst Wastewater Treatment Plant WWTP). The Oakhurst WWTP has 5 employees (Madera County Grand Jury, 2012) and treats approximately 0.55 mgd (Central San Joaquin Section of California Water Environment Association. 2013). Based on a projected treatment of 0.25 mgd for Phase 1 Project, approximately 2 employees would be employed at proposed WWTP.

SOURCES: Madera County Grand Jury, 2012 and Central San Joaquin Section of California Water Environment Association. 2013.

The Phase 1 Project's increase in employment is nominal. The unemployed labor force as shown in Table 3.12-4 is projected to continue to increase within the jurisdictions in the vicinity of the Phase 1 Project; however, the percentage of unemployed labor force within the County compared to population within the County would remain constant at 3.1 percent. The Phase 1 Project would result in a less than significant impact on unemployed labor force within the County.

Table 3.12-4 also shows that housing units within the county are projected to increase by 573 units between 2017 and 2020 and increase by 1,666 units between 2017 and 2035. The addition

of 117 residential units that are part of the Phase 1 Project would be within the planned housing growth anticipated within the County.

As discussed above, the population and housing units associated with the Phase 1 Project would be within growth projections and therefore, the development of the Phase 1 Project would not induce substantial unplanned growth. In addition, employment from the development of the Phase 1 Project would be nominal. Therefore, the Phase 1 Project would result in less than significant growth inducement impacts.

Significance Determination before Mitigation: Less than Significant

Phase 1 Project Cumulative Impact Analysis

The geographic context for the analysis of cumulative growth inducement impacts include the projects identified in Table 3.0-1 in Section 3.0-2. These cumulative projects would increase population, housing and employment within the County. These near term cumulative projects would be within the growth projections identified for the County and are not considered unplanned growth. Therefore, these cumulative project would result in a less than significant impact related to growth inducement impacts. Because the Phase 1 Project also result in a less than significant growth inducement impact, the Phase 1 Project's contribution to cumulative growth inducement would be less than cumulatively considerable.

Significance Determination before Mitigation: Less than Significant

Phase 1 Project Mitigation Measures

No mitigation measures are required.

Significance Determination after Mitigation: Less than Significant

Phase 1 Project Cumulative Measures

No mitigation measures are required.

Significance Determination after Mitigation: Less than Significant

Impact 3.12-1b: The proposed Program would not induce substantial unplanned population growth in the Project vicinity either directly (for example, by proposing new homes and businesses) or indirectly (for example, through extension of roads or infrastructure) and would result in less than significant and less than cumulatively considerable inducement impacts.

Program Impact Analysis

Implementation of the proposed Program would result in an increase in population and employment opportunities within the Specific Plan Program area. As previously mentioned in Chapter 2, *Project Description*, of this Draft EIR, the proposed program would include the development of 3,072 dwelling units. As shown in **Table 3.12-7,** the proposed Program would result in approximately 9,918 people. This population estimate is based an estimated 3.7 persons per unit and 2.0 persons per unit generation rates depending on the residential density. These rates were extrapolated from the persons per unit within the jurisdictions in the Program vicinity that

were identified by the California Department of Finance (DOF). The generation rates were used to forecast the persons per house occupancy rate for the very low, low, medium, and high density residential uses proposed within the Specific Plan Program. As noted in Table 3.12-7, the 3.7 persons per unit is very similar to the incorporated areas of the County of Madera which is 3.72 persons per unit (California Department of Finance, 2018).

TABLE 3.12-7
SPECIFIC PLAN PROGRAM POPULATION ESTIMATE

Land Use	Population/ Unit Factor	Specific Plan Program	
		Units	Population
Very Low Density Residential	3.7[1]	90	333
Low Density Residential	3.7[1]	1,104	4,085
Medium Density Residential	3.7[1]	1,026	3,796
High Density Residential	2.0[2]	248	496
Active Adult	2.0[2]	402	804
Mixed Use	2.0[2]	202	404
Total	NA	3,072	9,918

NA – Not Applicable

1 The 3.7 persons per house occupancy rate is an estimate based on a review of the 2018 persons per household for the County of Madera, City of Madera, unincorporated areas of Madera County, incorporated areas of Madera County, and the State of California from the California Department of Finance demographics forecasting. The County of Madera persons per house occupancy rate is 3.34, the City of Madera is 3.87, the unincorporated and incorporated areas of the County of Madera are 3.0 and 3.73, respectively, and the State of California is 2.97. The estimated 3.7 persons per house occupancy rate for the very low, low and medium density residential uses proposed within the Project is very similar to the incorporated areas of the County of Madera which is 3.72.

2 The 2.0 persons per house occupancy rate for the high density, active adult and mixed use categories are based on an estimated reduced persons per house occupancy rate due to the housing units being smaller in size and within an area of higher density. These housing units are typically occupied by one, two or three persons, and therefore, an average of 2.0 persons is appropriate.

SOURCE: California Department of Finance, 2018

As shown in **Table 3.12-8**, the proposed Program would result in an increase of approximately 268 employees as a result of the proposed Mixed-use Town Center and proposed wastewater treatment plant. As described in Chapter 2, *Project Description*, the mixed-use Town Center would provide an activity hub to enhance community experience and support the residents, visitors and employees within the overall Project.

The Specific Plan Program's increase in employment is substantial. The unemployed labor force as shown in Table 3.12-4 is projected to continue to increase within the jurisdictions in the vicinity of the proposed Program from 2020 to 2035; however, the percentage of unemployed labor force within the County compared to population within the County would remain constant at 3.1 percent in 2020 and 2035. The majority of the jobs created by the proposed Program are expected to be filled by persons within the local economy while a small percentage of the employment opportunities are expected to be skilled or managerial. Because many of the employment opportunities are expected to be filled by persons within the local economy, the jobs created within the proposed Program area could reduce the County's projected unemployment rate. The proposed Program's employment would represent approximately 8% of the total new employment projected between 2017 and 2035.

TABLE 3.12-8
SPECIFIC PLAN PROGRAM EMPLOYEE ESTIMATE

Land Use	Square feet per Employee/Number of Students per Employee	Specific Plan Program	
		Square Feet/Acres/Students	Employees
Mixed Use	514 Square feet per Employee[1]	134,000 SF	261
WWTP	Not Applicable	26.6 Acres	7[2]
Elementary School	20 Students per Employee[3]	800 Students	40
Total			308

1 The Natelson Company, Inc., 2001

2 Estimated based on number of employees at the Oakhurst Wastewater Treatment Plant WWTP). The Oakhurst WWTP has 5 employees (Madera County Grand Jury, 2012) and treats approximately 0.55 mgd (Central San Joaquin Section of California Water Environment Association. 2013). Based on a projected treatment of 0.75 mgd for the Specific Plan Program, approximately 7 people would be employed at proposed WWTP.

3 Institute of Transportation Engineers, 2012

SOURCES: The Natelson Company, Inc. 2001, Madera County Grand Jury, 2012, and Central San Joaquin Section of California Water Environment Association. 2013.

Table 3.12-4 also shows that housing units within the county are projected to increase by 15,116 units between 2017 and 2035. The addition of 3,072 residential units that are part of the Specific Plan Program would be within the planned housing growth anticipated within the County.

As discussed above, the population and housing units associated with the Specific Plan Program would be within growth projections and therefore, the development of the Specific Plan Program would not induce substantial unplanned growth. Therefore, the proposed Program would result in less than significant growth inducement impacts.

Significance Determination before Mitigation: Less than Significant

Program Cumulative Impact Analysis

The geographic context for the analysis of cumulative growth inducement impacts includes the growth identified in Table 3.0-2 in Section 3.0-2. This growth is forecast to include 52,339 additional people within the County between 2017 and 2035. Housing growth is projected to increase by an additional 15,116 housing units and employment growth is projected to increase by 3,332 jobs within the County between 2017 and 2035. Because the population, housing, and employment growth identified in Table 3.0-2 is planned by the County and provided to MCTC in the projections included in the 2018 RTP/SCS, the implementation of the anticipated growth would not be unplanned and potential cumulative unplanned growth inducement impacts would be less than significant. Because the proposed Specific Plan Program would also result in a less than significant growth inducement impact, the proposed Program's contribution to cumulative growth inducement would be less than cumulatively considerable**.**

Significance Determination before Mitigation: Less than Significant

Program Mitigation Measures

No mitigation is required.

Significance Determination after Mitigation: Less than Significant

Program Cumulative Measures

No mitigation is required.

Significance Determination after Mitigation: Less than Significant

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3.12.4 References

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3.13 Public Services

This section identifies and evaluates issues related to public services in the context of the Phase 1 Project and the proposed Program, which represent the "Project" under the environmental setting. It includes a description of existing services including fire protection, police services, and schools within Madera County and in the vicinity of the Project site and an evaluation of potential impacts associated with implementation of the Phase 1 Project and the proposed Program, both analyzed separately. A discussion of applicable state, local and regional plans and/or programs is also included.

3.13.1 Environmental Setting

Fire/Emergency Protection Services

The Madera County Fire Department (MCFD) provides fire protection and emergency services to the unincorporated areas of Madera County, including the Project site. In total, MCFD is comprised of 17 fire stations, a fleet of approximately 56 fire apparatus and support vehicles, 32 career fire suppression personnel, 175 paid on-call firefighters, and 7 support personnel (MCFD, 2019). The department is administered, and career suppression personnel are provided, through a contract with the California Department of Forestry and Fire (CAL FIRE). CAL FIRE provides fire protection services to the western two-thirds of the County, while the eastern third of the County is protected by the U.S. Forest Service (Sierra National Forest). The contract for fire services between the County and State has existed since 1928. Currently, the County and CAL FIRE have two principal agreements which constitute the contract for services: (1) Schedule "A" Agreement (PRC-4142), and (2) Schedule "A" Amador Agreement (PRC-4144). Therefore, the County contracts with CAL FIRE to staff County fire stations year-round; and to staff a CAL FIRE engine at CAL FIRE Ahwahnee, Bass Lake, Raymond, and Rancheria Fire stations for the "Amador Plan" period, typically from November 15th to May 15th, improving the County's response time during the winter period when CAL FIRE is down-staffed. The Madera County Fire Department's automotive fleet consists of 62 vehicles, including ladder trucks, fire engines of varying capacities, water tenders, squads, fire ladder trucks, a hazardous material tow vehicle and trailer, Mobile Support Unit, and support vehicles. In May 1993, Madera County and the City of Madera entered into an automatic aid agreement which provides for automatic responses of County apparatus into the City and City apparatus into the surrounding unincorporated areas of the County (County of Madera, 2019a).

According to a State of the County report released in March 2019, the MCFD responded to over 6,500 emergencies countywide in 2018 and opened a new County fire station in Tesoro Viejo, staffed with 2 firefighters per day (County of Madera, 2019b).

Fire Stations

The closest existing fire station to the Project site is Station No. 3, Madera Acres, located at 25950 Avenue 18 1/2, approximately 2.5 miles of motor vehicle travel distance from the northwestern boundary of the Project site. Station No. 3 is currently staffed with one full-time career Fire Captain and two Fire Apparatus Engineer (County of Madera, 2019).

Other fire stations within the vicinity of the Project site that could serve the proposed Project include:

- Fire Station No. 19, Bonadelle Ranchos, located approximately 11.0 miles in motor vehicle distance southeast of the Project site on Bonadelle Avenue. Fire Station No. 19 is staffed 24 hours a day, has one engine, one water tender, one full-time CAL FIRE career firefighter, and is augmented by paid on-call firefighters.
- Fire Station No. 1, Madera Valley, located approximately 3.6 miles in motor vehicle distance south of the Project site on Road 28 near Avenue 14. Fire Station No. 1 is staffed 24 hours a day, has one engine, two full-time CAL FIRE career firefighters, and is augmented by paid on-call firefighters. MCFD considers Fire Station No. 1 as its busiest station as it runs over 1300 calls per year (County of Madera, 2019b).

Included in the State of the County report released in March 2019, the MCFD has set a goal to increase the staffing from one fire fighter on duty per day to two firefighters per day at Fire Station No. 3 and Fire Station No. 19 (County of Madera, 2019b).

Performance Standards and ISO Rating

MCFD measures the adequacy of its fire protection services using standards established by Insurance Services Office (ISO), an agency that collects information on municipal fire-protection efforts in communities throughout the United States and provides up-to-date information about a community's fire-protection services through their Public Protection Classification (PPC) program. ISO evaluates fire protection features for all fire departments for purpose of establishing insurance rates. The ISO analyzes the relevant data using a Fire Suppression Rating Schedule (FSRS) and assign a PPC from 1 to 10. Class 1 generally represents superior property fire protection, and Class 10 indicates that the area's fire-suppression program doesn't meet ISO's minimum criteria (ISO Mitigation, 2019a). A communities PPC depends on emergency communications systems; community efforts to reduce the risk of fire (i.e. fire prevention codes and enforcement, and public fire safety education); the availability of water; and fire protection service (i.e., number of equipment, personnel, and response times, etc.) (ISO Mitigation, 2019b).

The 2017 Local Hazard Mitigation Plan Update for the County of Madera identifies an ISO between 7 and 10 in the high fire areas (County of Madera, 2017). The Project site is not within a very high fire hazard zone and is located within an LRA Unzoned area, according to CAL FIRE (CAL FIRE, 2007b).

The Madera County General Plan maintains a 15-minute minimum response standard, expressed as average first alarm response times to emergency calls, for suburban areas. All fire calls are dispatched from the CAL FIRE headquarters emergency command center in Mariposa. MCFD participates in the state's Master Mutual Aid program and offers assistance to neighboring agencies on occasion. Currently, formal agreements exist between Madera County and the City of Madera, and Madera County also has a cooperative agreement with Central California Women's Facility for fire protection services in the North end of Madera County. (MCFD, 2019).

Police Protection

The Madera County Sherriff's Department (MCSD) currently provides law enforcement services to the Project site for both crime and traffic services. In general, the MCSD is

responsible for the investigation of crimes that occur within its jurisdiction and the arrest of perpetrators in unincorporated areas of the County. MCSD is part of California's law enforcement Mutual Aid System (Region 5), which encompasses Kern, Tulare, Kings, Fresno, Mariposa and Merced counties.

The MCSD headquarters are located at 2725 Falcon Drive in the City of Madera, approximately 6.0 miles in motor vehicle distance west of the Project site. The MCSD is divided into four distinct divisions under the Sheriff, the Patrol Division, Investigations Division, Administrative Division and Professional Standards Division. MCSD's ratio goal is 1.25 sworn officers per 1,000 residents (Varney, 2019).

Schools

The Project site is located within the Madera Unified School District (MUSD) boundaries for elementary (grades K-6), middle (grades 7-8), and high schools (grades 9-12). The Project site is within the Berenda elementary school attendance area, the Desmond middle school attendance area, and the Madera South High School attendance area (MUSD, 2019). Students within the Project site boundary could be served by the following three K-12 schools:

- Madera South High School, located at 705 West Pecan Avenue and approximately 4.20 miles south of the Project site;
- Jack G. Desmond Middle School, located at 26490 Martin Street and approximately 1.13 miles west of the Project site; and
- Brenda Elementary School, located at 26820 Club Drive and approximately 0.82 miles north of the Project site.

Table 3.13-1 provides enrollment data and capacity for the 2018-2019 school year for the schools that serve the Project site.

TABLE 3.13-1
EXISTING MUSD SCHOOLS SERVING THE PROJECT AREA

School/Type	Location	Grade Level	Enrollment 2018-2019	School's Capacity 2018-2019
Berenda Elementary School	26820 Club Drive Madera, 93638	K through 6	777	831[a]
Jack G. Desmond Middle School	26490 Martin Street Madera, 93638	7 and 8	900	900[b]
Madera South High School	705 West Pecan Avenue Madera, 93637	9 through 12	3,270	3,400[c]
		Total	**4,947**	**5,131**

[a] This number is an average that was calculated using 2014-2019 student enrollment data provided by the California Department of Education.

[b] Capacity data not available and therefore 2018-2019 enrollment was used.

[c] This number was identified in the school's profile as being the current capacity.

SOURCES: California Department of Education, 2019b. Madera South High School, 2019.

According to the California Department of Education's *California Basic Educational Data System* (CBEDS), enrollment within the MUSD has remained relatively stagnant over the past

several years. As shown in **Table 3.13-2** below, the most recent CBEDS data indicates that during the 2018-2019 school year there were a total of 21,040 students enrolled in MUSD. More specifically, during the 2018-2019 school year there were 11,756 elementary school students (approximately 56 percent), 3,437 middle school students (approximately 16 percent) and 5,847 high school students (approximately 28 percent) (California Department of Education, 2019b).

TABLE 3.13-2
MUSD ENROLLMENT TRENDS

	Student Enrollment					Change	Percentage Change
School Type (Grades)	**2014-2015**	**2015-2016**	**2016-2017**	**2017-2018**	**2018-2019**	**2014-15 to 2018-19**	**2014-15 to 2018-19**
Elementary School (K-6)	11,939	11,980	12,033	12,002	11,756	-183	-1.5%
Middle School (7-8)	3,103	3,088	3,199	3,320	3,437	+334	10.7%
High School (9-12)	5,373	5,462	5,547	5,634	5,847	+474	8.8%
District Wide (K-12)	20,415	20,530	20,779	20,956	21,040	+625	3.1%

SOURCE: California Department of Education, 2019a.

During the past five years, the MUSD's enrollments have increased from 20,415 students for the 2014/2015 school year to 21,040 students from the academic year of 2018/2019. Table 3.13-2 shows the growth in enrollment per grade group for the last 5 academic years, and **Table 3.13-3** shows the change in student enrollment by year for the district As shown in Table 3.13-3, the percentage increase in students declined since the 2016-2017 school year.

TABLE 3.13-3
MUSD ENROLLMENT 2014-2019

Academic Year	District Enrollment	Change from Previous Year	Percentage Change
2014-15	20,415	-	-
2015-16	20,530	+115	0.56%
2016-17	20,779	+249	1.2%
2017-18	20,956	+177	0.85%
2018-19	21,040	+84	0.40%

SOURCE: California Department of Education, 2019a.

The identified pupil-per-home yield (generation rates) per grade level for all types of residential homes is provided in the District's 2014 School Facilities Needs Analysis (SFNA). Pursuant to SB 50, pupil-per-home yield rates are to be calculated for a SFNA. The Method used to obtain generation rates was to identify homes built in the past five years that are similar to homes expected to be built in the projection period (the next five years, or 2019). All housing types were

combined since only one fee is assessed for all residential development types and the historic construction types are expected to match the future construction types (MUSD, 2014a).

The MUSD 2014 SFNA generation rates include the following:

- Elementary School (K-6) - 0.358 students per residential unit
- Middle School (7-8) - 0.093 students per residential unit
- High School (9-12) - 0.171 students per residential unit

Parks and Other Public Facilities

The County of Madera owns and maintains three park facilities, Courthouse Park, Parksdale Park, and Parkwood Park (Madera County, 2020). Courthouse Park is located in the City of Madera across from the County Government Center and is approximately 3.1 miles south of Phase 1 Project site and approximately 2.6 miles southwest of the proposed Program. Courthouse Park features include green space in front of the County courthouse, benches, and a monument. Parkwood Park is located in the City of Madera and is approximately 4.9 miles south of Phase 1 Project site and approximately 4.4 miles southwest of the proposed Program and includes benches, a basketball court, and a playground. Currently, Madera County does not have a Parks and Recreation Department.

In addition, the City of Madera, which is located approximately one mile south of the Project site, includes several recreational opportunities. According to the City of Madera Parks and Community Services Department, the City has over 25 recreational services which include parks, community garden, skate and dog parks, trails, community and senior centers and manages the Sunrise Rotary Sports Complex and Madera Municipal Golf Course. The parks make up a total area of approximately 92 acres while the gold course is approximately 180 acres and Sunrise Rotary Sports Complex is approximately 49 acres (City of Madera, 2019). The nearest park to the Project site is the Pan-American Park and Community Center located approximately 1.5 miles south of the Project site. The approximately 4.7-acre Pan-American Park offers a playground, picnic area, barbecue, shade structures, basketball and volleyball courts, horseshoe pits, and restrooms.

The County of Madera requires fees in lieu of dedication or dedication of parkland to help mitigate the impacts of property improvements pursuant to the Quimby Act of 1975. Additionally, Policy 4.A.4 of the *Madera County General Plan*, states that the County shall strive to achieve and maintain a standard of three acres of improved parkland per 1,000 people. In lieu of parkland dedication, the County of Madera allows developers to pay impact fees, to fairly distribute the costs of park expansion and maintenance to new development, pursuant to Code of Ordinances Madera County Section 15.03.070 (County of Madera, 2019d).

Libraries

The Madera County Library located at 121 North G Street in the City of Madera is approximately 2.6 miles southwest of the Project site. The Library is one of five branch libraries within the Madera County Library system. The Library's materials collection includes

books, online and veteran resources, periodicals and audio-visual materials. Public services provided by the library include:

- Reference services for adults and children (either in person or by phone);
- Programs (story hours, literary and cultural programs, literacy services, etc.);
- Electronic reference sources (electronic information databases, video recordings, oral history tapes, etc.);
- California History & Family Research Room consisting of local history related records in both paper and digital formats as well as research assistance from the Collections Specialist;
- Internet Access (Public computers with internet access are available); and
- Meeting rooms.

The Madera County Library System is a member of the cooperative San Joaquin Valley Library System. Besides circulating books, the Madera County Library System answers reference questions in person or over the phone for patrons throughout the County (County of Madera, 2019c).

3.13.2 Regulatory Setting

Federal

There are no federal regulations that would apply to public services associated with the proposed Project.

State

California Department of Forestry and Fire Protection (CAL FIRE)

Under Title 14 of the California Code of Regulations (CCR), CAL FIRE has the primary responsibility for implementing wildfire planning and protection for State Responsibility Areas (SRAs). CAL FIRE develops regulations and issues fire-safe clearances for land within a fire district of the SRA. More than 31 million acres of California's privately owned wildlands are under CAL FIRE's jurisdiction.

CAL FIRE adopted Fire Hazard Severity Zone maps for State Responsibility Areas in November 2007. Fire Hazard is a way to measure the physical fire behavior so that people can predict the damage a fire is likely to cause. Fire hazard measurement includes the speed at which a wildfire moves, the amount of heat the fire produces, and most importantly, the burning fire brands that the fire sends ahead of the flaming front. The Project site falls under the fire protection responsibility for a Local Responsibility Area (LRA) (CAL FIRE, 2007a). The Project site is not within a very high fire hazard zone and is located within an LRA Unzoned area (CAL FIRE, 2007b). However, the Project's northern, western, and southern boundaries are adjacent to areas designated as LRA Moderate Fire Hazard (CAL FIRE, 2007b).

In addition to wildland fires, CAL FIRE's planning efforts involve responding to other types of emergencies that may occur on a daily basis, including residential or commercial structure fires, automobile accidents, heart attacks, drowning victims, lost hikers, hazardous material spills on

highways, train wrecks, floods, and earthquakes. Through contracts with local government, CAL FIRE provides emergency services in 36 of California's 58 counties (CAL FIRE, 2018).

2016 California Fire Code

The California Fire Code (Fire Code) is found in Title 24, Part 9 of the CCR, and is also a part of the California Building Code (CBC). The Fire Code combines the Uniform Fire Code with amendments necessary to address California's unique needs. The 2016 California Fire Code establishes regulations to safeguard against the hazards of fire, explosion, or dangerous conditions in new and existing buildings, structures, and premises. The Fire Code also establishes requirements intended to provide safety for and assistance to firefighters and emergency responders during emergency operations. The provisions of the Fire Code apply to the construction, alteration, movement, enlargement, replacement, repair, equipment, use and occupancy, location, maintenance, removal, and demolition of every building or structure throughout California. The Fire Code includes regulations regarding fire-resistance-rated construction, fire protection systems such as alarm and sprinkler systems, fire service features such as fire apparatus access roads, means of egress, fire safety during construction and demolition, and wildland-urban interface areas.

Quimby Act

Subdivision Map Act, Section 66477 (the Quimby Act) allows the legislative body of a city or county, by ordinance, to require the dedication of land, the payment of fees in-lieu of, or a combination of both, for park and recreational purposes as a condition to approval for a final tract map or parcel map. The Quimby Act requires that developers set aside land, donate conservation easements, or pay fees for park improvements. The goal of the Quimby Act is to require developers to help mitigate the impacts of property improvements. Madera County adopted the requirements of the Quimby Act in Section 15.03 (Park and Recreational Facility Acquisition and Dedication) of the Madera County Code. The Madera County Code requires three acre of parkland per 1,000 residents.

Senate Bill 50

SB 50 or the Leroy F. Greene School Facilities Act, provides funding for education facilities, K-12 facilities, modernization of older schools, additional funding for districts in hardship situations, and funding for class size reduction. SB 50 provides that no land use proposal can be denied because of insufficient school capacity. It also provides the mandated CEQA mitigation fee for schools that would be affected by a development project. This measure consists of an impact fee levied on a square footage basis for residential and commercial development.

SB 50 permits the MUSD to levy a fee, charge, dedication, or other requirement against any development project within its boundaries, for the purpose of funding the construction or reconstruction of school facilities. SB 50 also sets a maximum level of fees a developer may be required to pay. Pursuant to Government Code Section 65995, the payment of these fees by a developer serves to mitigate all potential impacts on school facilities that may result from implementation of a project to a less than significant level. The current developer fee rates,

effective November 11, 2019, are $0.56 per square foot for commercial/industrial construction and $5.00 per square foot for residential/additions/remodels (MUSD, 2019b).

Local

Madera County General Plan

The Madera County General Plan contains goals and policies that relate to various public services and facilities. The relevant goals and policies to the Project include the following.

General Public Facilities and Services

Goal 3.A: To ensure the timely development of public facilities and to maintain an adequate level of service to meet the needs of existing and future development.

Policy 3.A.1: The County shall ensure through the development review process that adequate public facilities and services are available to serve new development. The County shall not approve new development where existing facilities are inadequate unless the applicant can demonstrate that all necessary public facilities will be installed or adequately financed and maintained (through fees or other means).

Policy 3.A.2: The County shall ensure that public facilities and services are developed and operational as they are needed to serve new development.

Policy 3.A.4: The County shall discourage expansion of rural communities unless necessary services can be provided.

Policy 3.A.5: The County shall require detailed public facility planning as part of the area plans for designated new growth areas.

Public Facilities and Services Funding

Goal 3.B: To ensure that adopted facility and service standards are achieved and maintained through the use of equitable funding methods.

Policy 3.B.1: The County shall require that new development pay its fair share of the cost of developing new facilities and services and upgrading existing public facilities and services subject to the requirements of California Government Code Section 66000, et seq. (AB 1600); exceptions may be made when new development generates significant public benefits (e.g., low-income housing) and when alternative sources of funding can be identified to offset foregone revenues.

Law Enforcement, Fire, and Emergency Medical Services

Goal 3.G: To ensure the prompt and efficient provision of law enforcement, fire, and emergency medical facility and service needs.

Policy 3.G.3: The County shall require new development to pay its fair share of the costs for providing law enforcement, fire, and emergency medical facilities, subject to the requirements of California Government Code Section 66000 et seq. (AB 1600).

Policy 3.G.4: The County shall require that new development is designed to maximize safety and security and minimize fire hazard risks to life and property.

Policy 3.G.5: The County shall limit development to very low densities in areas where emergency response times will average more than 20 minutes.

Fire Protection Services

Goal 3.H: To protect residents of and visitors to Madera County from injury and loss of life and to protect property and watershed resources from fires.

Policy 3.H.1: The County shall encourage local fire protection agencies in Madera County to maintain the following as minimum fire protection standards (expressed as ISO ratings):

a. ISO 4 in urban areas

b. ISO 6 in suburban areas

c. ISO 8 in rural areas.

Policy 3.H.2: The County shall encourage local fire protection agencies in the county to maintain the following as minimum standards (expressed as average first alarm response times to emergency calls):

a. ten minutes in urban areas

b. 15 minutes in suburban areas

c. 20 minutes in rural areas

Policy 3.H.3: The County shall require that new fire stations be located to achieve a service level capability consistent with existing and planned land uses.

Policy 3.H.4: The County shall require new development to develop or fund fire protection facilities that, at a minimum, maintain the above service level standards.

Policy 3.H.5: The County shall ensure that all proposed developments are reviewed for compliance with fire safety standards by responsible local fire agencies per the Uniform Fire Code and other state and local ordinances.

Policy 3.H.7: The County shall encourage local fire protection agencies to provide and maintain advanced levels of emergency medical services (EMS) to the public.

Schools

Goal 3.1: To provide for the educational needs of Madera County residents.

School Siting Policies

Policy 3.I.3: The County should plan and approve residential uses in those areas that are most accessible to school sites in order to enhance neighborhoods, minimize transportation requirements and costs, and minimize safety problems.

Policy 3.I.5: The County shall encourage the location of schools in areas with safe pedestrian and bicycle access.

Policy 3.I.7: Specific plans and area plans shall identify school facilities required to serve the development encompassed by the plans and shall provide a mechanism to ensure that the school facilities will be available concurrent with the need for the facilities.

School Financing Policies

Policy 3.I.8: Where legally permissible, the County shall provide a mechanism which, along with state and local sources, requires development projects to fully mitigate their impacts on school facilities if the affected school district documents to the Planning Commission and Board of Supervisors that adequate school facilities cannot be made available concurrent with the need for such facilities. The documentation shall include, but is not necessarily limited to, all of the following:

a. The school district has imposed school mitigation fees pursuant to Government Code Section 53080 and said fees are not adequate to address school facility impacts;

b. The school district has filed a copy of its adopted School Facilities Master Plan with the Planning Department; and

c. The school district demonstrates that it has pursued and exhausted all other legally permissible means of providing adequate facilities to serve the development project.

Recreational Resource Policies

Policy 4.A.4: The County shall strive to achieve and maintain a standard of three acres of improved parkland per 1,000 people.

Policy 4.A.5: The County shall require the dedication of land and/or payment of fees, in accordance with local authority and state law (e.g., Quimby Act) to ensure funding for the acquisition and development of public recreation facilities. The fees are to be set and adjusted as necessary to provide for a level of funding that meets the actual cost to provide for all of the public parkland and park development needs generated by new development.

Health and Safety

Fire Hazards

Goal 6.C: To minimize the risk of loss of life, injury, and damage to property and watershed resources resulting from unwanted fires.

Policy 6.C.1: The County shall ensure that development in high-fire-hazard areas is designed and constructed in a manner that minimizes the risk from fire hazards and meets all applicable state and county fire standards. In areas with high or extreme wildfire hazards, the County shall limit parcel sizes to 2 1/2 acres or larger or encourage clustered or planned residential development with on-site fire suppression measures.

Policy 6.C.2: The County shall require that discretionary permits for new development in fire hazard areas be conditioned to include requirements for fire-resistant vegetation, cleared fire breaks, or long-term comprehensive fuel management program. Fire hazard reduction measures shall be incorporated into the design of development projects in fire hazard areas.

Policy 6.C.3: New development shall be required to have water systems that meet County fire flow requirements. Where minimum fire flow is not available to meet County standards, alternate fire protection measures, including sprinkler systems, shall be identified and may be incorporated into development if approved by the appropriate fire protection agency.

Policy 6.C.5: The County shall require development to have adequate access for fire and emergency vehicles and equipment. All major subdivisions shall have two points of ingress and egress (Madera County Planning Department, 1995).

3.13.3 Impacts and Mitigation Measures

Significance Criteria

For the purposes of this EIR and consistency with Appendix G of the CEQA Guidelines, the Project would have a significant impact on public services if the Project would:

- Result in substantial adverse physical impacts associated with the provision of, or the need for, new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times, or other performance objectives for any of the following public services:
  - Fire protection (see Impact 3.13-1, below);
  - Police protection (see Impact 3.13-1, below);
  - Schools (see Impact 3.13-2, below);
  - Parks (see Impact 3.13-3, below); or
  - Other public facilities (see Impact 3.13-3, below).

Methodology

The following evaluation of potential impacts is based on consideration of applicable regulations and correspondence and information from MCFD, MCSD, CAL FIRE, the County of Madera Parks and Recreation Department and Library Services, and MUSD. The evaluation of impacts is based on an assessment of the changes in agriculture uses that would occur on the Project site and how the Project would affect current levels of public service, including applicable service goals and standards. The determination of impact significance is focused on whether new or expanded governmental facilities would be required to maintain adequate levels of service and whether construction of such facilities would result in significant impacts on the physical environment.

Impacts Discussion

Fire and Police Protection

Impact 3.13-1a: The Phase 1 Project could have significant and cumulatively considerable physical environmental impacts from construction activities associated with the provision of, or the need for, new or physically altered police or fire protection facilities in order to maintain acceptable service ratios, response times, or other performance objectives for fire and police services.

Phase 1 Project Impact Analysis

Police Protection

The Phase 1 Project would result in a population increase of 433 people (see Section 4.12 Population). Thus, the Phase 1 Project could increase the demand for additional police and fire protection facilities. The Sheriff station is located approximately 4.5 miles west of the Phase 1 Project site. According to Sheriff Jay Varney, the police demand is 1.25 officers per 1,000 residents, thus the Phase 1 Project would require approximately 0.5 deputy, which is within their acceptable service ratios, and therefore would not require the construction of sheriff facilities (Varney, 2019). Therefore, the Phase 1 Project would result in no environmental effects related to construction of sheriff facilities.

Significance Determination before Mitigation: No Impact

Fire Protection

The Phase 1 Project would increase the demand for additional fire protection facilities. According to correspondence with fire department Assistant Fire Chief Matt Watson, prior to the issuance of the first building permit of the Phase 1 Project, 3 firefighters would be required to service the Phase 1 Project and 6 firefighters would be required prior to the issuance of the first occupancy permit of the Phase 1 Project (Watson, 2019).

A temporary fire station is required to be fully operational prior to the issuance of the first building permit of the Phase 1 Project. The temporary fire station could be accommodated by a large garage that could be located behind one of the Phase 1 Project residences or a facility located near the permanent fire station location (within the Specific Plan Program Area in the vicinity of the intersection of Avenue 17 and Road 28. (Watson, 2019). According to the MCFD, the addition of 6 full-time fire fighters and the temporary fire station would ensure the necessary staffing to provide adequate fire protection services to the Phase 1 Project area during operation.

The Phase 1 Project would be required to comply with all conditions of approval set forth by the MCFD. As stated in the Castellina Specific Plan, as a method of fire prevention, the Phase 1 Project would comply with MCFD's recommendations which would address the location and spacing of fire hydrants; minimum fire flows; water system design; emergency access roads and entry systems; location of fire and fuel breaks and easements; dedication of land for fire station sites; and special provisions for land divisions in hazardous fire areas (Kimley-Horn, 2019).

Additionally, the Project Applicant may be required to pay development impact fees (per California Government Code Section 66000 et. seq. (AB 1600)) in accordance with the most recent Madera County Fire Marshal Fee Schedule. These fees would provide for new facilities, equipment and staffing. This fee would be determined through an agreement between the Project Applicant and the MCFD.

Following compliance with Madera County development standards and conditions of approval set forth by the MCFD, the construction of temporary or permanent fire protection facilities to accommodate 6 firefighters, and payment of applicable development fees and taxes would reduce impacts to fire protection services. However, the placement of the temporary fire station within the Phase 1 Project site and/or a permanent fire station within the remaining portions of the Program site would result in the removal of Important Farmland which is considered a significant farmland impact.

Significance Determination before Mitigation: Significant

Phase 1 Project Cumulative Impact Analysis

The implementation of the cumulative projects identified in Table 3.0-1 in Section 3.0-2 would increase the demand for police and fire protection services that may require additional police and fire facilities. Based on a discussion with Sheriff Jay Varney, the implementation of the cumulative projects identified in Table 3.0-1 would not increase the demand for police services that would require the construction of a new police facility or a modification of the existing. Therefore, cumulative projects would have no environmental from construction since additional police facilities are not required to be constructed to serve the cumulative projects. Because the Phase 1 Project would also not result in a need for the construction of police facilities, the Phase 1 Project would not contribute to cumulative environmental impacts associated with the construction of police facilities.

The implementation of cumulative projects would require the construction of new fire facilities to adequately serve the growth from these projects. The construction of these new fire facilities could result in significant environmental impacts. Because the Phase 1 Project could result in significant agricultural impacts from the provision of a new fire facility to adequately serve future residents, the Phase 1 Project's contribution to cumulative environmental impacts from fire station construction would be cumulatively considerable.

Significance Determination before Mitigation: No Impact (Police Protection Services) and Significant (Fire Protection Services)

Phase 1 Project Mitigation Measures

No feasible mitigation measures have been identified for impacts associated with physical expansion of fire protection facilities.

Significance Determination after Mitigation: No Impact (Police Protection Services) and Significant and Unavoidable (Fire Protection Services)

Similar to the discussion under Impact 3.2-1a in Section 3.2, *Agricultural Resources*, of this Draft EIR, there are no feasible mitigation measures available to offset the conversion of Important Farmland to urban uses. Therefore, with the implementation of a future temporary fire station within Phase 1 and/or a permanent fire station within the remaining portions of the Program site would result in significant and unavoidable impacts. This loss of Important Farmland is consistent with the loss of agricultural land that was planned for the site with the approval of the Madera County Resolution 2014-012 to change the General Plan designation on the Specific Plan Program site from Agriculture – Exclusive to New Growth Area.

Phase 1 Project Cumulative Measures

No feasible mitigation measures have been identified for impacts associated with physical expansion of fire protection facilities.

Significance Determination after Mitigation: No Impact (Police Protection Services) and Significant and Unavoidable (Fire Protection Services)

As discussed above, there are no feasible mitigation measures available to offset the conversion of Important Farmland to urban uses. This loss is consistent with the loss of agricultural land that was planned for the site with the approval of the Madera County Resolution 2014-012 to change the General Plan designation on the Specific Plan Program site from Agriculture – Exclusive to New Growth Area. Even though the site where the future fire facility is planned for future urban growth, the Phase 1 Project's contribution to cumulative environmental impacts from the construction of new fire facilities would remain cumulatively considerable.

Impact 3.13-1b: The proposed Program could have significant and cumulatively considerable physical environmental impacts from construction activities associated with the provision of, or the need for, new or physically altered police or fire protection facilities in order to maintain acceptable service ratios, response times, or other performance objectives for fire and police services.

Program Impact Analysis

Police Protection

The proposed Program would result in a population increase of 9,918 people (see Section 4.12 Population). Thus, the proposed Program would increase the demand for additional police and fire protection facilities. The Sheriff station is located approximately 4.5 miles west of the Program site. According to Sheriff Jay Varney, the police demand is 1.25 officers per 1,000 residents, thus the proposed program would require 12.4 deputies, which is within their acceptable service ratios, and therefore would not require the construction of sheriff facilities

(Varney, 2019). Therefore, the proposed Program would result in no environmental effects related to the construction of sheriff facilities.

Significance Determination before Mitigation: No Impact

Fire Protection

The proposed Program would increase the demand for additional fire protection facilities. According to communication with fire department Assistant Fire Chief Matt Watson, prior to the issuance of the 1,000th occupancy permit of the Program, a total of 9 firefighters would be required to service the uses within the proposed Program (Watson, 2019). Additionally, Assistant Fire Chief Watson stated that prior to the issuance of the 2,000th occupancy permit within the proposed Program, a permanent fire station is required to be constructed and operational on the Program site. The permanent fire station would be located within the Program area in the vicinity of the Avenue 17/Road 28 ½ intersection.

According to the MCFD, the addition of 9 full-time fire fighters would ensure the necessary staffing to provide adequate fire protection services to the proposed Program area. The addition of 9 fire fighters would require development of a new facility to house the fire fighters. Because the new fire facility is anticipated as part of the proposed Program and would be located on Important Farmland, potential significant agricultural impacts would occur with the construction of a new permanent fire station to serve the proposed Program.

The proposed Program would be required to comply with all conditions of approval set forth by the MCFD. As stated in the Castellina Specific Plan, as a method of fire prevention, the proposed Program would comply with MCFD's recommendations which would include the following:

- All roadways will be all-weather surfaces. Cul-de-sacs and turnouts will be designed to MCFD standards. There will be ongoing to maintain the roads to enable access for all fire vehicles to and within the Project site.
- All building numbers and street signs will be lighted to County standards so that emergency vehicles, including police and ambulances, can locate addresses in the event of an emergency.
- All fire hydrants will be installed in accordance with MCFD requirements.
- Prior to approval of the Tentative Maps, the applicant for each individual project will submit plans subject to the review and approval by the MCFD that illustrate the roadways and site access, and the placement of fire hydrants throughout the Specific Plan Area. Access will be constructed as part of initial grading, and fire hydrants will be installed prior to occupancy for each Project phase.
- The water system will be designed to maintain a minimum fire flow of 2,500 GPM for two hours (or greater) at 20 PSI.
- The applicant for each individual project will prepare a fire/vegetation management plan, if required, for approval by the MCFD (Kimley-Horn, 2019).

Additionally, the applicant for each individual project may be required to pay development impact fees (per California Government Code Section 66000 et. seq. (AB 1600)) in accordance

with the most recent Madera County Fire Marshal Fee Schedule. These fees would provide for new facilities, equipment and staffing. This fee would be determined through an agreement between the applicant and the MCFD.

Significance Determination before Mitigation: Significant

Program Cumulative Impact Analysis

The implementation of the cumulative growth identified in Table 3.0-2 in Section 3.0-2 would increase the demand for police and fire protection services that may require additional police and fire facilities. Based on a discussion with Sheriff Jay Varney, the implementation of future growth through 2035 would increase the demand for police services that would require the construction of a new police facility or a modification of the existing facility. Therefore, cumulative projects could result in environmental impacts from construction. Because the proposed Program would result in the demand for an additional 12.4 deputies, this increase in the number of deputies to serve the future residents would contribute to the increased demand for other sheriff personnel to adequately serve the approximately 52,000 additional residents projected to reside within Madera County by 2035. Each cumulative project, including the Specific Plan Program, would be required to provide resources necessary to fund the hiring of additional deputies and the construction of facilities; however, the construction of new or modified facilities could result in significant environmental impacts. The specific locations of the future sheriff's facilities are not known at this time. As a result, the proposed Program's contribution to environmental impacts from future construction of facilities due to the increased cumulative demand for sheriff facilities could be cumulatively considerable.

The implementation of cumulative projects would require the construction of new fire facilities to adequately serve the growth from future projects. The construction of these new fire facilities could result in significant cumulatively environmental impacts. A new fire station facility would be constructed within the Program site. Because a new fire facility would be constructed on the Program site and on Important Farmland, potential significant agricultural impacts would occur. Therefore, the proposed Program's contribution to environmental impacts from the future construction of fire facilities would be cumulatively considerable.

Significance Determination before Mitigation: Significant (Police and Fire Protection Services)

Program Mitigation Measures

No mitigation measures are required for police protection and no feasible mitigation measures have been identified for impacts associated with physical expansion of fire protection facilities.

Significance Determination after Mitigation: No Impact (Police Protection Services) and Significant and Unavoidable (Fire Protection Services)

Program Cumulative Measures

No feasible mitigation measures have been identified for impacts associated with physical expansion of police protection or fire protection facilities.

Significance Determination after Mitigation: Significant and Unavoidable (Police and Fire Protection Services)

Because the specific locations of the future sheriff's facilities are not known, construction of these future sheriff facilities could result in significant environmental impacts; however, specific measures are not known at this time to reduce the potential environmental effects. As a result, the proposed Program's contribution to environmental impacts from future construction of facilities due to the increased cumulative demand for sheriff facilities would remain cumulatively considerable.

As discussed above, there are no feasible mitigation measures available to offset the conversion of Important Farmland to urban uses such as a new fire facility. This loss is consistent with the loss of agricultural land that was planned for the site with the approval of the Madera County Resolution 2014-012 to change the General Plan designation on the Specific Plan Program site from Agriculture – Exclusive to New Growth Area. Even though the site where the future fire facility is planned for future urban growth, the Program's contribution to cumulative environmental impacts from the construction of new fire facilities would remain cumulatively considerable.

Schools

Impact 3.13-2a: The Phase 1 Project would have less than significant and less than cumulatively considerable physical environmental impacts from construction activities associated with the provision of, or the need for, new school facilities in order to maintain acceptable performance objectives for the school district.

Phase 1 Project Impact Analysis

Implementation of the Phase 1 Project would result in development of 117 units (50 very low density residential and 67 low density residential) and therefore a population increase of approximately 433 people (see Section 4.12 Population), and would increase student enrollment at local schools. As shown in **Table 3.13-4**, based on the MUSD 2014 SFNA pupil-per-home yield (student generation rates), it is anticipated that the Phase 1 Project would generate 73 new students within the MUSD, which is the sole public school service provider for the Phase 1 Project site vicinity (MUSD, 2014). It is assumed that students from the Phase 1 Project would attend Berenda Elementary School, Jack G Desmond Middle School and Madera South High School, which according to Table 3.13-1, have enough capacity to accommodate the 73 students generated by the Phase 1 Project.

TABLE 3.13-4
STUDENTS GENERATED BY THE PHASE 1 PROJECT

School Type (Grades)	Student Generation Rate Applied	Phase 1 Project	
		Residential Units	Students Generated
K-6	0.358 student per unit	117	42
7 and 8	0.093 student per unit	117	11
9 through 12	0.171 student per unit	117	20
Total		**117**	**73**

SOURCE: MUSD, 2014.

NOTE: Individual amounts in the "Students Generated" columns were rounded up to the nearest whole number. The "Total" row provides an aggregate of these individual rounded amounts.

Additionally, as discussed previously under Section 3.13.2, *Regulatory Setting*, payment of SB 50 fees by the Project Applicant is required and is considered by the State, County and MUSD to represent full mitigation to all potential impacts to school services and facilities. With the payment of these fees, the Phase 1 Project impacts on school facilities would be less than significant.

Significance Determination before Mitigation: Less than Significant

Phase 1 Project Cumulative Impact Analysis

Cumulative projects identified in Table 3.0-1 in Section 3.0-2 would have a substantial increase in residential population, resulting in a substantial increase in student population. This cumulative increase in student population within MUSD could result in the need to expand or construct new school facilities within the MUSD service area. In accordance with SB 50, each cumulative project would be required to pay school impact fees and payment of these fees would result in less than significant school facility impacts. Although the Phase 1 Project would increase the number of students at the schools that would serve the Phase 1 Project site; these existing schools have adequate capacity to accommodate the additional students that are projected to be generated. As a result, the Phase 1 Project's contribution to the potential significant cumulative environmental impacts on school facilities would be less than cumulatively considerable.

Significance Determination before Mitigation: Less than Significant

Phase 1 Project Mitigation Measures

No mitigation measures are required.

Significance Determination after Mitigation: Less than Significant

Phase 1 Project Cumulative Measures

No mitigation measures are required.

Significance Determination after Mitigation: Less than Significant

Impact 3.13-2b: The proposed Program would have less than significant and less than cumulatively considerable physical environmental impacts from construction activities associated with the provision of, or the need for, new school facilities in order to maintain acceptable performance objectives for the school district.

Program Impact Analysis

The proposed Program would result in a population increase of 9,918 people (see Section 4.12 Population). Thus, the proposed Program would increase the demand for additional school facilities. As shown in **Table 3.13-5**, based on the MUSD 2014 SFNA student generation rates, it is anticipated that the proposed Program would generate 1,911 new students within the MUSD, which is the sole public school service provider for the Program vicinity (MUSD, 2014).

TABLE 3.13-5
STUDENTS GENERATED BY THE SPECIFIC PLAN PROGRAM

School Type (Grades)	Student Generation Rate Applied	Proposed Program	
		Residential Units	Students Generated
K-6	0.358 student per unit	3,072	1,100
7 and 8	0.093 student per unit	3,072	286
9 through 12	0.171 student per unit	3,072	525
Total		**3,072**	**1,911**

SOURCE: MUSD, 2014.

NOTE: Individual amounts in the "Students Generated" columns were rounded up to the nearest whole number. The "Total" row provides an aggregate of these individual rounded amounts.

Based on Table 3.13-1, there is not adequate capacity at Berenda Elementary School, Jack G Desmond Middle School nor Madera South High School to accommodate the amount of students generated by the proposed Program. Therefore, the implementation of the proposed Program would require the construction of new school facilities to maintain acceptable performance objectives for MUSD.

As discussed in Chapter 2, *Project Description*, of this Draft EIR, a 15-acre site within the Medium Density Residential land use within the Program site is proposed to be available for an elementary school. The school would be owned and operated by the MUSD. The specific location of the school site will be determined between MUSD and the Project Applicant. As required by regulation, payment of SB 50 fees by the applicant is required and is considered by the State, County and MUSD to represent full mitigation to all potential impacts to school services and facilities. With the payment of these fees, the proposed Program's demand for new or altered school facilities and services would be fully mitigated. As such, development of the proposed Program would result in less than significant school facility impacts.

Significance Determination before Mitigation: Less than Significant

Program Cumulative Impact Analysis

Cumulative growth identified in Table 3.0-2 in Section 3.0-2 would have a substantial increase in residential population, resulting in a substantial increase in student population. This cumulative increase in student population within MUSD could result in the need to expand or construct new school facilities within the MUSD service area. In accordance with SB 50, each cumulative project would be required to pay school impact fees and payment of these fees would result in less than significant school facility impacts. Although the proposed Program would result in the generation of 1,911 school-age children and require the construction of new school facilities, the payment of the required school impact fees would reduce the Program's contribution to potential significant cumulative school facility impacts to less than cumulatively considerable.

Significance Determination before Mitigation: Less than Significant

Program Mitigation Measures

No mitigation measures are required.

Significance Determination after Mitigation: Less than Significant

Program Cumulative Measures

No mitigation measures are required.

Significance Determination after Mitigation: Less than Significant

Parks and Other Public Facilities

Impact 3.13-3a: The Phase 1 Project would have less than significant and less than cumulatively considerable physical environmental impacts from construction activities associated with the provision of, or the need for, new or physically altered parks and other public facilities in order to maintain acceptable performance objectives for parks and recreation.

Phase 1 Project Impact Analysis

The Phase 1 Project would result in a population increase of 433 people (see Section 4.12 Population), which could result in an increased need for parks and other public facilities.

Parks

The Phase 1 Project includes the development of an approximately 6.6-acre neighborhood park and additional areas identified as other open space. According to Policy 4.A.4 of the Madera County General Plan, the County strives to achieve and maintain a standard of three acres of improved parkland per 1,000 people. For the Phase 1 Project to achieve consistency with the County policy, the Phase 1 Project would need to provide a minimum of 1.3 new acres of improved parkland to accommodate the projected population growth of 433 people. Because the Phase 1 Project includes an approximately 5-acre neighborhood park, the Phase 1 Project would result in less than significant park impacts.

Libraries

The Phase 1 Project would incrementally increase the demand for library services. However, due to the small population increase of the Phase 1 Project (433 people), the impact on library services is anticipated to be minimal and would not affect the County's ability to provide library services.

The County of Madera had an approximate population of 157,672 in 2018 (U.S. Census, 2019). The Phase 1 Project would be serviced by the Madera County Library Systems. The nearest branch, the Madera County Library, provides residents six-days-a week service, including access to a regional catalog system that allows sharing of resources among a large network of libraries that lend to each other (County of Madera, 2019c). While there would be an increase of 433 additional residents as a result of the Phase 1 Project, the Phase 1 Project would represent an increase of about 0.27 percent in population. In addition, the Madera County Library would utilize the San Joaquin Valley Library System to share resources among a greater collection. Because of the nominal increase in Phase 1 Project population that would demand library services, the implementation of the Phase 1 Project

would not require the construction or expansion of existing library services, and thus the Phase 1 Project would result in a less than significant impact on the County's library services.

Significance Determination before Mitigation: Less than Significant

Phase 1 Project Cumulative Impact Analysis

Cumulative projects identified in Table 3.0-1 in Section 3.0-2 would result in a substantial increase in residential population. This substantial increase could result in the cumulative need to expand or construct new parks and other public facilities within services areas that encompass the Phase 1 Project. Because the Phase 1 Project would provide adequate park facilities and would result in less than significant impacts on library services, the implementation of the Phase 1 Project would result in less than cumulatively considerable impacts on parks and other public facilities impacts.

Significance Determination before Mitigation: Less than Significant

Phase 1 Project Mitigation Measures

No mitigation measures are required.

Significance Determination after Mitigation: Less than Significant

Phase 1 Project Cumulative Measures

No mitigation measures are required.

Significance Determination after Mitigation: Less than Significant

Impact 3.13-3b: The proposed Program could have significant and cumulatively considerable physical environmental impacts from construction activities associated with the provision of, or the need for, new or physically altered parks and other public facilities in order to maintain acceptable performance objectives for parks and recreation.

Program Impact Analysis

The proposed program would result in a population increase of 9,918 people (see Section 4.12 Population), which could result in an increased need for parks and other public facilities.

Parks

The proposed Program includes approximately 71 acres of parks and recreational facilities including 20 acres of neighborhood parks, a 31-acre Central Park with various recreational facilities, a 3-acre community garden, a 3-acre grand promenade, 6 acres of linear pathways, 2 acres of village green, and a 6-acre active adult amenity center. As identified above, Policy 4.A.4 of the Madera County General Plan, the County strives to achieve and maintain a standard of three acres of improved parkland per 1,000 people (County of Madera, 1995). For the Specific Plan Program to achieve the County standard, the proposed Program would need to provide a minimum of 30 acres of improved parkland to accommodate the projected population growth of 9,918 people. Because the Specific Plan Program includes 71 acres of parks and recreational facilities including 51 acres of neighborhood park and the Central Park, the proposed Program

would comply with the Madera County General Plan policy of providing at least 3 acres of parkland per 1,000 residents (population). The proposed Program's provision of 71 acres of parks and recreational facilities, including 51 acres of neighborhood park and Central Park, would not require the construction of additional park facilities. As a result, the proposed Program would result in less than significant park impacts.

Libraries

The County of Madera had an approximate population of 157,672 in 2018 (U.S. Census, 2019). The proposed Program would be serviced by the Madera County Library Systems. The nearest branch, the Madera County Library, provides residents six-days-a week service, including access to a regional catalog system that allows sharing of resources among a large network of libraries that lend to each other (County of Madera, 2019c). While there would be an increase of 9,918 additional residents, the proposed Program would represent an increase of approximately 6 percent in population. In addition, the Madera County Library would utilize the San Joaquin Valley Library System to share resources among a greater collection.

Implementation of the proposed Program would increase the population of the service area for the Madera County Library and would impact the size and services of the library facility. The increase in population would necessitate a proportionate increase in staffing, resources and materials. The increased demand is also anticipated to create a demand for additional library space either at an existing library facility or a new library facility. Although the specific location of the future library facility is not known, construction of a future facility could result in significant environmental impacts. As a result, the proposed Program could result in significant library facility impacts.

Significance Determination before Mitigation: Significant

Cumulative Impact Analysis

Cumulative growth identified in Table 3.0-2 in Section 3.0-2 would result in a substantial increase in residential population. This substantial increase could result in the cumulative need to expand or construct new park and library facilities. Although the specific locations of future park and library facilities are not known, construction of future facilities to serve cumulative growth could result in significant environmental impacts. Because the proposed Program would provide adequate park facilities, the proposed Program's contribution to potential cumulative park impacts would be less than cumulatively considerable. However, because the proposed Program could require the construction of a future library facility, the Program's potential impacts related to library facilities would be cumulatively considerable.

Significance Determination before Mitigation: Significant

Program Mitigation Measures

No feasible mitigation measures have been identified for impacts associated with physical expansion of library facilities.

Significance Determination after Mitigation: Significant and Unavoidable

Because the specific locations of the future library facilities are not known, construction of these future library facilities could result in significant environmental impacts; however, specific measures are not known at this time to reduce the potential environmental effects. As a result, the proposed Program's impact related to library facilities would remain significant and unavoidable.

Program Cumulative Measures

No feasible mitigation measures have been identified for impacts associated with physical expansion of library facilities.

Significance Determination after Mitigation: Significant and Unavoidable

Because the specific locations of the future library facilities are not known, construction of these future library facilities could result in significant environmental impacts; however, specific measures are not known at this time to reduce the potential environmental effects. As a result, the proposed Program's contribution to environmental impacts from future construction of library facilities due to the increased cumulative demand for library facilities would remain cumulatively considerable.

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3.14 Recreation

This section outlines the impacts to recreational facilities as a result of implementing the Project and provides mitigation measures that would reduce these impacts. The analysis in this section is based on the Madera County General Plan and recreational inventories for the County.

3.14.1 Environmental Setting

The County of Madera owns and maintains three park facilities, Courthouse Park, Parksdale Park, and Parkwood Park (Madera County, 2020). Courthouse Park is located in the City of Madera across from the County Government Center and is approximately 3.15 miles south of Phase 1 Project site and 2.64 miles southwest of the Program site. Courthouse Park features include green space in front of the County courthouse, benches, and a monument. Parksdale Park is located within the City of Madera and is approximately 4.7 miles southeast of the Phase 1 Project site and 3.6 miles south of the proposed Program site and includes a soccer field. Parkwood Park is also located in the City of Madera and is approximately 4.93 miles south of Phase 1 Project site and 4.43 miles southwest of the proposed Program site and includes benches, a basketball court, and a playground. Currently, Madera County does not have a Parks and Recreation Department. The County General Plan establishes a standard of three acres of public park for every 1,000 population and encourages private recreation facilities to offset the heavy demand of other public recreation facilities (County of Madera, 1995). As discussed in Section 3.12, *Population and Housing,* unincorporated Madera County had a population of 73,277 in 2017, which would require 220 acres of public parks.

Recreational areas within Madera County include Madera Lake, Hensley Lake, and Eastman Lake. Madera Lake Park and Recreation Area is the closest recreational area to the Project site and includes features such as benches and walking trails overlooking the lake. Madera Lake Park is located approximately 2.1 miles east of the Phase 1 Project site and 1.6 miles east of the Program site.

Hensley Lake includes the Hidden Lake Hensley Lake Recreation Area, Hidden View Campground, and Buck Ridge Day-Use Area. The 1,500-acre lake and its associated recreational activities is located approximately 11.44 miles east of the Phase 1 Project site and 10.64 miles east of the proposed Program site. Hensley Lake's 500-acre wildlife area includes 55 individual camp sites, 2 group camp sites with gazebo picnic shelters, 33 picnic sites, group picnic area with barbecue, tables, and horseshoe pits, a swimming area, fish cleaning station, showers and restrooms. Patrons can enjoy day-use areas, water-skiing, sailing, fishing, and boating as well as visit the visitor center, go hiking, bird watching, hunting, mountain biking, and horseback riding (U.S. Army Corps of Engineers, 2020a).

Eastman Lake and the Eastman Lake Recreation Area are located approximately 14.41 miles northeast of the Phase 1 Project site and 14.15 miles north of the proposed Program site. Eastman Lake has 1,780 surface acres and includes the Codorniz Recreation Area Campgrounds which offers individual and group campsites available year round. Recreational activities include swimming, disc golf, v`olleyball, horseshoe pits, boating, canoeing, hiking, biking, birding,

fishing, and hunting. Amenities of the Eastman Lake and the Codorniz Recreation Area Campgrounds include playgrounds, showers, picnic tables, BBQ, tent pads, fire pits, grills/fire rings, water hookup, electricity hookup, lean to/shelter, accessible occupant message, accessibility, full hookup, sewer hookup, horse stall/corral, horse hitching post, platform, horseshoe pit (U.S. Army Corps of Engineers, 2020b).

Additional recreational facilities surrounding the Project site are associated with the City of Madera. The nearest park to the Project site is operated and maintained by the City of Madera and is the Pan-American Park and Community Center located approximately 1.5 miles south of the Project site. The approximately 4.7-acre park offers a playground, picnic area, barbecue, shade structures, basketball and volleyball courts, horseshoe pits, and restrooms.

The immediate area to the east and north of the Project site is predominantly agricultural land. To the immediate west of the Project site is an existing developed area that consists of residential structures and contains a few vacant lots, but does not contain formal parks or other recreational facilities.

3.14.2 Regulatory Framework

State

Quimby Act

The purpose of the 1975 Quimby Act, pursuant to California Government Code 66477, was to help mitigate the impacts of residential subdivisions by requiring them to dedicate land or pay fees for parkland acquisition. Revenues generated through the Quimby Act cannot be used for the operation and maintenance of park facilities. The Quimby Act was designed to ensure "adequate" open space acreage in jurisdictions adopting Quimby Act standards (i.e., 3-5 acres per 1,000 residents). In 1982, the Quimby Act was substantially amended via AB 1600. The amendments further defined acceptable uses of or restrictions on Quimby funds, provided acreage/population standards and formulas for determining the exaction, and indicated that the exactions must be closely tied (nexus) to a Project's impacts. The calculation of a city's or county's parkland-to-population ratio is based on a comparison of the jurisdiction's population identified in the last federal census to the amount of city-or-county-owned parkland.

Local

Madera County General Plan

The Madera County General Plan (1995) contains a number of applicable goals and policies pertaining to recreational opportunities within the County:

Recreational Resource Goals

Goal 4.A: To designate land for and promote the development and expansion of public and private recreational facilities to serve the needs of residents and visitors.

Goal 4.B: To encourage development of private recreational facilities.

Goal 4.C: To develop a system of interconnected hiking, riding, and bicycling trails and paths suitable for active recreation and transport and circulation.

Recreational Resource Policies

Policy 4.A.1: The County shall ensure that a mechanism is in place to assure the development of new recreational facilities as new residential development occurs.

Policy 4.A.4: The County shall strive to achieve and maintain a standard of three acres of improved parkland per 1,000 people.

Policy 4.A.5: The County shall require the dedication of land and/or payment of fees, in accordance with local authority and state law (e.g., Quimby Act) to ensure funding for the acquisition and development of public recreation facilities. The fees are to be set and adjusted as necessary to provide for a level of funding that meets the actual cost to provide for all of the public parkland and park development needs generated by new development.

Policy 4.A.8: The County shall encourage the development of parks near public facilities such as schools, community halls, libraries, museums, prehistoric or historic sites, and open space areas and shall encourage joint-use agreements whenever possible.

Policy 4.B.1: The County shall encourage development of private recreational facilities to reduce demands on public agencies.

Policy 4.C.1: The County shall encourage the preservation of linear open space along rail corridors and other public easements for future use as trails.

3.14.3 Impacts and Mitigation Measures

Significance Criteria

The criteria used to determine the significance of impacts related to recreation are based on Appendix G of the *CEQA Guidelines*. The proposed Project would result in a significant impact to recreation if it would:

- Increase the use of existing neighborhood and regional parks or other recreational facilities such that substantial deterioration of the facility would occur or be accelerated (see Impact 3.14-1, below);
- Include recreational facilities or require the construction or expansion of recreational facilities which might have an adverse physical impact on the environment (see Impact 3.14-2, below).

Methodology

This analysis is based on a review of public information about parks and recreational facilities within close proximity of the Project site. Potential recreation impacts associated with the Phase 1 Project and proposed Program are evaluated based on the proximity of the Project site to designated recreational facilities. The potential impacts of the Project on recreation and park

resources were evaluated based on whether implementation of the Project could result in increased use of existing recreation and park resources, or whether implementation of the Project could necessitate the construction or expansion of recreation and park facilities.

Impacts Discussion

Increase Use of Recreational Facilities

Impact 3.14-1a: The Phase 1 Project would have less than significant and less than cumulatively considerable park impacts from the increased use of existing neighborhood and regional parks or other recreational facilities such that substantial physical deterioration of the facility would not occur or be accelerated.

Phase 1 Project Impact Analysis

The Phase 1 Project includes an approximately 5-acre neighborhood park and additional areas identified as other open space (Kimley Horn, 2021a). The Phase 1 Project is projected to increase the population of Madera County by 433 new residents after completion. In addition to recreating within the onsite neighborhood park, Phase 1 Project residents are likely to take advantage of the regional facilities such as the campgrounds and other facilities such as the picnic areas, day-use facilities and lakeside beaches.

According to Policy 4.A.4 of the Madera County General Plan, the County strives to achieve and maintain a standard of three acres of improved parkland per 1,000 people (County of Madera, 1995). For the Phase 1 Project to achieve the County standard, the Phase 1 Project would need to provide a minimum of 1.3 new acres of improved parkland to accommodate the projected population growth of 433 people. Because the Phase 1 Project includes an approximately 5-acre neighborhood park, the Phase 1 Project would comply with the Madera County General Plan policy of providing at least 3 acres of parkland per 1,000 residents (population). The Phase 1 Project's provision of the 5-acre neighborhood park would reduce the use and deterioration of existing parkland. Therefore, the implementation of the Phase 1 Project would result in less than significant park impacts.

Significance Determination before Mitigation: Less than Significant

Phase 1 Project Cumulative Impact Analysis

Cumulative development identified in Table 3.0-1 in Section 3.0-2 would increase residential population within Madera County. This cumulative increase in population could increase the use of existing parkland areas. However, as each cumulative project is implemented, Madera County requires either payment of fees, dedication of land for local parks, or a combination of payment of fees and dedication of land to the County pursuant to the development impact fees as outlined in Policy 4.A.5 of the Madera County General Plan. These development fees are in accordance with the Quimby Act, as discussed above and would reduce the cumulative increase of parkland to less than significant. Because the Phase 1 Project would result in less than significant impacts on parkland, the Phase 1 Project's contribution to parkland impacts would be less than cumulatively considerable.

Significance Determination before Mitigation: Less than Significant

Phase 1 Project Mitigation Measures

No mitigation measures are required.

Significance Determination after Mitigation: Less than Significant

Phase 1 Project Cumulative Measures

No mitigation measures are required.

Significance Determination after Mitigation: Less than Significant

Impact 3.14-1b: The proposed Program would have less than significant and less than cumulatively considerable park impacts from the increased use of existing neighborhood and regional parks or other recreational facilities such that substantial physical deterioration of the facility would not occur or be accelerated.

Program Impact Analysis

The proposed Program includes approximately 71 acres of parks and recreational facilities including 20 acres of neighborhood parks, a 31-acre Central Park with various recreational facilities, a 3-acre community garden, a 3-acre grand promenade, 6 acres of linear pathways, 2 acres of village green, and a 6-acre active adult amenity center (Kimley Horn, 2021b). The proposed Program is projected to increase the population of Madera County by 9,918 new residents at buildout. In addition to recreating within the onsite parks and recreational facilities, the specific plan Program residents are likely to take advantage of the regional facilities such as the campgrounds and other facilities such as the picnic areas, day-use facilities and lakeside beaches.

As identified above, Policy 4.A.4 of the Madera County General Plan, the County strives to achieve and maintain a standard of three acres of improved parkland per 1,000 people (County of Madera, 1995). For the Specific Plan Program to achieve the County standard, the proposed Program would need to provide a minimum of 30 acres of improved parkland to accommodate the projected population growth of 9,918 people. Because the Specific Plan Program includes 71 acres of parks and recreational facilities including 51 acres of neighborhood park and the Central Park, the proposed Program would comply with the Madera County General Plan policy of providing at least 3 acres of parkland per 1,000 residents (population). The proposed Program's provision of 71 acres of parks and recreational facilities, including 51 acres of neighborhood park and Central Park, would reduce the use and deterioration of existing parkland. Therefore, the implementation of the Specific Plan Program would result in less than significant park impacts.

Significance Determination before Mitigation: Less than Significant

Program Cumulative Impact Analysis

Cumulative growth identified in Table 3.0-2 in Section 3.0-2 would increase residential population within Madera County. This cumulative increase in population could increase the use of existing parkland areas. However, as each cumulative project is implemented, Madera County requires either payment of fees, dedication of land for local parks, or a combination of payment of fees and dedication of land to the County pursuant to the development impact fees as outlined in Policy 4.A.5 of the Madera County General Plan. These development fees are in accordance with

the Quimby Act, as discussed above, and would reduce the cumulative growth increase of parkland to less than significant. Because the Specific Plan Program would result in less than significant impacts on parkland, the proposed Program's contribution to parkland impacts would be less than cumulatively considerable.

Significance Determination before Mitigation: Less than Significant

Program Mitigation Measures

No mitigation measures are required.

Significance Determination after Mitigation: Less than Significant

Program Cumulative Measures

No mitigation measures are required.

Significance Determination after Mitigation: Less than Significant

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Recreational Facilities Physical Effect on Environment

Impact 3.14-2a: The Phase 1 Project would have no impact and would not contribute to cumulative impacts on recreational facilities that require construction or expansion which might have an adverse physical effect on the environment.

Phase 1 Project Impact Analysis

The Phase 1 Project would increase the population of Madera County by 433 residents by introducing residential units into the Phase 1 Project area. The additional 433 residents would result in a demand for recreational facilities. The Phase 1 Project includes a 5-acre neighborhood park that will include active and passive recreational facilities. The Phase 1 Project also includes other open space with open play areas as well as walking trails. In addition to the onsite recreational facilities, Phase 1 Project residents are likely to take advantage of the regional facilities such as the campgrounds and other facilities such as the picnic areas, day-use facilities and lakeside beaches. Due to proximity, the majority of the Phase 1 Project residents that desire to recreate would utilize the proposed onsite neighborhood park. The implementation of the Phase 1 Project that includes the 5-acre neighborhood park would not require the construction or expansion of existing recreational facilities. Therefore, the Phase 1 Project would not have adverse physical effects on the environment because no additional recreational facilities would be required.

Significance Determination before Mitigation: No Impact

Phase 1 Project Cumulative Impact Analysis

Cumulative development identified in Table 3.0-1 in Section 3.0-2 would increase residential population within Madera County. This cumulative increase in population could increase the use of existing recreational facilities. This increased demand from cumulative projects could require the construction or expansion of recreational facilities that could result in significant physical effect on the environment. Because the Phase 1 Project would include recreational facilities on

the site, the construction or expansion of existing recreational facilities to serve the Phase 1 Project residents would not be required. Therefore, the Phase 1 Project would not contribute to potential cumulative physical effects on the environment from the need for expansion or construction of recreational facilities.

Significance Determination before Mitigation: No Impact

Phase 1 Project Mitigation Measures

No mitigation measures are required.

Significance Determination after Mitigation: No Impact

Phase 1 Project Cumulative Measures

No mitigation measures are required.

Significance Determination after Mitigation: No Impact

Impact 3.14-2b: The proposed Program would have no impact and would not contribute to cumulative impacts on recreational facilities that require construction or expansion which might have an adverse physical effect on the environment.

Program Impact Analysis

The proposed Program would increase the population of Madera County by 9,918 residents by introducing residential units into the proposed Program area. The additional 9,918 residents would result in a demand for recreational facilities. The proposed Program includes active and passive recreation within various locations throughout the Program site. The proposed Program includes neighborhood parks with open play areas; the Central Park with sports fields and courts, open play areas, bike paths, tot lot, and fitness center; the linear park and greenway that includes trails, gardens, play courts, and dog park; the Active Adult Community Center that includes a fitness center, swimming pool, tennis courts, and bocce ball and pickleball courts; and the multi-use open space with open play areas and trails. In addition to the onsite recreational facilities, Specific Plan Program residents are likely to take advantage of the regional facilities such as the campgrounds and other facilities such as the picnic areas, day-use facilities and lakeside beaches. Due to proximity, the majority of the Specific Plan Program residents that desire to recreate would utilize the proposed onsite recreational facilities. The implementation of the proposed Program that includes various active and passive recreational facilities would not require the construction or expansion of recreational facilities. Therefore, the Specific Plan Program would not have adverse physical effects on the environment because no additional recreational facilities would be required.

Significance Determination before Mitigation: No Impact

Program Cumulative Impact Analysis

Cumulative growth identified in Table 3.0-2 in Section 3.0-2 would increase residential population within Madera County. This cumulative increase in population could increase the use of existing recreational facilities. This increased demand from cumulative projects could require

the construction or expansion of recreational facilities that could result in significant physical effect on the environment. Because the Specific Plan Program would include recreational facilities on the site, the construction or expansion of existing recreational facilities to serve the Specific Plan Program residents would not be required. Therefore, the proposed Program would not contribute to potential cumulative physical effects on the environment from the need for expansion or construction of recreational facilities.

Significance Determination before Mitigation: No Impact

Program Mitigation Measures

No mitigation measures are required.

Significance Determination after Mitigation: No Impact

Program Cumulative Measures

No mitigation measures are required.

Significance Determination after Mitigation: No Impact

3.14.4 References

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U.S. Army Corps of Engineers. 2020a. Recreation at Hensley Lake. Available at: https://www.spk.usace.army.mil/Locations/Sacramento-District-Parks/Hensley-Lake/. Accessed on January 30, 2020.

U.S. Army Corps of Engineers. 2020b. Recreation at H.V. Eastman Lake. Available at: https://www.spk.usace.army.mil/Locations/Sacramento-District-Parks/Eastman-Lake/. Accessed on January 30, 2020.

3.15 Transportation and Traffic

This section of the Draft EIR assesses the Project's impacts on transportation. The analysis includes a summary transportation information provided in Appendix K of this Draft EIR. The Vehicle Miles Traveled (VMT) Analysis that was prepared for the Castellina Specific Plan by Kimley Horn in May 2021 is included as Appendix K-1 of this Draft EIR. The Site Distance Review was prepared by Kimley Horn in May 2019 and is provided in Appendix K-2. The Secondary Access Plan prepared by Kimley Horn in July 2019 is provided in Appendix K-3. Although the Transportation Analysis Report (TAR) that includes Project and cumulative traffic volumes and levels of service is a primary source of base information for the air quality, greenhouse gas and noise analyses, the Project generated traffic volumes are summarized in this section. The TAR is provided in Appendix C-4 of this Draft EIR.

In 2013, the California state legislature, in approving SB 743, directed the Office of Planning and Research to develop guidelines for assessing transportation impacts based on VMT. In response to SB 743, the CEQA Guidelines were amended in 2018 to incorporate the requirements of SB743 and generally describe the methods by which lead agencies are to evaluate a project's transportation impacts. As described in CEQA Guidelines Section 15064.3(a):

> *Generally, vehicle miles travelled is the most appropriate measure of transportation impacts. For the purposes of this section, "vehicle miles traveled" refers to the amount and distance of automobile travel attributable to a project. Other relevant considerations may include the effects of the project on transit and non-motorized travel. Except as provided in subdivision (b)(2) below (regarding roadway capacity), a project's effect on automobile delay shall not constitute a significant environmental impact.*

The amended CEQA Guidelines set forth the criteria for analyzing transportation impacts, acknowledging that lead agencies will need to adjust to these new requirements and providing ample flexibility about how such an analysis would be conducted. The amendments require that CEQA lead agencies may no longer consider traffic congestion levels of service to be a CEQA impact and require consideration of alternative metric, such as vehicle miles traveled (VMT) for assessing a project's transportation impacts.

The reason for these changes, in short, is to acknowledge that traditional operational or engineering solutions to traffic congestion that focus on accommodating the automobile – such as roadway widening – lead to unintended consequences. Inefficient land use, more miles traveled, exacerbated air pollutant and greenhouse gas emissions and secondary effects of constructing roadway projects are part of the rationale behind SB 743. The state has therefore taken a bold step to pivot away from automobile-centered land planning, and to promote planning decisions and other trip reduction measures intended to reduce reliance on individual automobile trips in the course of daily living.

Understanding how the local roadway network functions from an engineering standpoint is still critical to local land use agencies to monitor traffic flow, identify safety issues, establish fees and manage congestion. However, for the purposes of evaluating environmental impacts under

CEQA, the new regulations have removed congestion from the range of required subjects analyzed within CEQA documents. In a similar way, and for different reasons, parking requirements were removed from the CEQA Guidelines several years ago.

Although this chapter of the EIR contains a VMT analysis and has been prepared based on these new requirements, additional information from the TAR regarding the Project's trip generation and predicted trip distribution on the roadway network is provided as well. However, this analysis is provided for informational purposes only, as additional delay – to an intersection or roadway segment – can no longer be considered a significant impact under CEQA.

3.15.1 Existing Setting

Roadway System Characteristics

The roadway system in the Project vicinity includes local roadways as well as freeway facilities. Following are the characteristics of each of the roadway facilities.

State Route 99 provides access to Kern County and Bakersfield in the south and to Sacramento and Redding in the north. State Route (SR) 99 runs parallel to I-5 and provides major freeway access to the Central Valley. SR 99, in the County and City of Madera, currently has four lanes (two lanes in each direction) with a posted speed limit of 65 miles per hour.

State Route 145 (Yosemite Avenue) provides direct access to the downtown area of the City of Madera. It is a two-lane east-west roadway that extends from SR 99 in the City of Madera to SR 41 in Madera County. SR 145 extends south and east of the Project site. SR 145 is planned to be a four-lane arterial in the 2014 Madera County Transportation commission (MCTC) Regional Transportation Plan and Sustainable Communities Strategy (RTP/SCS).

Avenue 17 is an east-west, two-lane road that extends from farmland west of Road 23 to the rail line near the southwest corner of the Project. Avenue 17 is in the jurisdiction of the City of Madera from Road 23 to approximately Walden Drive east of the SR 99 ramps. Avenue 17 falls within the City of Madera's sphere of influence as part of the Madera Loop. Avenue 17 provides access to the Madera Municipal Airport as well as SR 99. Avenue 17 will provide access to the Castellina Development the rail overcrossing construction is complete. Avenue 17 has been identified in the 2014 MCTC RTP as planned improvement project, it is expected to increase from a two-lane to four-lane road by 2035. The SR 99 and Avenue 17 interchange is also expected to undergo improvements and widening of structure by 2025. The posted speed limit is 50 miles per hour in the Project vicinity.

Avenue 21 is an east-west, two-lane county road that is located approximately 3 miles north of the Castellina Development. It primarily provides access to farmland north of the Project site and becomes Avenue 20 ½ in the west and Raymond Road in the east. It is approximately 3 miles long.

Road 26 (Country Club Drive) is a north-south, arterial road within the City that extends from the SR 99 ramps in the south to farmland in the north. Road 26 is a four-lane arterial south of

Avenue 17 and a two-lane roadway north of Avenue 17. The posted speed limit within the City is 40 miles per hour.

Road 27 (Lake Street) is a north-south roadway that extends from the City south of the Project to farmland north of the Project. Road 27 is a two-lane road north of Ellis Street, a three-lane road (1 southbound and 2 northbound) south of Ellis Street to Adell Street, a four-lane road between Adell Street and Cleveland Avenue, and a two-lane road south of Cleveland Avenue. Lake Street from 4th Street to Cleveland has been identified in the MCTC RTP as planned improvement project for 2016, it is expected to increase from a two-lane to four-lane road.

Road 28 ½ (Raymond Road) is a north-south two-lane roadway that extends from farmland northeast of the Project to East Cleveland Ave. Road 28 ½ would serve as a secondary route used by Castellina Development residents and the posted speed near Cleveland Avenue is 25 miles per hour.

Melba Drive is a two-lane local residential road that extends from Schmidt Creek Way to Avenue 17 and provides access to the homes located north of Avenue 17. The posted speed limit is 25 miles per hour.

Avenue 15 ½ (Cleveland Avenue, Tozer Street) is an east-west, arterial city road extending from east of Raymond Road where it becomes Tozer Street to County Club Drive, where it also known as Cleveland Avenue. Avenue 15 ½ is a two-lane, divided road except for a short segment near Country Club Drive, where it is a four-lane road. The posted speed limit is 45 miles per hour west of Granada Drive 40 miles per hour east of Granada Drive. Cleveland Drive has been identified by the 2014 MCTC RTP as a planned improvement project, Cleveland Drive from Sharon to Tozer will be restriped to four lanes (two lanes in each direction). This project is expected to be completed in 2025.

Gateway Drive is a north-south roadway. Gateway Drive runs parallel to SR 99. It extends from Avenue 16 in the north to Almond Avenue to the South. The posted speed limits vary from 35 to 45 miles per hour in the study area. Gateway Drive has been identified by the 2014 MCTC RTP as a planned improvement project, Gateway Drive from Cleveland to SR 145/ Yosemite Ave will be widened from two to four lanes (two lanes in each direction). This project is expected to be completed in 2027.

Area Intersections Characteristics

Avenue 18 / Road 27 (Primary Entry) This is a three-legged, side-street stop controlled (SSSC) intersection. No marked pedestrian crosswalks exist at this intersection.

Road 28 ½ / Avenue 17 This is a four-legged, SSSC intersection (the west leg is a driveway to private residence). No marked pedestrian crosswalks exist at this intersection.

Road 27 / Avenue 17 This is a four-legged, SSSC intersection. No marked pedestrian crosswalks exist at this intersection.

Road 26 / Avenue 17 This is a four-legged, signal controlled intersection. Marked pedestrian crosswalks exist on all four legs at this intersection.

Melba Drive East / Avenue 17 This is a three-legged, SSSC intersection. No marked pedestrian crosswalks exist at this intersection.

SR 99 NB On-Off Ramps / Avenue 17 This is a four-legged, SSSC intersection. The south leg (diagonal off ramp) provides access to northbound SR 99 vehicles exiting the freeway. The north leg (diagonal on ramp) provides access to Avenue 17 vehicles accessing northbound SR 99. No marked pedestrian crosswalks exist at this intersection.

SR 99 SB On Ramps / Avenue 17 This is a four-legged, uncontrolled intersection. The north leg (loop on ramp) provides southbound SR 99 access to vehicles traveling west on Avenue 17. The south leg (diagonal on ramp) provides southbound SR 99 access to vehicles traveling east on Avenue 17. No marked pedestrian crosswalks exist at this intersection.

SR 99 SB Off Ramp / Avenue 17 This is a three-legged, SSSC intersection. The north leg (diagonal ramp) provides access to Avenue 17 for vehicles exiting southbound SR 99. No marked pedestrian crosswalks exist at this intersection.

Tremain Avenue / Road 27 This is a three-legged, SSSC intersection. No marked pedestrian crosswalks exist at this intersection.

Ellis Street/ North Lake Street This is a four-legged, All-Way Stop Controlled (AWSC) intersection. Marked pedestrian crosswalks exist on four legs at this intersection.

Adell Street / North Lake Street This is a four-legged, (AWSC) intersection. Marked pedestrian crosswalks exist on all four legs at this intersection.

Sherwood Way / North Lake Street This is a four-legged, SSSC intersection. Marked pedestrian crosswalks exist on the east and west legs of this intersection.

East Cleveland Avenue / North Lake Street This is a four-legged, signal controlled intersection. Marked pedestrian crosswalks exist on all four legs at this intersection.

West Cleveland Avenue / Country Club Drive This is a three-legged, signal controlled intersection. Marked pedestrian crosswalks exist on the north and south legs at this intersection.

West Cleveland Avenue / North Gateway Drive This is a four-legged, signal controlled intersection. Marked pedestrian crosswalks exist on the north and west legs at this intersection.

West Cleveland Avenue / SR 99 NB On-Off Ramps This is a four-legged, signal controlled intersection. The south leg (diagonal off ramp) provides access to West Cleveland Avenue for northbound SR 99 vehicles exiting the freeway. The north leg (diagonal on ramp) provides access to West Cleveland Avenue vehicles accessing northbound SR 99. Marked pedestrian crosswalks exist on the north and south legs of this intersection.

West Cleveland Avenue / SR 99 SB On-Off Ramps This is a four-legged, signal controlled intersection. The north leg (diagonal off ramp) provides access to southbound SR 99 vehicles exiting the freeway. The south leg (diagonal on ramp) provides access to West Cleveland Avenue vehicles accessing southbound SR 99. Marked pedestrian crosswalks exist on the north and south legs of this intersection.

SR 145 / North-South Lake Street This is a four-legged, signal controlled intersection. Marked pedestrian crosswalks exist on all four legs of this intersection.

SR 145 / North Gateway Drive This is a four-legged, signal controlled intersection. Marked pedestrian crosswalks exist on all four legs of this intersection.

Club Drive / Road 27 This is a three-legged, SSSC intersection. No marked pedestrian crosswalks exist at this intersection.

Avenue 21 / Road 27 Driveway This is a three-legged, SSSC intersection. No marked pedestrian crosswalks exist at this intersection.

Avenue 21 / Road 28 ½ This is a four-legged, SSSC intersection. No marked pedestrian crosswalks exist at this intersection.

East Cleveland Avenue-Tozer Street / Raymond Road This is a three-legged, signal controlled intersection. Marked pedestrian crosswalks exist on the north and west legs of this intersection.

Club Drive / Road 26 This is a three-legged, SSSC intersection. No marked pedestrian crosswalks exist at this intersection.

SR 145 (Yosemite Avenue) / Elm Street This is a three-legged, SSSC intersection. A marked pedestrian crosswalk exists on the north leg.

Existing Pedestrian and Bicycle Facilities

Weekday intersection turning movement volumes for the existing study intersections, not including the future Project driveways, were collected for the peak periods on the study roadways on Tuesday, June 2, 2015 (intersections #1, #5-#10, and #13-#24), Wednesday, June 3, 2015 (#11), and Thursday, October 5, 2017 (#4, #12, and #25-#29). These counts included vehicles, bicycles, and pedestrians. Volumes for intersections were collected during the AM and PM peak periods of 7:00-9:00 AM and 4:00-6:00 PM, respectively.

Pedestrian Facilities

The roadway network in the Project area is rural and within ¼ mile of the Project, no sidewalks exist, and there is no connectivity to the County or City's pedestrian network.

Existing pedestrian facilities closest to the Project site are approximately 1.5 miles southwest of the Project site, on the north and east frontages of the Jack G. Desmond Middle School.

Bicycle Facilities

The rural nature of much of the immediate area's roadways generally requires that bicycles share the roadways with motor vehicles. No Class I or III bikeway facilities exist within one mile of the Project site. The closest existing Class II bike facilities to the Project site is located along N. Lake Street south of Ellis Street approximately 0.75 mile west of the Project site. The nearest proposed bike facilities are discussed below:

Class I facilities are paved bicycle paths that are physically separated from the vehicular travel lane. The nearest proposed Class I bike facility is located along Road 26 north of Avenue 17.

Class II facilities, which are striped bike lanes along the street, are generally found in the existing urbanized area of the City. The County Bike Plan includes proposed Class II bike lanes along Avenue 17, Road 26, and Ellis Street. Shoulders are available to provide these bike facilities.

Class III bicycle facilities are bike routes denoted by signs that are shared with vehicles along the roadway. Class III bicycle facilities are proposed along portions of Road 26, State Route 145, and Avenue 21. The closest planned Class III bike route is approximately two miles northwest of the Project site on Road 26.

Existing Transit Service

Both the County and City of Madera have a regional bus transit system that residents use. The City also provides a Dial-a-Ride service. Since the existing site and surrounding area is primarily undeveloped, no bus services are currently provided to the Project site or in its immediate vicinity. Bus stops for the various routes and services are in the downtown area approximately three miles southwest of the Project site and provided below.

Madera County Connection (MCC)

The County of Madera operates three fixed-route bus lines, through the Madera County Connection System, which is a regional and intercity fixed route bus transit service. MCC runs Monday through Friday except for legal holidays. The three routes operated by MCC are the Eastern Madera County - Madera Route, the Chowchilla – Fairmead - Madera route and the Eastin Arcola - Ripperdan - La Vina route.

The **Eastern Madera County - Madera** route runs from the Valley Children's Hospital to Downtown Madera via Avenue 12 and SR 99. It connects to Eastern Madera, Yosemite Lakes, Coarsegold, Oakhurst, Bass Lake, North Fork and South Fork via SR 145. This route connects to the Fresno Area Express at the Valley Children's Hospital. It operates Monday through Friday from 5:51 a.m. to 8:52 p.m., except legal holidays.

The **Chowchilla-Fairmead-Madera** route connects Chowchilla to Madera via SR 99. This route connects to the CATLinX Area Express which connects to Merced at the Countrywood Shopping Center and Downtown Chowchilla. This route operates Monday through Friday from 7:00 a.m. to 6:49 p.m., except legal holidays

The **Eastin Arcola-Ripperdan-La Vina** route runs from Downtown Madera to Eastin Arcola High School via SR 99 to Ripperdan via Avenue 7, La Vina via Road 24 and returns to Downtown Madera via Avenue 12. This route operates Monday through Friday from 8:45 a.m. to 2:06 p.m., except legal holidays.

Madera Area Express (MAX)

MAX is a City operated fixed route transit service. offering two bus routes. Operating hours are from 7:00 a.m. to 6:46 p.m., Monday through Friday, excluding six legal holidays; and 9:00 a.m. to 4:10 p.m. on Saturdays. MAX does not operate on Sundays or legal holidays.

Route 1 provides service to the Madera Community Hospital, Walmart on Cleveland, the Madera County Complex, and throughout central Madera via SR 145, Cleveland, Avenue 13, Road 28/Tozer, and other various City roads. It operates from 7:00 a.m. to 6:46 p.m., Monday through Friday; and 9:07 a.m. to 4:13 p.m. on Saturdays.

Route 2 provides service to the Madera Community Hospital, Walmart on Cleveland, and throughout central Madera via Granada, Sunset, Schnoor, Avenue 13, Road 28/Tozer, and other various City roads. It operates from 7:00 a.m. to 5:54 p.m., Monday through Friday; and 9:00 a.m. to 3:42 p.m. on Saturdays.

Park and Ride Facilities

Park and Ride facilities are areas where users of public transit or carpoolers may drive and park their vehicles, then use public transit or carpooling to commute. The vehicles are usually parked at the facility during the day and retrieved when the commuter returns.

The closest Park and Ride facilities to the Project Area are located at the Southwest corner of SR 145/SR 41 intersection. It has 17 parking spaces.

3.15.2 Regulatory Framework

State

Senate Bill 743 and CEQA Guidelines for Transportation Analysis

Senate Bill 743 mandated that CEQA review of transportation impacts of proposed development projects no longer be based on delay and capacity methods such as delay and level of service and instead use another methodology. As a result of SB 743, the CEQA Guidelines were amended in 2018 requiring that traffic congestion no longer be considered a CEQA impact and that impact methodology based on vehicle miles traveled (VMT) or similar metric be used for CEQA transportation analysis

Madera County General Plan Transportation and Circulation Element

The Transportation and Circulation Element is one of the elements of the County of Madera General Plan and governs the long term mobility system of the County of Madera. The goals and policies in this element are closely correlated with the Land Use Element and provide multimodal transportation systems for balancing the County's growth and land use development.

Madera County Transportation Commission Active Transportation Plan

The Active Transportation Plan (ATP) is a comprehensive document outlining the future of walking and bicycling in Madera County. The ATP is a guidance document with the ultimate vision of a connected network of trails, walkways, and bikeways that provide safe, convenient, and enjoyable connections to key destinations and recreational opportunities around the County.

3.15.3 Impacts and Mitigation Measures

Significance Criteria

For the purposes of this EIR and consistent with Appendix G of the *CEQA Guidelines*, the proposed Project would have a significant impact on transportation and traffic if it would:

- Conflict with a program plan, ordinance or policy addressing the circulation system, including transit, roadway, bicycle and pedestrian facilities (see Impact 3.15-1 below);
- Conflict or be inconsistent with CEQA Guidelines section 15064.3, subdivision (b) (see Impact 3.15-2 below);
- Substantially increase hazards due to a geometric design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment) (see Impact 3.15-3 below);
- Result in inadequate emergency access (see Impact 3.15-4 below);

Methodology

This section summarizes the methodologies used to perform the traffic analyses.

Transportation Goals and Policies

The analysis addresses potential conflicts with an adopted program, plan, or policy addressing the transportation system including transit, roadways, bicycle, and pedestrian facilities. The focus is on the goals and policies adopted to protect the environment and those that support multimodal transportation options and a reduction in VMT. A project would result in a conflict if it would preclude the County from implementing adopted transportation-related programs, plans, goals and policies. A significant impact would occur if precluding implementation of a given program, plan, goal or policy would foreseeably result in a physical impact on the environment.

Vehicle Miles Traveled

Madera County has not adopted a County-wide VMT analysis methodology or thresholds. Therefore, the analysis in this Draft EIR utilizes methodology as recommended in the California Office of Planning and Research (OPR) December 2018 *Technical Advisory on Evaluating Transportation Impacts in CEQA*. In accordance with the recommended practice on page 6 of the OPR Technical Advisory, land uses have been analyzed separately with an allowance made for taking any appropriate internal capture. For residential and office uses, the Madera County Travel Demand Model (MCTDM) (Madera County Transportation Commission, 2020) was used as the principle tool to determine VMT. The MCTDM includes a VMT tool to assess residential and work based VMT by Traffic Analysis Zones (TAZ). Due to the addition of this tool, the most

recent version of the model was used for this analysis. For the retail, elementary school, and recreational uses, a qualitative analysis was conducted.

Geometric Design Feature or Incompatible Use Hazards

A review of vehicle access and site distance is conducted for the Project. Except for the Project entrance at Road 27, each of the entrances include relatively flat terrain and no hazards related to geometric design are expected. At the Road 27 entrance, there will be a bridge over the railroad tracks that could result in a roadway hazard. The American Association of State Highway and Transportation Officials (AASHTO) methodology was used to determine the sight distance needed based on physical conditions and vehicle speeds for reaction time and braking.

Emergency Access

For emergency access impacts, a review is conducted for Project access points along adjacent roadways and determine if adequate emergency access is provided. The analysis considers the physical conditions of the Project site and surrounding area. Also, a determination is made as to whether the Project would preclude adequate emergency access within the adjacent roadway network.

Impacts Discussion

Transportation Goals and Policies

Impact 3.15-1a: Implementation of the Phase 1 Project would have less than significant and less than cumulatively considerable impacts on a program plan, ordinance or policy addressing the circulation system, including transit, roadway, bicycle and pedestrian facilities.

Phase 1 Project Impact Analysis

A consistency analysis of the Phase 1 Project with the relevant Madera County Transportation and Circulation goal and policies and the Madera County Transportation Commission ATP is provided in **Table 3.15-1**, below.

TABLE 3.15-1
MADERA COUNTY TRANSPORTATION GOALS AND POLICIES CONSISTENCY ANALYSIS (PHASE 1 PROJECT)

Goal/Policy	Statement of Consistency, Non-Consistency, or Not Applicable
General Plan Transportation and Circulation	
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.	**Consistent.** The Phase 1 Project includes a sidewalk and trail along the Parkway entry to support pedestrian and bicycle modes of transport while providing vehicular access to Phase 1. The neighborhoods include a shared vehicular and bicycle lane that is wide enough to accommodate both travel modes. The Phase 1 Project is consistent with this goal.
Policy 2.A.1: The County shall encourage, where appropriate, development of an integrated, multi-modal transportation system that offers attractive choices among modes including pedestrianways, public transportation, roadways, bikeways, rail, and aviation.	**Consistent.** The Phase 1 Project includes a circulation network that provides both vehicular and non-vehicular mobility designed to allow the efficient and safe movement of people into and out of the Phase 1 Project area. Streets are proposed to be designed for multiple modes of transportation, including walking, bicycling, or automobiles. The Phase 1 Project would be consistent with this policy.

Goal/Policy	Statement of Consistency, Non-Consistency, or Not Applicable
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.	**Consistent.** The Phase 1 Project area includes design elements that would reduce VMT by including a park that residents can walk or bike. The Phase 1 Project would be consistent with this policy.
Policy 2.A.5: The County shall require that transportation systems and improvements planned and constructed in designated new growth areas provide links to transportation systems outside the new growth area and address impacts on transportation facilities outside the new growth area.	**Consistent.** The Phase 1 Project is directly linked to the existing circulation network at Road 27 (Minor Arterials/Collector). Based on the Site Distance Review provided in Appendix K-2, the Project Entry Road/Road 27 intersection is adequately setback from the Road 27 overpass at the railroad. The Phase 1 Project would be consistent with this policy.
Active Transportation Plan	
Goal 1: Expand pedestrian and bicycle access throughout Madera County for both visitors and residents.	**Consistent.** The Phase 1 Project includes a pedestrian and bicycle path along the Project Entry Road as well as paths/sidewalk facilities within the two proposed residential neighborhoods. These paths and sidewalks would provide access for both visitors and residents. The Phase 1 Project would be consistent with this policy.
Policy 1.3: Increase the miles of pedestrian and bicycle facilities across Madera County	**Consistent.** With the provision of bicycle and pedestrian paths and trails within the Phase 1 Project area, there will be an increase in the number of miles of pedestrian and bicycle facilities within the County. The Phase 1 Project would be consistent with this policy.
Goal 3: Increase walking and bicycling in Madera County.	**Consistent.** With the provision of pedestrian and bicycle facilities within the Phase 1 Project area, the Phase 1 Project will encourage non-motorized travel onsite.
Policy 3.1: Increase the number of commute trips made by walking or bicycle across Madera County.	**Consistent.** The Phase 1 Project includes pedestrian and bicycle facilities that would encourage pedestrian travel and biking between residential areas as well as between residential areas and the onsite park. The Phase 1 Project would be consistent with this policy.
Policy 3.2: Increase recreational use of bicycle and pedestrian facilities across Madera County.	**Consistent.** Through the provision of the onsite park, the Phase 1 Project would increase the recreational use of bicycle and pedestrian facilities within the Phase 1 Project site. The Phase 1 Project would be consistent with this policy.

As discussed above, the implementation of the Phase 1 Project would be consistent with the relevant Madera County transportation goals and policies. Therefore, implementation of the Phase 1 Project would result in less than significant transportation goals and policy impacts.

Significance Determination before Mitigation: Less than Significant

Phase 1 Project Cumulative Impact Analysis

Cumulative projects located in the general vicinity of the Phase 1 Project could, along with the Phase 1 Project, result in cumulative transportation impacts related to goals and policies. However, such impacts would not lead to significant physical effects on the environment that are cumulative in nature because all future projects that develop within the area of the Phase 1 Project would be subject to the existing adopted Madera County transportation goals and policies. Therefore, cumulative land use impacts would be less than significant.

The Phase 1 Project does not conflict with the Madera County transportation goals and policies. Therefore, the Phase 1 Project's contribution to potential cumulative transportation goal and policy impacts would be less than cumulatively considerable.

Significance Determination before Mitigation: Less than Significant

Phase 1 Project Mitigation Measures

No mitigation measures are required.

Significance Determination after Mitigation: Less than Significant

Phase 1 Project Cumulative Mitigation Measures

No mitigation measures are required.

Significance Determination after Mitigation: Less than Significant

Impact 3.15-1b: Implementation of the proposed program would have less than significant and less than cumulatively considerable impacts on a program plan, ordinance or policy addressing the circulation system, including transit, roadway, bicycle and pedestrian facilities.

Program Impact Analysis

A consistency analysis of the Specific Plan Program with the relevant Madera County Transportation and Circulation goal and policies and the Madera County Transportation Commission ATP is provided in **Table 3.15-2**, below.

TABLE 3.15-2
MADERA COUNTY TRANSPORTATION GOALS AND POLICIES CONSISTENCY ANALYSIS
(SPECIFIC PLAN PROGRAM)

Goal/Policy	Statement of Consistency, Non-Consistency, or Not Applicable
General Plan Transportation and Circulation	
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.	**Consistent.** The Specific Plan Program includes a comprehensive transportation system that would provide opportunities to travel by various modes including pedestrian, bicycle, and motorized vehicles. The circulation system is designed to allow the efficient and safe movement of people through the provision of hierarchical street system that has multi-modal opportunities. The Program includes working with Madera County Connection, that provides service within Madera County through a Commuter Fixed-Route System. The Specific Plan Program includes at least one bus stop with a bus shelter in the Town Center area. If there is a demand, an additional bus stop with bus shelter will be provided at the Active Adult Community. The location of these transit locations will be coordinated with the Madera County Connection. The onsite transit locations would enhance the mobility of people within the Specific Plan Program area to travel to destinations within the County. The Specific Plan Program is consistent with this goal.

Goal/Policy	Statement of Consistency, Non-Consistency, or Not Applicable
Policy 2.A.1: The County shall encourage, where appropriate, development of an integrated, multi-modal transportation system that offers attractive choices among modes including pedestrianways, public transportation, roadways, bikeways, rail, and aviation.	**Consistent.** The Specific Plan Program includes a comprehensive circulation network that provides both vehicular and non-vehicular mobility designed to allow the efficient and safe movement of people. Streets are proposed to be designed for multiple modes of transportation, including walking, bicycling, or driving a local use vehicle or automobile. The proposed network of interconnected pedestrian and bike pathways will provide connections throughout the proposed residential neighborhoods, commercial centers, parks and other open space areas. The Specific Plan Program would be consistent with this policy.
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.	**Consistent.** The Specific Plan Program includes design elements that would reduce VMT to, from, and within the Specific Plan community. These elements include proximity to high speed rail station, a range of housing options and densities, mixed uses, walkable and bikable community, provision of neighborhood electric vehicle lanes, creation of landscaped open space and site amenities, and transit stops within the Specific Plan Program area. The Specific Plan Program would be consistent with this policy.
Policy 2.A.5: The County shall require that transportation systems and improvements planned and constructed in designated new growth areas provide links to transportation systems outside the new growth area and address impacts on transportation facilities outside the new growth area.	**Consistent.** The Specific Plan Program includes a circulation network that would connect to the existing network at Road 27 (Minor Arterials/Collector) and Road 28½ (Minor Arterials/Collector). In addition, the Program includes a connection with the future alignment of Avenue 17 (future Principal Arterial). The Specific Plan Program would be consistent with this policy.
Active Transportation Plan	
Goal 1: Expand pedestrian and bicycle access throughout Madera County for both visitors and residents.	**Consistent.** The Specific Plan Program includes separated off-street bike or multi-use (pedestrian and bicycle) paths, on-street bike lanes and bike routes throughout the Specific Plan area. Pedestrian paths through the provision of sidewalks or trails adjacent to roadways within the Specific Plan area would also be provided. These paths and trails would provide access for both visitors and residents. The Specific Plan Program would be consistent with this policy.
Policy 1.2: Improve safety and access to schools across Madera County	**Consistent.** The Specific Plan Program includes a roadway circulation system that includes loop roads that would help maintain safe travel speeds due to the curvilinear form of the roadway system. The Specific Plan Program would be consistent with this policy.
Policy 1.3: Increase the miles of pedestrian and bicycle facilities across Madera County	**Consistent.** With the provision of bicycle and pedestrian paths and trails throughout the Specific Plan area, there will be an increase in the number of miles of pedestrian and bicycle facilities within the County. The Specific Plan Program would be consistent with this policy.
Goal 3: Increase walking and bicycling in Madera County.	**Consistent.** With the provision of pedestrian and bicycle facilities throughout the Specific Plan area, the Program will encourage the non-motorized travel within the County.
Policy 3.1: Increase the number of commute trips made by walking or bicycle across Madera County.	**Consistent.** The Specific Plan Program includes a network of pedestrian and bicycle paths and trails that would encourage pedestrian travel and biking between residential areas as well as between residential areas and the non-residential areas such as the parks,

Goal/Policy	Statement of Consistency, Non-Consistency, or Not Applicable
	shopping, school, and other community services. The Specific Plan Program would be consistent with this policy.
Policy 3.2: Increase recreational use of bicycle and pedestrian facilities across Madera County.	**Consistent.** Through the provision of various parks and recreational facilities, the Program would provide opportunities to increase the recreational use of bicycle and pedestrian facilities within the Specific Plan area. The Specific Plan Program would be consistent with this policy.
Goal 4.4: Promote Safe Routes to School programming across Madera County.	**Consistent.** The Specific Plan Program includes a circulation network that includes sidewalks and paths that are separated from the roadway surfaces by landscaping. This design would promote Safe Route to School within the Specific Plan. The Specific Plan Program would be consistent with this policy.

As discussed above, the implementation of the Specific Plan Program would be consistent with the relevant Madera County goals and policies. Therefore, implementation of the Specific Plan Program would result in less than significant transportation goals and policy impacts.

Significance Determination before Mitigation: Less than Significant

Program Cumulative Impact Analysis

Cumulative projects located in the general vicinity of the Specific Plan Program could, along with the Specific Plan Program, result in cumulative transportation and circulation impacts related to goals and policies. However, such impacts would not lead to significant physical effects on the environment that are cumulative in nature because all future projects that develop within the area of the Specific Plan Program would be subject to the existing adopted Madera County goals and policies. Therefore, cumulative land use impacts would be less than significant.

The Specific Plan Program does not conflict with the Madera County goals and policies for transportation and circulation. Therefore, the Program's contribution to potential cumulative transportation and circulation goals and policy impacts would be less than cumulatively considerable.

Significance Determination before Mitigation: Less than Significant

Program Mitigation Measures

No mitigation measures are required.

Significance Determination after Mitigation: Less than Significant

Program Cumulative Mitigation Measures

No mitigation measures are required.

Significance Determination after Mitigation: Less than Significant

Vehicle Miles Traveled – Senate Bill 375

Impact 3.15-2a: Implementation of the Phase 1 Project could be inconsistent with CEQA Guidelines section 15064.3, subdivision (b).

Phase 1 Project Impact Analysis

As described in Section 2, the first phase of the Castellina Specific Plan to be developed will be Neighborhoods 1.1 and 1.2, as shown in Figure 2-8, Phase 1 Conceptual Neighborhood Plan in Section 2.6. These two neighborhoods are located at the northwest corner of the Project site. They will include approximately 117 single-family residential lots. An approximately 6.5-acre neighborhood community park will also be constructed on the south side of Neighborhood 1.1. A new entry road will provide access to these two neighborhoods from Road 27. The first phase (module) of the wastewater treatment plant will be constructed between Road 27 and the multi-use open space area, along with storm water storage and detention/retention basins. As shown in **Table 3.15-3**, the Phase 1 Project would generate approximately 1,114 daily, 88 AM and 117 PM peak hour trips.

TABLE 3.15-3
PHASE 1 PROJECT TRIP GENERATION

Land Use District / Land Use	Project Size	Peak Hour Trips		Weekday Daily Trips
		AM	PM	
Residential				
VLDR and LDR / Single Family Detached Housing	117 units	88	117	1,114

NOTES:
VLDR – Very Low Density Residential
LDR – Low Density Residential

SOURCE: Kimley Horn, 2021a.

Although the VMT analysis was prepared for the Specific Plan Program, the methodology is used to determine the VMT impacts associated with the Phase 1 Project. The methodology included the use of the California Governor's Office of Planning and Research (OPR) *Technical Advisory* that identifies the analysis of land uses separately based on residential population and employees. Because the Phase 1 Project primarily includes residences, the residential population was determined.

Based on the VMT analysis, the Phase 1 Project is forecasted to have a population of approximately 363 residents based on a population per unit ratio of 3.1. This population forecast is less than forecasted in Section 3.12 (3.7 persons per unit) because the factor for the VMT analysis was obtained from the MCTDM that contains internal population conversions based on land use type. Therefore, the use of the 3.1 persons per unit is appropriate to be consistent with the methodology provided in the MCTDM. To calculate the VMT per capita, the SB 743 tool within the MCTDM was used. The SB 743 tool was run by selecting the Project's traffic analysis zone (TAZ) and then selecting the residential option to evaluate VMT for the Project. Because the Phase 1 Project is part of the Specific Plan that was evaluated in Appendix K-1, the same

residential VMT per capita ratio of 14.5 is assumed for the Phase 1 Project compared to the Specific Plan Program. Therefore, the Phase 1 Project VMT would be approximately 5,264. The residential VMT per capita ratio of 14.5 exceeds the regional threshold of 8.5 which is 15 percent less than the regional average of 10.0 VMT per capita. Although the Phase 1 Project includes VMT reducing Project design elements such as a walkable community and the provision of nearby recreational opportunities, transportation impacts would remain significant.

The additional land uses within the Phase 1 Project include wastewater treatment plant and recreational land uses. As shown in Table 3.12-6 in Section 3.12, the portion of the wastewater treatment plant that would be constructed as part of the Phase 1 Project would generate approximately 2 employees which would generate a nominal VMT and would result in a less than significant transportation impact. The recreational land use includes the proposed 6.5-acre park. The proposed park would function to meet the needs of the residents within the Phase 1 Project and reduce VMT to recreational facilities compared to the absence of the proposed park which would require residents to increase VMT by traveling to recreational facilities outside of the Specific Plan Program area. Therefore, VMT generated by the wastewater treatment plant and recreational land use would result in less than significant transportation impacts.

Significance Determination before Mitigation: Significant

Phase 1 Cumulative Impact Analysis

Cumulative projects located in the general vicinity of the Phase 1 Project could, along with the Phase 1 Project, result in cumulative transportation impacts due to increases in VMT. Each individual development project is evaluated based on the MCTDM methodology. Because the Phase 1 Project would result in significant transportation impacts due to the increase in VMT, cumulative projects in combination with the Phase 1 Project would result in significant transportation impacts. Therefore, the Phase 1 Project's contribution to cumulative transportation impacts from increases in VMT would be considerable and significant.

Significance Determination before Mitigation: Significant

Phase 1 Project Mitigation Measures

No mitigation measures beyond the VMT reducing project design elements incorporated into the Phase 1 Project are available.

Significance Determination after Mitigation: Significant and Unavoidable

Phase 1 Project Cumulative Measures

No mitigation measures beyond the VMT reducing project design elements incorporated into the Phase 1 Project are available.

Significance Determination after Mitigation: Significant and Unavoidable

Impact 3.15-2b: Implementation of the proposed Program could be inconsistent with CEQA Guidelines section 15064.3, subdivision (b).

Program Impact Analysis

As described in Section 2 of this Draft EIR and shown in Figure 2-3, the Castellina Specific Plan includes the development of a mixed use community that includes single family, multi-family, and mixed-use residential units including an Active Adult Community, commercial mixed-use, elementary school, wastewater treatment plant, recreational uses such as parks, trails, plazas, community gardens, and other open space. The Specific Plan Program would generate approximately 1,114 daily, 88 AM and 117 PM peak hour trips as shown in **Table 3.15-4**.

TABLE 3.15-4
SPECIFIC PLAN PROGRAM TRIP GENERATION

Land Use District / Land Use	Project Size	Peak Hour Trips		Weekday Daily Trips
		AM	PM	
Residential				
VLDR to LDR / Single Family Detached Housing	1,114 units	785	863	9,174
MDR / Single Family Detached Housing	976 units	688	757	8,038
MDR / Residential Condominium/Townhome	172 units	76	90	1,000
HDR / Apartment	264 units	135	164	1,756
VC/MU / Apartment	205 units	105	128	1,364
AA / Senior Adult Housing - Detached	341 units	88	112	1,402
Subtotal: Residential Trips	3,072 units	1,877	2,114	22,734
Commercial and Retail				
VC/MU / General Office Building	27 KSF	67	109	486
VC/MU / Shopping Center	107 KSF	162	627	7,098
Subtotal: Commercial/Retail Trips				
Other				
Neighborhood Parks and Central Park	59 acres	2	6	135
School	800 students	360	120	1,032
Active Adult Center	10 KSF	21	28	338
Subtotal: Other Trips		383	154	1,505
Project Trips Before Reductions		**2,489**	**3,004**	**31,823**
Trip Reductions - Internal Capture Trips		**625**	**302**	**2,863**
Trips External to Specific Plan Program Area		**1,864**	**2,702**	**28,960**

NOTES:

VLDR – Very Low Density Residential
LDR – Low Density Residential
MDR – Medium Density Residential
HDR – High Density Residential
VC/MU – Village Commercial/Mixed Use
AA – Active Adult
KSF – Thousand Square Feet

SOURCE: Kimley Horn, 2021a

As discussed above, the methodology used to determine the VMT impacts associated with the Specific Plan Program included the use of the California Governor's Office of Planning and Research (OPR) *Technical Advisory*. The *Technical Advisory* identifies the analysis of land uses separately based on residential population and employees. As discussed above in the methodology section, the VMT analysis includes a quantitative discussion of residential and office uses and a qualitative analysis of retail, elementary school, and recreational uses. The VMT for the wastewater treatment plant was also qualitatively evaluated.

Based on the VMT analysis, the Specific Plan Program is forecasted to have a population of approximately 8,438 residents based on population per residential unit factors obtained from the MCTDM. The population forecast for the Specific Plan Program is less than forecasted in Section 3.12 because the population factors were obtained from the MCTDM. As stated previously, the MCTDM contains internal population conversions based on land use type, and therefore, the use of the factors identified in the VMT analysis is appropriate to be consistent with the methodology provided in the MCTDM. The VMT analysis also forecasted a total Specific Plan Program employment of 572 jobs. The employment factors developed for the non-residential land uses were from the Institute of Transportation Engineers (ITE) Trip Generation Manual for the majority of the employment generating land uses as well as a student-to-job ratio for the elementary school. The use of the ITE Trip Generation Manual and student-to-job ratio is appropriate to be consistent with the methodology provided in the MCTDM.

To calculate the VMT per capita and VMT per employee produced by the residential and office land uses, the SB 743 tool within the MCTDM was used. The SB 743 tool was run by selecting the Project's TAZ and then, in succession, selecting the residential and employment options to evaluate VMT for the Project. Based on the use of the SB 743 tool, the daily VMT per capita for the Specific Plan Program is 14.5 and the daily VMT per office employee is 3.5. The residential VMT per capita ratio of 14.5 exceeds the regional threshold of 8.5 which is 15 percent less than the regional average of 10.0 VMT per capita. Although the Specific Plan Program includes VMT reducing Project design elements such as a walkable community, a range of housing options and densities, transit stops, and the provision of nearby recreational opportunities, VMT impacts would be significant.

The office VMT per capita of 3.5 per employee does not exceed the regional threshold of 14.4 which is 15 percent less than the regional average of 16.9 VMT per employee. Because the office use would not exceed the regional VMT threshold, less than significant transportation impacts would occur from the proposed office uses.

The additional land uses within the Specific Plan Program include retail, elementary school, wastewater treatment plant and recreational land uses. Page 16 of the Technical Advisory specifically addresses some of the key issues surrounding how a local serving retail store should be evaluated in terms of its VMT impact. As described, the threshold for significance is "a net increase." This means that if a proposed retail use results in additional VMT, it would result in a finding of significance. Local serving retail does not primarily generate new trips when introduced because the trip generation is a response to trips generated primarily by residential uses. Because of this, local-serving retail uses can be presumed to reduce trip lengths when a new

store is proposed. Essentially, the assumption is that someone will travel to a newly constructed local serving store because of its proximity, rather than the proposed retail store fulfilling an unmet need (i.e. the person had an existing need that was met by the retail located further away and is now traveling to the new retail use because it is closer to the person's origin location). This results in a trip on the roadway network becoming shorter, rather than a new trip being added to the roadway network, which would result in an impact to the overall transportation system. Conversely, residential and office land uses often drive new trips given that they introduce new participants to the transportation system. The *Technical Advisory* provides for a general threshold of 50,000 square-feet as an indicator as to whether a retail store can be considered local serving or not. Because the Castellina Specific Plan identifies that no single store within the estimated 107,000 square-feet of retail uses will exceed 50,000 square-feet, a less than significant transportation impact would occur.

Although the *Technical Advisory* does not specifically discuss elementary schools, it does address the approach for analyzing land uses with the attributes of an elementary school:

> *For office projects that feature a customer component, such as a government office that serves the public, a lead agency can analyze the customer VMT component of the project using the methodology for retail development.*

The basic concept behind this analysis approach is that public elementary schools are similar to local retail uses in that they primarily serve pre-existing needs (i.e., they do not generate new trips, instead they meet a demand that will exist irrespective of the elementary school's construction). Based on this, it can be presumed that the introduction of a new elementary school will result in trips being redistributed, potentially resulting in shorter trip lengths when the elementary school opens for service and is geographically located in-between existing elementary schools. Given that the relative number of trips is constant, shorter trip lengths result in a VMT reduction. Essentially, a typical school visit is assumed to occur regardless of the proximity of the facility, but the proximity of the facility will determine the length of that trip and the resultant impact to the overall transportation system. Based on this assessment, this analysis concludes that the elementary school does not have a significant transportation impact.

Based on the Project description of the recreational uses, which are anticipated to include a 10,000 square-foot active adult center and 59 acres of neighborhood parks, it is similarly assumed that they function to meet the reactional needs of the residents and in their absence the need for recreational trips would be fulfilled by destinations further from the site. Accordingly, based on the methodology used for the retail and the elementary school VMT analysis, the Project-related recreational uses are determined to result in a less than significant transportation impact.

As shown in Table 3.12-8 in Section 3.12, the wastewater treatment plant would generate approximately 7 employees which would generate a nominal VMT and would result in a less than significant transportation impact.

Significance Determination before Mitigation: Significant

Program Cumulative Impact Analysis

Cumulative projects located in the general vicinity of the Specific Plan Program could, along with the Specific Plan Program, result in cumulative transportation impacts due to increases in VMT. Each individual development project is evaluated based on the MCTDM methodology. Because the Specific Plan Program would result in significant transportation impacts due to the increase in VMT, cumulative projects in combination with the Specific Plan Program would result in significant transportation impacts. Therefore, the Specific Plan Program's contribution to cumulative transportation impacts from increases in VMT would be considerable and significant.

Significance Determination before Mitigation: Significant

Program Mitigation Measures

No mitigation measures beyond the VMT reducing Project design elements incorporated into the Specific Plan Program are available.

Significance Determination after Mitigation: Significant and Unavoidable

Program Cumulative Measures

No mitigation measures beyond the VMT reducing Project design elements incorporated into the Specific Plan Program are available.

Significance Determination after Mitigation: Significant and Unavoidable

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Geometric Design Feature or Incompatible Use Hazards

Impact 3.15-3a: Construction of the Phase 1 Project would have a less than significant and less than cumulatively considerable hazard impacts due to a geometric design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment).

Phase 1 Project Impact Analysis

Vehicle access to the Phase 1 Project area would be provided by a new driveway entrance at the existing Road 27 and Avenue 18 intersection. The Phase 1 Project driveway would create a new east leg to the intersection. The driveway centerline would be aligned approximately 43 feet south of Avenue 18. The Phase 1 Project entry road would be stop-controlled under interim conditions and signalized under full buildout of the Specific Plan. Road 27 is currently being constructed with an overpass for the future high-speed rail project which would change the roadway profile and impact the sight distance for the proposed Project driveway.

A preliminary stopping sight distance and intersection sight distance analysis was conducted to determine the feasibility of the proposed Project entry road location; refer to Appendix K-2. The sight distance needed under various assumptions of physical conditions and driver behavior is directly related to vehicle speeds and to the resultant distances traversed during perception-reaction time and braking. Stopping sight distance is defined as the sum of reaction distance and braking distance. The reaction distance is based on the reactive time of the driver. The braking

distance is dependent upon the vehicle speed and the coefficient of friction between the tires and roadway as the vehicle decelerates to a complete stop. The sight distance analysis indicates the minimum visibility that is required for an approaching vehicle on Road 27 to stop safely if a vehicle from the proposed Project driveway enters or exists the approaching road. The exiting driver should also have an unobstructed view of the intersection, including any traffic control devices, and sufficient lengths along the intersecting road to permit the driver to anticipate and avoid potential collisions.

Based on the existing traffic control, minimum sight distance was calculated. The minimum stopping sight distance for vehicles driving along Road 27 is 570 feet in the southbound direction at level grade and 683 feet in the northbound direction at a 6 percent downgrade. The minimum intersection sight distance is 665 feet for left turn and 575 feet for right turn assuming minor street grades less than 3 percent (Kimley Horn, 2019a).

Aerial images, street view photos, and Project site plans were used to estimate the available sight distance and departure sight triangles at the proposed Project driveway location. From a 14.5-foot setback from the edge of the travel way, the measured available sight distance at the proposed Project driveway is over 800 feet north and south on Road 27. The proposed Project driveway location satisfied the minimum stopping sight distance required for all approaches on Road 27. Vehicles on Road 27 would have sufficient sight distance to react and stop safely if a vehicle form the proposed Project driveway enters or exists Road 27 (Kimley Horn, 2019a).

The proposed high-speed rail overpass improvement will install a new Midwest Guardrail System (MGS) along Road 27 outside the paved shoulder. These MGS fixtures are typically dimensioned 32 inches (2.67 feet) in height and are shorter than the 3.5-foot object height used in determining sight distance obstructions. Based on the estimated available sight distance and vertical profile of Road 27, it is anticipated that the MGS will not obstruct the minimum sight distance requirements at the proposed Project driveway.

The proposed Project driveway is aligned approximately 43 feet south of the existing Avenue 18 west leg. Due to this offset at the intersection, it is assumed that vehicles on Road 27 wanting to make a northbound left turn onto Avenue 18 will temporarily block vehicles from existing the proposed Project entry road. Vehicles existing the Phase 1 Project will need to yield to left-turning vehicles prior to completing their movement onto Road 27.

Overall, the proposed Project driveway location for the Phase 1 Project is feasible and provides adequate minimum stopping sight distance for traffic conditions. Further, landscaping would be restricted to low-level vegetation and setback away from the proposed Project driveway to ensure that existing vehicles can view oncoming vehicles traveling on the road. Therefore, impacts associated with a geometric design feature would be less than significant.

Significance Determination before Mitigation: Less than Significant

Phase 1 Project Cumulative Impact Analysis

With regard to design hazards, the Phase 1 Project would not result in a significant impact. Each cumulative project would be reviewed by the County to ensure compliance with the County's requirements relative to the provision of safe access for vehicles, pedestrian, and bicyclists, which would incorporate standards for adequate sight distance, sidewalks, crosswalks, and pedestrian movement controls to protect pedestrian and enhance bicycle safety. Furthermore, since modifications to access and circulation plans are largely confined to a project site and immediate surrounding area, a combination of impacts with other cumulative projects that could potentially lead to cumulative impacts is not expected. Therefore, the Phase 1 Project's contribution to cumulative impacts associated with hazardous geometric design features would not be considerable.

Significance Determination before Mitigation: Less than Significant

Phase 1 Project Mitigation Measures

No mitigation measures are required.

Significance Determination after Mitigation: Less than Significant

Phase 1 Project Cumulative Measures

No mitigation measures are required.

Significance Determination after Mitigation: Less than Significant

Impact 3.15-3b: Construction of the proposed Program would have a less than significant and less than cumulatively considerable hazard impacts due to a geometric design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment).

Program Impact Analysis

Vehicle access to the Specific Plan Program area would be provided by four access points; one via Road 27, one via Avenue 17, subject to the High Speed Rail Authority construction of the overpass and roadway, and two access points along Road 28½. Three Parkway Entry roadways would serve as the primary entrances into the Specific Plan Program area and would be located on Road 27 in the northwestern corner, Avenue 17 to the south, and Road 28½ to the east. Road 27 is currently being constructed with an overpass for the future high-speed rail project which would change the roadway profile and impact the sight distance for the proposed Project driveway entrance at the existing Road 27 and Avenue 18 intersection.

A preliminary stopping sight distance and intersection sight distance analysis was conducted to determine the feasibility of the proposed Project entry road location on Road 27; refer to Appendix K-2. The minimum stopping sight distance for vehicles driving along Road 27 is 570 feet in the southbound direction at level grade and 683 feet in the northbound direction at a 6 percent downgrade. The minimum intersection sight distance is 665 feet for left turn and 575 feet for right turn assuming minor street grades less than 3 percent. From a 14.5-foot setback from the edge of the travel way, the measured available sight distance at the proposed Project driveway is over 800 feet north and south on Road 27. The proposed Project driveway location satisfied the minimum stopping sight distance required for all approaches on Road 27. Vehicles on Road 27

would have sufficient sight distance to react and stop safely if a vehicle form the proposed Project driveway enters or exists Road 27 (Kimley Horn, 2019a).

As discussed above, the proposed MGS fixtures along Road 27 outside the paved shoulders will not obstruct the minimum sight distance requirements at the proposed Project driveway. Vehicles exiting the Specific Plan Program at the proposed Project driveway at Road 27 will need to yield to left-turning vehicles prior to completing their movement onto Road 27.

Overall, the proposed Project driveway locations for the Specific Plan Program, including the proposed Project driveway on Road 27, are feasible and provide adequate minimum stopping sight distance for traffic conditions. Further, landscaping would be restricted to low-level vegetation and setback away from the proposed Project driveway on Road 27 to ensure that existing vehicles can view oncoming vehicles traveling on the road. Therefore, impacts associated with a geometric design feature would be less than significant.

Significance Determination before Mitigation: Less than Significant

Program Cumulative Impact Analysis

With regard to design hazards, the Specific Plan Program would not result in a significant impact. Each cumulative project would be reviewed by the County to ensure compliance with the County's requirements relative to the provision of safe access for vehicles, pedestrian, and bicyclists, which would incorporate standards for adequate sight distance, sidewalks, crosswalks, and pedestrian movement controls to protect pedestrian and enhance bicycle safety. Furthermore, since modifications to access and circulation plans are largely confined to a project site and immediate surrounding area, a combination of impacts with other cumulative projects that could potentially lead to cumulative impacts is not expected. Therefore, the Specific Plan Program's contribution to cumulative impacts associated with hazardous geometric design features would not be considerable.

Significance Determination before Mitigation: Less than Significant

Program Mitigation Measures

No mitigation measures are required.

Significance Determination after Mitigation: Less than Significant

Program Cumulative Measures

No mitigation measures are required.

Significance Determination after Mitigation: Less than Significant

Emergency Access

Impact 3.15-4a: The Phase 1 Project would have a less than significant and less than cumulatively considerable emergency access impact.

Phase 1 Project Impact Analysis

Construction

The Phase 1 Project site currently has one existing access, via Road 27 near the existing railroad tracks. Due to current construction activities associated with the Road 27 overpass at the railroad tracks, construction access would be provided in the northwest corner of the site near Avenue 18. A secondary access for the Phase 1 Project would include the improvement of the existing dirt farm road that extends from Road 28 ½ (Appendix K-3) (Kimley Horn, 2019b). Construction activities within the Phase 1 Project site may require temporary partial lane closures along Road 27 and Road 28 ½; however, Road 27 and Road 28 ½ currently have adequate shoulder areas for motorists to allow emergency vehicles to pass. If the Road 27 overpass is constructed prior to construction of the Phase 1 Project, Road 27 would include adequate width for motorists to allow emergency vehicles to pass.

As a result, construction of the Phase 1 Project would not interfere with emergency access as emergency access would be maintained at all times. Therefore, impacts associated with emergency access during construction would be less than significant.

Operation

The Phase 1 Project would not include features that would change or interfere with emergency access. Currently, there is no improved access within the Phase 1 Project area, but there is access via Road 27 and Road 28½ on the west and east sides, respectively. The implementation of the Phase 1 Project would increase access to the Phase 1 Project area and would adhere to local fire and building safety codes to allow for safe and efficient emergency response. The primary access will be provided by Road 27 while a secondary emergency access would be provided to the Phase 1 Project site by Road 28 ½ as discussed above during construction of the Phase 1 Project. The proposed Parkway Entry roadway would provide access to the two proposed neighborhoods from Road 27. Additionally, all roadways (cul-de-sacs and turnouts) will be designed to Madera County Fire Department standards and will be ongoing to maintain the roads to enable access for all fire vehicles to and within the Phase 1 Project site. Therefore, implementation of the Phase 1 Project would result in less than significant impacts to emergency access.

Significance Determination before Mitigation: Less than Significant

Phase 1 Project Cumulative Impact Analysis

With regard to interference with emergency access, all of the cumulative projects in the area would be required to provide adequate emergency access in accordance with local building and fire codes prior to the issuance of a building permit. All cumulative projects must comply with land use policies, requirements for emergency access, such as providing several vehicular access points and roadways of sufficient width to allow access and circulation by large emergency vehicles, such as fire engines. As concluded in the discussion of Project-related impacts, the proposed Phase 1 Project would not interfere with emergency access. Therefore, the proposed

Project, in conjunction with other cumulative development, would not have a significant cumulative impact associated with emergency access, and the proposed Phase 1 Project's contribution would be less than cumulatively considerable.

***Significance Determination before Mitigation*:** Less than Significant

Phase 1 Project Mitigation Measures

No mitigation measures are required.

Significance Determination after Mitigation: Less than Significant

Phase 1 Project Cumulative Measures

No mitigation measures are required.

Significance Determination after Mitigation: Less than Significant

Impact 3.15-4b: The proposed Program would have a less than significant and less than cumulatively considerable emergency access impact.

Program Impact Analysis

Construction

The Specific Plan Program site currently has two existing accesses, via Road 27 near the existing railroad tracks and Road 28 ½ approximately halfway between the future alignment of Avenue 17 and Avenue 18. Due to current construction activities associated with the Road 27 overpass at the railroad tracks, construction access would be provided in the northwest corner of the site near Avenue 18. The additional construction access during Program construction activities include Road 28 ½. Construction activities within the Program site may require temporary partial lane closures along Road 27 and Road 28 ½; however, Road 27 and Road 28 ½ currently have adequate shoulder areas for motorists to allow emergency vehicles to pass. If the Road 27 overpass is constructed prior to construction of the first phase of the Specific Plan Program, Road 27 would include adequate width for motorists to allow emergency vehicles to pass.

As a result, construction of the Specific Plan Program would not interfere with emergency access as emergency access would be maintained at all times. Therefore, impacts associated with emergency access during construction would be less than significant.

Operation

The proposed Program would not include features that would interfere with emergency access. Currently, there is no improved access within the proposed Specific Plan Program area, but there is access via Road 27 and Road 28½ on the west and east sides, respectively. The implementation of the proposed Program would increase access to the Program area and would adhere to local fire and building safety codes to allow for safe and efficient emergency response. During operation, the primary accesses will be provided by Road 27 and Road 28 ½. Additionally, all roadways within the Program site (cul-de-sacs and turnouts) will be designed to Madera County Fire Department standards and will be ongoing to maintain the roads to enable access for all fire

vehicles to and within the Specific Plan Program site. Therefore, implementation of the Specific Plan Program would result in less than significant impacts to emergency access.

Significance Determination before Mitigation: Less than Significant

Program Cumulative Impact Analysis

With regard to the interference with emergency access, cumulative growth in the vicinity of the Specific Plan Program site would be required to provide adequate emergency access in accordance with local building and fire codes prior to the issuance of a building permit. All cumulative projects must comply with land use policies, requirements for emergency access, such as providing several vehicular access points and roadways of sufficient width to allow access and circulation by large emergency vehicles, such as fire engines. As concluded in the discussion of the Specific Plan Program-related impacts, the proposed Program would not interfere with emergency response or emergency evacuation plans. Therefore, the Specific Plan Program, in conjunction with other cumulative development, would not have a significant cumulative impact associated with emergency access. Because the proposed Program would not result in significant emergency access impacts, the Specific Plan Program's contribution to emergency access impacts would be less than cumulatively considerable.

Significance Determination before Mitigation: Less than Significant

Program Mitigation Measures

No mitigation measures required.

Significance Determination after Mitigation: Less than Significant

Program Cumulative Measures

No mitigation measures required.

Significance Determination after Mitigation: Less than Significant

3.15.4 References

Kimley Horn. 2019a. Technical Memorandum, Castellina Driveway/Road 27/Avenue 18/Sight Distance Review – Madera County. Kimley Horn. May 13. (Appendix K-2 of this Draft EIR)

Kimley Horn. 2019b. Secondary Access Plan. July 3. (Appendix K-3 of this Draft EIR)

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Kimley Horn. 2021b. Vehicle Miles Traveled Analysis for the Castellina Development. June 24. (Appendix K-1 of this Draft EIR)

Madera County. 1995. Madera County General Plan, Policy Document, Adopted October 24.

Madera County Transportation Commission. 2018. Madera Active Transportation Plan. Available at: https://www.maderactc.org/transportation/page/active-transportation-plan. Accessed on June 30, 2021.

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3.16 Utilities, Service Systems and Energy

The purpose of this section is to assess the potential of buildout of the Phase 1 Project and proposed Program, which represent the "Project" under the environmental setting, on water supply and service, wastewater collection and treatment, storm water drain systems, energy utility systems, and solid waste disposal and landfill capacity. This section is based on comparisons of existing and anticipated levels of service with buildout of the Phase 1 Project and the proposed Program, in addition to other service commitments. This section describes the existing and proposed utility systems setting and potential effects from implementation of the Phase 1 Project and proposed Program.

The analysis is partly based on the following information:

- Water Supply Assessment (WSA) prepared by Tully and Young Comprehensive Water Planning, May 2019 (**Appendix I-2** of this Draft EIR),
- County of Madera Castellina Specific Plan Area Infrastructure Master Plan, prepared by Kimley-Horn Associates, Inc., April 2019 (**Appendix L** of this Draft EIR)
- Castellina Water Management Plan prepared by House Moran Consulting, Inc., June 2019 (**Appendix I-1** of this Draft EIR).
- Energy Assumptions and Modeling prepared by ESA in 2021 (**Appendix M** of this Draft EIR).

3.16.1 Environmental Setting

Water Supply

The Project site is within California's San Joaquin Valley and overlies the San Joaquin Valley Groundwater Basin. The Project site is located in the Fresno River watershed with the Hydrologic Unit Code of 18040007.

The Project site is within the Madera Sub-basin (Basin No. 5-22.06), and within an area of the San Joaquin Valley that is largely agricultural. The Madera Sub-basin water has been used historically for irrigation and, to a much lesser degree, for municipal demands in the City of Madera and for individual domestic uses scattered throughout the Central Valley of California. The extent of the Madera Sub-basin and its connection with adjacent sub-basins has been assessed by the California Department of Water Resources (DWR). The Madera Sub-basin covers an area of 614 square miles and is located entirely within Madera County. It is bound on the south by the San Joaquin River, on the northwest by the southeastern boundary of the Chowchilla Sub-basin, and on the east by the crystalline basement bedrock of the Sierra Nevada foothills. DWR Bulletin 118 characterizes this Basin as being in critical overdraft since 1980. In January 2016, DWR released an updated list of critically-overdrafted basins, which included the Madera Sub-basin (Tully and Young, 2019).

DWR generated groundwater elevation contours for fall 2016 from DWR monitored wells suggest that the groundwater gradient (flow direction) in the vicinity of the Project is generally from the southeast to northwest. Groundwater elevation contours from fall 2016 indicate

elevations range from 20 feet above mean sea level (amsl) in the southeastern portion of the Project site, to near mean sea level in the northwestern portion of the Project site, or approximately 287 to 292 feet below ground surface (bgs), respectively (Tully and Young, 2019).

The Madera Sub-basin has experienced significant declines in groundwater elevations for several decades. Regional declines in the groundwater basin have varied between approximately 60 and 200 feet since 1970.

California experienced a statewide drought from 2012 through 2016, which may have exacerbated rates of groundwater decline in some portions of the Madera Sub-basin over the past few years, most notably in areas where groundwater extraction increased to supplement reduced or nonexistent surface water supply. The Project site has been actively irrigated as an orchard using groundwater.

An additional important attribute of the Madera Sub-basin is the base of freshwater. This term describes the interface of freshwater and brackish water in an aquifer system. An often referenced study from 1973 characterized the base of freshwater in the San Joaquin Valley by mapping salinity levels in various wells throughout the region. Using data from this study, the base of freshwater occurs at an elevation of approximately 1,200 feet below msl beneath the middle of the Project site, or at a depth of approximately 1,500 feet bgs (Tully and Young, 2019).

Given the approximate groundwater elevation of 10 feet amsl beneath the Project site in fall 2016, the data suggest that there is nearly 1,200 feet of saturated freshwater-bearing aquifer material in the immediate vicinity of the Project site. If the Madera Sub-basin experiences the same rate of decline over this timeframe, the projected decline over the next 30 years would be 300 feet using a conservative rate of groundwater decline of 10 feet per year. The base of freshwater is reported to be at a depth of approximately 1,500 feet, as discussed above, indicating there is currently approximately 1,200 feet of saturated aquifer available. The rate of decline in this portion of the Madera Sub-basin can be expected to stabilize during the next sequence as a result of groundwater sustainability plans, as well as a through the development and implementation of the Project's groundwater management strategies.

Groundwater Management in the Madera Groundwater Sub-basin

The State of California passed the Sustainable Groundwater Management Act (SGMA) which consists of AB 1739, SB 1168, and 1319. SGMA requires the formation of local-controlled groundwater sustainable agencies in high- and medium-priority groundwater basins. These groundwater sustainability agencies are responsible for developing and implementing a Groundwater Sustainability Plan (GSP) to ensure the basin is operated within its sustainable yield without causing undesirable results. Typically, local groundwater management strategies include monitoring groundwater levels and production amounts, and conjunctive use of groundwater and surface water supplies. The framework allows local agencies to establish a Groundwater Sustainability Agency (GSA) in order to develop and implement groundwater sustainability plans (GSPs) for their respective jurisdiction. Where multiple GSAs cover a defined basin, the GSAs may submit one GSP or individual GSPs. If individual GSPs are developed, each GSA must

provide the State with agreements demonstrating coordination on GSPs and cooperation for on-going implementation and enforcement.

The Program area is included in the Madera County GSA, where the Madera County GSA is working on a joint GSP with three other GSAs: Madera Irrigation District, the City of Madera, and Madera Water District.[1]

The Madera Regional Groundwater Management Plan (GMP) was prepared in December 2014 to provide an outline for a coordinated regional effort between participating agencies (City of Chowchilla; Chowchilla Water District; City of Madera; Madera County; Madera Irrigation District; and South-East Madera County United) to implement steps to improve groundwater conditions within the San Joaquin Valley portion of Madera County. Several water districts within the County have prepared similar groundwater management plans for their respective areas.

Wastewater

The Specific Plan Program site does not include a public wastewater system or non-community wastewater system, and there is no existing onsite sewage disposal system.

Madera Wastewater Treatment

The City of Madera Wastewater Treatment Plant (WWTP) is located at the intersection of Avenue 13 and Road 21 ½, approximately 7 miles southwest of the Program site. More than 10 miles of gravity and force main piping would need to be constructed in existing County and City roadways to connect the Program site to the City's WWTP. The City's collection system consists of approximately 176 miles of up to 48-inch gravity sewer pipes that convey flows towards the WWTP, on Road 21 ½ and Avenue 13. The WWTP service area includes: 7,730 acres of developed lands inside the City limits and 1,921 acres of undeveloped lands inside the City limits, which does not include the Program site. The existing WWTP does not contain enough capacity to serve the Program area. Upgraded and expanded facilities would be necessary to accommodate the additional flows and to provide tertiary treatment suitable for reuse. The treated effluent from the existing WWTP would need to be conveyed back to the Program site via new recycled water pipeline in existing County roadways for reuse to achieve a "net zero" groundwater balance per the Project's Water Supply Assessment.

The WWTP has an average daily capacity rating of 10.1 million gallons per day (mgd). On October 19, 2005, the WWTP was approved for expansion from an existing permitted treatment capacity of 7.0 mgd to 10.1 mgd. This expansion will accommodate the City's projected growth for approximately the next 20 years. The WWTP consists of a biological secondary treatment process comprised of headworks, primary clarification, biofiltration, secondary clarification, sludge digestion, sludge drying and effluent reclamation.

[1] Madera County became the exclusive GSA for the Program area in May 2017, referred to as the "County of Madera – 2 GSA" (differentiating it from the GSA role the County also plays in the Chowchilla sub-basin and the Delta-Mendota sub-basin). See the County's explanation here: http://www.maderacountywater.com/

Storm Water Drainage

Offsite drainage enters the Project site from the north at three locations, one of these locations is the Schmidt Creek Tributary which flows through the northwest corner of the Project site. The northern section of the Project area drains towards the west and the southern portion drains towards and along the railroad tracks, where it passes through two culverts under the tracks, the remaining drainage ultimately ends up in the Schmidt Creek Tributary. The Schmidt Creek Tributary flows into Schmidt Creek approximately 1.3 miles west of the Project site. Schmidt Creek confluences with the Fresno River approximately 6.8 miles southwest of the site.

Solid Waste Management

Redrock Environmental Group (Redrock) would be the primary waste hauler for the proposed Program providing solid waste disposal and recycling services to support the needs of the proposed Project (Kimley Horn, 2019).

As of November 1, 2012, Redrock became the exclusive service provider of trash and recycling collection services in the unincorporated areas of Madera County (Madera County, 2020). Redrock also operates the Fairmead Landfill and the North Fork Transfer Station (Caglia Environmental, 2020a). The County's solid waste disposal needs are provided for at the County-owned Fairmead Sanitary Landfill and the North Fork Transfer Station. The Fairmead Landfill is a permitted facility operated under contract by the Red Rock Environmental Group, and is located approximately 9 miles northwest of the Project site and just west of Highway 99 at 21739 Road 19/Avenue 22 in the City of Chowchilla at the intersection of Avenue 22 and Road 19-½. The landfill has a remaining capacity of 5,552,894 cubic yards and a maximum permitted capacity of 9,400,000 cubic yards with daily throughput levels at approximately 400-450 tons per day. The landfill is 121.7 acres in size and the estimated closure date is December 31, 2028 (CalRecycle, 2019a). The Fairmead Sanitary Landfill also includes the Mammoth Material Recovery Facility (MRF). The Mammoth MRF is located at 21739 Road 19 in Chowchilla. This MRF processes the following waste types: Construction/demolition; Green Materials; Industrial, Inert, Metals, Mixed Municipal; and wood waste. The Fairmead Sanitary Landfill is a Class III landfill. As a Class III solid waste facility, the Fairmead Landfill is permitted to accept waste including, but not limited to agricultural waste, asbestos, construction and demolition debris, green materials, mixed municipal wastes, tires and wood waste. Solid waste facilities consist of commercial Class I, II, and III landfills. Class I sites may accept hazardous and non-hazardous wastes; Class II sites may accept "designated" and non-hazardous wastes; and Class III sites may accept non-hazardous wastes. The closest Class I site is the Forward Landfill, Inc., which is also a Class II and III landfill, is located approximately 86 miles northwest of the Project site and the nearest Class II site is the American Avenue Disposal Site, which is also a Class III landfill, located approximately 24 miles southwest of the proposed Project (CalRecycle, 2019c and 2019d).

The North Fork transfer station is located approximately 34 miles northeast of the Project site at 33699 Road 274/Malum Ridge Road, in North Fork. This is a medium-volume transfer/processing facility with a permitted capacity of 60 tons per day. The transfer facility is 10 acres in size and accepts the following waste types: Industrial, Mixed Municipal, Agricultural, Green Materials, Construction/demolition, Tires, and Sludge (Biosolids) (CalRecycle 2019b).

Energy

State Energy Profile

Total energy usage in California was 7,881 trillion British thermal units (Btu) in 2017 (the most recent year for which these specific data are available), which equates to an average of 200 million Btu per capita. These figures place California second among the 50 states in total energy use and 48th in per-capita consumption. Of California's total energy usage, the breakdown by sector is roughly 40 percent transportation, 23 percent industrial, 19 percent commercial, and 18 percent residential. Electricity and natural gas in California are generally consumed by stationary users such as residences and commercial and industrial facilities, whereas petroleum-based fuel consumption is generally accounted for by transportation-related energy use (EIA, 2019).

California relies on a regional power system composed of a diverse mix of natural gas, renewable, hydroelectric, and nuclear generation resources. Approximately 68 percent of the electrical power needed to meet California's demand is produced in the state; the balance, approximately 32 percent, is imported from the Pacific Northwest and the Southwest. In 2018, California's in-state electricity use was derived from natural gas (47 percent); coal (<1 percent); large hydroelectric resources (11 percent); nuclear sources (9 percent); and renewable resources that include geothermal, biomass, small hydroelectric resources, wind, and solar (32 percent) (CEC, 2019a).

Regional Setting

Electricity

Electricity, as a consumptive utility, is a man-made resource. The production of electricity requires the consumption or conversion of energy resources—including water, wind, oil, gas, coal, solar, geothermal, and nuclear resources—into energy. The delivery of electricity involves a number of system components for distribution and use. Electricity is distributed through a network of transmission and distribution lines commonly called a power grid.

Energy capacity, or electrical power, is generally measured in watts (W), while energy use is measured in watt-hours. For example, if a light bulb has a capacity rating of 100 W, the energy required to keep the bulb on for 1 hour would be 100 watt-hours. If ten 100 W bulbs were on for 1 hour, the energy required would be 1,000 watt-hours or 1 kilowatt-hour. On a utility scale, the capacity of a generator is typically rated in megawatts (MW), which is 1 million watts, while energy usage is measured in megawatt-hours (MWh) or gigawatt-hours, which is one billion watt-hours.

Pacific Gas and Electric Company (PG&E) provides electrical and natural gas services to approximately 16 million people throughout its 70,000-square-mile service area, across central, coastal, and Northern California, an area bounded by Humboldt County to the north and Kern County to the south (PG&E, 2020a). PG&E produces and purchases energy from a mix of conventional and renewable generating sources.

PG&E generates power from a variety of energy sources, including large hydropower (greater than 30 MW), natural gas, nuclear sources, and renewable resources, such as wind, solar, small hydropower (less than 30 MW), and geothermal sources. Approximately 39 percent of PG&E's

2018 electricity purchases were from renewable sources, which is 31 percent greater than the 31 percent statewide percentage of electricity purchases from renewable sources (PG&E, 2020b). In 2018, PG&E sold approximately 87,375,000 MWh to customers (PG&E, 2018). Refer to **Table 3.16-1** for a summary of electricity use.

TABLE 3.16-1
EXISTING ANNUAL STATE AND REGIONAL ENERGY USE

Source	Amount
Electricity (PG&E/Madera County)a,b	87,375,000 MWh / 1,666,000
Natural Gas (PG&E/Madera County)c,d	887,872,720 MMBtu / 1,016,713,000 MMBtu
Gasoline (Statewide/Madera County)e	13,475,000,000 gallons / 49,000,000 gallons
Diesel (Statewide/Madera County)e	3,659,000,000 gallons / 28,000,000 gallons

NOTES:
MMBtu = million British thermal units; MWh = megawatt-hours; PG&E = Pacific Gas and Electric Company
SOURCES:
[a] CEC, 2019a.
[b] CEC, 2016a
[c] California Gas and Electric Utilities, 2018.
[e] CEC, 2019b.

Natural Gas

Natural gas is a combustible mixture of simple hydrocarbon compounds (primarily methane) that is used as a fuel source. Natural gas consumed in California is obtained from naturally occurring reservoirs and delivered through high-pressure transmission pipelines. Natural gas provides almost one-third of the total energy requirements in California. Natural gas is measured in terms of both cubic feet and Btu.

PG&E provides natural gas transportation services to "core" customers and to "non-core" customers (i.e., industrial, large commercial, and natural gas–fired electric generation facilities) that are connected to its gas system in its service territory. Core customers can purchase natural gas procurement service (i.e., natural gas supply) from either PG&E or non-utility third-party gas procurement service providers (referred to as core transport agents). When core customers purchase gas supply from a core transport agent, PG&E still provides gas delivery, metering, and billing services to those customers. When PG&E provides both transportation and procurement services, PG&E refers to the combined service as "bundled" natural gas service. Currently, more than 95 percent of core customers, representing nearly 80 percent of the annual core market demand, receive bundled natural gas service from PG&E.

PG&E does not provide procurement service to non-core customers, who must purchase their gas supplies from third-party suppliers. PG&E offers backbone gas transmission, gas delivery (local transmission and distribution), and gas storage services as separate and distinct services to its non-core customers. Access to PG&E's backbone gas transmission system is available for all natural gas marketers and shippers, as well as non-core customers. PG&E also delivers gas to off-system customers (i.e., outside of PG&E's service territory) and to third-party natural gas storage

customers. In 2018, PG&E sold approximately 887,872,720 MMBTU to customers (California Gas and Electric Utilities, 2018). Refer to Table 3.16-1 for a summary of natural gas use.

Transportation Energy

According to the California Energy Commission (CEC), transportation accounted for nearly 41.1 percent of total energy consumption in California during 2017 (CEC, 2019c). In 2018, 13.4 billion gallons of gasoline and 3.6 billion gallons of diesel fuel were consumed in California (CEC, 2019b).[2] Petroleum-based fuels currently account for more than 90 percent of transportation fuel use in California (CEC, 2016b).

The state is now working on developing flexible strategies to reduce petroleum use. Over the last decade, California has implemented several policies, rules, and regulations to improve vehicle efficiency, increase the development and use of alternative fuels, reduce air pollutants and greenhouse gas emissions (GHGs) from the transportation sector, and reduce vehicle miles traveled (VMT). Accordingly, total gasoline consumption in California has declined. The CEC predicts that the demand for gasoline will continue to decline over the next 10 years, and there will be an increase in the use of alternative fuels (CEC, 2018). According to fuel sales data from the CEC, fuel consumption in Madera County was approximately 49 million gallons of gasoline and 28 million gallons of diesel fuel in 2018 (CEC, 2019b).[3] Refer to Table 3.16-1 for a summary of statewide fossil fuel consumption in 2018.

Local Setting

The Project site is currently used for agricultural production and contains almond and fig orchards, related agricultural support facilities (e.g., equipment storage), wells, and unimproved dirt roadways. There are five wells located within the Specific Plan area that draw groundwater from the Madera groundwater basin. Based on data provided by the property owners and engineering estimates, the existing agricultural operations pump approximately 2,800 acre-feet per year (AFY) of groundwater, which is equivalent to nearly 912 million gallons. The Specific Plan area is designated as a New Growth Area (NGA) in the County's General Plan and has a zoning designation of Agricultural Rural Exclusive 40-Acres (ARE-40).

Agricultural equipment and pump operations would result in energy consumption that are part of the existing conditions, however for the purposes of this analysis, the consumption from the Phase 1 Project and Program are considered to be all new uses, and therefore, energy consumption from the agricultural operations were not quantified.

[2] Diesel is adjusted to account for retail (52 percent) and non-retail (48 percent) diesel sales. CEC A15 results for diesel sales do not include non-retail diesel sales, which are 48 percent of total diesel sales. For purposes of this analysis, the 48 percent of non-retail diesel sales were accounted and, therefore, reported statewide diesel sales are higher than reported in the A15 results. Refer to footnote in A15 results.

[3] Diesel is adjusted to account for retail (52 percent) and non-retail (48 percent) diesel sales. CEC A15 Results for diesel sales do not include non-retail diesel sales, which are 48 percent of total diesel sales. For purposes of this analysis, the 48 percent of non-retail diesel sales were accounted and, therefore, reported Countywide diesel sales are higher than reported in the A15 results. Refer to footnote in A15 results.

3.16.2 Regulatory Framework

Federal

National Energy Conservation Policy Act

The National Energy Conservation Policy Act (NECPA) serves as the underlying authority for federal energy management goals and requirements. Signed into law in 1978, it has been regularly updated and amended by subsequent laws and regulations. This act is the foundation of most federal energy requirements. NECPA established energy-efficiency standards for consumer products and includes a residential program for low-income weatherization assistance, grants and loan guarantees for energy conservation in schools and hospitals, and energy-efficiency standards for new construction. Initiatives in these areas continue today.

Energy Policy Act of 1992

The Energy Policy Act of 1992 was passed to reduce U.S. dependence on foreign petroleum and improve air quality. This law includes several provisions intended to build an inventory of alternative fuel vehicles in large, centrally fueled fleets in metropolitan areas. The Energy Policy Act of 1992 requires certain federal, state, and local government and private fleets to purchase a percentage of light-duty alternative fuel vehicles capable of running on alternative fuels each year. Financial incentives are also included. Federal tax deductions are allowed for businesses and individuals to cover the incremental cost of alternative fuel vehicles. The Energy Policy Act of 1992 also requires that states consider a variety of incentive programs to help promote alternative fuel vehicles.

Energy Policy Act of 2005

The Energy Policy Act of 2005 includes provisions for renewed and expanded tax credits for electricity generated by qualified energy sources, such as landfill gas; provides bond financing, tax incentives, grants, and loan guarantees for clean renewable energy and rural community electrification; and establishes a federal purchase requirement for renewable energy.

Executive Order 13423 (Strengthening Federal Environmental, Energy, and Transportation Management), signed in 2007, strengthens the key energy management goals for the federal government and sets more challenging goals than the Energy Policy Act of 2005. The energy reduction and environmental performance requirements of Executive Order 13423 were expanded upon in Executive Order 13514 (Federal Leadership in Environmental, Energy, and Economic Performance), and signed in 2009.Energy Independence and Security Act of 2007

The Energy Independence and Security Act of 2007 (42 USC 17001) includes several key provisions to increase energy efficiency and the availability of renewable energy to reduce greenhouse gas emissions. First, the Energy Independence and Security Act sets a Renewable Fuel Standard that requires fuel producers to use at least 36 billion gallons of biofuel by 2022. Second, it increased Corporate Average Fuel Economy (CAFE) Standards to require a minimum average fuel economy of 35 miles per gallon for the coed fleet of cars and light trucks by 2020. Third, the Energy Independence and Security Act includes a variety of new standards for lighting, residential, and commercial appliance equipment.

Corporate Average Fuel Economy Standards

Established by the U.S. Congress in 1975, the Corporate Average Fuel Economy (CAFE) standards reduce energy consumption by increasing the fuel economy of cars and light trucks. The National Highway Traffic Safety Administration (NHTSA) and U.S. Environmental Protection Agency (EPA) jointly administer the CAFE standards. The U.S. Congress has specified that CAFE standards must be set at the "maximum feasible level" with consideration given to: (1) technological feasibility; (2) economic practicality; (3) effect of other standards on fuel economy; and (4) the need for the nation to conserve energy.[4]

Fuel-efficiency standards for medium- and heavy-duty trucks have been jointly developed by EPA and NHTSA. The Phase 1 heavy-duty truck standards applied to combination tractors, heavy-duty pickup trucks and vans, and vocational vehicles for model years 2014 through 2018, and requires a reduction in fuel consumption by 6–23 percent over the 2010 baseline, depending on the vehicle type (USEPA, 2011). EPA and NHTSA have also adopted the Phase 2 heavy-duty truck standards, which cover model years 2021 through 2027 and require the phase-in of a 5 to 25 percent reduction in fuel consumption over the 2017 baseline, depending on the compliance year and vehicle type (USEPA, 2016).

U.S. Department of Transportation, U.S. Department of Energy, and U.S. Environmental Protection Agency Influence on Transportation Energy

On the federal level, the U.S. Department of Transportation, U.S. Department of Energy, and EPA have substantial influence over energy policies related to fuel consumption in transportation. Generally, federal agencies influence transportation energy consumption by establishing and enforcing fuel economy standards for automobiles and light trucks, and by funding projects for energy-related research and development for transportation infrastructure.

State

California Urban Water Management Planning Act

The 2015 Urban Water Management Plan (UWMP) has been prepared in accordance with the Urban Water Management Planning Act (Act), as amended, California Water Code Division 6, Part 2.6, §10610 through 10657. The Act became part of the California Water Code (CWC) with the passage of AB 797 during the 1983–1984 regular session of the California legislature. The Act requires every urban water supplier that provides water for municipal purposes to more than 3,000 connections or supplying more than 3,000 AF of water annually to adopt and submit a plan every five years to the DWR. The Act was amended in 2009 with the adoption of SBX7-7 and Assembly Bill 2242, which amends the Water Code and adds Section 10631.5.

SBX7-7 Requirements

The Water Conservation Bill of 2009 (SBX7-7) is one of four policy bills enacted as part of the November 2009 Comprehensive Water Package (Special Session Policy Bills and Bond Summary). SBX7-7 provides the regulatory framework to support the statewide reduction in urban per capita

[4] For more information on the CAFE standards, refer to https://www.nhtsa.gov/laws-regulations/corporate-average-fuel-economy.

water use described in the 20 by 2020 Water Conservation Plan. This bill requires that agencies achieve a 20 percent reduction in potable water use by 2020. As part of the "20 by 2020 Plan", all retail water agencies in the state are required to detail how they plan to meet the mandatory reductions through their UWMP. Retail water agencies who have either 3,000 or more customers or provide 3,000 AF or more of water per year, are required to be in compliance to SBX7-7. Consistent with SBX7-7, each water supplier must determine and report its existing baseline water consumption and establish future water use targets in gallons per capita per day (GPCD).

Assembly Bill 2242

AB 2242 amends the California Water Code which became effective on March 15, 2018. AB 2242 amends California Water Code Section 10610.2 to add Section 10631.5, which states that in addition to the requirements of Section 10631, an urban water supplier shall include an assessment of the reliability of their water service to its customers during normal, dry, and multiple dry years in its urban water management plan. This also should include a repeat of the five consecutive historic driest years the urban water supplier has experienced. In addition, as part of an assessment of the reliability of water service, an urban water supplier shall consider the reliability of its water service given the combination of supplies available to it, possible supply augmentation measures it is able to take, and the demand management measures it would likely implement in those scenarios.

California Senate Bill 610

SB 610 is also known as the Water Supply Assessment statute, which is under the California Senate Bill 1262 (SB 1262), which became effective on January 1, 2017. SB 1262 amends California Water Code Section 10910 and California Government Code Section 66473.7 in an initial attempt to incorporate requirements under California's Sustainable Groundwater Management Act (SGMA). SGMA was adopted in 2014 and requires groundwater to be managed sustainably in California's groundwater basins by local public agencies and groundwater sustainability agencies (GSAs). SB 1262 amended two existing statues that require, as part of the approvals for certain types of projects, a specific analysis of whether there is a sufficient water supply to serve the project; Water Code Section 10910 (SB 610) and Government Code Section 66473.74. SB 610 applies to any proposed development that is both: Subject to CEQA and is a project under California Water Code Section 10912, which defines "project" as any of the following:

> (1) A proposed residential development of more than 500 dwelling units.
>
> (2) A proposed shopping center or business establishment employing more than 1,000 persons or having more than 500,000 square feet of floor space.
>
> (3) A proposed commercial office building employing more than 1,000 persons or having more than 250,000 square feet of floor space.
>
> (4) A proposed hotel or motel, or both, having more than 500 rooms.
>
> (5) A proposed industrial, manufacturing, or processing plant, or industrial park planned to house more than 1,000 persons, occupying more than 40 acres of land, or having more than 650,000 square feet of floor area.

(6) A mixed-use project that includes one or more of the projects specified in this subdivision.

(7) A project that would demand an amount of water equivalent to, or greater than, the amount of water required by a 500 dwelling unit project.

If SB 610 applies to a development, a WSA (SB 610 assessment) is required. The assessment is prepared by either the water supplier or the lead agency for the Project.

Madera County prepared a WSA in order to identify the water supply efficiency as (1) the City of Madera ("City") does not plan to serve the site, though it lies within the City's Urban Growth Boundary, and (2) the Madera Valley Water Company, a local mutual water company serving approximately 2,000 customers nearby, is unable to make any commitments to expand its shareholder service area at this time (Tully and Young, 2019).

California Sustainable Groundwater Management Act

The Sustainable Groundwater Management Act of 2014, passed in September 2014, is a comprehensive three-bill package that provides a framework for the sustainable management of groundwater supplies by local authorities. The Sustainable Groundwater Management Act requires the formation of local groundwater sustainability agencies to assess local water basin conditions and adopt locally-based management plans. Local groundwater sustainability agencies must be formed by June 30, 2017. The Sustainable Groundwater Management Act provides 20 years for groundwater sustainability agencies to implement plans, achieve long-term groundwater sustainability, and protect existing surface water and groundwater rights. The Act also provides local groundwater sustainability agencies with the authority to: require registration of groundwater wells, measure and manage extractions, require reports and assess fees, and request revisions of basin boundaries, including establishing new sub-basins. Furthermore, under the Sustainable Groundwater Management Act, groundwater sustainability agencies responsible for high- and medium-priority basins must adopt groundwater sustainability plans within five to seven years, depending on whether the basin is in critical overdraft.

State Water Resources Control Board Statewide General Waste Discharge Requirements (WDRs) for Sanitary Sewer Systems Order No. 2006-0003-DWQ

The Statewide General Waste Discharge Requirements for Sanitary Sewer Systems (SWRCB Order No 20006-0003-DWQ) applies to sanitary sewer systems that are greater than one-mile-long and collect untreated or partially treated wastewater to a publicly-owned treatment facility. The goal of Order No. 2006-0003 is to provide a consistent statewide approach for reducing Sanitary Sewer Overflows (SSOs), accidental overflow, spill, release, discharge or diversion of untreated or partially treated wastewater from sanitary sewer systems by requiring that:

1. In the event of an SSO, all feasible steps must be taken to control the released volume and prevent untreated wastewater from entering storm drains, creeks, etc.
2. If an SSO occurs, it must be reported to the SWRCB using an online reporting system developed by the SWRCB.

3. All publicly owned collection system agencies with more than one mile of sewer pipe in the State must develop a Sewer System Management Plan (SSMP), which must be updated every five years.

California Integrated Waste Management Act of 1989 (AB 939)

The California Integrated Waste Management Act of 1989 redefined solid waste management in terms of both objectives and planning responsibilities for local jurisdictions and the state. AB 939 was adopted in an effort to reduce the volume and toxicity of solid waste that is landfilled and incinerated by requiring local governments to prepare and implement plans to improve the management of waste resources. AB 939 requires each of the cities and unincorporated portions of counties throughout the state to divert a minimum of 25 percent of the solid waste sent to landfills by 1995 and 50 percent diverted by 2000. To attain these goals for reductions in disposal, AB 939 established a planning hierarchy utilizing new integrated solid waste management practices. These practices include source reduction, recycling and composting, and environmentally safe landfill disposal and transformation. Other state statutes pertaining to solid waste include compliance with the California Solid Waste Reuse and Recycling Act of 1991 (AB1327), which requires adequate areas for collecting and loading recyclable materials within a project site. As a new waste generator, the proposed Project would be subject to the requirements of these solid waste provisions, as enforced by Madera County.

California Assembly Bill 341

In 2011, AB 341 established a State policy goal that no less than 75 percent of solid waste be reduced, recycled, or composted by 2020, and requiring CalRecycle to provide a report to the Legislature that recommends strategies to achieve the policy goal by January 1, 2014. AB 341 also mandated local jurisdictions to implement commercial recycling by July 1, 2012.

California Public Utilities Commission

The California Public Utilities Commission (CPUC) is a state agency created by a constitutional amendment to regulate privately owned utilities providing telecommunications, electric, natural gas, water, railroad, rail transit, and passenger transportation services, and in-state moving companies. The CPUC is responsible for assuring that California utility customers have safe, reliable utility services at reasonable rates, while protecting utility customers from fraud. The CPUC regulates the planning and approval for the physical construction of electric generation, transmission, and distribution facilities, and the local distribution pipelines for natural gas (CPUC, 2020a).

California Energy Commission

The CEC is the primary energy policy and planning agency in California. Created by the California Legislature in 1974, the CEC has five major responsibilities: (1) forecasting future energy needs and keeping historical energy data; (2) licensing thermal power plants 50 MW or larger; (3) promoting energy efficiency through appliance and building standards; (4) developing energy technologies and supporting renewable energy; and (5) planning for and directing the state response to energy emergencies.

California Building Standards Code (Title 24, Parts 6 and 11)

The California Building Energy Efficiency Standards for Residential and Nonresidential Buildings (California Code of Regulations [CCR], Title 24, Part 6) were adopted to ensure that building construction and system design and installation achieve energy efficiency and preserve outdoor and indoor environmental quality. The current California Building Energy Efficiency Standards (Title 24 standards) are the 2019 Title 24 standards, which became effective on January 1, 2020 (CEC, 2019d). The 2019 Title 24 standards include requirements for solar photovoltaic systems in all new homes, requirements for newly constructed healthcare facilities which were previously not included, the encouragement of demand response and light-emitting diode (LED) technology for both residential and nonresidential buildings, and the use of more efficient air filters to trap hazardous particulates (CEC, 2019d).

The California Green Building Standards Code (CCR Title 24, Part 11), commonly referred to as the CALGreen Code, became effective on January 1, 2017. The 2016 CALGreen Code includes mandatory measures for non-residential development related to site development, energy efficiency, water efficiency and conservation, material conservation and resource efficiency, and environmental quality (CEC, 2017). Most mandatory measure changes, compared to the previous 2013 CALGreen Code, were related to the definitions and to the clarification or addition of referenced manuals, handbooks, and standards. For example, several definitions related to energy that were added or revised affect electric vehicle (EV) chargers and charging, and hot water recirculation systems. For new multi-family dwelling units, the residential mandatory measures were revised to provide additional EV charging requirements, including quantity, location, size, single EV space, multiple EV spaces, and identification. For non-residential mandatory measures, Table 5.106.5.3.3 of the CALGreen Code identifying the number of required EV charging spaces has been revised in its entirety. Refer to Section 3.7, Greenhouse Gas Emissions, for additional details regarding these standards.

Senate Bills 1078, 107, and 100, and Executive Order S-14-08

The State of California adopted standards to increase the percentage of electricity that retail sellers, including investor-owned utilities and community choice aggregators, must provide from renewable resources.[5] The standards are referred to as the Renewables Portfolio Standard (RPS). The legislation requires utilities to increase the percentage of electricity obtained from renewable sources to 33 percent by 2020 and 50 percent by 2030.

On September 10, 2018, Governor Jerry Brown signed SB 100, which further increased the California RPS and requires retail sellers and local publicly owned electric utilities to procure eligible renewable electricity for 44 percent of retail sales by December 31, 2024; 52 percent by December 31, 2027; and 60 percent by December 31, 2030. SB 100 also provides that CARB should plan for 100 percent eligible renewable energy resources and zero-carbon resources by December 31, 2045.

[5] SB 1078 (Chapter 526, Statutes of 2002); SB 107 (Chapter 464, Statutes of 2006); Executive Order S-14-08.

CPUC and the CEC jointly implement the RPS program. The responsibilities of the CPUC include: (1) determining annual procurement targets and enforcing compliance; (2) reviewing and approving the renewable energy procurement plan of each investor-owned utility; (3) reviewing contracts for RPS-eligible energy; and (4) establishing the standard terms and conditions used in contracts for eligible renewable energy (CPUC, 2020b). Refer to Section 3.7, Greenhouse Gas Emissions, for additional details regarding this program.

Assembly Bill 32/California Global Warming Solutions Act

In 2006, the California State Legislature adopted AB 32 (codified in the California Health and Safety Code (HSC), Division 25.5 – California Global Warming Solutions Act of 2006, which focuses on reducing GHG emissions in California to 1990 levels by 2020. Under HSC Division 25.5, CARB has the primary responsibility for reducing the State's GHG emissions, however, it also tasked the CEC and the CPUC with providing information, analysis, and recommendations to CARB regarding strategies to reduce GHG emissions in the energy sector.

In 2016, SB 32 and AB 197 amended HSC Division 25.5 and established a new climate pollution reduction target of 40 percent below 1990 levels by 2030 and includes provisions to ensure that the benefits of state climate policies reach into disadvantaged communities. Refer to Section 3.7, Greenhouse Gas Emissions, of this Draft EIR for details regarding these regulations.

2017 Update to Climate Change Scoping Plan

CARB's Climate Change Scoping Plan, which functions as a roadmap to achieve the California GHG reductions required by AB 32 and SB 32 through subsequently enacted regulations, is discussed in detail in Section 3.7, Greenhouse Gas Emissions, of this Draft EIR. In 2017, CARB approved the final version of *California's 2017 Climate Change Scoping Plan* (2017 Scoping Plan Update), which outlines the proposed framework of action for achieving California's new SB 32 2030 GHG target: a 40 percent reduction in GHG emissions by 2030 relative to 1990 levels (CARB, 2017a). The 2017 Scoping Plan Update identifies key sectors of the implementation strategy, which includes improvements in low carbon energy, industry, transportation sustainability, natural and working lands, waste management, and water. The Scoping Plan references a 2013 study by the CEC that shows 12 percent of the total energy used in the state is related to water, with 10 percent associated with water-related end uses (e.g., heating, cooling, pressurizing, and industrial processes) and 2 percent associated with energy used by water and wastewater systems (e.g., pump, convey, treat). These figures indicate that the greatest potential for water-related energy savings resides with water end users, while water agencies have a role in improving end-user water conservation and in reducing the energy intensity of their portfolios. The RPS and other regulations are expected to decarbonize the electricity sector over time, which will in turn reduce the consumption of fossil-fuel-based energy to produce water.

Assembly Bill 1493 (AB 1493)/Pavley Regulations

The transportation sector accounts for more than half of carbon dioxide (CO_2) emissions in California. AB 1493 (commonly referred to as the Pavley regulations), enacted on July 22, 2002, requires CARB to set GHG emission standards for new passenger vehicles, light-duty trucks, and

other vehicles manufactured in and after 2009 whose primary use is non-commercial personal transportation. Phase I of the legislation established standards for model years 2009–2016 and Phase II established standards for model years 2017–2025 (CARB, 2017b; USEPA, 2012). Refer to Section 3.7, Greenhouse Gas Emissions, for additional details regarding this regulation.

Senate Bill 375 (SB 375, Steinberg) (Chapter 728, Statutes of 2008)

In 2008, SB 375 established mechanisms for the development of regional targets for reducing passenger vehicle GHG emissions. Under SB 375, the target must be incorporated within that region's Regional Transportation Plan (RTP), which is used for long-term transportation planning, in a Sustainable Communities Strategy (SCS). Certain transportation planning and programming activities would then need to be consistent with the SCS; however, SB 375 expressly provides that the SCS does not regulate the use of land, and further provides that local land use plans and policies (e.g., general plan) are not required to be consistent with either the RTP or SCS. Refer to Section 3.7, Greenhouse Gas Emissions, of this Draft EIR for details regarding these standards.

Senate Bill 1389

Senate Bill (SB) 1389 (PRC Sections 25300–25323) requires the CEC to prepare a biennial integrated energy policy report that assesses major energy trends and issues facing the electricity, natural gas, and transportation fuel sectors in California, and to provide policy recommendations to conserve resources; protect the environment; ensure reliable, secure, and diverse energy supplies; enhance the state economy; and protect public health and safety (PRC Section 25301(a)).

The 2017 Integrated Energy Policy Report provides the results of CEC assessments on a variety of energy issues facing California:

- Energy efficiency
- Strategies related to data for improved decisions in the Existing Buildings Energy Efficiency Action Plan
- Building energy efficiency standards
- The impact of drought on the California energy system
- Achieving 50 percent renewables by 2030
- The California Energy Demand Forecast
- The Natural Gas Outlook
- The Transportation Energy Demand Forecast
- Alternative and Renewable Fuel and Vehicle Technology Program benefits updates
- An update on electricity infrastructure in Southern California
- An update on trends in California sources of crude oil
- An update on California nuclear plants
- Other energy issues

Airborne Toxic Control Measure to Limit Diesel-Fueled Commercial Motor Vehicle Idling

In 2004, CARB adopted the Airborne Toxic Control Measure to Limit Diesel-Fueled Commercial Motor Vehicle Idling to reduce public exposure to diesel particulate matter emissions (13 CCR Section 2485). The measure applies to diesel-fueled commercial vehicles with gross vehicle weight ratings greater than 10,000 pounds that are licensed to operate on highways, regardless of where they are registered. This measure prohibits diesel-fueled commercial vehicles from idling for more than 5 minutes at any given location. While the goal of this measure is primarily to reduce public health impacts from diesel emissions, compliance with the regulation also results in energy savings in the form of reduced fuel consumption from unnecessary idling.

Airborne Toxic Control Measure for Stationary Compression Ignition Engines

In 2004, CARB adopted an Airborne Toxic Control Measure to reduce public exposure to emissions of diesel particulate matter and criteria pollutants from stationary diesel-fueled compression ignition engines (17 CCR Section 93115). The measure applies to any person who owns or operates a stationary compression ignition engine in California with a rated brake horsepower greater than 50, or to anyone who either sells, offers for sale, leases, or purchases a stationary compression ignition engine. This measure outlines fuel and fuel additive requirements; emission standards; recordkeeping, reporting and monitoring requirements; and compliance schedules for compression ignition engines.

Low Carbon Fuel Standard

The Low Carbon Fuel Standard (LCFS), established in 2007 through Executive Order S-1-07 and administered by CARB, requires producers of petroleum-based fuels to reduce the carbon intensity of their products, starting with 0.25 percent in 2011 and culminating in a 10 percent total reduction in 2020. Petroleum importers, refiners, and wholesalers can either develop their own low-carbon fuel products or buy LCFS credits from other companies that develop and sell low-carbon alternative fuels, such as biofuels, electricity, natural gas, and hydrogen.

Truck and Bus Regulation

In addition to limiting exhaust from idling trucks, in 2008 CARB approved the Truck and Bus Regulation to reduce the emissions of oxides of nitrogen and particulate matter from existing diesel vehicles operating in California (13 CCR Section 2025). The phased regulation aims to reduce emissions by requiring installation of diesel soot filters and encouraging the retirement, replacement, or retrofit of older engines with newer emission-controlled models. This regulation will be implemented in phases, with full implementation by 2023.

CARB also promulgated emission standards for off-road diesel construction equipment of greater than 25 horsepower such as bulldozers, loaders, backhoes, and forklifts, as well as many other self-propelled off-road diesel vehicles. The In-Use Off-Road Diesel-Fueled Fleets regulation adopted by CARB on July 26, 2007, aims to reduce emissions by installing diesel soot filters and encouraging the retirement, replacement, or repower of older, dirtier engines with newer emission-controlled models (13 CCR Section 2449). The compliance schedule requires full implementation by 2023 in all equipment for large and medium fleets and by 2028 for small fleets.

While the goals of these measures are primarily to reduce public health impacts from diesel emissions, compliance with the regulation has shown an increase in energy savings in the form of reduced fuel consumption from more fuel-efficient engines (Cummings, 2014).

California Air Resources Board Advanced Clean Car Program

The Advanced Clean Cars emissions-control program, approved by CARB in 2012, is closely associated with the Pavley regulations. The program requires a greater number of zero-emission vehicle models for years 2015 through 2025 to control smog, soot, and GHG emissions. This program includes the Low-Emissions Vehicle regulations to reduce emissions of criteria air pollutants and GHGs from light- and medium-duty vehicles; and the Zero-Emissions Vehicle regulations, which require manufacturers to produce an increasing number of pure zero-emissions vehicles (battery and fuel cell electric vehicles) and include the provision to produce plug-in hybrid electric vehicles between 2018 and 2025. The increase in low- and zero-emission vehicles would result in a decrease in consumption of non-renewable fuel such as gasoline and diesel. Senate Bill 1374, Construction and Demolition Waste Materials Diversion Requirements

Senate Bill (SB) 1374 was signed into law in 2002 to assist jurisdictions with diverting their construction and demolition (C&D) waste. The legislation requires the CIWMB (now CalRecycle) complete five items in regards to the diversion of construction and demolition waste: (1) adopt a model ordinance for diverting 50 percent to 75 percent of all construction and demolition debris from landfills; (2) consult with multiple regulators and waste entities (e.g., California State Association of Counties, private and public waste services, building construction materials industry, etc.) during the development of the model ordinance; (3) compile a report on programs that can be implemented to increase diversion of C&D waste; (4) post a report on the agency's website for general contractors on methods that contractors can use to increase diversion of C&D waste materials; (5) post on the agency's website a report for local governments with suggestions on programs to increase diversion of C&D waste. Under SB 1374, jurisdictions must also include in their annual AB 939 report a summary of the progress made in diverting C&D waste. The model ordinance was adopted by CalRecycle on March 16, 2004. (CalRecycle, 2018)

Regional

Regional Water Quality Control Board

Each RWQCB is required to develop, adopt, and implement a Basin Plan for its respective region. A Basin Plan is the master policy document that contains description of the legal, technical, and programmatic bases of water quality regulation in each region. Basin Plans identify beneficial uses of surface waters and groundwater within the corresponding region; specify water quality standards and objectives for both surface and groundwater; and develop the actions necessary to maintain the standards to control nonpoint and point sources of pollutants to the state's waters. All discretionary projects requiring permits from the RWQCB such as waste and pollutant discharge permits, must implement Basin Plan requirements and take into consideration the beneficial uses to be protected.

The Project site is located within the jurisdiction of the Central Valley Regional Water Quality Control Board (Central Valley RWQCB), which is Region 5 of the nine RWQCBs. The proposed Project is subject to the Central Valley RWQCB Water Quality Monitoring Plan (Central Valley RWQCB, 2018). Refer to Section 3.9, Hydrology and Water Quality, of this Draft EIR for details regarding the Central Valley RWQC and the beneficial uses designated in the Basin Plan applicable to the proposed Project.

Recycled Water

The California Water Code defines recycled water (alternatively called reclaimed water) as "water which, as a result of treatment of waste [water], is suitable for a direct beneficial use or a controlled use that would not otherwise occur." Recycled water is wastewater that has been highly purified through multiple stages of treatment to meet stringent and protective health and safety standards set by the California Department of Public Health (CDPH). Federal laws provide regulation of recycled water through the Water Pollution Control Act of 1972 (also referred to as the CWA) and its related amendments. However, California has primary responsibility for the development of regulations regarding the treatment and distribution of recycled water and operation of recycled water facilities. The following laws govern the use of recycled water in California:

- California Health and Safety Code (Division 104; Part 12);
- California Water Code (Division 7; Chapters 2, 6, 7, and 22);
- California Code of Regulations, Title 22 (Division 4; Chapters 1, 2, and 3); and
- California Code of Regulations, Title 17 (Division 1; Chapter 5).

Recycled water laws are enforced by CDPH and the RWQCB. Recycled water must meet CDPH water quality reuse criteria, as specified in Sections 60301 through 60355 of Title 22 of the CCR. These regulations provide specific treatment requirements as well as water quality criteria appropriate for the intended use of the recycled water. In addition, the order specifies prohibitions on the application of recycled water to ensure that this water does not enter a surface water body or otherwise degrade surface or groundwater quality. Recycled water that is treated to higher standards (i.e., advanced treatment) can be discharged to surface water bodies, including water bodies that allow body-contact water recreational activities (Section 60301.620).

An agency that produces recycled water must submit a notice of intent and technical report to both the RWQCB and CDPH, including a description of the existing or proposed treatment, storage, and transmission facilities for water reuse; the types of applications for which the recycled water will be used; a description of the agency's water reuse permit program; a description of the reuse program administration specifying how the permitting system for regulating users will be implemented and how compliance with the CDPH reuse criteria will be approved; and any additional site-specific information that is appropriate. The order becomes effective upon written approval of the notice of intent by the RWQCB.

The producer of recycled water must establish and enforce rules and regulations for recycled water uses that govern the design and construction of recycled water facilities and the reuse of recycled water in accordance with CDPH reuse criteria. The producer must also develop a water

reuse monitoring program in accordance with the self-monitoring requirements of the order, submit an annual monitoring report to the RWQCB, and conduct periodic inspections of the user's facilities and operations to monitor and assure compliance with the conditions of the producer's permit.

The CDPH has prepared draft Groundwater Recharge Reuse regulations for the use of recycled water for recharge of groundwater by surface spreading or subsurface injection, and a separate National Pollutant Discharge Elimination System (NPDES) permit is required for use of recycled water for these purposes.

National Pollutant Discharge Elimination System, General Construction Storm Water Permit

RWQCB administers the NPDES stormwater permitting program in the Central Valley region. Construction activities disturbing one acre or more of land are subject to the permitting requirements of the NPDES General Permit for Discharges of Storm Water Runoff Associated with Construction Activity (NDPES General Construction Permit). The County must submit a Notice of Intent to RWQCB to be covered by the General Construction Permit prior to the beginning of construction. The NDPES General Construction Permit requires the preparation and implementation of a SWPPP. The SWPPP must be prepared before construction begins.

Electricity Forecasts

The CEC released the California Energy Demand 2018–2030 Revised Forecast, which describes the CEC's revised 12-year forecasts for electricity consumption, retail sales, and peak demand for each of five major electricity planning areas and for the state as a whole. For the PG&E planning area, the forecasts predict annual growth in electricity demand due in part to higher electric vehicle (EV), residential (excluding EVs), and manufacturing forecasts (CEC, 2018).

Natural Gas Forecasts

PG&E, along with four other California utility providers released the *2018 California Gas Report*, presenting a forecast of natural gas supplies and requirements for California through the year 2035. This report predicts gas demand for all sectors (residential, commercial, industrial, energy generation and wholesale exports) and presents best estimates, as well as scenarios for hot and cold years. Overall, PG&E predicts a decrease in natural gas demand in future years due to a decrease in per capita usage, energy efficiency policies, and the State's transition to renewable energy displacing fossil fuels including natural gas (California Gas and Electric Utilities, 2019).

County Municipal Code 17.28.030, Flood control and drainage

Madera County Municipal Code 17.28.030 requires flood control or drainage systems within land division to carry storm runoff both tributary to, and originating within the land division in accordance with the flood control practices established by the County. Post development drainage flow shall be limited to the predevelopment rate. Areas known to be dangerous by reason of geological conditions, unstable subsurface conditions, ground water or seepage conditions, flood hazard, inundation, erosion or any other dangerous condition shall not be divided except under

restrictions as to use of all or any part thereof. Said portions shall be clearly shown and so stated on or in an additional document or additional map sheet recorded at the same time as the final map.

County Municipal Code 13.110, Large Scale Development Groundwater Balance

County Municipal Code 13.110, Large Scale Development Groundwater Balance, requires large scale developments to demonstrate a groundwater balance for the development. The groundwater balance is provided in the WSA for the Project. A project meets the County's balance requirements if the project demand, less recharge credits, does not exceed the sustainable yield of the groundwater basin.

County Municipal Code 14.60, Floodplain Development Requirements

Development within a floodplain is regulated by the Flood Damage and Prevention County Municipal Code 14.60 which provides specific development requirements for both residential and non-residential development. When a development encroaches in a Zone A without a regulatory floodway, the development must demonstrate that it will not increase the base flood elevation more than 1-foot and assure that the flood carrying capacity within the altered or relocated portion of any watercourse is maintained. This information would be provided in the development permit prepared in accordance with Section 14.60.120. The development permit shall be obtained before any construction or other development, including manufactured homes, within any area of special flood hazard established in Section 14.60.050. Section 14.60.050 establishes the areas of special flood hazard and adopts the areas identified by the Federal Emergency Management Agency (FEMA) in the "Flood Insurance Study, Madera County, California, Unincorporated Areas" dated August 4, 1987, with accompanying flood insurance rate maps (FIRM's) and flood boundary and floodway maps (FBFM's), dated August 4, 1987, and all subsequent amendments and/or revisions. In accordance with Section 14.60.120, an application for a development permit shall be made on forms provided by the County.

Madera County Groundwater Management Plan

The Madera Regional Groundwater Management Plan (GMP) was prepared in December 2014 to provide an outline for a coordinated regional effort between participating agencies to implement steps to improve groundwater conditions within the San Joaquin Valley portion of Madera County. The GMP Participants include City of Chowchilla; Chowchilla Water District; City of Madera; Madera County; Madera Irrigation District; and South-East Madera County United. Several water districts within the County have prepared similar groundwater management plans for their respective areas. The proposed Project is located within Madera County's jurisdiction.

Madera County Integrated Regional Water Management Plan

The Madera Integrated Regional Water Management Plan (IRWMP) is a collaborative effort, includes Madera County, and is between 17 public, private, and not-for-profit groups, and agencies signatory to the Memorandum of Understanding (MOU) which formed the Madera Regional Water Management Group (RWMG). This group also includes non-signatory groups and agencies who participated in the process and share an interest in managing water resources throughout Madera County and its watersheds. Integrated Regional Water Management (IRWM) Planning is the primary function of the RWMG. An IRWMP, is a voluntary and comprehensive

non-regulatory planning document prepared on a region-wide scale that identifies broadly-supported priority water resources projects and programs with multiple benefits. The process of creating an IRWMP is locally-driven and includes input from many diverse stakeholders. An IRWMP investigates a broad spectrum of water resource issues including water supply, flood management, water quality, environmental restoration, recreation, land use, environmental justice, stakeholder involvement, and far reaching community and statewide interests.

The first IRWMP was completed in 2008. An updated plan, prepared in accordance with all the current requirements, was completed by the RWMG in December of 2014. The IRWMP estimates domestic water demands in the Valley are at least 24,000 AF per year. Agricultural water demands total slightly over 1,000,000 AF per year (Madera Regional Water Management Group, 2014).

Local

Madera County General Plan

The Madera County General Plan provides the following policies relevant to the proposed Project.

Water

Policy 3.A.2: The County shall ensure that public facilities and services are developed and operational as they are needed to serve new development.

Policy 3.A.3: The County shall require new urban development to be served by community sewer and water systems where such systems are available or can feasibly be provided.

Goal 3.C: To ensure the availability of an adequate and safe water supply and the maintenance of high-quality water in water bodies and aquifers used as sources of domestic and agricultural water supply.

Policy 3.C.1: The County shall approve new development only if an adequate water supply to serve such development is demonstrated.

Policy 3.C.2: The County shall approve new development based on the following guidelines for water supply:

a. Urban and suburban development should rely on community water systems.

b. Rural communities should rely on community water systems. Individual wells may be permitted in cases where no community water systems exists or can be extended to the property, but development will be limited on densities which can be safely developed with wells.

c. Agricultural areas should rely on public water systems where available, otherwise individual water wells are acceptable.

Policy 3.C.3: The County shall limit development in areas identified as having severe water table depression to uses that do not have high-water usage or to uses served by a surface water supply.

Policy 3.C.4: The County shall require that water supplies serving new development meet state water quality standards.

Policy 3.C.6: The County shall promote efficient water use and reduced water demand by:

a. Requiring water-conserving design and equipment in new construction;

b. Encouraging water-conserving landscaping and other conservation measures;

c. Encouraging retrofitting existing development with water-conserving devices; and

d. Encouraging use of recycled or grey water for landscaping.

Policy 3.C.7: The County shall promote the use of reclaimed wastewater to offset the demand for new water supplies.

Policy 3.C.8: The County shall support opportunities for groundwater users in problem areas to convert to surface water supplies.

Wastewater

Goal 3.D: To ensure adequate wastewater collection and treatment and the safe disposal of liquid and solid waste.

Policy 3.D.1: The County shall limit the expansion of urban communities to areas where community wastewater treatment systems can be provided. In areas with no public wastewater treatment systems, the County shall limit development to densities that can safely be developed with on-site systems.

Policy 3.D.2: The County shall promote efficient water use and reduced wastewater system demand by:

a. Requiring water-conserving design and equipment in new construction;

b. Encouraging retrofitting with water-conserving devices; and

c. Designing wastewater systems to minimize inflow and infiltration, to the extent economically feasible.

Policy 3.D.4: The County shall require that the development, operation, and maintenance of on-site disposal systems complies with the requirement and standards of the County Department of Environmental Health.

Landfills, Transfer Stations, and Solid Waste Recycling

Goal 3.F: To ensure the safe and efficient disposal or recycling of solid waste generated in Madera County.

Policy 3.F.1: The County shall require waste collection in all new urban and suburban development.

Policy 3.F.2: The County shall promote maximum use of solid waste source reduction, recycling, composting, and environmentally-safe transformation of wastes.

Policy 3.F.6: The County shall require that all new development complies with applicable provisions of the Madera County Integrated Waste Management Plan.

Air Quality

Policy A1.2.1: Facilitate efforts that increase the public's understanding of the linkage between land use, transportation, water and energy use and air pollution. Efforts should include informing the public of measures that can be taken and resources that are available to improve air quality and reduce potential climate change impacts.

Policy D2.1.3 Encourage and support private sector employer based trip reduction programs such as alternative work schedules, rideshare matching, and transit subsidies.

Transportation and Circulation

Policy 2.A.1. The County shall encourage, where appropriate, development of an integrated, multi-modal transportation system that offers attractive choices among modes including pedestrian ways, public transportation, roadways, bikeways, rail, and aviation.

Policy 2.A.5. The County shall require that land use form and transportation systems in designated new growth areas be designed to provide residents and employees with the opportunity to accomplish many of their trips within the new growth area by walking, bicycling, and using transit.

Policy 2.A.7. The County shall support public and private efforts where appropriate to provide alternative choices to single occupant driving.

Policy 2.A.26. The County shall require that new nonresidential development provide for off-street parking, either on-site or through contributions to consolidated lots or structures, particularly where these facilities are located in or near residential areas.

Policy 2.A.27. The County shall ensure that new automobile parking facilities are designed to facilitate safe and convenient pedestrian access, including clearly defined corridors and walkways connecting parking areas with buildings.

Policy 2.B.6. The County shall ensure the installation of signals, signs, lighting, and other traffic safety and operation improvements necessary for the safe and efficient movement of automobiles, trucks, farm equipment, bicyclists, and pedestrians.

Policy 2.B.7. The County shall encourage large private developments (e.g., office parks, apartment complexes, retail centers) to provide internal complete streets that connect to the existing roadway system.

Policy 2E.4. New bikeways should be linked with other bikeways, bicycle rest stops, and parks to provide safe and continuous routes.

Policy 2E.6. The County shall require that bikeways recommended in the Bicycle Master Plan be developed when roadway projects are constructed and when street frontage improvements are required of new development.

Policy 2E.9. The County shall require that sidewalks in unincorporated communities be developed at sufficient width to accommodate pedestrians in accordance with the Americans with Disabilities Act.

Policy 2E.12. The County shall require developers to finance and install pedestrian walkways, equestrian trails, and multi-purpose paths in new development, as appropriate.

3.16.3 Impacts and Mitigation Measures

Significance Criteria

For the purposes of this EIR and consistency with Appendix G of the CEQA Guidelines, applicable local plans, and agency and professional standards, the proposed Project would have a significant effect on utilities and service systems if it would:

- Require or result in the relocation or construction of new or expanded water, wastewater treatment or stormwater drainage, electric power, or telecommunications facilities or the construction or relocation of which could cause significant environmental effects (see Impact 3.16-1 below);
- Not have sufficient water supplies available to serve the Project and responsibly foreseeable future development during normal, dry and multiple dry years (see Impact 3.16-2 below);
- Result in a determination by the wastewater treatment provider which serves or may serve the Project that it has inadequate capacity to serve the Project's projected demand in addition to the provider's existing commitments (see Impact 3.16-3 below);
- Generate solid waste in excess of state or local standards, or in excess of the capacity of local infrastructure, or otherwise impair the attainment of solid waste reduction goals (see Impact 3.16-4 below); or
- Not comply with federal, state, and local management and reduction statutes and regulations related to solid waste (see Impact 3.16-5 below).

For the purposes of this EIR and consistency with Appendix G of the CEQA Guidelines, applicable local plans, and agency and professional standards, the proposed Project would have a significant effect on energy if it would:

- Result in potentially significant environmental impact due to wasteful, inefficient, or unnecessary consumption of energy resources, during Project construction or operation (see Impact 3.16-6, below)
- Conflict with or obstruct a state or local plan for renewable energy or energy efficiency (see Impact 3.16-7, below).

Methodology

The potential for adverse impacts on utilities, service systems and energy has been evaluated based on the information concerning current service levels and the ability of the service providers to accommodate the increased demand created by the proposed Project.

Water Supply: The analysis of water supply is focused on the nature and magnitude of the change in levels of water use from Project buildout. The primary resources used for this analysis include the WSA prepared for the proposed Project (Tully and Young, May 2019; Appendix I-2 of this Draft EIR). The projected increase in water demand over the 20-year horizon of the Specific Plan is compared to future available water supplies. Further, the analysis includes an assessment of water supply sufficiency in single dry years and multiple dry years – not just under normal, or average hydrologic conditions. The demand generated by the proposed Project at buildout compared to water supplies available as well as the WSA, determines whether an impact from implementation of the proposed Project would occur. If buildout of the proposed Project would result in new or expanded water supply entitlements, a significant impact would occur.

The County has prepared the WSA because (1) the City of Madera ("City") does not plan to serve the proposed Project, though it lies within the City's Urban Growth Boundary, and (2) the Madera Valley Water Company, a local mutual water company serving approximately 2,000 customers nearby, is unable to make any commitments to expand its shareholder service area at this time. This document provides the necessary information for the County to make its determinations and to comply with the assessment of water supply sufficiency as required by the WSA Law.

Water/Wastewater Treatment Capacity: The analysis of water infrastructure capacity and wastewater treatment facility capacity focuses on the change in demand for water supplies and wastewater treatment from buildout of the Project, based on the projected increase in water demand and wastewater generation from full operation of the Project. An analysis of whether any infrastructure improvements, beyond those proposed as part of the Project, would be necessary to provide service to the Project area over the life of the proposed Project would be determined from the estimated increase in water demand and wastewater generation and location of planned uses. Impacts are considered significant if buildout of the Project would result in the need for construction of water and wastewater facilities that could result in a significant impact on the environment.

Energy System Capacity: This analysis addresses the Project's potential energy usage, including electricity, natural gas, and transportation fuel. Energy consumption during both construction and operation is assessed. Specific analysis methodologies are discussed below in Impact 3.16-6 and 3.16-7. Assumptions and modeling calculations are provided in Appendix M of this Draft EIR, and are based on the same assumptions as are used in Section 3.3, Air Quality and Section 3.7, Greenhouse Gas Emissions of this Draft EIR.

Landfill Capacity: The analysis of the proposed Project's impact on landfill facilities identifies solid waste that is anticipated to be generated during construction and operation of the Project. The analysis identifies the projected amount of non-hazardous construction debris and operational

solid waste that would be generated from implementation of the Project and the amount that would be disposed of in landfills after compliance with recycling/diversion requirements. The results are compared with the available capacity of the landfill serving the Project area to assess the significance of the Project's solid waste generation during construction and buildout. Impacts would be considered significant if the Project would result in a substantial increase in solid waste that would affect landfill capacity, such that a new or expanded landfill facility would be required, which could result in a significant impact on the environment.

Solid Waste Standards: The analysis of the proposed Project and its impact related to solid waste standards identifies the solid waste amounts that are projected to be generated by the proposed Project daily, annually and through Project buildout. Impacts would be considered significant if the Project would generate solid waste in excess of State and local standards set to attain solid waste reduction goals. The projected solid waste generation amounts for the Project are compared to State and local standards.

Impacts Discussion

Utilities Facilities

Impact 3.16-1a: The Phase 1 Project would have a less than significant and less than cumulatively considerable physical environmental impacts from construction activities associated with the need for new or expanded water, wastewater treatment or stormwater drainage, electric power, or telecommunications facilities in order to maintain acceptable service.

Phase 1 Project Impact Analysis

Construction

Water

Construction activities associated with the Phase 1 Project would include excavation activities during grading. Groundwater extracted from onsite wells would be used for dust suppression during earthwork activities. Based on the Water Supply Assessment that was prepared for the Specific Plan Program, approximately 4 acre-feet per year (AFY) was estimated to be used during construction activities. Because construction activities for the Phase 1 Project would occur over an approximately one year, approximately 4 AF would be used. The use of 4 AF of groundwater would not be considered substantial and would adequately be provided by onsite wells. No additional offsite water facilities would be required to supply the Phase 1 Project with water during construction. Therefore, the Phase 1 Project would result in a less than significant impact related to construction of water facilities.

Wastewater Treatment

Construction of the proposed Project would generate a minimal volume of wastewater. During construction activity, wastewater would be contained within portable toilet facilities and disposed of at an approved disposal site. The Madera County Environmental Health Division is responsible for monitoring the use of portable toilet facilities, and a condition of approval would require the Project proponent to provide documentation of a portable toilet pumping contract. No offsite sewage or disposal connections to a municipal sewer system exist or are proposed for construction and, thus, impacts during construction would be less than significant.

Stormwater Drainage

Construction of the Phase 1 Project would require grading and earth moving and would be subject to erosion and sedimentation control requirements of a County-approved grading and erosion control plan, as well as BMPs set forth in a SWPPP. Sedimentation control BMPs can include a combination of measures such as avoidance of construction activities during storm events; use of silt fences, fiber rolls, and berm barriers; storm drain inlet protection; tracking controls to prevent off-site tracking of sediment; soil stockpile management; dedicated areas for equipment maintenance and fueling; hydroseeding and mulching; and the use of geotextiles and erosion control blankets. These measures would be detailed in the erosion control plans and would reduce impacts related to stormwater. The construction of the Phase 1 Project would not result in the need for offsite stormwater facilities as it would all be controlled within the Project boundaries. Therefore, impacts would be less than significant.

Operation

Wastewater Treatment

WWTP facilities which may be constructed as part of the Phase I Project include collection, treatment, disposal, and redistribution of treated reclaimed water. Wastewater would be collected and conveyed through a gravity system of pipes, supplemented by one or more lift station(s), if required, and flow to the onsite WWTP, which would be located at or near a low elevation point in the northwest corner of the Phase 1 Project site.

Facilities included as part of the WWTP would include a pumping station (as required); effluent disinfection; biosolids digestion, dewatering, and hauling; effluent pumping and storage for reuse; administration and laboratory; and electrical supply, distribution, instrumentation. The WWTP building would incorporate odor minimizing features and architectural features to screen the plant from surrounding land uses. This would include such measures as enclosing the WWTP with fencing and landscaping and designing the building consistent with the design guidelines as described in the Specific Plan. Bio-solids removed during the treatment process would be transferred via truck to a local landfill or other appropriate facility for disposal.

No offsite improvements would be required for wastewater treatment. Therefore, the Project would not result in physical impacts associated with the need for construction of new or expanded wastewater treatment. Impacts would be less than significant.

Water

The operational activities associated with the Phase 1 Project would require groundwater for potable use as well as recycled water for irrigation. The Phase 1 Project includes 67 low density and 50 very low density residential units. The potable water demand for the units (indoor and outdoor use) is approximately 25 AFY (0.37 AFY x 67 units) and approximately 30 AFY (0.59 AFY x 50 units) for a total residential demand of 55 AFY. In addition to residential, the Phase 1 Project includes a 5-acres neighborhood park and 34 acres of open space that includes the wastewater treatment plant. The 5-acres neighborhood park is estimated to demand approximately 2 AFY (1.73 AFY x 5.0 acres x 0.75 of the park requiring irrigation water) of recycled water. The 34 acres of open space is projected to demand 2.6 AFY primarily to establish the plant species for a total of approximately 88 AFY of recycled water. Therefore, the Phase 1 Project would demand

approximately 145 AFY of water until the plant species within the open space area are established. After they are established, the Phase 1 Project would demand 57 AFY. A Water Supply Assessment, consistent with the requirements of Water Code Section 10910 et seq has been conducted and identifies that the water supplies for the Project will be sufficient to meet the Project's water demands over a 20-year horizon.

Potable supplies will be delivered through a looped water system with stubs to connect with each of the proposed villages and neighborhoods. The looped water system would be implemented as part of the Phase 1 Project. The Phase 1 Project would not require new or expanded water facilities offsite. Therefore, the Phase 1 Project would result in less than significant impacts.

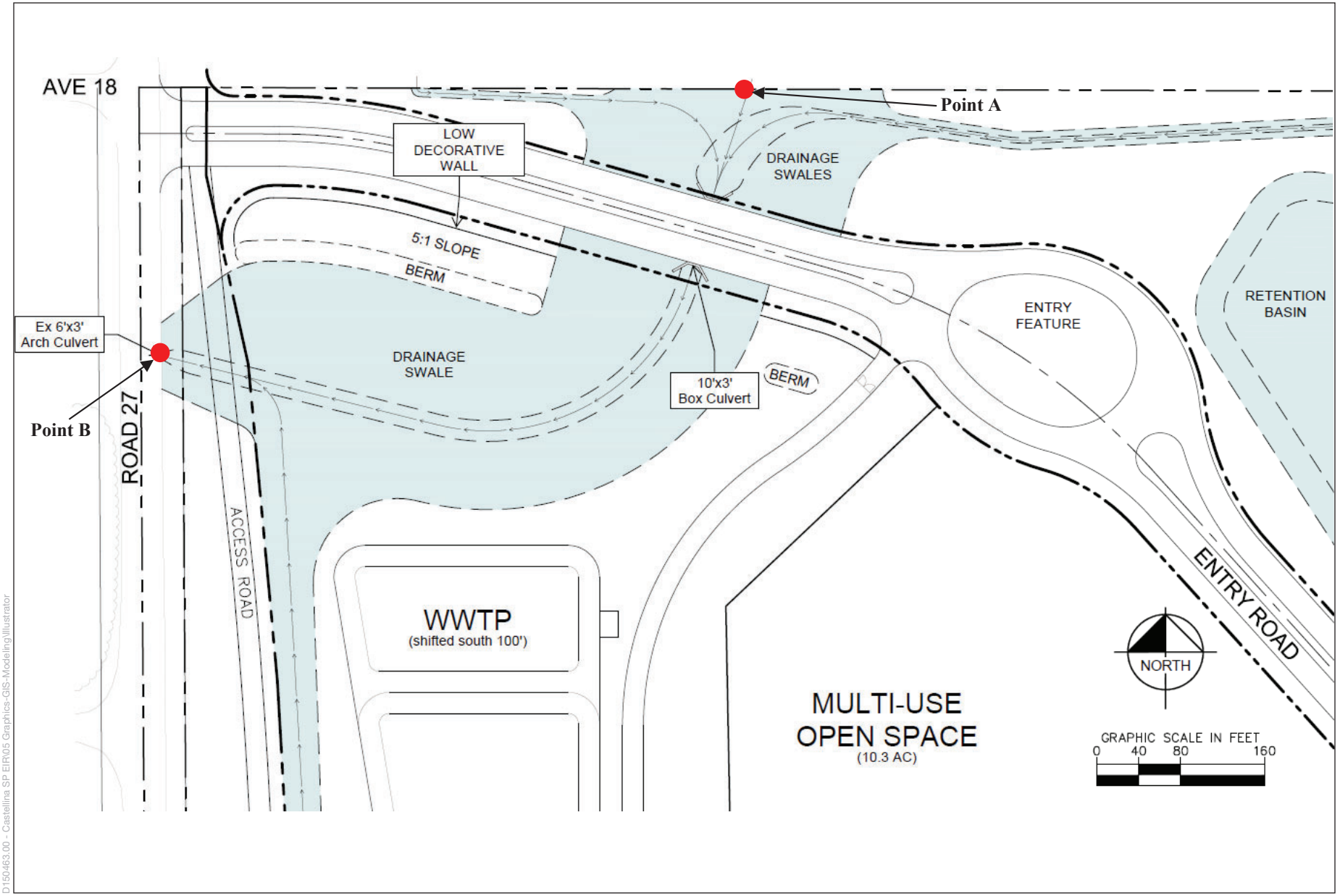
Stormwater Drainage

The Phase 1 Project includes the construction of a stormwater drainage system. Several source control (structural and non-structural) and treatment control BMPs during its operation as required by the Phase II Small Municipal Separate Storm Sewer System (MS4) General Permit (Phase II MS4 Permit) would be implemented. Treatment control BMPs would include the proposed retention basins where the runoff will be allowed to settle and then conveyed to proposed underground reinforced concrete pipes that eventually lead to the northwest corner of the site and exit under Road 27 through the existing culvert (see **Figure 3.16-1**). These facilities would be regularly maintained.

The proposed stormwater system that includes the detention basins within the Phase 1 Project area would detain the differential runoff between the pre-development and post-development condition. Under the 100-year storm event, the pre-development condition of the peak runoff for Sub-basin J-K3, which exits the site at the culvert under Road 27, is 84 cubic feet per second (cfs) and the post-development condition is 59 cfs. Under the 25-year storm event at Sub-basin J-K3, the pre-development condition is 36 cfs and the post-development condition is 20 cfs.

Further, stormwater is anticipated to be used to recharge the underlying aquifer and would not flow offsite. This feature would allow the Phase 1 Project to meet the County's water conservation ordinance requirements for large development.

The County requires that the development would not increase the base flood elevation more than 1 foot and that the flood carrying capacity within the altered portion of Schmidt Creek Tributary is maintained. The Phase 1 Project would need to connect to the proposed culvert under Road 27. This culvert routes Schmidt Creek Tributary flows under Road 27. Offsite flows would occur at three locations. The offsite hydrology model resulted in a 100-year peak flow of 155 cfs for the Schmidt Creek Tributary entering the site. This is less than the Federal Emergency Management Agency (FEMA) effective flow reported in the Flood Insurance Study (FIS) for Madera County (HMC Engineering, Inc., 2019) which uses the flow at the confluence of Schmidt Creek, over 1.3 miles downstream of Road 27. The hydrology model used is more detailed than what was used by FEMA and is more representative of the flows in the Schmidt Creek Tributary as it enters the Phase 1 Project site. The hydrographs generated by the offsite hydrology model were then used to size the culvert under the Phase 1 Project's entrance road. The 100-year event is contained within the wide flow paths. The proposed base flood elevations do not increase by more than 1-foot as shown in **Table 3.16-2**.



D150463.00 - Castellina SP EIR\05 Graphics-GIS-Modeling\Illustrator

SOURCE: Kimley Horn, 2019

County of Madera • Castellina Specific Plan • Draft EIR

Figure 3.16-1
Drainage at Northwestern Corner of Phase 1 Project Site

ESA

TABLE 3.16-2
100-YEAR WATER SURFACE ELEVATIONS

	Elevation (Feet)		
Location	**Existing**	**Phase 1**	**Difference from Existing (Feet)**
Point A	281.6	282.2	+0.6
Point B	281.6	281.9	+0.3

SOURCE: HMC Engineering, Inc., 2019

As such, the Phase 1 Project will not increase the amount of surface runoff in a manner that would exceed the capacity of planned stormwater systems, as the drainage systems proposed would be more than adequate for the Phase 1 Project needs. Additionally, the Phase 1 Project would not result in impacts to the floodplain and carrying capacity within the altered portion of Schmidt Creek Tributary. Thus, the impact is less than significant.

Significance Determination before Mitigation: Less than Significant

Phase 1 Project Cumulative Impact Analysis

The geographic scope for cumulative impacts related to utilities facilities include all projects within the Madera Sub-basin including the projects identified in Table 3.0-1 in Section 3.0.2 as well as major subdivisions within the southern portion of the County of Madera such as Tesoro Viejo that includes over 5,000 residential units and Riverstone that includes approximately 6,600 residential units. The majority of the cumulative projects listed in Table 3.0-1 are not considered major subdivision because each project would not generate a demand for water or result in stormwater runoff and wastewater that is equivalent to 500 residential units. The implementation of each of these smaller projects would result in a less than significant impact on utilities infrastructure.

The Ventana Specific Plan project within Table 3.0-1 includes approximately 857 units which is considered a major subdivision. Because each major subdivision project is required to demonstrate adequate water service, wastewater management, wastewater treatment, and stormwater management, the implementation of the cumulative major subdivision projects would result in a less than significant impact on existing or planned infrastructure. Therefore, cumulative projects would result in a less than significant impact related to exceedance of utility facilities.

Because the Phase 1 Project would not require new construction of facilities due to an exceedance of existing or planned water, wastewater treatment, and stormwater drainage facilities, impacts would be less than significant, and the contribution of the Phase 1 Project's impact would be less than cumulatively considerable.

Significance Determination before Mitigation: Less than Significant

Phase 1 Project Mitigation Measures

No mitigation measures are required.

Significance Determination after Mitigation: Less than Significant

Phase 1 Project Cumulative Measures

No mitigation measures are required.

Significance Determination after Mitigation: Less than Significant

Impact 3.16-1b: The proposed Program would have a less than significant and less than cumulatively considerable physical environmental impacts from construction activities associated with the need for new or expanded water, wastewater treatment or stormwater drainage, electric power, or telecommunications facilities in order to maintain acceptable service.

Program Impact Analysis

Construction

Water

Construction activities associated with the proposed Program would include excavation activities during grading. Groundwater would be used for dust suppression during earthwork activities. Groundwater would be extracted from onsite wells. Based on the Water Supply Assessment that was prepared for the Specific Plan Program, approximately 4 acre-feet per year (AFY) was estimated to be used during construction activities. The 4 AFY of water used for dust suppression would be a combination of groundwater and recycled water of the 15 years of construction activities. The use of 4 AFY of groundwater would not be considered substantial, would adequately be provided by onsite wells. No additional offsite water facilities would be required to supply the Specific Plan Program with water during construction. Therefore, the Specific Plan Program would result in a less than significant impact related to construction of water facilities.

Wastewater Treatment

Construction of the proposed Program would generate a minimal volume of wastewater. During construction activity, wastewater would be contained within portable toilet facilities and disposed of at an approved disposal site. The Madera County Environmental Health Division is responsible for monitoring the use of portable toilet facilities, and a condition of approval would require the Project proponent to provide documentation of a portable toilet pumping contract. No offsite sewage or disposal connections to a municipal sewer system exist or are proposed for construction and, thus, impacts during construction would be less than significant.

Stormwater Drainage

Construction of proposed Program would require grading and earth moving, which would be subject to erosion and sedimentation control requirements of a County-approved grading and erosion control plan, as well as BMPs set forth in a SWPPP. Sedimentation control BMPs can include a combination of measures such as avoidance of construction activities during storm events; use of silt fences, fiber rolls, and berm barriers; storm drain inlet protection; tracking controls to prevent off-site tracking of sediment; soil stockpile management; dedicated areas for equipment maintenance and fueling; hydroseeding and mulching; and the use of geotextiles and erosion control blankets. These measures would be detailed in the erosion control plans and would reduce impacts related to stormwater. The construction of the proposed Program would not result in the need for offsite stormwater facilities as it would all be controlled within the Specific Plan Program boundaries. Therefore, impacts would be less than significant.

Operation

Wastewater Treatment

A WWTP would be constructed as part of the Program. The WWTP would include collection, treatment, disposal, and redistribution of treated reclaimed water. Wastewater would be collected and conveyed through a gravity system of pipes, supplemented by one or more lift station(s), if required, and flow to the onsite WWTP, which would be located at or near a low elevation point in the northwest corner of the Specific Plan area.

Facilities included as part of the WWTP would include a pumping station (as required); effluent disinfection; biosolids digestion, dewatering, and hauling; effluent pumping and storage for reuse; administration and laboratory; and electrical supply, distribution, instrumentation. The WWTP building would incorporate odor minimizing features and architectural features to screen the plant from surrounding land uses. This would include such measures as enclosing the WWTP with fencing and landscaping and designing the building consistent with the design guidelines as described in the Specific Plan. Bio-solids removed during the treatment process would be transferred via truck to a local landfill or other appropriate facility for disposal.

No offsite improvements would be required for wastewater treatment. Therefore, the Specific Plan Program would not result in physical impacts associated with the need for construction of new or expanded wastewater treatment. Impacts would be less than significant.

Water

The water demand from the proposed Program land uses would be met by groundwater and recycled water. Recycled water would be generated from the proposed treated wastewater flow produced from the Program's indoor residential and non-residential uses and treated at a tertiary level at the proposed onsite wastewater treatment plant.

As discussed above, a WSA was prepared for the proposed Program because the Program includes more than 500 residential units. The WSA includes a discussion of whether projected water supplies identified to serve the Program will be sufficient to meet existing and planned water demands over a 20-year horizon. Furthermore, the County of Madera adopted the Large Scale Development Groundwater Balance ordinance in August 2017 that requires a large project, such as the proposed Program, to quantify, tabulate, and calculate a groundwater balance prior to issuance of entitlements.

The proposed uses within the Specific Plan Program result in a demand for groundwater withdrawal during a normal year of 1,107 AFY and a demand of 154 AFY during a normal year for recycle (non-potable) water. The Program requires a total demand of 1,261 AFY during a normal year as shown in Section 3.9, Hydrology and Water Quality, Table 3.9-2.

Potable supplies will be delivered through a looped water system with stubs to connect with each of the proposed villages and neighborhoods. The looped water system would be implemented as part of the proposed Program. The proposed Program would not require new or expanded water facilities offsite since it would be adequately served by the looped water system. Therefore, the

proposed Program would result in less than significant impacts related to the construction of new or expanded water facilities.

Stormwater Drainage

A stormwater drainage system would be constructed as part of the Specific Plan Program. The proposed Program would include several source control (structural and non-structural) and treatment control BMPs during its operation as required by the Phase II Small Municipal Separate Storm Sewer System (MS4) General Permit (Phase II MS4 Permit). Treatment control BMPs would include the proposed retention basins where the runoff will be allowed to settle and then conveyed to proposed underground reinforced concrete pipes that eventually lead to the northwest corner of the site and exit under Road 27 through the existing culvert.

The proposed stormwater system that includes the detention basins within the Program area would detain the differential runoff leaving the Program site at Road 27 between the pre-development and post-development condition. Under the 100-year storm event, the pre-development condition of the peak runoff for Sub-basin J-K3, which exits the site at the culvert under Road 27, is 84 cfs and the post-development condition is 59 cfs. Under the 25-year storm event at Sub-basin J-K3, the pre-development condition is 36 cfs and the post-development condition is 20 cfs.

Further, stormwater is anticipated to be used to recharge the underlying aquifer and would not flow offsite. This feature would allow the Program to meet the County's water conservation ordinance requirements for large development.

The County requires that the development would not increase the base flood elevation more than 1 foot and that the flood carrying capacity within the altered portion of Schmidt Creek Tributary is maintained. The Project would need to connect to the existing culvert under Road 27. This culvert routes Schmidt Creek Tributary flows under Road 27. Offsite flows would occur at three locations. The offsite hydrology model resulted in a 100-year peak flow of 155 cfs for the Schmidt Creek Tributary entering the site. This is less than the Federal Emergency Management Agency (FEMA) effective flow reported in the Flood Insurance Study (FIS) for Madera County (HMC Engineering, Inc., 2019) which uses the flow at the confluence of Schmidt Creek, over 1.3 miles downstream of Castellina. The hydrology model used is more detailed than what was used by FEMA and is more representative of the flows in the Schmidt Creek Tributary as it enters Castellina. The hydrographs generated by the offsite hydrology model were then used to size the culvert under the Specific Plan's entrance road within the Phase 1 Project site. The 100-year event is contained within the wide flow paths. The proposed base flood elevations do not increase by more than 1-foot as shown in **Table 3.16-3**.

TABLE 3.16-3
CHANGES IN 100-YEAR FLOOD ELEVATIONS FROM SPECIFIC PLAN PROGRAM DEVELOPMENT

	Elevation (Feet)		
Location	**Existing**	**Specific Plan Program**	**Difference from Existing (Feet)**
Point A	281.6	282.4	+0.8
Point B	281.6	282.1	+0.5

SOURCE: HMC Engineering, Inc., June 2019

As such, the proposed Program will not increase the amount of surface runoff in a manner that would exceed the capacity of planned stormwater systems, as the drainage systems proposed would be adequate to accommodate the Specific Plan Program needs. Additionally, the proposed Program would not result in impacts to the floodplain and carrying capacity within the altered portion of Schmidt Creek Tributary. Thus, the impact is less than significant.

Significance Determination before Mitigation: Less than Significant

Program Cumulative Impact Analysis

The geographic scope for cumulative impacts related to utilities facilities includes the cumulative growth projected within the Madera Sub-basin which is incorporated within the growth projections identified in Table 3.0-2 in Section 3.0.2. Some of the current large-scale subdivisions that are included in the growth projections include Ventana Specific Plan that has approximately 857 residential units, Tesoro Viejo that has over 5,000 residential units and Riverstone that has approximately 6,600 residential units. The greatest impact on the groundwater basin would result from the development of the large-scale subdivisions. As a result, the County of Madera approved the Large Scale Development Groundwater Balance Ordinance (Madera County Code 13.110.060) that requires a large-scale project to quantify, tabulate, and calculate a groundwater balance for the Madera Sub-basin prior to providing entitlements to a project. Because each of the large-scale project is required to demonstrate a groundwater balance, the implementation of cumulative growth would result in a less than significant impact on groundwater supplies.

In addition, cumulative growth would increase the generation of wastewater, the need for wastewater treatment facilities and storm water management. The cumulative growth could result in the need for additional wastewater or stormwater facilities. These future facilities could result in significant cumulative environmental effects from the construction of these facilities. Because the proposed Program would result in a self-contained wastewater collection and treatment system and would reduce stormwater flows exiting the Program site, the proposed Program's contribution to cumulative wastewater and stormwater facilities construction would be less than cumulatively considerable.

Significance Determination before Mitigation: Less than Significant

Program Mitigation Measures

No mitigation measures are required.

Significance Determination after Mitigation: Less than Significant

Program Cumulative Measures

No mitigation measures are required.

Significance Determination after Mitigation: Less than Significant

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Water Supplies

Impact 3.16-2a: The Phase 1 Project would have less than significant and less than cumulatively considerable environmental effects related to providing sufficient water supplies during normal, dry and multiple dry years.

Phase 1 Project Impact Analysis

Construction

Construction of new water supply facilities would not be required during construction of the Phase 1 Project. Construction activities associated with the Phase 1 Project would include excavation activities during grading. Construction activities would include the use of groundwater for dust suppression. Based on the Water Supply Assessment that was prepared for the Specific Plan Program, approximately 4 AFY was estimated to be used during construction activities. Because construction activities for the Phase 1 Project would occur over an approximately one year, approximately 4 AF would be used. Sufficient groundwater exists in the Madera Sub-basin to meet the needs of the proposed Phase 1 Project construction. The use of 4 AF of groundwater would not be considered substantial, and therefore, construction activities associated with the Phase 1 Project would result in a less than significant impact on water supply.

Operation

The operational activities associated with the Phase 1 Project would require groundwater for potable use as well as recycled water for irrigation. A Water Supply Assessment was prepared for the Specific Plan Program because according to WSA Law (Senate Bill 610), projects with a water demand of greater than 500 residential units would require an assessment of whether projected water supplies identified to serve a project will be sufficient to meet existing and planned water demands over a 20-year horizon. Because the Phase 1 Project includes 117 residential units, a specific WSA for the Phase 1 Project is not required. Although a WSA was not prepared specifically for the Phase 1 Project, information from the WSA was used to determine water use associated with the Phase 1 Project.

The Phase 1 Project includes 67 low density and 50 very low density residential units. The potable water demand for the units (indoor and outdoor use) is approximately 25 AFY (0.37 AFY x 67 units) and approximately 30 AFY (0.59 AFY x 50 units) for a total residential demand of 55 AFY. In addition to residential, the Phase 1 Project includes a 5-acres neighborhood park and 34 acres of open space that includes the wastewater treatment plant. The 5-acres neighborhood park is estimated to demand approximately 2 AFY of recycled water. The 34 acres of open space is projected to demand 2.6 AFY primarily to establish the plant species for a total of approximately

88 AFY of recycled water. Therefore, the Phase 1 Project would demand approximately 145 AFY of water until the plant species within the open space area are established. After they are established, the Phase 1 Project would demand 57 AFY during normal precipitation conditions. The groundwater extraction needs during multiple dry years conditions would range from 5% increase to 10% decrease compared to normal year conditions based on assumptions provided in the Water Supply Assessment. Therefore, the groundwater extraction demand for the Phase 1 Project would range from 51 AFY to 60 AFY.

To reduce the amount of groundwater that would be required for the Phase 1 Project, stormwater would be captured and retained within the proposed onsite basins and recharged into the groundwater basin. Based on the stormwater capture rates provided in the WSA, the 50 units of very low density residential would encompass approximately 18 acres, have a runoff rate of 0.33 per acre, and result in a total stormwater capture of 6 AFY. The 67 acres of low density residential would encompass approximately 16.6 acres, have a runoff rate of 0.41 AFY, and result in a total stormwater capture of 7 AFY. Therefore, the combined total stormwater capture for the residential areas within the Phase 1 Project would be 13 AFY; however, based on a loss of approximately 10 percent to evaporation, approximately 12 AFY would be available for groundwater recharge. In addition to stormwater capture and recharge of the groundwater basin, the Phase 1 Project would generate approximately 25 AFY (total indoor water use of 26 AFY minus approximately 1 percent, 1 AFY, of water consumed by residents) of wastewater that would be used as recycled water.

Therefore, the initial net total groundwater required for the Phase 1 Project would be approximately 107 AFY until the plant species within the open space are established and at that time, the long-term use of groundwater for the Phase 1 Project would require approximately 57 AFY as discussed above. With the capture and recharge of stormwater into the groundwater, the long-term water demand of 57 AFY would be reduced to 45 AFY (57 AFY minus 12 AFY of groundwater recharge from the collected stormwater). The County of Madera has been preparing the County of Madera Groundwater Sustainability Plan for the Madera Sub-basin that lies under the Phase 1 Project site. Although a sustainable yield has not been officially adopted by the County of Madera, the value of 0.5 acre-feet per acre per year has been formally presented in the County of Madera Groundwater Sustainability Plan. Based on the 0.5 acre-feet per acre per year sustainable yield, the Phase 1 Project site (approximately 1 acres) would have a credit of 46 AFY. Therefore, the Phase 1 Project would result in an approximately 1 AFY of groundwater surplus per year within the Madera Sub-basin. With a sustainable groundwater use from the Madera Sub-basin, the Phase 1 Project would result in a less than significant impacts on groundwater supplies.

In addition to stormwater capture and recharge of the groundwater basin, the Phase 1 Project would generate approximately 25 AFY (total indoor water use of 26 AFY minus approximately 1 percent, 1 AFY, of water consumed by residents) of wastewater that would be used as recycled water. Therefore, the net total groundwater required for the Phase 1 Project would be approximately 107 AFY until the plant species within the open space are established and at that time the Phase 1 Project would require approximately 19 AFY.

Therefore, the Phase 1 Project would have sufficient water supplies available to serve the Phase 1 Project during normal, dry, and multiple dry years. Impacts would be less than significant.

Significance Determination before Mitigation: Less than significant

Phase 1 Project Cumulative Impact Analysis

The geographic scope for cumulative impacts related to groundwater supplies include all projects within the Madera Sub-basin including the projects identified in Table 3.0-1 in Section 3.0.2 as well as major subdivisions within the southern portion of the County of Madera such as Tesoro Viejo that includes over 5,000 residential units and Riverstone that includes approximately 6,600 residential units. The majority of the cumulative projects listed in Table 3.0-1 are not considered major subdivision because each project would not generate a demand for water that is equivalent to 500 residential units. The implementation of each of these smaller projects would result in a less than significant impact on groundwater supplies.

The Ventana Specific Plan project within Table 3.0-1 includes approximately 857 units which is considered a major subdivision. Each of the major subdivisions that would be constructed within the Madera Sub-basin (including Tesoro Viejo and Riverstone) are required to demonstrate long-term groundwater sustainability so that each project would result in a less than significant impact on groundwater supplies. Although a sustainable yield has not been officially adopted by the County of Madera, the value of 0.5 acre-feet per acre per year has been formally presented in the County of Madera Groundwater Sustainability Plan. Because each major subdivision project is required to demonstrate a groundwater balance, the implementation of the cumulative major subdivision projects would result in a less than significant impact on groundwater supplies. Therefore, cumulative projects would result in a less than significant impact on groundwater supplies.

Because there would be adequate water supplies to serve Phase 1 Project during normal, dry, and multiple dry years, impacts would be less than significant, the contribution of the Phase 1 Project's impact on water supplies would be less than cumulative considerable.

Significance Determination before Mitigation: Less than Significant

Phase 1 Project Mitigation Measures

No mitigation measures are required.

Significance Determination after Mitigation: Less than Significant

Phase 1 Project Cumulative Measures

No mitigation measures are required.

Significance Determination after Mitigation: Less than Significant

Impact 3.16-2b: The proposed Program would have less than significant and less than cumulatively considerable environmental effects related to providing sufficient water supplies during normal, dry and multiple dry years.

Program Impact Analysis

The proposed uses within the Specific Plan Program result in a demand for groundwater withdrawal during a normal year of 1,107 AFY and a demand of 154 AFY during a normal year for recycle (non-potable) water. The Program requires a total demand of 1,261 AFY during a normal year as shown in Section 3.9, Hydrology and Water Quality, Table 3.9-2.

A WSA was prepared for the proposed Project (Appendix I of this Draft EIR). The WSA considered variations in supply and demand characteristics under normal, single-dry, and multi-dry hydrologic conditions to determine sufficiency of identified groundwater supplies to serve the proposed Program. The proposed Program water demand would be reliant on the initial extraction of groundwater, where the initial extraction matches the demand only for the potable needs. The Project's potable demand is estimated to be 1,107 AFY – varying slightly during single and multiple dry years as shown in Table 3.9-3 in section 3.9, Hydrology and Water Quality. The potable needs during single and multiple dry years would range from 996 afy to 1,162 afy. The total demand for water ranges from 1,135 AFY to 1,324 AFY.

In addition to generating a water demand, the proposed Program would also generate a supply of water through a stormwater capture and recharge system as well as a wastewater treatment system that generates recycled water. These two water supplies would provide offsets to the Program groundwater withdrawal.

The water supply from the stormwater capture and recharge system is based on the amount of stormwater conveyed from the proposed land uses within the Program. As shown in Table 3.9-4 in Section 3.9, Hydrology and Water Quality, the total stormwater that is captured to infiltrate back into the groundwater basin is 337 AFY. The infiltration of 337 AFY constitutes an offset to groundwater withdrawal.

The water supply from the treatment of wastewater and the generation of recycled water is based on the amount of wastewater generated by the onsite land uses as well as some loss of water within the sewer conveyance system and during the processing of biosolids. As shown in Table 3.9-5 in Section 3.9, Hydrology and Water Quality, the total amount of wastewater generated from the onsite uses is 647 AFY and the amount of recycled water generated after treatment is 629 AFY. As shown in Table 3.9-5, the total water demand for recycled water within the Specific Plan Program is 154 AFY. As a result, the remaining amount of recycled water (475 AFY) would be available for use by farmlands in the vicinity of the Specific Plan Program site. The provision of recycled water to the adjacent farmlands would allow the operators of the adjacent farmlands to reduce pumping of groundwater and use recycled water. The provision of 475 AFY of recycled water off of the Specific Plan Program site would constitute an offset to groundwater withdrawal.

Based on the groundwater withdrawal and the groundwater supply that constitutes offsets, the Program's effect on the Madera Sub-basin can be identified. Table 3.9-6 in Section 3.9, Hydrology and Water Quality shows that the Madera Sub-basin would experience a surplus of

227 AFY at full buildout of the proposed Specific Plan Program. There would be sufficient water supplies available to serve the Program and reasonably foreseeable future development during normal, dry and multiple dry years. As a result, impacts would be less than significant.

Significance Determination before Mitigation: Less than Significant

Program Cumulative Impact Analysis

The geographic scope for cumulative impacts related to groundwater supplies include the growth projections listed in Table 3.0-2 in Section 3.0.2. The growth assumptions account for small-scale as well as large-scale development or subdivisions. Some of the current large-scale subdivisions that are included in the growth projections include Ventana Specific Plan that has approximately 857 residential units, Tesoro Viejo that has over 5,000 residential units and Riverstone that has approximately 6,600 residential units. The greatest impact on the groundwater basin would result from the development of the large-scale subdivisions. As a result, the County of Madera approved the Large Scale Development Groundwater Balance Ordinance (Madera County Code 13.110.060) that requires a large-scale project to quantify, tabulate, and calculate a groundwater balance for the Madera Sub-basin prior to providing entitlements to a project. Because each of the large-scale project is required to demonstrate a groundwater balance, the implementation of cumulative growth would result in a less than significant impact on groundwater supplies during normal, dry and multiple dry years.

Because the Madera Sub-basin would experience a surplus of 227 AFY at full buildout of the proposed Specific Plan Program, the Program's contribution to the cumulative impact on groundwater supplies during normal, dry and multiple dry years would be less than cumulative considerable.

Significance Determination before Mitigation: Less than Significant

Program Mitigation Measures

No mitigation measures are required.

Significance Determination after Mitigation: Less than Significant

Program Cumulative Measures

No mitigation measures are required.

Significance Determination after Mitigation: Less than Significant

Wastewater Treatment Capacity

Impact 3.16-3a: The Phase 1 Project would have less than significant and less than cumulatively considerable effects on wastewater treatment capacity.

Phase 1 Project Impact Analysis

Construction

Construction of the Phase 1 Project would generate a minimal volume of wastewater. During construction activity, wastewater would be contained within portable toilet facilities and disposed of at an approved disposal site. The Madera County Environmental Health Division is responsible for monitoring the use of portable toilet facilities, and a condition of approval would require the Project proponent to provide documentation of a portable toilet pumping contract. No offsite sewage or disposal connections to a municipal sewer system exist or are proposed for construction and, thus, impacts during construction would be less than significant.

Operation

The WWTP will be constructed in multiple phases to handle all phases of development, including only those residential units within the Phase I Project. The Phase 1 wastewater generation rates are significantly lower than that of later planned phases, at approximately 90,000 gallons per day average for 117 residential lots. Therefore, the WWTP may initially be constructed to only include an aerated lagoon and a settling/facultative pond, which will be converted to an emergency storage/equalization basin and recycled water basin when the MBR system is constructed for subsequent Project phasing.

Biosolids will be retained in the settling/facultative pond for further reduction and stabilization. After between 5 and 10 years, or when the ponds are necessary for emergency storage and recycled water storage, the solids accumulated in the lagoon will be removed via dredging, dewatered (via portable dredging and dewatering equipment) and transferred via truck to a local landfill or other appropriate and permitted facility for disposal. Disinfected or undisinfected secondary recycled water will be disposed of onsite via irrigation of non-residential outdoor landscaping and existing agricultural fields. The level of treatment (disinfected or undisinfected), type of crop irrigated, and other details will be determined during the detailed planning phase of the Project and will comply with the California Code of Regulations, Title 22, Division 4, Chapter 3 Water Recycling Criteria (Title 22). When the WWTP is constructed, the basins will be cleaned and used for emergency/equalization and recycled water storage.

The WWTP aerated lagoon and recycled water basin would be sized to adequately serve the anticipated wastewater generated by the Phase 1 Project, resulting in a less than significant impact on wastewater treatment capacity.

Significance Determination before Mitigation: Less than Significant

Phase 1 Project Cumulative Impact Analysis

The geographic scope for cumulative impacts related to wastewater facilities includes cumulative projects located within the City of Madera as well as projects identified in Table 3.0-1 in Section 3.0-2. The development of the projects within the City would be required to adhere to growth

plans for the City of Madera and City of Madera Wastewater Treatment Plant (WWTP). Because the City of Madera expanded its WWTP to 10.1 mgd to accommodate future growth, the development of near term projects within the City would be able to be accommodated by the existing WWTP. Therefore, cumulative projects would result in less than significant impacts related to wastewater treatment.

Because the Phase 1 Project would generate a nominal amount of wastewater and would be treated onsite, the Phase 1 Project's contribution to cumulative impacts would be less than cumulatively considerable.

Significance Determination before Mitigation: Less than Significant

Phase 1 Project Mitigation Measures

No mitigation measures would be required.

Significance Determination after Mitigation: Less than Significant

Phase 1 Project Cumulative Measures

No mitigation measures would be required.

Significance Determination after Mitigation: Less than Significant

Impact 3.16-3b: The proposed Program would have a less than significant and less than cumulatively considerable effects on wastewater treatment capacity.

Program Impact Analysis

Construction

Construction of the proposed Project would generate a minimal amount of wastewater. During construction activity, wastewater would be contained within portable toilet facilities and disposed of at an approved disposal site. The Madera County Environmental Health Division is responsible for monitoring the use of portable toilet facilities, and a condition of approval would require the Project proponent to provide documentation of a portable toilet pumping contract. No offsite sewage or disposal connections to a municipal sewer system exist or are proposed for construction and, thus, impacts during construction would be less than significant.

Operation

Wastewater generated by the proposed Program would be treated at the WWTP located at the Phase 1 Project site. Build-out of the proposed Program assumes 3,072 residential units that are anticipated to require wastewater treatment system capacity of less than 0.75 mgd. As part of the proposed Program, two planned expansions of 0.25 mgd each at the existing WWTP would occur resulting in a total WWTP capacity of 0.75 mgd. This would provide treatment for approximately 4,200 units and would accommodate the buildout of the proposed Program plus provide additional redundancy. This analysis is conservative and the Program could require less capacity at the WWTP. Actual wastewater flows would be evaluated prior to each expansion for proper system sizing. Buildout of the proposed Program would be adequately served onsite and would

not require the need for an offsite wastewater treatment provider. Therefore, impacts to wastewater treatment capacity would be less than significant.

Significance Determination before Mitigation: Less than Significant

Program Cumulative Impact Analysis

The geographic scope for cumulative impacts related to wastewater facilities includes all projects within the City of Madera. The development of these project would be required to adhere to growth plans for the City of Madera and City of Madera Wastewater Treatment Plant. Each project would need to show adequate wastewater capacity to serve the project. The implementation of each of these smaller projects could result in a significant impact on wastewater.

Because the Phase 1 Project would result in less than significant impacts to the existing Madera WWTP when up to 30 residential units are completed and occupied, the Phase 1 Project's contribution to cumulative impacts to this WWTP would be less than cumulatively considerable.

Significance Determination before Mitigation: Less than significant

Program Mitigation Measures

No mitigation measures are required.

Significance Determination after Mitigation: Less than Significant

Program Cumulative Measures

No mitigation measures are required.

Significance Determination after Mitigation: Less than Significant

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Landfill Capacity

Impact 3.16-4a: The Phase 1 Project would have less than significant and less than cumulatively considerable impacts due to generation of solid waste in excess of State or local standards, or in excess of the capacity of local infrastructure, or impairing attainment of solid waste reduction goals.

The Fairmead Sanitary Landfill would service the solid waste needs of the Phase 1 Project. The Fairmead Landfill is located at 21739 Road 19 at the intersection of Road 19 and Avenue 22, approximately 9 miles northwest of the Project site. The second closest facility, the North Fork Transfer Station, is located on Road 274 near the Town of North Fork, approximately 34 miles northeast of the Project site. The Fairmead Landfill has a maximum permitted daily throughput of 1,100 tons per day and a maximum permitted capacity of 9,400,000 cubic yards. Current daily throughput levels are approximately 450 tons per day. As of 2004, the remaining capacity of the Fairmead Landfill was approximately 5,552,894 cubic yards, or approximately 59 percent of the facility maximum permitted capacity. Assuming current disposal rates, the closure date of the Fairmead Landfill is estimated to be 2028 (CalRecycle, 2019a). Additionally, the Fairmead

Landfill was approved for expansion in April 2017 and revised its solid waste permit (SWFP), to provide for additional capacity via vertical expansion of the landfill. With the approved expansion of the facility, the approved changes include an increase in facility acreage from 122 acres to 147 acres and an increase in permitted capacity from 13,000,000 to 23,000,000 cubic yards with an estimated closure date of 2048 (CalRecycle, 2017).

Phase 1 Project Impact Analysis

Construction

The construction of the proposed Phase 1 Project would not create solid waste associated with demolition of an existing building or structure. Solid waste generated during construction of the Phase 1 Project would primarily consist of green waste from the removal of orchard trees. Solid waste disposal would comply with applicable federal, State, and local regulations. The removed material would be loaded in a dump truck and hauled to a permitted facility for recycling or disposal. The solid waste generated would not exceed daily permitted throughput and would not exceed the capacity of solid waste facilities. Impacts would be less than significant.

Operation

The proposed Phase 1 Project would generate a small fraction of the daily allowed tonnage at either of these solid waste facilities and would be subject to County and State requirements regarding the diversion of solid waste from landfills. The Phase 1 Project would include the development of 117 single family residential units, a 5-acre park, and a waste water treatment facility. Operation of the proposed Phase 1 Project would increase the amount of solid waste that would require ultimate disposal at the Fairmead Landfill. Based on the Air Quality analysis prepared for the proposed Project, located in Appendix C-1 of this Draft EIR, it is anticipated that build-out of the proposed Phase 1 Project would result in approximately 158.54 tons of solid waste a year, which is approximately 0.43 tons of solid waste per day. At current rates, the solid waste generated by the Phase 1 Project would only account for approximately 0.1 percent of the average daily throughput of the Fairmead Landfill. All residential solid waste generated at the Project site would be picked up curbside, while all other wastes would be picked up in accordance with all applicable County policies and procedures.

The approved expansion of the Fairmead Landfill ensures that the facility would have adequate capacity to service the solid waste needs of the Phase 1 Project as well as the needs of the surrounding communities through operation. Upon closure of the Fairmead Landfill, the solid waste generated by the Phase 1 Project could also be accommodated at other facilities within the County, such as the American Avenue Disposal Site, a Class II and III landfill, located approximately 24 miles southwest of the Phase 1 Project.

The proposed Phase 1 Project would comply with federal, State, and local management and reduction statutes and regulations related to solid waste to aid in the attainment of solid waste reduction goals, as noted below under Impact 3.16-5a. Therefore, the impact to solid waste infrastructure would be less than significant

Significance Determination before Mitigation: Less than Significant

Phase 1 Project Cumulative Impact Analysis

The estimated remaining capacity for the Fairmead Landfill is approximately 5,552,894 cubic yards. With the approved expansion of the Fairmead Landfill site, the permitted capacity of the landfill was increased to 23,000,000 cubic yards with an estimated closure date of 2048 (CalRecycle, 2017).

It is anticipated that the landfill will be available to accept solid waste until 2048. Therefore, growth anticipated to occur within Madera County could be accommodated by the landfill. The proposed Phase 1 Project would result in the generation of approximately 159 tons of solid waste per year. Because the Phase 1 Project would represent less than 0.1 percent of the current landfill's remaining capacity, the Phase 1 Project's impact would be less than significant, and the contribution of the Phase 1 Project's impact on solid waste infrastructure would be less than cumulative considerable.

Significance Determination before Mitigation: Less than Significant

Phase 1 Project Mitigation Measures

No mitigation measures are required.

Significance Determination after Mitigation: Less than Significant

Phase 1 Project Cumulative Measures

No mitigation measures are required.

Significance Determination after Mitigation: Less than Significant

Impact 3.16-4b: The proposed Program would have less than significant and less than cumulatively considerable effects on solid waste disposal facilities.

Program Impact Analysis

Construction

The Specific Plan Program would be built out over a fifteen-year period between 2020 and 2035. Program construction would include the demolition of approximately 5,000 square feet of existing buildings; existing hardscape consisting of concrete, asphalt, (associated with excavation for new building foundations and associated facilities); and new construction within the 788-acres Specific Plan area. These activities would generate demolition, excavation, and construction-related waste including, but not limited to, concrete, asphalt, wood, paper, glass, plastic, metals, and cardboard that would be disposed of in the County's inert Fairmead Landfill or one of a number of inert debris engineered fill operations that are located throughout Madera County. The Fairmead Landfill's Mammoth MRF is located at 21739 Road 19 in Chowchilla, approximately 9 miles northwest of the proposed Program site. This MRF would be able to process the Program's construction and demolition (C&D) waste. Although unlikely, the Program construction-related C&D waste could be exported to out-of-county jurisdictions to Class I and II type landfills, as necessary.

Table 3.16-4 provides an estimate of the amount of construction and demolition debris that would be generated during Program construction.

TABLE 3.16-4
SPECIFIC PLAN PROGRAM ESTIMATED C&D SOLID WASTE GENERATION

Debris Type	Size (Square Feet)	Generation Factor	Waste Generation (tons)
Site Preparation			
Shop Building Demolition Material	5,000	0.0463 tons/sf[a]	232
Total Construction Waste (pre-diversion)			**232**
Total (post-diversion)			**58**[b]

NOTES:

sf = square feet

a One square foot represents 0.0463 tons of waste material. CalEEMod User's Guide, Appendix A, page 13, October 2017, http://www.aqmd.gov/docs/default-source/caleemod/02_appendix-a2016-3-2.pdf?sfvrsn=6. Accessed March 24, 2020.

b Based on the required diversion rate of 75 percent for C&D waste per the California's Green Building Code.

SOURCE: ESA, 2020

Program C&D activities would generate an estimated 232 gross tons of C&D waste prior to the diversion of 75 percent of C&D waste required by SB 1374 and required reductions associated with compliance with California's Green Building Code (e.g., use of recyclables in building construction, etc.).

Solid waste disposal would comply with applicable federal, State, and local regulations. The removed material would be loaded in a dump truck and hauled to a permitted facility for recycling or disposal. The site(s) to receive removed C&D generated solid waste include both the Fairmead Landfill's Mammoth MRF and North Fork Transfer Station. Use of the MRF and transfer station for construction generated waste from the Program would be short-term and the volume of material would represent a relatively minor component of daily input to these facilities. The Fairmead site has the sufficient permitted capacity for use during Program construction. For these reasons, the impact is less than significant.

Operation

The Program would generate a small fraction of the daily allowed tonnage at either of these facilities and would be subject to County and State requirements regarding the diversion of solid waste from landfills. The Program will include up to 3,072 residential units, approximately 21 acres of commercial mixed-use, and approximately 132 acres of parks, trails, plazas, community gardens, a proposed elementary school site and other open space. Operation of the Program would increase the amount of solid waste that would require ultimate disposal at the Fairmead Landfill. Based on the Air Quality analysis prepared for the proposed Program, located in Appendix C-1 of this Draft EIR, it is anticipated that build-out of the Program would result in approximately 3,351 tons of solid waste a year, which is approximately 9 tons of solid waste per day. At current rates, the solid waste generated by the Program would only account for approximately 2 percent of the average daily throughput of the Fairmead Landfill. All residential

solid waste generated at the Program site would be picked up curbside, while all other wastes would be picked up in accordance with all applicable County policies and procedures.

The approved expansion of the Fairmead Landfill ensures that the facility would have adequate capacity to service the solid waste needs of the Program as well as the surrounding communities. Upon closure of the Fairmead Landfill, the solid waste generated by the Program could also be accommodated at other facilities within the County, such as the American Avenue Disposal Site, a Class II and III landfill, located approximately 24 miles southwest of the proposed Program site.

The proposed Program would comply with federal, State, and local management and reduction statutes and regulations related to solid waste to aid in the attainment of solid waste reduction goals, as noted below under Impact 3.16-5b. Therefore, the impact to solid waste infrastructure would be less than significant

Significance Determination before Mitigation: Less than Significant

Program Cumulative Impact Analysis

The estimated remaining capacity for the Fairmead Landfill is approximately 5,552,894 cubic yards. With the approved expansion of the Fairmead Landfill site, the permitted capacity of the landfill was increased to 23,000,000 cubic yards with an estimated closure date of 2048 (CalRecycle, 2017).

It is anticipated that the landfill will be available to accept solid waste until 2048. Therefore, growth anticipated to occur within Madera County could be accommodated by the landfill. The proposed Program would result in the generation of approximately 3,351 tons of solid waste per year. Because the Program solid waste generation would represent 0.06 percent of the current landfill's remaining capacity, the proposed Program's impact would be less than significant, and the contribution of the Program's impact on solid waste infrastructure would be less than cumulative considerable.

Significance Determination before Mitigation: Less than Significant

Program Mitigation Measures

No mitigation measures are required.

Significance Determination after Mitigation: Less than Significant

Program Cumulative Measures

No mitigation measures are required.

Significance Determination after Mitigation: Less than Significant

Compliance with Solid Waste Regulations and Statutes

Impact 3.16-5a: The Phase 1 Project would have less than significant and less than cumulatively considerable effects associated with solid waste federal, State, and local management and reduction statutes and regulations.

Phase 1 Project Impact Analysis

Construction & Operation

As previously discussed under Impact 3.16-4a, the daily amount of waste to be disposed of per day would not exceed the maximum permitted throughput (tons per day). The Phase 1 Project would adhere to the requirements of the County and the provisions of AB 341, which focuses on increased waste recycling to reduce daily waste removal. The overall site construction and operational waste stream would not exceed the available permitted capacity and permitted daily throughput of relevant landfills. Therefore, the Phase 1 Project would comply with all federal, state, and local statues related to solid waste disposal, and impacts would be less than significant.

Significance Determination before Mitigation: Less than Significant

Phase 1 Project Cumulative Impact Analysis

As discussed in Impact 3.16-4a, growth anticipated to occur within Madera County could be accommodated by the existing landfills. Therefore, cumulative development is expected to result in a less than significant effect on current landfills' remaining capacity. Cumulative development is expected to comply with all federal, state, and local statues related to solid waste disposal, and impacts would be less than cumulatively significant. Because the Phase 1 Project would comply with all federal, state, and local statues related to solid waste disposal, the Phase 1 Project's contribution to cumulative solid waste impacts would be less than cumulatively considerable.

Significance Determination before Mitigation: Less than Significant

Phase 1 Project Mitigation Measures

No mitigation measures required.

Significance Determination after Mitigation: Less than Significant

Phase 1 Project Cumulative Measures

No mitigation measures required.

Significance Determination after Mitigation: Less than Significant

Impact 3.16-5b: The proposed Program would have a less than significant and less than cumulatively considerable effects associated with solid waste federal, state, and local management and reduction statutes and regulations.

Program Impact Analysis

Construction

The proposed Program would comply with applicable statutes and regulations related to solid waste, including those pertaining to waste reduction and recycling. During construction, the

Program construction contractor would deliver all C&D waste generated by the Program to a certified Construction and Demolition Waste Processing Facility in accordance AB 939 Compliance Permit requirements, which would include the Mammoth MRF located at the Fairmead Landfill. Thus, the Program would promote source reduction and recycling, consistent with the applicable federal, State, and local statutes and regulations related to solid waste. Therefore, Program construction would comply with federal, State, and local management and reduction statutes and regulations related to solid waste. Impacts would be less than significant.

Operation

As previously discussed under Impact 3.16-4b, the daily amount of waste to be disposed of per day would not exceed the maximum permitted throughput (tons per day). The proposed Program would adhere to the requirements of the County and provisions of AB 341, which focuses on increased waste recycling to reduce daily waste removal as well as AB 1826 which requires mandatory commercial organics recycling. The overall Program site's operational waste stream would not exceed the available permitted capacity and permitted daily throughput of relevant landfills. Therefore, the proposed Program would comply with all federal, State, and local statues related to solid waste disposal, and impacts would be less than significant.

Significance Determination before Mitigation: Less than Significant

Program Cumulative Impact Analysis

As discussed in Impact 3.16-4b, growth anticipated to occur within Madera County could be accommodated by the existing landfills. Therefore, cumulative development is expected to result in a less than significant effect on current landfills' remaining capacity. Cumulative development is expected to comply with all federal, state, and local statues related to solid waste disposal, and impacts would be less than cumulatively significant. Because the program would comply with all federal, state, and local statues related to solid waste disposal, the program's contribution to cumulative solid waste impacts would be less than cumulatively considerable.

Significance Determination before Mitigation: Less than Significant

Program Mitigation Measures

No mitigation measures required.

Significance Determination after Mitigation: Less than Significant

Program Cumulative Measures

No mitigation measures required.

Significance Determination after Mitigation: Less than Significant

Energy Resources

Impact 3.16-6a: The Phase 1 Project would have less than significant and less than cumulatively considerable impacts on energy resources.

Construction

The Project is a program-level analysis that has an initial Phase 1 Project of 117 single family residential units, a 5-acre park, and a wastewater treatment facility. The full Specific Plan Program is intended to be built out over a fifteen-year period between 2020 and 2035, with the Phase 1 Project built out over one year beginning construction in 2020 and full occupation in 2021. To be conservative, during estimates of emissions, it was assumed that after the completion of the Phase 1 Project in 2021, a maximum estimated 15 percent of the remaining Specific Plan Program buildout could be constructed in a year. As a conservative assumption, the year 2020 was chosen for modeling purposes as construction equipment becomes more efficient in subsequent years.[6]

Because the Project would not be one large development, but provides for numerous smaller projects, there could be more than one development project occurring at the same time during the year, increasing the amount of equipment used. As a conservative estimate of energy consumption, maximum annual usage is presented as two times the annual emissions for grading, building construction, and architectural coating for the Phase 1 Project and a maximum annual emission of four times the annual emissions for the subsequent buildout of the Specific Plan Program. This conservatively assumes that during the Phase 1 Project construction, a maximum of two projects occur at the same time (residential development and wastewater treatment plant/park) and four projects occur at the same time during remaining Specific Plan Program buildout years (projects could be residential or non-residential in nature). Even if less than fifteen percent is built, similar construction schedules and equipment would be used for the projects based on the assumed maximum development of up to four individual projects per year.

Electricity

Electricity is not expected to be consumed in large quantity during Project construction, as construction equipment and vehicles are not electric (diesel- or gas-powered). Therefore, electricity associated with construction activities was not calculated.

Natural Gas

Natural gas is not expected to be consumed in large quantity during Project construction (i.e., no natural gas-powered equipment or vehicles). Therefore, natural gas associated with construction activities was not calculated.

6 The analysis conservatively assumed that construction occurs at the earliest possible time (i.e. modeling for a 2020-year construction scenario), therefore, the potential for reduction in fuel consumption from more efficient engines is not accounted for, as older equipment phases out over the 15-year buildout horizon. Additionally, should construction begin subsequent to the dates used in the analysis, emissions from construction and operation could be reduced from what is analyzed herein.

Transportation Fuels

Construction fuel use was forecasted by applying mobile-source emission factors derived from CARB's Emission Factors (EMFAC2017) database for on-road equipment and CARB's OFFROAD2017 for off-road equipment to construction equipment expected to be used for each phase of Program development. Construction equipment and hours are consistent with the emissions modeling described in Section 3.2, Air Quality, and Section 3.7, Greenhouse Gas Emissions.

Operation

Operational consumption anticipated by the Phase 1 Project and proposed Program include energy use (electricity and natural gas, water and wastewater treatment) and on-road motor vehicles (mobile).

Energy

The growth anticipated by the Phase 1 Project and proposed Program would consume energy (electricity and natural gas) for multiple purposes including, but not limited to, building heating and cooling, lighting, and electronics. For all land uses, building electricity and natural gas usage for existing uses were provided by the Pacific Gas and Electric Company.

Transportation Fuels

Operations anticipated by the Phase 1 Project and proposed Program would include vehicle trips related to the operation of land uses. Transportation fuel consumption was calculated using trip rates provided in the Project-specific traffic impact analysis (Kimley Horn 2018), and default trip lengths as provided in CalEEMod.

Phase 1 Project Impact Analysis

Construction

During construction of the Phase 1 Project, electricity and natural gas would not be anticipated to be consumed in substantial quantities, therefore electricity and natural gas consumption was not quantified. Project construction would consume energy in the form of petroleum-based fuels used by off-road construction vehicles and equipment on the Phase 1 Project site, for travel by construction workers to and from the site, and for delivery and haul truck trips (e.g., hauling of demolished and excavated material to off-site reuse and disposal facilities). **Table 3.16-5** summarizes the estimated annual-average consumption of gasoline fuel and diesel fuel during Phase 1 Project construction.

Table 3.16-5 reports the amount of petroleum-based transportation energy that could potentially be consumed annually during construction of the Phase 1 Project, based on the conservative set of assumptions provided in Appendix M. During Phase 1 Project construction, on- and off-road vehicles would consume an estimated annual average of approximately 67,324 gallons of gasoline and 202,955 gallons of diesel. For informational purposes only, and not for the purpose of determining significance, total (not net) fuel usage during Phase 1 Project construction would represent approximately 0.14 percent of the 2018 annual on-road gasoline-related energy consumption and 0.72 percent of the 2018 annual diesel fuel-related energy consumption in the County.

TABLE 3.16-5
PHASE 1 PROJECT ENERGY USE

Source	Amount
Gasoline	
Phase 1 Project Annual Average	67,324
County Annual Average	49,000,000
% of County Consumption	0.14
Diesel	
Phase 1 Project Annual Average	202,955
County Annual Average	28,000,000
% of County Consumption	0.72%

NOTES:
MMBtu = million British thermal units; MWh = megawatt-hours; PG&E = Pacific Gas and Electric Company

SOURCES: CEC 2019b; ESA 2020.

Transportation fuels (gasoline and diesel) are produced from crude oil, which can be domestic or imported from various regions around the world. Based on current proven reserves, crude oil production would be sufficient to meet more than 50 years of worldwide consumption (BP Global, 2020). The Phase 1 Project would comply with CAFE fuel economy standards, which would result in more efficient use of transportation fuels (lower consumption). Vehicles used for project-related trips would also comply with AB 1493 and the LCFS, which are designed to reduce vehicular GHG emissions, but would also result in additional fuel savings.

Construction of the Phase 1 Project would use fuel-efficient equipment consistent with state and federal regulations, such as fuel-efficiency regulations in accordance with CARB's Pavley Phase II standards; the anti-idling regulation in accordance with 13 CCR Section 2485; and fuel requirements for stationary equipment in accordance with Section 93115 (concerning Airborne Toxic Control Measures) in CCR Title 17. Phase 1 Project construction would also comply with state measures to reduce the inefficient, wasteful, and unnecessary consumption of energy, such as petroleum-based transportation fuels. While these regulations are intended to reduce construction emissions, compliance with the anti-idling and emissions regulations discussed above would also result in fuel savings from the use of more fuel-efficient engines. Mitigation Measure AQ-1 in Section 3.3, *Air Quality*, considers Tier 4 emissions control techniques that could further reduce energy consumption and emissions however, these reductions were not quantified.

In addition, the Phase 1 Project would divert mixed construction and demolition debris to County-certified construction and demolition waste processors using County-certified waste haulers. At a minimum, this would be consistent with state targets of 75 percent waste diversion by 2020.

As analyzed above, construction would use energy for on-site activities, for construction worker travel, and to transport construction materials and demolition debris to and from the Phase 1 Project site. Idling restrictions and the use of cleaner, energy-efficient equipment would result in

relatively less fuel combustion and energy consumption. Thus, the Phase 1 Project's construction-related energy use would be minimized. Therefore, construction of the Phase 1 Project would not result in the wasteful, inefficient, or unnecessary consumption of energy, and construction-related impacts would be less than significant.

Operation

During operation of the Phase 1 Project, energy would be consumed for multiple purposes, including but not limited to stationary sources such as HVAC, lighting, EV charging, emergency generators, and energy needed to operate the wastewater treatment plant. Energy would also be consumed during Phase 1 Project operations for water usage, solid waste disposal, and vehicle trips.

Table 3.16-6 summarizes the Phase 1 Project's annual operational energy. As shown in Table 3.16-6, the Phase 1 Project's annual net new energy demand would be approximately 1,033 MWh of electricity, 2,920 MMBtu of natural gas, 111,485 gallons of gasoline, and 59,602 gallons of diesel.

TABLE 3.16-6
PHASE 1 PROJECT TOTAL ANNUAL ENERGY USE

Source	Electricity (MWh/yr)	Natural Gas (MMBtu/yr)	Gasoline (gal)	Diesel (gal)
Annual Project Use	1,033	2,920	111,485	59,602
County Total	1,665,573	5,674,040	49,000,000	28,000,000
% County	0.062%	0.05%	0.22%	0.20%
PG&E Total	87,375,000	479,435,400	-	-
% PG&E	0.001%	<0.001%	-	-

SOURCES:
CEC, 2016a; CEC 2016c; CEC 2019a, CEC, 2019b; California Gas and Electric Utilities, 2018; ESA, 2020.

Electricity

Assuming compliance with 2019 Title 24 standards and applicable 2019 CALGreen Code requirements including solar panel requirements, buildout of the Phase 1 Project would result in a projected net increase in the annual demand for electricity totaling approximately 1,033 MWh.

Renewable energy accounted for 39 percent of PG&E's overall energy mix in 2018. Thus, electricity provided to meet the Phase 1 Project's energy demand will include some mix of renewable energy. Furthermore, PG&E's energy demand for 2022 (the closest projected year to the Phase 1 Project opening year) is estimated at 102,149,000 MWh (PG&E, 2018). The Phase 1 Project's future energy use would represent about 0.01 percent of future PG&E sales, and would be within projected electricity supplies. Therefore, operation of the Phase 1 Project would not result in the wasteful, inefficient, or unnecessary consumption of electricity and the impact would be less than significant.

Natural Gas

With compliance with 2019 Title 24 standards and applicable 2016 CALGreen requirements, the Phase 1 Project would generate an estimated net increase in the on-site annual demand for natural gas totaling approximately 2,920 MMBtu.

In the 2018 California Gas Report, PG&E accounts for anticipated regional demand based on various factors including growth in employment by economic sector, growth in housing and population, and increasingly demanding State goals for reducing GHG emissions. PG&E accounts for an increase in employment and housing from 2018 to 2035. The Phase 1 Project would add housing and jobs within the PG&E region and would be consistent with the growth projections set forth in the 2018 California Gas Report (California Gas and Electric Utilities, 2018).

Furthermore, the 2018 California Gas Report, estimates that future supply of natural gas within the PG&E planning area will be approximately 823,210,780 MMBtu in 2022 (California Gas and Electric Utilities, 2018). As stated above, the Phase 1 Project annual net increase in demand for natural gas is estimated to be approximately 2,920 MMBtu, the Phase 1 Project would account for less than 0.001 percent of the forecasted annual consumption in the PG&E planning area and would fall within the PG&E projected consumption for the area and would be consistent with the PG&E anticipated regional demand from population or economic growth. Therefore, operation of the Phase 1 Project would not result in the wasteful, inefficient, or unnecessary consumption of natural gas, and the impact would be less than significant.

Transportation Energy

During operation, Phase 1 Project-related vehicle use would result in the consumption of petroleum-based fuels related to vehicular travel to and from the Phase 1 Project site. A majority of the vehicle fleet that would be used by Phase 1 Project residents, employees and visitors would consist of light-duty automobiles and light-duty trucks. Most of these trips would also be subject to fuel-efficiency standards and/or compliance with anti-idling regulations associated with medium- and heavy-duty vehicles.

As shown in Table 3.16-6, above, the Phase 1 Project's estimated annual number of trips totaling 406,610 trips would result in an annual net increase in petroleum-based fuel usage of approximately 107,157 gallons of gasoline and 57,228 gallons of diesel. Based on the California Energy Commission's *California Annual Retail Fuel Outlet Report*, residents and employees statewide consumed 13,475,000,000 gallons of gasoline and 3,659,000,000 gallons of diesel. Madera County consumed 49,000,000 gallons of gasoline and approximately 28,000,000 gallons of diesel fuel in 2018 (CEC, 2019b). The Phase 1 Project would account for <0.001 percent and <0.01 percent of statewide consumption of gasoline and diesel, respectively, and for 0.23 percent and 0.21 percent of countywide consumption of gasoline and diesel, based on the available fuel sales data for the year 2018.

Transportation fuels (gasoline and diesel) are produced from crude oil, which can be domestic or imported from various regions around the world. Based on current proven reserves, crude oil production would be sufficient to meet more than 50 years of worldwide consumption (BP Global, 2020). Fuels used for vehicle trips resulting from the Phase 1 Project would be required to

comply with CAFE fuel economy standards, which would result in more efficient use of transportation fuels (lower consumption). Vehicles used for Phase 1 Project-related vehicle trips would also comply as applicable with AB 1493 and LCFS, which are designed to reduce vehicular GHG emissions, but would also result in additional fuel savings. In addition, the Phase 1 Project would provide for the installation of EV charging stations pursuant to the CALGreen Code as well as would provide a circulation system that encourages biking and walking, reducing the amount of fossil fuel consumed during vehicular travel to and from the Project site.

For the reasons described above, the Phase 1 Project would reduce operational transportation fuel demand consistent with and not in conflict with state, regional, and City goals. Therefore, operation of the Phase 1 Project would not result in the wasteful, inefficient, and unnecessary consumption of energy and the impact would be less than significant.

Significance Determination before Mitigation: Less than Significant

Phase 1 Project Cumulative Impact Analysis

The geographic area for cumulative energy impacts is the state of California. Past, present, and future development projects contribute to the state's energy impacts. If a project is determined to have a significant energy impact, it is concluded that the impact would be cumulatively considerable. As discussed under the Phase 1 Project analysis, the Phase 1 Project would not result in significant energy impacts, therefore, the Phase 1 Project's contribution to cumulative energy impacts would be less than cumulatively considerable.

Significance Determination before Mitigation: Less than Significant

Phase 1 Project Mitigation Measures

No mitigation measures are required.

Significance Determination after Mitigation: Less than Significant

While no mitigation measures are required, the Phase 1 Project would incorporate Mitigation Measure GHG-1 as described in Section 3.7, Greenhouse Gas Emissions. Mitigation Measure GHG-1 would also reduce energy use, however due to the uncertain nature as to exactly which measures would be applied and the extent of the implementation, reductions were based on minimal compliance, and therefore, may not represent the total reduction that the Phase 1 Project will experience based on implementation of Mitigation Measure GHG-1. **Table 3.16-7** shows the minimal reductions associated with implementation of Mitigation Measure GHG-1. The Phase 1 Project would continue to result in less than significant energy impacts.

TABLE 3.16-7
PHASE 1 PROJECT TOTAL ANNUAL ENERGY USE (ASSUMES MITIGATION MEASURE GHG-1)

Source	Electricity (MWh/yr)	Natural Gas (MMBtu/yr)	Gasoline (gal)	Diesel (gal)
Annual Project Use	985	2,425	107,157	57,228
County Total	1,665,573	5,674,040	49,000,000	28,000,000
% County	0.06%	0.04%	0.22%	0.20%
PG&E Total	87,375,000	479,435,400	-	-
% PG&E	<0.01	<0.01	-	-

SOURCES:
CEC, 2016a; CEC 2016c; CEC 2019a, CEC, 2019b; California Gas and Electric Utilities, 2018; ESA, 2020.

Phase 1 Project Cumulative Measures

No mitigation measures are required.

Significance Determination after Mitigation: Less than Significant

As described above and shown in Table 3.16-7, the implementation of Mitigation Measure GHG-1 would provide minimal reductions in energy use due to the uncertain nature as to exactly which measures would be applied and the extent of the implementation. The Phase 1 Project's contribution to cumulative energy impacts would remain less than cumulatively considerable.

Impact 3.16-6b: The proposed Program would have less than significant and less than cumulatively considerable impacts on energy resources.

Program Impact Analysis

During construction of the proposed Program, electricity and natural gas would not be anticipated to be consumed in substantial quantities, therefore electricity and natural gas consumption was not quantified. Consistent with the Phase 1 Project, Program construction would consume energy in the form of petroleum-based fuels used by off-road construction vehicles and equipment on the Specific Plan Program site, for travel by construction workers to and from the site, and for delivery and haul truck trips (e.g., hauling of demolished and excavated material to off-site reuse and disposal facilities). **Table 3.16-8** summarizes the estimated annual-average consumption of gasoline fuel and diesel fuel during Program construction.

Table 3.16-8 reports the amount of petroleum-based transportation energy that could potentially be consumed annually during construction of the proposed Program, based on the conservative set of assumptions provided in Appendix M. During construction, on- and off-road vehicles would consume an estimated annual average of approximately 131,109 gallons of gasoline and 451,004 gallons of diesel. For informational purposes only, and not for the purpose of determining significance, total (not net) fuel usage during Project construction would represent approximately 0.28 percent of the 2018 annual on-road gasoline-related energy consumption and 1.6 percent of the 2018 annual diesel fuel-related energy consumption in the County.

TABLE 3.16-8
SPECIFIC PLAN PROGRAM CONSTRUCTION ENERGY USE

Source	Amount
Gasoline	
Specific Plan Program Annual Average	131,109
County Annual Average	49,000,000
% of County Consumption	0.28%
Diesel	
Specific plan Program Annual Average	541,004
County Annual Average	28,000,000
% of County Consumption	1.6%

NOTES:
MMBtu = million British thermal units; MWh = megawatt-hours; PG&E = Pacific Gas and Electric Company

SOURCES: CEC 2019b; ESA 2020.

The proposed Program would comply with CAFE fuel economy standards, which would result in more efficient use of transportation fuels (lower consumption). Vehicles used for Program-related trips would also comply with AB 1493 and the LCFS, which are designed to reduce vehicular GHG emissions, but would also result in additional fuel savings.

Construction activities associated with the proposed Program would use fuel-efficient equipment consistent with state and federal regulations, such as fuel-efficiency regulations in accordance with CARB's Pavley Phase II standards; the anti-idling regulation in accordance with 13 CCR Section 2485; and fuel requirements for stationary equipment in accordance with Section 93115 (concerning Airborne Toxic Control Measures) in CCR Title 17. Program construction would also comply with state measures to reduce the inefficient, wasteful, and unnecessary consumption of energy, such as petroleum-based transportation fuels. While these regulations are intended to reduce construction emissions, compliance with the anti-idling and emissions regulations discussed above would also result in fuel savings from the use of more fuel-efficient engines. Mitigation Measure AQ-1 in Section 3.3, *Air Quality*, considers Tier 4 emissions control techniques that could further reduce energy consumption and emissions however, these reductions were not quantified.

In addition, the proposed Program would divert mixed construction and demolition debris to County-certified construction and demolition waste processors using County-certified waste haulers. At a minimum, this would be consistent with state targets of 75 percent waste diversion by 2020.

As analyzed above, construction would use energy for on-site activities, for construction worker travel, and to transport construction materials and demolition debris to and from the Specific Plan Program site. Idling restrictions and the use of cleaner, energy-efficient equipment would result in relatively less fuel combustion and energy consumption. Thus, the proposed Program's

construction-related energy use would be minimized. Therefore, construction of the proposed Program would not result in the wasteful, inefficient, or unnecessary consumption of energy, and construction-related impacts would be less than significant.

Operation

During operation of the proposed Specific Plan Program, energy would be consumed for multiple purposes, including but not limited to stationary sources such as HVAC, lighting, EV charging, emergency generators, and energy needed to operate the wastewater treatment plant. Energy would also be consumed during proposed Program operations for water usage, solid waste disposal, and vehicle trips. The Specific Plan Program would provide for the installation of EV charging stations pursuant to the CALGreen Code as well as would provide a circulation system that encourages biking and walking, reducing the amount of fossil fuel consumed during vehicular travel to and from the Project site.

Table 3.16-9 summarizes the Specific Plan Program annual operational energy. As shown in Table 3.16-9, the Program's annual net new energy demand would be approximately 24,442 MWh of electricity, 66,606 MMBtu of natural gas, 1,901,430 gallons of gasoline, and 1,095,884 gallons of diesel.

TABLE 3.16-9
SPECIFIC PLAN PROGRAM TOTAL ANNUAL ENERGY USE

Source	Electricity (MWh/yr)	Natural Gas (MMBtu/yr)	Gasoline (gal)	Diesel (gal)
Annual Specific Plan Program Use	24,422	66,606	1,901,430	1,095,884
County Total	1,665,573	5,674,040	49,000,000	28,000,000
% County	1.5%	1.2%	3.9%	3.9%
PG&E Total	87,375,000	479,435,400	-	-
% PG&E	0.03%%	0.01%	-	-

SOURCES:
CEC, 2016a; CEC 2016c; CEC 2019a, CEC, 2019b; California Gas and Electric Utilities, 2018; ESA, 2020.

Electricity

Assuming compliance with 2019 Title 24 standards and applicable 2019 CALGreen Code requirements, at buildout the Program would result in a projected net increase in the annual demand for electricity totaling approximately 24,442 MWh.

Renewable energy accounted for 39 percent of PG&E's overall energy mix in 2018. Thus, electricity provided to meet the Specific Plan Program's energy demand will include some mix of renewable energy. Furthermore, PG&E's energy demand for 2030 (the closest projected year to the Specific Plan Program opening year) is estimated at 116,897,000 MWh (PG&E, 2018).[7] The

[7] PG&E 2018. *Integrated Resource Plan.* August 1. Available: https://www.pge.com/pge_global/common/pdfs/for-our-business-partners/energy-supply/integrated-resource-planning/2018-PGE-Integrated-Resource-Plan.pdf. Accessed: March 2020.

Program's future energy use would represent about 0.02 percent of future PG&E sales, and would be within projected electricity supplies. Therefore, operation of the Program would not result in the wasteful, inefficient, or unnecessary consumption of electricity and the impact would be less than significant.

Natural Gas

With compliance with 2019 Title 24 standards and applicable 2016 CALGreen requirements the proposed Program would generate an estimated net increase in the on-site annual demand for natural gas totaling approximately 66,606 MMBtu.

In the 2018 California Gas Report, PG&E accounts for anticipated regional demand based on various factors including growth in employment by economic sector, growth in housing and population, and increasingly demanding State goals for reducing GHG emissions. PG&E accounts for an increase in employment and housing from 2018 to 2035. The proposed Program would add housing and jobs within the PG&E region and would be consistent with the growth projections set forth in the 2018 California Gas Report (California Gas and Electric Utilities, 2018).

Furthermore, the 2018 California Gas Report, estimates that future supply of natural gas within the PG&E planning area will be approximately 828,126,600 MMBtu in 2035 (California Gas and Electric Utilities, 2018). As stated above, the proposed Program annual net increase in demand for natural gas is estimated to be approximately 66,606 MMBtu, the proposed Program would account for less than 0.001 percent of the forecasted annual consumption in the PG&E planning area and would fall within the PG&E projected consumption for the area and would be consistent with the PG&E anticipated regional demand from population or economic growth. Therefore, operation of the proposed Program would not result in the wasteful, inefficient, or unnecessary consumption of natural gas, and the impact would be less than significant.

Transportation Energy

During operation, proposed Program-related vehicle use would result in the consumption of petroleum-based fuels related to vehicular travel to and from the Project site. A majority of the vehicle fleet that would be used by proposed Program residents, employees and visitors would consist of light-duty automobiles and light-duty trucks, which are subject to fuel-efficiency standards. Other trips to the Specific Plan Program site would include trips associated with the wastewater treatment plant. Most of these trips would also be subject to fuel-efficiency standards and/or compliance with anti-idling regulations associated with medium- and heavy-duty vehicles.

As reported in Table 3.16-9, the proposed Program's estimated annual number of trips totaling 11,050,375 would result in an annual net increase in petroleum-based fuel usage would be approximately 1,901,430 gallons of gasoline and 1,095,884 gallons of diesel. Based on the California Energy Commission's *California Annual Retail Fuel Outlet Report*, residents and employees statewide consumed 13,475,000,000 gallons of gasoline and 3,659,000,000 gallons of diesel. Madera County consumed 49,000,000 gallons of gasoline and approximately 28,000,000 gallons of diesel fuel in 2018 (CEC, 2019b). The proposed Program would account for 0.01 percent and 0.03 of statewide consumption of gasoline and diesel, respectively, and for

3.9 percent of countywide consumption of gasoline and diesel, based on the available fuel sales data for the year 2018.

Fuels used for vehicle trips resulting from the proposed Program would be required to comply with CAFE fuel economy standards, which would result in more efficient use of transportation fuels (lower consumption). Vehicles used for Program-related vehicle trips would also comply as applicable with AB 1493 and LCFS, which are designed to reduce vehicular GHG emissions, but would also result in additional fuel savings. In addition, the proposed Program would provide for the installation of EV charging stations pursuant to the CALGreen Code, reducing the amount of fossil fuel consumed during vehicular travel to and from the Specific Plan Program site.

For the reasons described above, the proposed Program would reduce operational transportation fuel demand consistent with and not in conflict with state, regional, and local goals. Therefore, operation of the proposed Program would not result in the wasteful, inefficient, and unnecessary consumption of energy and the impact would be less than significant with mitigation.

Significance Determination before Mitigation: Less than Significant

Program Cumulative Impact Analysis

The geographic area for cumulative energy impacts is the state of California. Past, present, and future development projects contribute to the state's energy impacts. If a project is determined to have a significant energy impact, it is concluded that the impact would be cumulatively considerable. As discussed under the Program analysis, the proposed Program would not result in significant energy impacts, therefore, the proposed Program's contribution to cumulative energy impacts would be less than cumulatively considerable.

Significance Determination before Mitigation: Less than Significant

Program Mitigation Measures

No mitigation measures are required.

Significance Determination after Mitigation: Less than Significant

While no mitigation is required, the Program would incorporate Mitigation Measure GHG-2 as described in Section 3.7, Greenhouse Gas Emissions. Mitigation Measure GHG-2 would also reduce energy use, however due to the uncertain nature as to exactly which measures would be applied and the extent of the implementation, reductions were based on minimal compliance and therefore may not represent the total reduction that the proposed Program will experience based on implementation of Mitigation Measure GHG-2. **Table 3.16-10** shows the minimal reductions associated with implementation of Mitigation Measure GHG-1. The Phase 1 Project would continue to result in less than significant energy impacts.

TABLE 3.16-10
SPECIFIC PLAN PROGRAM TOTAL ANNUAL ENERGY USE
(ASSUMES MITIGATION MEASURE GHG- 2)

Source	Electricity (MWh/yr)	Natural Gas (MMBtu/yr)	Gasoline (gal)	Diesel (gal)
Annual Specific Plan Program Use	24,119	55,792	1,816,906	1,047,168
County Total	1,665,573	5,674,040	49,000,000	28,000,000
% County	1.5%	1.0%	3.7%	3.7%
PG&E Total	87,375,000	479,435,400	-	-
% PG&E	0.01%	0.03%	-	-

SOURCES:
CEC, 2016a; CEC 2016c; CEC 2019a, CEC, 2019b; California Gas and Electric Utilities, 2018; ESA, 2020.

Program Cumulative Measures

No mitigation measures are required.

Significance Determination after Mitigation: Less than Significant

As described above and shown in Table 3.16-10, the implementation of Mitigation Measure GHG-2 would provide minimal reductions in energy use due to the uncertain nature as to exactly which measures would be applied and the extent of the implementation. The proposed Program's contribution to cumulative energy impacts would remain less than cumulatively considerable.

Energy Policy

Impact 3.16-7: The Phase 1 Project and proposed Program would have less than significant and less than cumulatively considerable environmental impacts on state or local plans for renewable energy or energy efficiency.

Phase 1 Project and Program Impact Analysis

Construction

Construction equipment would comply with federal, State, and regional requirements where applicable. With respect to truck fleet operators, the USEPA and NHSTA have adopted fuel efficiency standards for medium- and heavy-duty trucks. The Phase 1 heavy-duty truck standards apply to combination tractors, heavy-duty pickup trucks and vans, and vocational vehicles for model years 2014 through 2018 and result in a reduction in fuel consumption from 6 to 23 percent over the 2010 baseline, depending on the vehicle type. USEPA and NHTSA also adopted the Phase 2 heavy-duty truck standards, which cover model years 2021 through 2027 and require the phase-in of a 5 to 25 percent reduction in fuel consumption over the 2017 baseline depending on the compliance year and vehicle type. The energy modeling for trucks does not take into account specific fuel reductions from these regulations, since they would apply to fleets as they incorporate newer trucks meeting the regulatory standards; however, these regulations would

have an overall beneficial effect on reducing fuel consumption from trucks over time as older trucks are replaced with newer models that meet the standards.

In addition, construction equipment and trucks are required to comply with CARB regulations regarding heavy-duty truck idling limits of five minutes at a location and the phase-in of off-road emission standards that result in an increase in energy savings in the form of reduced fuel consumption from more fuel-efficient engines. Although these regulations are intended to reduce criteria pollutant emissions, compliance with the anti-idling and emissions regulations would also result in the efficient use of construction-related energy.

Operation

Development within the Phase 1 Project and proposed Program site would be subject to the Building Energy Efficiency Standards as required by the California Code of Regulations, Title 24, Part 6. The Building Energy Efficiency Standards are intended to save energy, increase electricity supply reliability, and avoid the need to construct new power plants. Pursuant to the California Building Standards Code and the Energy Efficiency Standards, the County would review the design components for energy conservation measures when building plans for the individual development projects are submitted. These measures could include insulation; use of energy-efficient heating, ventilation, and air conditioning equipment (HVAC); solar-reflective roofing materials; energy-efficient indoor and outdoor lighting systems; reclamation of heat rejection from refrigeration equipment to generate hot water; incorporation of skylights; and other measures (see mitigation measures GHG-1 and GHG-2 in Section 3.7 Greenhouse Gas Emissions). The Project would also be subject to CALGreen, which requires 65% construction solid waste diversion.

The Project would implement efficiency strategies and incorporate water conservation, energy conservation, and other features consistent with the CALGreen Code, Title 24, and City sustainability goals. As a result, the Phase 1 Project and proposed Program would not conflict with or obstruct a state plan for renewable energy or energy efficiency. Thus, the impact would be less than significant.

Significance Determination before Mitigation: Less than Significant

Phase 1 Project and Program Cumulative Impact Analysis

The geographic area for cumulative energy impacts is the state of California. Past, present, and future development projects contribute to the state's energy impacts. If a project is determined to have a significant energy impact, it is concluded that the impact would be cumulatively considerable. As discussed under the Phase 1 Project and Program analyses, the Phase 1 Project and proposed Program would not conflict with or obstruct a state or local plan for energy efficiency, therefore, the Phase 1 Project and Program's contribution to cumulative energy impacts on a state or local plan for energy efficiency would be less than cumulatively considerable.

Significance Determination before Mitigation: Less than Significant

Phase 1 Project and Program Mitigation Measures

No mitigation measures are required.

Significance Determination after Mitigation: Less than Significant

Phase 1 Project and Program Cumulative Measures

No mitigation measures are required.

Significance Determination after Mitigation: Less than Significant

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CHAPTER 4
Other CEQA Considerations

This chapter describes the effects that were found not to be significant in the Notice of Preparation/Initial Study; significant and unavoidable environmental impacts due to Project implementation; significant irreversible environmental changes; and, growth inducing impacts associated with the proposed Project. As described in Chapter 2, *Project Description*, the analysis describes the potential impacts from implementation of the Castellina Specific Plan (proposed Program) and the first phase of the Specific Plan (Phase 1 Project). Collectively, the proposed Program and Phase 1 Project are the proposed Project.

4.1 Effects That Were Found Not to Be Significant

As required by Section 15128 of the CEQA Guidelines, an EIR shall contain a brief discussion stating the reasons why various possible effects of a project were determined not significant and are, therefore, not discussed in detail in the EIR. In accordance with the CEQA Guidelines, this section discusses the environmental issue areas where impacts were found to not be significant. These discussions address the CEQA Guidelines Appendix G for each of the environmental topic areas where the proposed Project would result in either a less than significant impact or no impact. Most of the discussions are the same as those provided in the Notice of Preparation/Initial Study that was distributed for public review on April 7, 2017. There are a few discussions that have been modified to substantiate the findings or added to address a new issue such as Wildfire.

4.1.1 Agriculture and Forestry Resources

Issue 1: Would the Project conflict with existing zoning for, or cause rezoning of, forest land (as defined in Public Resources Code Section 12220(g)), timberland (as defined by Public Resources Code section 4526), or timberland zoned Timberland Production (as defined by Government Code section 51104(g))?

No Impact. Based on a review of the California's Forest and Rangelands 2015 Assessment prepared by the California Department of Forestry and Fire Protection, the Project site does not contain forest land or timberland. In addition, the County does not have forest land as a zoning district (Madera County, 2016). The County contains Timber Reserve Zones (TPZ) that are not within or immediately adjacent to the Project site. Therefore, the implementation of the proposed Project would result in no impacts to forest land or timberland.

Issue 2: Would the Project result in the loss of forest land or conversion of forest land to non-forest use?

No Impact. As described in Issue 1 above, the Project site does not include forest land, and therefore the proposed Project would not result in the conversion of forest land to non-forest use. No impacts would occur.

4.1.2 Biological Resources

Issue 1: Would the Project conflict with the provisions of an adopted habitat conservation plan, natural community conservation plan, or other approved local, regional, or state habitat conservation plan?

No Impact. Based on a review of the California Department of Fish and Wildlife, California Regional Conservation Plans, there are no Habitat Conservation Plans or other approved habitat conservation plans located on the Project site (CDFW 2017).

4.1.3 Geology, Soils, and Seismicity

Issue 1: Would the Project expose people or structures to potential substantial adverse effects, including the risk of loss, injury, or death involving the rupture of a known earthquake fault, as delineated on the most recent Alquist-Priolo Earthquake Fault Zoning Map issued by the State Geologist for the area or based on other substantial evidence of a known fault?

Less Than Significant Impact. The Project site is in one of the more geologically stable areas of California and does not lie within a known active earthquake fault zone. Ground shaking at the site would likely be low to moderate given the historic seismicity of the area and distance to active faults. The Project site is located approximately 19 miles from the Foothills Fault system and over 41 miles from the Great Valley Fault system. The Project site is not located in an Alquist-Priolo Special Fault Study Zone, and as such, it has not been identified as a zone of special study around active faults (CGS, 2017). Impacts related to the rupture of a known earthquake fault, as delineated on the most recent Alquist-Priolo Earthquake Fault Zoning Map would be less than significant.

Issue 2: Would the Project expose people or structures to potential substantial adverse effects, including the risk of loss, injury, or death involving landslides?

No Impact. The Project site is located within a portion of the County that is characterized by relatively flat terrain where landslides are unlikely. The Project site gently slopes from north to south from elevation 282 to 308 above mean sea level over approximately 1 mile. Due to the relatively flat terrain, the implementation of the proposed Project would not be affected by landslides. There would be no impact to people or structures related to the risk involving landslides.

Issue 3: Would the Project have soils incapable of adequately supporting the use of septic tanks or alternative waste water disposal systems where sewers are not available for the disposal of waste water?

No Impact. The proposed Project does not include the use of septic tanks. The Project site currently does not contain a sewage disposal system, and the proposed Project includes a sewer collection system and wastewater treatment plant to accommodate wastewater disposal needs. The proposed sewer system includes the collection, treatment, and disposal of wastewater and the distribution of treated reclaimed water. Wastewater would be collected and conveyed through a gravity system of pipes, supplemented by one or more lift stations. Because the Project does not include the use of septic tanks or alternative wastewater disposal systems, the Project would result in no impacts associated with soils being incapable of supporting septic tanks.

4.1.4 Hazards and Hazardous Materials

Issue 1: Would the Project be located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the Project result in a safety hazard or excessive noise for people residing or working in the Project area?

No Impact. There are no public airports within 2 miles of the Project site. The closest public use airport is the Madera Municipal Airport, approximately 3.3 miles southwest of the Project site (Toll Free Airline, 2017). Implementation of the proposed Project is anticipated to increase the population on the Project site; however, this proposed increase in population would not result in a safety hazard or excessive noise for people residing or working in the Project area due to the site's distance from the existing airport. Therefore, no impact would occur.

4.1.5 Mineral Resources

Issue 1: Would the Project result in the loss of availability of a known mineral resource that would be of value to the region and the residents of the state?

Less Than Significant Impact. The Project site is located in the Fresno Production-Consumption (P-C) Region that was delineated by the California Division of Mines and Geology in the 1980s (DOC, 1998). Within the Fresno P-C Region, there were two production districts; the San Joaquin River production district and the Kings River production district (DOC, 1988). Both of these production districts are located south of the Project site and do not encompass the Project site. Also in the 1980s, the State Geologist identified a Mineral Land Classification of all lands within the Fresno P-C Region. The Project site was and remains classified as mineral resource zone (MRZ) 3. Areas classified as MRZ-3 are areas containing mineral deposits, but the significance of which cannot be evaluated from the data that was available to the State Geologist. Because the Project is not known to contain significant mineral resources, is not identified within a production district, and the County of Madera has not designated the area for mineral extraction, the implementation of the proposed Project would result in a less than significant impact related to the potential loss of the availability of a significant mineral resource.

Issue 2: Would the Project result in the loss of availability of a locally-important mineral resource recovery site delineated on a local general plan, specific plan, or other land use plan?

Less Than Significant Impact. As discussed in Issue 1 above, the Project site is located within an area classified as MRZ-3 which include areas containing mineral deposits, but the significance of which cannot be evaluated from the data that was available to the State Geologist. The County of Madera acknowledged the classification of significant mineral resources which were areas designated as MRZ-2 by the State Geologist and provided appropriate policies related to these areas. However, since the Project site is classified as MRZ-3, the Project site was not recognized by the County of Madera as a locally-important mineral resource recovery site. Therefore, the implementation of the proposed Project would result in a less than significant impact on the potential loss of the availability of a locally-important mineral resource recovery site.

4.1.6 Noise and Vibration

Issue 1: Would the Project be 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, that would expose people residing or working in the Project area to excessive noise levels?

No Impact. There are no public airports within 2 miles of the Project site. The closest public use airport is the Madera Municipal Airport, approximately 3.3 miles southwest of the Project site. There are no private airstrips within the vicinity of the Project site. The closest private airstrip is Sallaberry Ranch Strip Airport located approximately 5.7 miles northwest of the Project site.

Increased population from future development would not expose those working or living in the area to potential noise impacts associated with airport operations. Furthermore, the Project site is not located within an airport land use plan; therefore, there will be no impacts in this regard.

4.1.7 Population and Housing

Issue 1: Would the Project displace substantial numbers of existing people or housing, necessitating the construction of replacement housing elsewhere?

No Impact. The Project site currently contains agricultural crops and does not contain existing housing. Therefore, the implementation of the proposed Project would not result in the displacement of people or housing. There would be no impact.

4.1.8 Wildfire

If located in or near state responsibility areas or lands classified as very high fire hazard severity zones, a significant impact related to wildfires would occur if the proposed Project would:

Issue 1: Substantially impair an adopted emergency response plan or emergency evacuation plan;

Issue 2: 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;

Issue 3: 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; or

Issue 4: 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.

No Impact. California Department of Forestry and Fire Protection (CAL FIRE) provides maps of the State Responsibility Area (SRA) Fire Hazard Severity Zones (FHSZs), or areas of significant fire hazard, based on fuels, terrain, weather, and the likelihood of buildings igniting. CAL FIRE Zones are designated with Very High, High, Moderate, and Other which includes Non-Wildland/Urban and Urban Unzoned hazard classes. The goal of this mapping effort is to create more accurate fire hazard zone designations such that mitigation strategies are implemented in areas where hazards warrant these investments. The fire hazard zones will provide specific designation for application of defensible space and building standards consistent with known mechanisms of fire risk to people, property, and natural resources.

The Project site is not located within or near an area designated as a state responsibility area (CAL FIRE, 2007a) nor is it classified as a very high fire hazard severity zone or located near a very high fire hazard severity zone (VHFHSZ) (CAL FIRE, 2007b). The Project site is mapped as being within an unincorporated Local Responsibility Area (LRA) designated as unzoned per CAL FIRE's Fire Hazard Severity Zone Maps prepared under the Fire and Resource Assessment Program (FRAP) (CAL FIRE, 2007a/2007b). There are LRA Moderate zones surrounding the north and west boundary of the Project. The nearest LRA Moderate zones are located north of the Project site right along the Avenue 18, west of the Project site along Road 27, and along the southwest boundary of the Project site.

The closest SRA designated as VHFHSZ is located in Coarsegold, approximately 25 miles northeast of the Project site. The closest SRA High FHSZ is located by Hensley Lake, approximately 11 miles northeast of the Project site. The closest SRA FHSZ is approximately 5 miles north of the Project site and is designated as SRA Moderate FHSZ. Therefore, there would be no Project or cumulative impacts.

4.2 Significant and Unavoidable Environmental Impacts

CEQA Guidelines Section 15126.2(c) requires that an EIR describe any significant impacts that cannot be avoided, including those impacts that can be mitigated but not reduced to a less than significant level. Chapter 3, *Environmental Impact Analysis*, of this EIR describes the potential environmental impacts of the proposed Project and recommends mitigation measures to reduce impacts, where feasible. Analysis of environmental impacts caused by the proposed Project has been performed, and is contained in Chapter 3, *Environmental Impact Analysis*, of the EIR.

The proposed Project would result in the following Project and cumulative significant impacts which cannot be reduced to less than significant, even with the implementation of feasible mitigation measures.

4.2.1 Aesthetics

Program

- **Impact 3.1-3b:** The Program would have a significant unavoidable and cumulatively considerable impacts on the existing visual character of the Project site and surroundings.

  The implementation of Mitigation Measure AES-1 would reduce potential impacts on the existing visual characteristics; however, the existing significant visual impacts would remain significant and unavoidable due to the substantial conversion of the area from agriculture to urban uses.

- **Impact 3.1-4b:** Program and Cumulative increase in light would result in a significant and unavoidable impact on nighttime views.

  The illumination of the sky at night will be reduced with the implementation of Mitigation Measures AES-5 through AES-7; however, potential significant illumination impacts would remain.

4.2.2 Agricultural Resources

Phase 1 Project

- **Impact 3.2-1a:** The Phase 1 Project would have significant unavoidable and cumulatively considerable impacts from the conversion of Prime Farmland, Unique Farmland, and Farmland of Statewide Importance (Farmland) to non-agricultural use.

  There are no feasible mitigation measures available to offset the approximate 96 acres of land designated as Important Farmland on the Phase 1 Project site. This loss is consistent with the loss of agricultural land that was planned for the site with the approval of the Madera County Resolution 2014-012 to change the General Plan designation on the Phase 1 Project site from Agriculture – Exclusive to New Growth Area. This land use revision was also consistent with the City of Madera General Plan which included the Phase 1 Project site within a Village Reserve, and the City of Madera identified future development within the Phase 1 Project area as a significant and unavoidable impact on Important Farmland from the conversion of farmland to urban uses.

- **Impact 3.2-2a:** The Phase 1 Project would have significant unavoidable and cumulatively considerable impacts from conflicts with existing zoning for agricultural use. The implementation of the proposed Phase 1 Project would result in conflicts with the existing onsite ARE-40 zoning because the proposed 117 residential units, wastewater treatment plant, water facilities, and open space/parks uses would not be consistent with the existing zoning regulations.

  There are no feasible mitigation measures available to offset the approximate 96 acres of agricultural zoned land on the Phase 1 Project site. This loss is consistent with the loss of agricultural zoned land that was planned for the site with the approval of the Madera County Resolution 2014-012 to change the General Plan designation on the Phase 1 Project site from Agriculture – Exclusive to New Growth Area. This land use revision was also consistent with the City of Madera General Plan which also included the Phase 1 Project site within a Village Reserve area. The City of Madera provided a Statement of Overriding Considerations for the loss of agricultural zoned land. The proposed Phase 1 Project's contribution to cumulative impacts on agricultural zoned land would remain cumulatively considerable.

- **Impact 3.2-3a:** The Phase 1 Project would involve significant and unavoidable changes in the existing environment, due to their location or nature, that would result in the conversion of Farmland to non-agricultural use. Because the Phase 1 Project would require the conversion of approximately 0.5 acres of farmland to non-farmland for the implementation of a fire access road within the Program site, the Phase 1 Project's farmland conversion impact would remain significant.

  There are no feasible measures to reduce potential impacts on farmland conversion from the implementation of the Phase 1 Project. This loss is consistent with the loss of agricultural land that was planned for the site with the approval of the Madera County Resolution 2014-012 to change the General Plan designation on the Program area from Agriculture – Exclusive to New Growth Area. This land use revision was also consistent with the City of Madera General Plan which also included the Program area within a Village Reserve, and the City of Madera identified future development within the Program area as a significant and unavoidable impact on the conversion of farmland to urban uses. Because the Phase 1 Project would require the conversion of approximately 0.5 acre of farmland to non-farmland for the implementation of a fire access road within the Program site, the Phase 1 Project's farmland conversion impact would remain significant and unavoidable.

Program

- **Impact 3.2-1b:** The proposed Program would have significant unavoidable and cumulatively considerable impacts from the conversion of Prime Farmland, Unique Farmland, and Farmland to non-agricultural use.

  There are no feasible measures to reduce potential impacts on Important Farmlands on the proposed program site. This loss is consistent the County of Madera General Plan designation change for the Program site in 2014 from Agriculture – Exclusive to New Growth Area. This land use revision was also consistent with the City of Madera General Plan which also included the proposed Program site within a Village Reserve. Even though the proposed Program site is planned for future urban growth, the Program's contribution to cumulative impacts on Important Farmlands would remain cumulatively considerable.

- **Impact 3.2-2b:** The proposed Program would have significant unavoidable and cumulatively considerable impacts from conflicts with existing zoning for agricultural use. The implementation of the proposed Program would result in conflicts with the existing onsite

ARE-40 zoning because the proposed residential units, commercial, proposed wastewater treatment plant, water facilities, and open space/parks uses would not be consistent with the existing zoning regulations.

There are no feasible mitigation measures available to offset the approximate 792 acres of agricultural zoned land on the Program site. This loss is consistent with the loss of agricultural zoned land that was planned for the site with the approval of the Madera County Resolution 2014-012 to change the General Plan designation on the Program site from Agriculture – Exclusive to New Growth Area. This land use revision was also consistent with the City of Madera General Plan which also included the Program site within a Village Reserve. The City of Madera provided a Statement of Overriding Considerations for the loss of agricultural zoned land. The proposed Program's contribution to cumulative impacts on agricultural zoned land would remain cumulatively considerable.

4.2.3 Air Quality

Program

- **Impact 3.3-1b:** The proposed Program would have a significant unavoidable and cumulatively considerable impacts related to conflicting with the implementation of the Air District's air quality plan.

  With implementation of Mitigation Measures AQ-3, AQ-4, and GHG-1, operational emissions of ROG, NOx and PM10 would be reduced; however, these emissions would continue to exceed regulatory levels. The implementation of AQ-4 would reduce operational emissions of the criteria pollutants. Each individual project within the Specific Plan Program would enter into the Voluntary Emissions Reduction Agreement (VERA) if the individual project exceeds the SJVAPCD regional significance threshold. Each individual project that exceeds the thresholds would offset its emissions to the threshold level. Because the number and size of individual projects within the Specific Plan Program are not known at this time, the reduction of emissions through the use of VERA cannot be quantified. Furthermore, since each individual project could include emissions up to the regional significance thresholds, the combined emissions of all individual projects within the Specific Plan Program are assumed to exceed the regional significance thresholds. For this analysis, it is assumed that the regional significance thresholds for operational emissions of ROG, NOx and PM10 would be exceeded and considered cumulatively considerable. Therefore, cumulative operational activities associated with the proposed Program would conflict with the implementation of the applicable air quality management plans. The operational activities associated with the proposed Program would result in a significant impact, and the Program's contribution to cumulative operational emissions of ROG, NOx and PM10 would be cumulatively considerable.

- **Impact 3.3-2b:** The proposed Program would have a significant unavoidable and cumulatively considerable impacts associated with the net increase of criteria pollutants for which the project region is in non-attainment.

  Implementation of Mitigation Measures AQ-3, and GHG-1 would reduce operational emissions from the proposed Program but not to less than significant levels. Because detailed operational characteristics associated with the proposed Program has not been fully defined, emissions may be reduced as more detailed operational characteristics of the proposed Program are established and implemented. Additionally, Mitigation Measure GHG-1 includes only minimum reductions based on the voluntary nature of some of the measures and the unknown compliance with the measures. The implementation of AQ-4

would further reduce operational emissions of the criteria pollutants. Each individual project within the Specific Plan Program would enter into the Voluntary Emissions Reduction Agreement (VERA) if the individual project exceeds the SJVAPCD regional significance threshold. Each individual project that exceeds the thresholds would offset its emissions to the threshold level. Because the number and size of individual projects within the Specific Plan Program are not known at this time, the reduction of emissions through the use of VERA cannot be quantified. Furthermore, since each individual project could include emissions up to the regional significance thresholds, the combined emissions of all individual projects within the Specific Plan Program are assumed to exceed the regional significance thresholds. For this analysis, it is assumed that the regional significance thresholds would be exceeded for ROG, NOx and PM10.

4.2.4 Cultural Resources

Program

- **Impact 3.5-1b:** The proposed Program would have significant unavoidable and cumulatively considerable effects on historical resources because the Program could cause a substantial adverse change in the significance of a historical resource.

  Implementation of Mitigation Measure CUL-1 would require a historic built environment survey for structures 45 years or older and historic-age structures would be evaluated for their historic significance. However, if retaining the resources is not feasible, photographic-documentation and public interpretation of the resources would reduce the impact to the historic resources. However, these measures are not considered full mitigation, and as a result, impacts to the resources would remain significant.

4.2.5 Greenhouse Gas Emissions

Program

- **Impact 3.7-1b:** The proposed Program could result in significant unavoidable and cumulatively considerable effects associated with greenhouse gas emissions because the Program could generate greenhouse gas emissions that would result in a significant impact on the environment.

  Implementation of Best Performance Standards (BPS) required by SJVAPCD in their guidance and CAPCOA Reduction measures as identified in Mitigation Measure GHG-1 and GHG-2 would bring the Program into compliance with these plans. Implementation of Mitigation Measures GHG-1 and GHG-2 reduces total Program emissions by 14 percent to 36,570 $MTCO_2e$ as shown in Table 3.7-7. These reductions conservatively use the lowest reduction percentages of the methodology as the exact buildout scenario is not currently known. Also these reductions do not include additional measures that will be taken by the State and local jurisdictions to reduce GHG emissions to meet the 2030 requirements and move towards the 2050 goals. Therefore, these reported emissions are greater than the reduced emissions that can be achieved with the increased efficiencies and reductions at the state level. While, SJVAPCD's 29 percent reduction in GHG emissions is no longer an applicable reduction standard, due to the more stringent reduction goals of 2030 and 2050, the 14 percent reduction attributed by Mitigation Measures GHG-1 and GHG-2 may not be sufficient to offset the Program's portion of reductions needed by the County. Therefore, the Program would remain significant and unavoidable after mitigation.

- **Impact 3.7-2b:** The proposed Program would result in significant unavoidable and cumulatively considerable effects on a greenhouse gas plan because the Program would conflict with an applicable plan, policy or regulation adopted for the purpose of reducing the emissions of greenhouse gases.

  While the proposed Program does not actively conflict with the policies in place for the reduction of GHG emissions, the development on its own does not further emissions reductions that are necessary to meet the 2030 and 2050 goals, therefore without mitigation, the proposed Program would result in significant GHG emissions. Implementation of the mitigation measures would reduce GHG emissions from the wastewater treatment facility as well as the residential and commercial components of the Program. Emissions reductions quantified are minimal with the implementation of the Program. Additional reductions will be achieved based on the level of participation in the reduction measures by the Program during development as well as through choices of residents and commercial occupants. The TDM program as well as the bicycle and pedestrian requirements will reduce VMT and therefore GHG emissions. Energy efficiency measures will reduce emissions from electrical consumption to operate the site. However, because the reductions afforded by implementation of the Program only reduce the Program emissions by 14 percent, and the complete implementation and reductions that will be achieved through implementation of the Program are not known, there is the potential that the reduction achieved by implementation of Mitigation Measures GHG-1 and GHG-2 may not be sufficient to offset the Program's portion of reductions needed by the County. Therefore, the Proposed Program would remain significant and unavoidable after mitigation.

4.2.6 Noise and Vibration

Program

- **Impact 3.11-1b:** The proposed Program could result in significant unavoidable and cumulatively considerable noise effects associated with roadway traffic.

  No feasible measures are available to reduce noise levels along the affected roadway segments and therefore impacts would be significant and unavoidable.

4.2.7 Public Services

Phase 1 Project

- **Impact 3.13-1a:** Implementation of the Phase 1 Project could have significant unavoidable and cumulatively considerable physical environmental impacts from construction activities associated with the provision of a fire station to serve the Phase 1 Project. The construction of a temporary fire station within the Phase 1 site and/or a permanent fire station within the remaining portions of the Program site would result in the removal of Unique Farmland. The removal of the Unique Farmland would be significant and unavoidable.

  There are no feasible mitigation measures available to offset the conversion of Important Farmland designated as Unique Farmland to urban uses. This loss is consistent with the loss of agricultural land that was planned for the site with the approval of the Madera County Resolution 2014-012 to change the General Plan designation on the Specific Plan Program site from Agriculture – Exclusive to New Growth Area.

Program

- **Impact 3.13-1b:** The proposed Program could have cumulatively considerable physical environmental impacts associated with the construction of future sheriff facilities to accommodate future growth. The proposed Program could also have significant unavoidable and cumulatively considerable physical environmental impacts associated with the construction of future fire protection facilities to accommodate future growth.

  Because the specific locations of the future sheriff's facilities are not known, construction of these future sheriff facilities could result in significant environmental impacts; however, specific measures are not known at this time to reduce the potential environmental effects. As a result, the proposed Program's contribution to environmental impacts from future construction of sheriff's facilities due to the increased cumulative demand for sheriff services would remain cumulatively considerable.

  The future fire station to serve the Program would be located within the Program site and be located on Important Farmland. As a result, the future construction of the fire station would result in significant agricultural impacts. Because the implementation of cumulative projects would require the construction of a new fire station, the Program's contribution to environmental impacts from the future construction of a fire station within the Program site would be cumulatively considerable. There are no feasible mitigation measures available to offset the conversion of Important Farmland designated as Unique Farmland to urban uses. This loss is consistent with the loss of agricultural land that was planned for the site with the approval of the Madera County Resolution 2014-012 to change the General Plan designation on the Specific Plan Program site from Agriculture – Exclusive to New Growth Area.

- **Impact 3.13-3b:** The proposed Program could have significant unavoidable and cumulatively considerable physical environmental impacts from construction activities associated with a future library because the specific location of a future library is not known.

  Because the specific locations of the future library facilities are not known, construction of these future library facilities could result in significant environmental impacts; however, specific measures are not known at this time to reduce the potential environmental effects. As a result, the proposed Program's impact related to library facilities would remain significant and unavoidable.

4.2.8 Transportation

Phase 1 Project

- **Impact 3.15-2a:** Implementation of the Phase 1 Project would be inconsistent with CEQA Guidelines Section 15064.3, subdivision (b) related to vehicle miles traveled (VMT) associated with the proposed residential units. Therefore, the Phase 1 Project would result in significant unavoidable and cumulatively considerable impact related to residential VMT.

  No mitigation measures beyond the VMT reducing project design elements incorporated into the Phase 1 Project are available.

Program

- **Impact 3.15-2b:** Implementation of the Specific Plan Program would be inconsistent with CEQA Guidelines Section 15064.3, subdivision (b) related to vehicle miles traveled (VMT) associated with the proposed residential units. Therefore, the Program would result in a significant unavoidable and cumulatively considerable impact related to residential VMT.

No mitigation measures beyond the VMT reducing Project design elements incorporated into the Specific Plan Program are available.

4.3 Significant Irreversible Environmental Changes

Section 21100(b)(2)(B) of CEQA and Section 15126.2(d) of the CEQA Guidelines require that an EIR include a detailed statement setting forth "[a]ny significant effect on the environment that would be irreversible if the project is implemented." (PRC Section 21100(b(2)(B). "Significant irreversible environmental changes" include the use of nonrenewable natural resources during the initial and continued phases of the Project, should this use result in the unavailability of these resources in the future. Primary impacts and, particularly, secondary impacts generally commit future generations to similar uses. Also, irreversible damage can result from environmental accidents associated with a project. Irretrievable commitments of these resources are required to be evaluated in an EIR to ensure that such consumption is justified (CEQA Guidelines Section 15126.2(d)).

Approval of the proposed Project would cause irreversible environmental changes consisting of the following:

Project construction and operation would result in an irretrievable loss of, and irreversible commitment of, natural resources. The Project site is presently vacant and primarily undeveloped. Located in an urbanizing area, the Project would require the commitment of natural resources and materials such as lumber and steel and the use of fossil fuels. Construction and operation of the proposed Project would emit pollution into the air from, construction machines and vehicles, and from vehicles traveling to and from the Project site during operation. The Project would also consume fossil fuels (petroleum and natural gas), and electricity generated by fossil fuels and other non-renewable resources during operation.

The proposed Project would require groundwater for potable use as well as recycled water for irrigation. Recycled water would be generated from the proposed treated wastewater flow produced from the Program's indoor residential and non-residential uses and treated at a tertiary level at the proposed onsite wastewater treatment plant. A water supply assessment (WSA) (Tully & Young, 2018; Appendix I-2 of this Draft EIR) was prepared for the proposed Project because the Project includes more than 500 residential units. The WSA includes a discussion of whether projected water supplies identified to serve the Project will be sufficient to meet existing and planned water demands over a 20-year horizon. The WSA found that water supplies identified to serve the proposed Project would be sufficient.

The County of Madera has been preparing the County of Madera Groundwater Sustainability Plan for the Madera Sub-basin that lies under the Project site. Although a sustainable yield has not been officially adopted by the County of Madera, the value of 0.5 acre-feet per acre per year has been formally presented in the County of Madera Groundwater Sustainability Plan. Therefore, based on 0.5 acre-foot per acre per year, the Project site would result in a groundwater sustainable yield credit of 396 AFY. The Madera Sub-basin would experience a surplus of 227 AFY at full buildout of the proposed Specific Plan Program.

Because each of the large-scale cumulative projects are required to demonstrate a groundwater balance, the implementation of cumulative growth would result in a less than significant impact on groundwater supplies and groundwater recharge.

Because the Madera Sub-basin would experience a surplus of 227 AFY at full buildout of the proposed Specific Plan Program, the Program's contribution to the cumulative impact on groundwater supplies and groundwater recharge would be less than cumulatively considerable.

4.4 Growth-Inducing Impacts

CEQA Guidelines Section 15126.2(e) requires an EIR discuss the potential growth-inducing impacts of a proposed project. The CEQA Guidelines provide the following guidance for such discussion:

> *Discuss the ways in which the proposed project could foster economic 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. Also 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.*

A project can have direct and/or indirect growth-inducement potential. Direct growth inducement would result if a project involved construction of new housing. A project can have indirect growth-inducement potential if it would establish substantial new permanent employment opportunities (e.g., commercial, industrial, or governmental enterprises) or if it would involve a substantial construction effort with substantial short-term employment opportunities and indirectly stimulate the need for additional housing and services to support the new employment demand. Similarly, under CEQA, a project would indirectly induce growth if it would remove an obstacle to additional growth and development, such as removing a constraint on a required public service. Under CEQA, growth is not considered necessarily detrimental or beneficial.

Based on the CEQA definition above, assessing the growth-inducement potential of the proposed Project involves answering the question:

> "Would implementation of the proposed project directly or indirectly support economic expansion, population growth, or residential construction?"

Community development is one of the chief public services needed to support growth. While residential development plays a role in supporting additional growth, it is not the single determinant of such growth. Other factors, including General Plan policies, land use plans, and zoning, public schools, transportation services, and other important public infrastructure, also influence business and residential population growth. Economic factors, in particular, greatly affect development rates and locations.

4.4.1 Methodology

This section evaluates how the proposed Project could affect population growth in the region. The growth anticipated in the region has been identified in regional transportation plans such as the Madera County Transportation Commission RTP/SCS and local General Plans prepared by local land use agencies and municipalities.

As noted, growth inducement itself is not necessarily an adverse impact. It is the potential consequences of growth, the secondary effects of growth, which may result in environmental impacts. Potential secondary effects of growth could include increased demand on other public services; increased traffic and noise; degradation of air quality; loss of plant and animal habitats; and the conversion of agriculture and open space to developed uses. Growth inducement may result in adverse impacts if the growth is not consistent with the land use plans and growth management plans and policies for the area, as "disorderly" growth could indirectly result in additional adverse environmental impacts. Thus, it is important to assess the degree to which the growth accommodated by a project would or would not be consistent with applicable land use plans.

To determine direct growth-inducement potential, the proposed Project was evaluated to verify whether an increase in population or employment, or the construction of new housing would occur as a direct or indirect result of the proposed Project. If either of these scenarios occurred, the proposed Project could result in direct growth-inducement within the region.

4.4.2 Growth Inducement Potential

Direct Growth

Implementation of the proposed Project would result in an increase in population and employment opportunities within the Specific Plan Program area. As previously mentioned in Chapter 2, *Project Description*, of this Draft EIR, the proposed Program would include the development of 3,072 dwelling units. As previously described in Section 3.12, *Population and Housing*, of this Draft EIR, the proposed Project would result in approximately 9,918 people.[1] This population estimate is based an estimated 3.7 persons per unit and 2.0 persons per unit generation rates depending on the residential density. These rates were extrapolated from the persons per unit within the jurisdictions in the Project vicinity that were identified by the California Department of Finance. The generation rates were used to forecast the persons per house occupancy rate for the very low–, low-, medium-, and high-density residential uses proposed within the Specific Plan Program.

As described in Chapter 2, *Project Description*, the mixed-use Town Center would provide an activity hub to enhance community experience and support the residents, visitors and employees within the overall Project. The proposed Project would result in an increase of approximately 268 employees as a result of the proposed Mixed-use Town Center and proposed wastewater treatment plant.

[1] This includes the residential development as part of the Phase 1 Project.

The Specific Plan Program's increase in employment is considered substantial. The unemployed labor force as shown in Section 3.12, *Population and Housing*, Table 3.12-4 is projected to continue to increase within the jurisdictions in the vicinity of the proposed Project; however, the percentage of unemployed labor force within the County compared to population within the County would remain constant at 3.1 percent. The majority of the jobs created by the proposed Program are expected to be filled by persons within the local economy while a small percentage of the employment opportunities are expected to be skilled or managerial. Because many of the employment opportunities are expected to be filled by persons within the local economy, the jobs created within the proposed Program area could reduce the County's projected unemployment rate. The proposed Program's employment would represent approximately 8% of the total new employment projected between 2017 and 2035 within the County of Madera.

Housing units within the County are projected to increase by 15,116 units between 2017 and 2035. The addition of 3,072 residential units that are part of the proposed Project would be within the planned housing growth anticipated within the County.

Therefore, the implementation of the proposed Project would result in direct growth-inducement.

Secondary Effects of Growth

Population growth can result in secondary environmental effects that could be significant. The environmental impact analysis conducted for cumulative development within the Project vicinity identified significant environmental impacts associated with growth. Secondary effects of growth typically found to be significant and unavoidable include air quality degradation, hydrology and water quality modification and degradation, traffic congestion, transportation demand increase, increased noise, and increased demand on utilities.

One impact of growth is the potential for out-growing existing employment opportunities within an area. The proposed Project would not directly cause the capacities of existing employment opportunities to be exceeded. The proposed Project would result in an increase of approximately 268 employees as a result of the proposed Mixed-use Town Center and proposed wastewater treatment plant.

The proposed Project would include new infrastructure such as water distribution lines, sewer lines, and a new WWTP serving just the Project site. These facilities would support the anticipated future demand of the proposed Project and would not create additional capacity available to the region. As such, the proposed Project would not increase the County's infrastructure beyond that which is necessary to serve the proposed Project and the proposed Project would not induce unplanned growth.

The County of Madera and local cities' General Plans all plan for increased growth. The General Plan EIRs acknowledge that planned development results in adverse secondary effects. Pursuant to CEQA, the County of Madera and local cities have adopted statements of overriding consideration for the anticipated significant unavoidable effects.

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CHAPTER 5
Alternatives

In accordance with CEQA Guidelines Section 15126.6, this chapter of the Draft Environmental Impact Report (Draft EIR) contains a comparative assessment of alternatives to the Castellina Specific Plan Program (proposed Program or Program). Although this Draft EIR also evaluates the initial phase of the proposed Program (Phase 1 Project), a separate alternatives evaluation for the Phase 1 Project is not required because the alternatives evaluation in this chapter evaluates alternatives for the entire Program which includes the Phase 1 Project. For the purposes of this analysis, the proposed Program or Program is considered the "Project" as it relates to CEQA Guidelines Section 15126.6. The primary purpose of this chapter is to describe a reasonable range of alternatives to the proposed Program that could feasibly attain most of the basic objectives of the proposed Program, but would avoid or substantially lessen any of the significant effects of the proposed Program, and to evaluate the comparative merits of the alternatives.

With regard to the purpose of the consideration of alternatives, CEQA Guidelines Section 15126.6(b) states:

> *Because an EIR must identify ways to mitigate or avoid the significant effects that a project may have on the environment (Public Resources Code Section 21002.1), the discussion of alternatives shall focus on alternatives to the project or its location which are capable of avoiding or substantially lessening any significant effects of the project even if these alternatives would impede to some degree the attainment of the project objectives, or would be more costly.*

Identification of alternatives to the proposed Program is guided by the following considerations set forth under CEQA Guidelines Section 15126.6:

- An EIR need not consider every conceivable alternative to the proposed Program;
- An EIR should identify alternatives that were considered by the lead agency, but rejected as infeasible during the scoping process;
- Reasons for rejecting alternative include:
  - Failure to meet most of the basic Program objectives;
  - Infeasibility; or
  - Inability to avoid significant effects.

Alternatives to the proposed Program must be considered even if they would impede, to some degree, the attainment of program objectives or be more costly (CEQA Guidelines Section 15126.6(b)). However, the range of alternatives addressed in an EIR need not be exhaustive, and

is governed by a "rule of reason," which requires the EIR to set forth only those alternatives necessary to permit a reasoned choice (CEQA Guidelines Section 15126,6(f)). Of the alternatives considered, the EIR need examine in detail only those that the lead agency determines could feasibly attain most of the basic objectives of the proposed Program, but would avoid or substantially lessen any of the significant effects of the proposed Program. An EIR need not consider an alternative whose effects cannot be reasonably ascertained, whose implementation is remote and speculative, or an alternative that would not substantially lessen or avoid the significant effects of the proposed Program. CEQA Guidelines Section 15126.6(d) states that if an alternative would cause one or more significant effects in addition to those that would be caused by the project as proposed, the significant effects of the alternatives shall be discussed, but "in less detail than the significant effects of the project as proposed." Furthermore, CEQA Guidelines Section 15126.6(f)(3) notes that, "an EIR need not consider an alternative whose effect cannot be reasonably ascertained and whose implementation is remote and speculative."

CEQA Guidelines Section 15364 defines feasible as "capable of being accomplished in a successful manner with a reasonable period of time, taking into account economic, environmental, legal, social, and technological factors." The determination of the feasibility of alternatives to the proposed Program may include, but is not limited to, factors such as: site suitability, economic viability, infrastructure availability, general plan consistency, regulatory and jurisdictional limitations, and whether the proposed Program proponent can reasonably acquire, control or otherwise have access to an alternative Program site (CEQA Guidelines Section 15126.6(f)(1)).

A comparison of impacts associated with the proposed Program and alternatives is provided herein. In several cases, the description and severity of the impact may be the same under each scenario when compared with the CEQA Thresholds of Significance (i.e., both scenarios would result in a less than significant impact). However, the actual degree of impact may be slightly different under each scenario, and this relative difference is the basis for a conclusion of greater or lesser impacts. In addition, unless otherwise noted, the alternatives analysis assumes that all applicable mitigation measures identified for the proposed Program could also be implemented for a given alternative.

5.1 Proposed Program Summary

5.1.1 Objectives

As stated in Chapter 2, the primary objectives for the proposed Program are to:

1. Provide a master planned community with residential and commercial of sufficient scale to permit master-planning of infrastructure, parks, open space, and public services to achieve efficiencies and synergies to create a community that can provide for the special social, recreational, and housing needs of its residents, visitors and employees.
2. Provide a village and neighborhood-oriented community designed to encourage an active and healthy quality of life.
3. Plan for the inclusion of a proposed elementary school site facility that is integrated into the overall land plan and is readily accessible via non-vehicular pathways to residential neighborhoods and parks.

4. Provide a transportation and circulation network designed to accommodate all modes of transportation.
5. Establish a mixed-use Town Center to provide serve as land uses for employment-generating businesses that provide an activity hub to enhance the community experience and support the residents, visitors and employees within the Specific Plan Program site.
6. Provide employment opportunities to assist in meeting the Madera County's COG's employment growth projections goals.
7. Provide a broad mix of housing to contribute to meeting the housing demand in Madera County.
8. Provide a range of housing types within the Specific Plan Program site.
9. Establish one or more Community Facilities Districts (CFD) or other similar financing mechanisms to develop and maintain the necessary infrastructure (e.g., water, sewer, storm drain, parks, open space, and roadways) to create a fiscally neutral development Program for Madera County.
10. Plan to extract no more groundwater than is recharged to the aquifer each year, consistent with Madera County goals and sound water conservation practices.

5.1.2 Program Characteristics

The proposed Program includes a Specific Plan that would guide the development of up to 3,072 residential units, approximately 21 acres (134,000 square feet) of commercial mixed-use, and approximately 132 acres of parks, trails, plazas, community gardens, and other open space across the 792-acre Specific Plan Program site. Residential development would be divided across five villages, including a centralized commercial mixed use Town Center. The residential villages would be designed around a framework of parks and recreation facilities to encourage a walkable community and active community interaction. Each village would be organized in a traditional modified grid roadway pattern, with a minimal number of cul-de-sacs. Development of the proposed Program would also require the construction of new utilities, such as a new wastewater treatment plant (WWTP) and storm drain system, a new water supply system, and provide additional public services, including a proposed elementary school, to serve the new population.

5.2 Alternatives Considered But Rejected

In accordance with CEQA Guidelines Section 15126.6(c), an EIR should identify alternatives that were considered for analysis but rejected as infeasible and briefly explain the reasons for rejection. According to the CEQA Guidelines, "among the factors that may be used to eliminate alternatives from detailed consideration in an EIR are: (i) failure to meet most of the basic project objectives, (ii) infeasibility, or (iii) inability to avoid significant environmental impacts." Alternatives that were considered and rejected as infeasible include an Alternative Site and a Reduced Development Alternative:

> **Alternative Site**: The potential of developing the proposed Program at an alternative site in Madera County was considered. The objective of the Applicant is to develop a master planned community in Madera County on a site that is designated for urban growth. As noted above, a consideration of the feasibility of an alternative site may include assessing whether the project proponent could reasonably acquire, control or other have access to an alternative site.

The Applicant currently owns or controls two properties within Madera County. One of the properties that is located in the City of Chowchilla has already received entitlement approvals, and is moving forward with development. Thus, the site in Chowchilla is not available as an alternative site for the proposed Program and has been eliminated from further consideration. The second property is the proposed Program site, and therefore cannot serve as an alternative location for the proposed Program.

No other properties within Madera County are owned by or under the control of the Applicant. Furthermore, no other property or contiguous properties of sufficient size within an area designated for urban growth and which the Applicant could reasonably acquire have been identified. Thus, an alternative site for the proposed Program has been rejected for the purposes of the alternatives analysis in this Draft EIR.

Reduced Development Alternative: A reduced development alternative was examined to reduce a potential significant and unavoidable impact of the Program to less than significant with or without the implementation of mitigation measures. The significant and unavoidable impacts associated with the Program include visual character, agriculture, air quality, historical resources, greenhouse gas emissions, noise, public services and vehicle miles traveled. Except for historical resources, other significant and unavoidable impacts could be avoided or reduced to less than significant through a substantial reduction in the amount of development within the Program site under the Reduced Development Alternative as compared to the proposed Program. Reduced development would allow much of the Program site to continue as agriculture. Reduced development could substantially reduce the alteration of the visual character of the Program site, would allow for continued agriculture, reduce air emissions to below the San Joaquin Valley Air Pollution Control Board thresholds, reduce greenhouse gas emissions, reduce roadway traffic noise and vehicle miles traveled through the substantial reduction of vehicular traffic volumes, and reduce impacts on public services due to smaller population such that new or expanded public facilities would not be needed to the same extent as under the proposed Program. As for the reduction of potential significant impacts to historical resources, the existing structures that support agricultural operations could remain; however, the retention of these potential historical resources may not be economically feasible unless these structures continue to support agricultural operations. Therefore, a Reduced Development Alternative would have the potential to avoid or substantially reduce a potential significant and unavoidable impact.

Although a Reduced Development Alternative could avoid or substantially reduce potentially significant and unavoidable impacts associated with the Program, it would not be consistent with the County of Madera General Plan Land Use designation of New Growth Area (NGA) as well as the County's land use goals and policies. The Land Use Element defines NGAs as areas where extensive new development is planned. Goal 1.B is to ensure that NGAs are comprehensively planned and developed as well balanced, independent communities. Policy 1.B.1 requires that NGAs be comprehensively planned as single units rather than individual property ownerships and developed according to an adopted area plan. Policy 1.B.2 identifies objectives for NGAs. These objectives include the concentration of higher-density residential uses and appropriate support services along segments of the transportation system with good road and possible transit connections. This policy also provides for the support of integrated mixed-use areas by mixing residential, retail, office, open space, and public uses while making it possible to travel by transit, bicycle, or foot, as well as automobile. These objectives are not consistent with the provision of low-intensity development under the Reduced Development Alternative. Therefore, this alternative was considered but rejected from further evaluation because it would not meet the intent and purpose of the NGA designation, goals and policies.

5.3 Alternatives to the Program

The No Program Alternative and two alternatives to the proposed Program are described and evaluated in this Draft EIR and are considered to represent a reasonable range of alternatives to the proposed Program.

The following sections describe each alternative, discuss each alternative's ability to meet the objectives of the proposed Program, and provide a comparative evaluation of environmental impacts. As provided in Section 15126.6(d) of the CEQA Guidelines, the significant effects of these alternatives are identified in less detail than the analysis of the proposed Program in Chapter 3 of this Draft EIR.

- No Program/Development in Accordance with Existing Zoning (Alternative 1)
- Increased Employment (Alternative 2)
- Increased Active Adult Community (Alternative 3)

Table 5-1 provides a summary of each alternative's ability to meet the proposed Program objectives.

TABLE 5-1
ABILITY OF ALTERNATIVES TO MEET PROGRAM OBJECTIVES

Program Objectives	Proposed Program	No Program/ Development in Accordance with Existing Zoning (Alternative 1)	Increased Employment (Alternative 2)	Increased Active Adult Community (Alternative 3)
1. Provide a master planned community with residential and commercial of sufficient scale to permit master-planning of infrastructure, parks, open space, and public services to achieve efficiencies and synergies to create a community that can provide for the special social, recreational, and housing needs of its residents, visitors and employees.	Yes	No	Yes	Yes
2. Provide a village and neighborhood-oriented community designed to encourage an active and healthy quality of life.	Yes	No	Yes	Yes
3. Plan for the inclusion of a proposed elementary school site facility that is integrated into the overall land plan and is readily accessible via non-vehicular pathways to residential neighborhoods and parks.	Yes	No	Yes	Yes
4. Provide a transportation and circulation network designed to accommodate all modes of transportation.	Yes	No	Yes	Yes

Program Objectives	Proposed Program	No Program/ Development in Accordance with Existing Zoning (Alternative 1)	Increased Employment (Alternative 2)	Increased Active Adult Community (Alternative 3)
5. Establish a mixed-use Town Center to provide serve as land uses for employment-generating businesses that provide an activity hub to enhance the community experience and support the residents, visitors and employees within the overall Program.	Yes	No	Yes	Yes
6. Provide employment opportunities to assist in meeting the Madera County's COG's employment growth projections goals.	Yes	No	Yes	Yes
7. Provide a broad mix of housing to contribute to meeting the housing demand in Madera County.	Yes	No	Yes	Yes
8. Provide a range of housing types within the Specific Plan area.	Yes	No	Yes	Yes
9. Establish one or more Community Facilities Districts (CFD) or other similar financing mechanisms to develop and maintain the necessary infrastructure (e.g., water, sewer, storm drain, parks, open space, and roadways) to create a fiscally neutral development Program for Madera County.	Yes	No	Yes	Yes
10. Plan to extract no more groundwater than is recharged to the aquifer each year, consistent with Madera County goals and sound water conservation practices.	Yes	No	Yes	Yes

Characteristics of each alternative as well as the proposed Program are provided in **Table 5-2** including the acreage of each land use, number of dwelling units and square footage of non-residential uses, residential population and employment, and average daily trips.

TABLE 5-2
DESCRIPTIONS OF CASTELLINA SPECIFIC PLAN AND ALTERNATIVES

	Proposed Program				Alternative 1 – No Program/Development in Accordance with Existing Zoning				Alternative 2 – Increased Employment				Alternative 3 – Increased Active Adult Community			
Land Use	**Acres**	**Units/SF**	**Population/ Employment**	**Average Daily Trips**	**Acres**	**Units/SF**	**Population/ Employment**	**Average Daily Trips**	**Acres**	**Units/SF**	**Population/ Employment**	**Average Daily Trips**	**Acres**	**Units/SF**	**Population/ Employment**	**Average Daily Trips**
Residential																
Very Low Density (VLDR)	36	90	333	738	792	44	163	361	34	87	322	713				
Low Density (LDR)	230	1,104	4,085	9,104					212	934	3,467	7,702	218	872	3,226	7,191
Medium Density (MDR) Detached	126	872	3,226	7,188					130	976	3,611	8,045	93	651	2,409	5,366
Medium Density (MDR) Attached	22	154	570	895					23	172	636	999				
High Density (HDR)	12	248	496	1,650					12	264	528	1,756	11	220	440	1,463
Active Adult - LDR	84	402	804	1,632					79	346	692	1,405	209	836	1,672	3,394
Active Adult - MDR													30	210	420	853
Active Adult - HDR													17	340	680	1,380
Elementary School	15		40 Empl	72					12		40 Empl	72	10		40 Empl	72
Open Space/Public Parks/Recreational Facilities (inc. WWTP)	132		7 Empl	14					137		7 Empl	14	94.5		7 Empl	14
Mixed Use	21								21							
Residential		202	404	1,344						205	410	1,363				
Commercial		134,000 SF	261 Empl	7,584						268,000 SF	521 Empl	15,169				
Commercial Retail													13.8	165,600 SF	322 Empl	9,373
Employment Park (Office/Business Park)									20	446,000 SF	1,416 Empl	8,028				
Roads/Other	114			--					112				95.7			
Total	792 Acres	3,072 units/ 134,000 SF	9,918 pop/ 308 Empl	30,221 ADT	792 Acres	44 units/ 0 SF	163 pop/ 0 Empl	361 ADT	792 Acres	2,984 units/ 714,000 SF	9,666 pop/ 1,984 Empl	45,266 ADT	792 Acres	3,129 units/ 165,600 SF	8,847 pop/ 369 Empl	29,106 ADT

NOTES:

SF – Square Feet

Empl – Employee

ADT – Average Daily Trips

WWTP – Wastewater Treatment Plant

Alternative 1, No Program/Development in Accordance with the Existing Zoning Designation. The zoning for the site is AE-40 that allows property to be subdivided in 36-acre increments and two residences are allowed on each subdivided property (one primary single family residences and one secondary single family residence). Based on the zoning, the 792-acre site could be subdivided into 22 parcels and each parcel could develop two residences. Therefore, a total of 44 residences could be constructed.

Alternative 2, Increased Employment represents the land use scenario within the application that was initially submitted to the County in 2015. The original application included 1,280 Low Density Residential units and stated that the total included Active-Adult Community which is an age-restricted senior community. Therefore, this land use scenario split the total dwelling units between Low Density Residential and Active-Adult. The split is 73% Low Density Residential and 27% Active-Adult which is consistent with the split provided in the proposed Program.

Alternative 3, Increased Active Adult Community is an alternative that was developed by the applicant prior to 2015. As stated above, the Active Adult Community is an age-restricted senior community that typically includes fewer residents per unit compared to non-age-restricted residential units. Population estimates for all types of Active Adult residential is 2.0 persons per unit.

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5.3.1 Alternative 1: No Program/Development in Accordance with Existing Zoning

The CEQA Guidelines require EIRs to evaluate the "no project" alternative to allow decision makers to compare the impacts of approving the proposed project with the impacts of not approving the proposed project. In accordance with CEQA Guidelines section 15126.6(e)(2), "*the 'no project' analysis shall discuss the existing conditions at the time the notice of preparation is published, or if no notice of preparation is published, at the time environmental analysis is commenced, as well as what would be reasonably expected to occur in the foreseeable future if the project were not approved, based on current plans and consistent with available infrastructure and community services*."

For this Draft EIR, the "no project" alternative is referred to as the "No Program/Development in Accordance with Existing Zoning" alternative. This alternative is based on the development that is reasonably expected to occur in the foreseeable future if the proposed Program is not approved. Accordingly, the No Program/Development in Accordance with Existing Zoning Alternative assumes that the Castellina Specific Plan Program is not approved or implemented and that future development within the Program site occurs consistent with the existing zoning designation. Based on the existing zoning of Agricultural Rural Exclusive 40 Acres, the Program site could be subdivided in 36-acre increments and two residences are allowed on each subdivided property. These two residences include a primary single family residence and one secondary single family residence. On the 792-acre Program site, a total of 22 36-acre parcels could be created allowing for development of 22 primary and 22 secondary residences for a total of 44 residences. Because limited residential development would be allowed to occur on the Program site, it is assumed that the Program site would continue agricultural production and the related agricultural support facilities (e.g., equipment storage), wells, and unimproved dirt roadways would remain. There are five wells located within the Specific Plan site that draw groundwater from the Madera groundwater basin for existing agricultural uses. As stated above, this alternative was selected for evaluation because the CEQA Guidelines Section 15126.6(e) requires the evaluation of a No Project Alternative which, in this case, is the No Program/Development in Accordance with Existing Zoning Alternative.

5.3.2 Alternative 2: Increased Employment

Alternative 2 includes the development of up to 2,984 residential units, approximately 21 acres (268,000 square feet) of commercial mixed-use, approximately 20 acres (446,000 square feet) of employment park (office/business park) and approximately 137 acres of parks, trails, plazas, community gardens, and other open space across the 792-acre site. This alternative includes slightly fewer residences and less residential population and substantially more commercial/office area and employment opportunities compared to the proposed Program. Similar to the Program, this alternative would include the construction of new utilities, such as a new wastewater treatment plant (WWTP) and storm drain system, a new water supply system, and provides additional public services, including a proposed elementary school, to serve the new population. This alternative would increase commercial, office and public uses to provide services for the future residents of the Program as well as supplement existing services for the

current residential population within Madera County. Furthermore, this alternative includes a reduction of residential units that could reduce railway noise exposure to residents, reduce the need for public services and reduce the need for recreation compared to the proposed Program.

5.3.3 Alternative 3: Increased Active Adult Community

Alternative 3 includes a substantial increase in the number of residential units within the Active Adult Community which is an age-restricted senior community. Alternative 3 includes the development of up to 3,129 residential units, approximately 13.8 acres (165,600 square feet) of commercial retail, and approximately 94.5 acres of parks, trails, plazas, community gardens, and other open space across the 792-acre site. Although this alternative includes more residential units compared to the Program, the increase in age-restricted residential units (approximately a 1.8 percent increase) would result in a substantial decrease in residential population (approximately a 11 percent decrease) since age-restricted units are assumed to have an average of 2.0 persons per household whereas non-age restricted units are assumed to have an average of 3.7 persons per household. This alternative includes an increase in employment opportunities (approximately 20 percent increase in employees) compared to the proposed Program. Similar to the proposed Program, this alternative would include the construction of new utilities, such as a new wastewater treatment plant (WWTP) and storm drain system, a new water supply system, and provides additional public services, including a proposed elementary school, to serve the new population. This alternative would reduce the residential population and reduce environmental impacts associated with air quality, greenhouse gas, public services, recreation, vehicle miles traveled, and energy as compared to the proposed Program.

5.3 Summary Comparison of Environmental Effects Among the Proposed Program and Alternatives

Table 5-3 provides a summary comparison, by individual issue area, for the proposed Specific Plan Program for each alternative to the proposed Program. The significance level (Significant and Unavoidable [SU], Less than Significant and Mitigated [LSM], Less than Significant [LS], and No Impact [NI]) for each issue area within each environmental topic area is provided. In addition, a comparative determination of the alternative's impact to the impact associated with the proposed Program is provided. The comparative evaluation is represented as Less (L); Equivalent (E); or Greater (G) than the impacts identified for the proposed Program.

TABLE 5-3
SUMMARY OF IMPACTS OF ALTERNATIVES COMPARED TO THE PROPOSED PROGRAM

Environmental Topic	Proposed Program	Alternative 1: No Program/ Development in Accordance with Existing Zoning	Alternative 2: Increased Employment	Alternative 3: Increased Active Adult Community
Environmental Issues Addressed in Section 3 of this EIR				
3.1 Aesthetics				
Scenic Vistas	LS	LS (E)	LS (E)	LS (E)
Scenic Resources within a State Scenic Highway	LS	LS (E)	LS (E)	LS (E)
Visual Character	SU	LS (L)	SU (G)	SU (G)
Light and Glare	SU	LS (L)	SU (G)	SU (G)
3.2 Agricultural and Forestry Resources				
Convert Farmland to Non-Agricultural Use	SU	SU (L)	SU (E)	SU (E)
Conflict with Existing Zoning or Williamson Act Contract	SU	LS (L)	SU (E)	SU (E)
Involve Other Changes Resulting in the Conversion to Non-Agricultural use and Conversion to Non-Forest Use	NI	NI (E)	NI (E)	NI (E)
3.3 Air Quality				
Air Quality Plan	SU	LS (L)	SU (G)	SU (L)
Cumulative Increase of Criteria Pollutant	SU	LS (L)	SU (G)	SU (L)
Sensitive Receptors	LSM	LS (L)	SU (G)	LSM (L)
Other Emissions (including odors)	LSM	LS (L)	LSM (E)	LSM (E)
3.4 Biological Resources				
Effect on Species	LSM	LSM (L)	LSM (E)	LSM (E)
Riparian Habitat	LS	LS (E)	LS (E)	LS (E)
Federally Protected Wetlands	LS	LS (E)	LS (E)	LS (E)
Wildlife Corridor and Nursery Sites	LS	LS (E)	LS (E)	LS (E)
Local Policies or Ordinances Protecting Biological Resources	LS	LS (E)	LS (E)	LS (E)
3.5 Cultural Resources				
Historical Resources	SU	LS (L)	SU (E)	SU (E)
Archeological Resources	LSM	LSM (L)	LSM (E)	LSM (E)
Human Remains	LS	LS (L)	LS (E)	LS (E)
Tribal Cultural Resources	LS	LS (L)	LS (E)	LS (E)
Paleontological Resources	LSM	LSM (L)	LSM (E)	LSM (E)
3.6 Geology, Soils, and Seismicity				
Seismic Ground Shaking	LS	LS (L)	LS (G)	LS (G)
Soil Erosion or Topsoil Loss	LS	LS (L)	LS (G)	LS (G)

Environmental Topic	Proposed Program	Alternative 1: No Program/ Development in Accordance with Existing Zoning	Alternative 2: Increased Employment	Alternative 3: Increased Active Adult Community
Unstable Geologic Location	LS	LS (L)	LS (G)	LS (G)
Expansive Soil	LS	LS (L)	LS (G)	LS (G)
3.7 GHG Emissions				
Greenhouse Gas Emissions	SU	LS (L)	SU (G)	SU (L)
Conflict with Plan, Policy, or Regulation that Reduces Greenhouse Gas Emissions	SU	LS (L)	SU (G)	SU (L)
3.8 Hazards and Hazardous Materials				
Routine Use	LS	LS (L)	LS (G)	LS (G)
Accident Conditions	LS	LS (L)	LS (G)	LS (G)
Schools	LS	LS (L)	LS (G)	LS (G)
Hazardous Materials Site Listing	LS	LS (L)	LS (G)	LS (G)
Emergency Plans	LS	LS (L)	LS (G)	LS (G)
Wildland Fires	LS	LS (L)	LS (G)	LS (E)
3.9 Hydrology and Water Quality				
Water Quality Standards and Waste Discharge Requirements	LS	LS (L)	LS (G)	LS (G)
Groundwater Supplies and Recharge	LS	LS (L)	LS (G)	LS (G)
Drainage Patterns	LS	LS (L)	LS (G)	LS (G)
Stormwater Drainage Systems	LS	LS (L)	LS (G)	LS (G)
Release of Pollutants in Flood Hazard, Tsunami, or Seiche Zones	LS	LS (L)	LS (G)	LS (E)
Water Quality and Groundwater Plans	LS	LS (L)	LS (G)	LS (G)
3.10 Land Use and Planning				
Divide and Established Community	NI	NI (E)	NI (E)	NI (E)
Conflict with Applicable Plans, Policies, or Regulations	LS	LS (L)	LS (G)	LS (E)
3.11 Noise and Vibration				
Exceedance of Established Noise Standards				
Construction	LSM	LS (L)	LSM (G)	LSM (G)
Railway Noise	LSM	LS (L)	LSM (L)	LSM (G)
Roadway Noise	SU	LS (L)	SU (G)	SU (L)
Generation of Vibration Levels	LSM	LS (L)	LSM (G)	LS (G)
3.12 Population and Housing				
Population Growth	LS	LS (L)	LS (G)	LS (E)
3.13 Public Services				
Fire Protection	SU	LS (L)	SU (L)	SU (L)
Police Protection	SU	LS (L)	SU (L)	SU (L)

Environmental Topic	Proposed Program	Alternative 1: No Program/ Development in Accordance with Existing Zoning	Alternative 2: Increased Employment	Alternative 3: Increased Active Adult Community
School Facilities	LS	LS (L)	LS (L)	LS (L)
Park Facilities	LS	LS (L)	LS (E)	LS (E)
Public Facilities (Libraries)	SU	LS (L)	SU (L)	SU (L)
3.14 Recreation				
Increase Use of Recreational Facilities	LS	LS (G)	LS (L)	LS (L)
Recreational Facilities Physical Effect on Environment	NI	NI (E)	NI (E)	NI (E)
3.15 Traffic and Transportation				
Transportation Goals and Policies	LS	LS (E)	LS (E)	LS (E)
Vehicle Miles Travelled	SU	SU (L)	SU (G)	SU (L)
Geometric Design Features or Incompatible Use Hazards	LS	LS (L)	LS (E)	LS (E)
Emergency Access	LS	LS (L)	LS (E)	LS (E)
3.16 Utilities, Service Systems, and Energy				
Utilities Facilities	LS	LS (L)	LS (E)	LS (E)
Water Supplies	LS	LS (L)	LS (G)	LS (GL)
Water Treatment Capacity	LS	LS (L)	LS (E)	LS (E)
Landfill Capacity	LS	LS (L)	LS (G)	LS (G)
Compliance with Solid Waste Regulations and Statutes	LS	LS (L)	LS (E)	LS (E)
Energy Consumption	LS	LS (L)	LS (G)	LS (L)
Energy Plans	LS	LS (L)	LS (E)	LS (E)
Environmental Issues Addressed in Section 4 of this EIR				
4.1.1 Agricultural and Forestry Resources				
Conflict with Existing Zoning for Forest Land or Timberland	NI	NI (E)	NI (E)	NI (E)
4.1.2 Biological Resources				
Conflict with Adopted Habitat Conservation Plan or Conservation Plan	NI	NI (E)	NI (E)	NI (E)
4.1.3 Geology, Soils, and Seismicity				
Fault Rupture	LS	LS (E)	LS (E)	LS (E)
Landslides	NI	NI (E)	NI (E)	NI (E)
Use of Septic Tanks	NI	LS (G)	NI (E)	NI (E)
4.1.4 Hazards and Hazardous Materials				
Safety Hazard or Excessive Noise from Airport	NI	NI (E)	NI (E)	NI (E)

Environmental Topic	Proposed Program	Alternative 1: No Program/ Development in Accordance with Existing Zoning	Alternative 2: Increased Employment	Alternative 3: Increased Active Adult Community
4.1.5 Mineral Resources				
Loss of Known Mineral Resource Valued by Region	LS	LS (E)	LS (E)	LS (E)
Loss of Locally-Important Mineral Resource Recovery Site	LS	LS (E)	LS (E)	LS (E)
4.1.7 Population and Housing				
Displace Substantial Number of People or Housing	NI	NI (E)	NI (E)	NI (E)
4.1.8 Wildfire				
Very High Fire Hazard Severity Zone	NI	NI (E)	NI (E)	NI (E)

NI = No Impact
LS = Less than Significant
LSM = Less than Significant with Mitigation
SU = Significant and Unavoidable
(L) Less = Less impact compared to the proposed Program
(E) Equivalent = Same impacts compared to the proposed Program
(G) Greater = Greater impact compared to the proposed Program

SOURCE: ESA, 2021

5.4 Environmental Analysis of the No Program/Development in Accordance with Existing Zoning (Alternative 1)

Aesthetics

The implementation of the proposed Program would transform the visual setting in the Program area from an agricultural setting to an urban setting. Because the General Plan does not designate any locations within the County as a scenic vista, the proposed transformation would result in a less than significant impact from a scenic vista. The General Plan designates scenic resources such as ridgelines, steep slopes, and highly visible locations. Ridgelines and steep slopes are along the western slopes of the Sierra Nevada Mountains that are located over 30 miles from the Program site. Due to the distance, less than significant visual impacts on ridgelines and steep slopes would occur. Highly visible locations include open grasslands within the valley as well as views of lakes and rivers. No views of lakes and rivers are available in the vicinity of the Program area. Views of open grasslands are located north of the Program site; however, there are no open views through the Program site due to the existing onsite orchard trees. The Program site is not located near a designated State Scenic Highway, and therefore, less than significant impacts on scenic resources within a designated State Scenic Highway would occur. With the transformation of the Program site to an urban setting, the existing rural visual characteristics of the Program area would substantially change and would be considered a significant and unavoidable visual impact. Finally, development of the Program site would increase light in the area that could spill

over onto adjacent properties as well as increase the illumination of the sky at night. Measures such as low intensity lighting systems and shields are available to reduce lighting impacts; however, with the implementation of the measures, impacts would remain significant and would be unavoidable. Glare impacts associated with development under the proposed Project would increase in the area; however, mitigation is provided to reduce glare from building facades to less than significant. Glare from ground surfaces could also be generated; however, increases in ground level glare would be considered less than significant.

Under the No Program/Development in Accordance with Existing Zoning Alternative, limited residential development (two residences for each 36 acres for a total of 44 residences) would occur. Under the current zoning, agricultural production could still occur and therefore, agriculture is assumed to remain on the Program site. Similar to the Program, Alternative 1 would result in a less than significant impact from a scenic vista because the County has not designated scenic vistas within the County. Alternative 1 would also result in less than significant impacts on scenic resources due the distance of ridgelines and steep slopes from the Program site and because no open views through the Program site exist. In addition, less than significant impacts on scenic resources within a State Scenic Highway would occur under this alternative similar to the proposed Program because the Program site is not located near a designated State Scenic Highway. Due to the substantial reduction in development under Alternative 1 compared to the proposed Program, increases in light and glare would be less than significant under Alternative 1.

Agricultural Resources

The construction and operation of the proposed Program would result in the removal of approximately 792 acres of land designated Prime Farmland, Farmland of Statewide Importance, and Unique Farmland. This removal of 792 acres of Important Farmland would be converted to non-agricultural uses such as residential, commercial, public facilities, recreation, open space and other related uses. The loss of 792 acres of Important Farmland would represent a significant impact on agricultural resources.

Under the No Program/Development in Accordance with Existing Zoning, limited development would occur and agricultural is assumed to remain onsite. This alternative would reduce the availability to farm some areas due to the limited development. The loss of the limited farmland would still represent a significant and unavoidable impact on agricultural resources, but the impact would be substantially less compared to the proposed Program.

Air Quality

Implementation of the proposed Project would result in increases in air emissions from construction and operational activities. Prior to the implementation of mitigation measures, significant increases in reactive organic gases (ROG) and oxides of nitrogen (NOx) during construction activities would occur. With the implementation of Mitigation Measures AQ-1 through AQ-4 and GHG-1, construction emissions would be reduced to less than significant. ROG, NOx and PM10 emissions during operational activities would increase significantly. With the implementation of Mitigation Measures AQ-3 and GHG-1, operational emissions of ROG, NOx and PM10 would be reduced; however, emissions would continue to exceed the SJVAPCD

thresholds and result in a significant and unavoidable impact. In addition, the proposed Program would result in significant toxic air contaminates and potential odors. After the implementation of Mitigation Measure AQ-1, TAC emissions would be less than significant and after the implementation of Mitigation Measure AQ-5, potential odor impacts would be reduced to less than significant.

Under Alternative 1, limited development would occur within the Program area. Construction and operational criteria pollutant emissions would not exceed the SJVAPCD thresholds, and impacts would be less than significant. In addition, construction TAC emissions associated with the construction of up to 44 homes would not exceed SJVAPCD and would result in less than significant impacts. Due to the limited number of residences, a wastewater treatment facility would not need to be constructed and therefore, there would be no potential odor emissions from the Program site. The implementation of Alternative 1 would have less impacts relating to air quality emissions when compared to the proposed Program and avoid significant and unavoidable increases in air emissions.

Biological Resources

The proposed Program could have significant effects on special status species such as burrowing owl and San Joaquin kit fox. Mitigation Measures BIO-1 and BIO-2 are proposed to reduce potential effects to less than significant. Construction activities associated with the proposed Program could also result in significant impacts on nesting birds. The implementation of Mitigation Measure BIO-3 would reduce the potential impacts to less than significant. The proposed Program would result in less than significant impacts to all other biological resources.

With the implementation of Alternative 1, substantially less development would occur on the Program site, and therefore, less potential impacts on special status species could occur compared to the development under the proposed Program. Although less development would occur, impacts on special status species could be significant. With the implementation of Mitigation Measures BIO-1 and BIO-2, potential impacts would be reduced to less than significant. In addition, with less development onsite, less potential impacts on nesting birds could occur compared to the proposed Program. With the implementation of Mitigation Measure BIO-3, potential impacts to nesting birds would be reduced to less than significant. Alternative 1 would have less impacts on biological resources compared to the proposed Program.

Cultural and Tribal Cultural Resources

Implementation of the proposed Program could result in significant impacts on structures associated with the existing onsite orchards. These structures could become of historic-age depending on when the structures are removed from the Program site. Because it is unknown whether these resources could meet the requirements of historic resources, the implementation of the Program could result in significant and unavoidable impacts to potential historic resources. Implementation of Mitigation Measure CUL-1 would reduce potential impacts to historic resources; however, the impacts would remain significant and unavoidable. The Program could also result in significant impacts to unknown archaeological and paleontological resources. Mitigation Measures CUL-5 through CUL-9 would reduce impacts to archaeological resources to

less than significant. Mitigation Measures CUL-16 through CUL-21 would reduce impacts to paleontological resources to less than significant. Impacts to human remains and tribal cultural resources were found to be less than significant.

Under Alternative 1, substantially less development would occur on the Program site compared to the proposed Program. Impacts to historical resources could be avoided with the development of two residential units on each 36-acre parcel within the Program site. Therefore, impacts would be less than significant under Alternative 1. Implementation of Alternative 1 could result in significant impacts to archaeological and paleontological resources during grading activities. Implementation of Mitigation Measures CUL-5 through CUL-9 for archaeological resources and CUL-16 through CUL-21 for paleontological resources would reduce impacts to less than significant. Impacts to human remains and tribal cultural resources under Alternative 1 would be less than significant. Overall, the implementation of Alternative 1 would result in less potential impacts to cultural resources compared to the proposed Program because substantially less development would occur under Alternative 1.

Geology, Soils and Seismicity

Implementation of the proposed Program would result in a less than significant impacts related to seismic ground shaking, ground failure such as liquefaction, soil erosion or topsoil loss, unstable geologic location, or expansive soils due to the requirements to comply with existing California Building Code and the County of Madera Building Code.

Because Alternative 1 would result in substantially less development compared to the proposed Program, potentially less, although less than significant, impacts related to seismic ground shaking, ground failure such as liquefaction, soil erosion or topsoil loss, unstable geologic location, or expansive soils would occur compared to the proposed Program.

Greenhouse Gas Emissions

The proposed Program could result in significant and cumulatively considerable effects associated with greenhouse gas emissions because the Program could generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment. Further, the proposed Program would result in significant and cumulatively considerable effects on a greenhouse gas plan because the Program could conflict with an applicable plan, policy or regulation adopted for the purpose of reducing the emissions of greenhouse gases. Development of the proposed Program does not actively conflict with the policies in place for the reduction of GHG emissions; however, the Program development on its own does not further emissions reductions that are necessary to meet California's 2030 and 2050 goals. Therefore, implementation of the proposed Program would result in significant GHG impacts. Implementation of Mitigation Measures GHG-1 and GHG-2 would reduce GHG impacts by 14 percent; however, the impacts would remain significant and unavoidable.

Under Alternative 1, substantially less development would occur on the Program site compared to the proposed Program. GHG impacts associated with Alternative 1 would be less than significant and would result in substantially less GHG emissions compared to the proposed Program.

Hazards and Hazardous Materials

The proposed Program could have significant cumulatively considerable hazards to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment. Implementation of Mitigation Measures HAZ-1 through HAZ-3 is required to reduce impacts to less than significant. The proposed Program would result in less than significant and less than cumulatively considerable hazards to the public or the environment through the routine transport, use, or disposal of hazardous materials. The proposed Program is not located on a site which is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5 and, as a result, would not create significant and cumulatively considerable hazard impacts to the public or the environment. The proposed Program would not impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan, and as a result would result in less than significant and less than cumulatively considerable emergency impacts. The Program site is not located within a high fire hazard severity zone. No wildlands are present on the onsite. The proposed Program would not expose people or structures to a significant risk involving wildland fires, and therefore, impacts would be less than significant.

With substantially less development on the Program site under Alternative 1 compared to the proposed Program, less potential hazards and hazardous materials impacts would occur under Alternative 1. Similar to the proposed Program, this alternative would result in less than significant impacts related to the routine use, accident conditions, schools, hazardous materials site listing, airports, emergency plans, and wildland fires. Overall, Alternative 1 would have less impacts related to hazards and hazardous materials when compared to the proposed Program.

Hydrology and Water Quality

Implementation of the proposed Program would result in less than significant impacts on water quality standards and waste discharge requirements, groundwater supplies and recharge, drainage patterns, stormwater drainage systems, degradation of water quality, and conflicts with a water control plan or sustainable groundwater management plan. Alternative 1 assumes substantially less development compared to the proposed Program. The development of up to 44 dwelling units on the Program site would result in less than significant impacts on water quality standards and waste discharge requirements, groundwater supplies and recharge, drainage patterns, stormwater drainage systems, degradation of water quality, and conflicts with a water control plan or sustainable groundwater management plan. Overall, the implementation of Alternative 1 would result in less hydrology and water quality impacts compared to the proposed Program.

Similar to the proposed Project, implementation of Alternative 1 would result in no impacts regarding floods, flood hazards, seiche, tsunami, or mudflow.

Land Use and Planning

The development of the proposed Program would not result in physically dividing existing established communities, and no impact would occur. Overall, the proposed Program is consistent with the 2018 RTP/SCS Amendment No. 1 goals, and would result in less than significant land

use impacts related to the RTP/SCS. The proposed Program is consistent with the goals and polices of the County's General Plan, and therefore, the proposed Program would result in less than significant land use impacts related to the County General Plan. The proposed Program would be consistent with the Madera County Zoning Code, and the Program would result in less than significant land use impacts related to the County Zoning Code.

Implementation of Alternative 1 would result in substantially less development compared to the proposed Program. With less development and the retention of agricultural production on the Program site, Alternative 1 would not result in physically dividing existing established communities. Because development under Alternative 1 would be consistent with existing zoning, Alternative 1 would be consistent with the 2018 RTP/SCS, the policies of the County's General Plan and the Madera County Zoning Code. The implementation of Alternative 1 would be consistent with the existing plans and policies and would result in less than significant land use impacts. Overall, Alternative 1 would result in less land use impacts compared to the proposed Program.

Noise and Vibration

Implementation of the proposed Program would result in significant construction noise impacts on adjacent noise sensitive residential uses. Implementation of Mitigation Measures N-1 and N-2 would reduce potential construction noise to less than significant. The proposed Program includes the placement of residential uses east of the existing railway. Operation of the railway could expose proposed residents to significant long-term operational railway noise levels. The implementation of Mitigation Measure N-3 would reduce potential impacts to less than significant. In addition, the proposed Program would increase traffic noise levels along roadways in the vicinity of the Program site. Because no feasible measures are available to reduce roadway noise level increases, impacts would be significant and unavoidable. Finally, construction activities associated with the proposed Program could result in significant vibration impacts; however, with the implementation of Mitigation Measure N-4, impacts would be less than significant.

Implementation of Alternative 1 would result in substantially less development compared to the proposed Program. Construction activities associated with Alternative 1 would result in less than significant construction noise levels due to the substantial reduction in the number of residential uses. Development under Alternative 1 would allow two residential uses for each 36-acre parcels on the Program site. Residential uses along the railway could be exposed to significant operational railway noise levels. The implementation of Mitigation Measure N-3 would reduce potential railway operational noise levels to less than significant. Alternative 1 would increase traffic noise levels along roadways in the Program vicinity; however, with the implementation of up to 44 residential units, increases in traffic noise levels would be less than significant. Finally, with the development of Alternative 1, potential construction vibration impacts on nearby residential uses are expected to be less than significant. Overall, the implementation of Alternative 1 would result in less construction and operational noise impacts compared to the proposed Program.

Population and Housing

The population and housing units associated with the proposed Program would be within growth projections and therefore, the development of the proposed Program would not induce substantial unplanned growth. The proposed Program would result in less than significant growth inducement impacts.

Under Alternative 1, substantially less residential units would be constructed. These residential units would increase population; however, given there would be a maximum of 44 residential units, less than significant inducement of unplanned growth would occur. As such, Alternative 1 would have less impacts in regards to population growth when compared to the proposed Program.

Public Services

The proposed Program could result in significant environmental effects associated with the construction of a permanent fire station. These potential effects include the removal of Important Farmland that cannot be feasibly mitigated. In addition, the proposed Program would contribute to the cumulative need for additional sheriff facilities; however, the specific locations of the future sheriff's facilities are not known. Therefore, construction of these future sheriff facilities could result in significant environmental impacts that are considered unavoidable because specific measures to reduce these impacts are not known at this time. Development of the proposed Program includes the development of an elementary school as well as compliance with SB 50 which would reduce potential impact to schools to less than significant. The proposed Program includes 71 acres of parks and recreational facilities that would provide adequate parks to future residents of the proposed Program. As a result, no additional park facilities would be required and therefore less than significant park impacts would occur. Finally, the residents of the proposed Program would increase the demand for public libraries. This demand could result in the need for additional library space at an existing library or a new library facility. Although the specific location of a future library facility is not known, construction of a future facility could result in significant environmental impacts. As a result, the proposed Program could result in significant library facility impacts that are considered unavoidable because specific measures to reduce potential impacts are not known at this time.

Implementation of Alternative 1 would result in substantially less development compared to the proposed Program. The development would include 44 dwelling units throughout the Program site. Due to the limited level of development, Alternative 1 would not require the addition of a fire or police facility, schools, parks or library facilities. As a result, Alternative 1 would result in less than significant impacts to these public facilities.

Recreation

Because the proposed Program includes the provision of 71 acres of parks and recreational facilities, future residents within the Program site would have adequate recreational facilities. As a result, future residents would have less than significant impacts to existing recreational facilities, and the proposed Program would not require the construction of new recreational facilities to serve the residents within the Program site.

Under Alternative 1, approximately 44 residential units would be implemented which would result in the demand for recreational facilities, but potential impacts would be less than significant. Because Alternative 1 does not include the provision of recreational facilities, greater impacts on existing recreational facilities would occur compared to the proposed Program. In addition, due to the limited number of residents, Alternative 1 would not require the construction of new recreational facilities.

Transportation and Traffic

Implementation of the proposed Program would be consistent with applicable transportation plans and policies. The proposed Program would result in a significant and unavoidable impact related to the generation of vehicle miles traveled (VMT) by the proposed residential uses while the remaining land uses would result in less than significant VMT impacts. The proposed Program would also result in less than significant impacts related to a geometric design of roadway facilities and would have less than significant impacts associated with the provision of emergency access.

Implementation of Alternative 1 would result in substantially less development compared to the proposed Program and would be consistent with applicable transportation plans and policies. Alternative 1 could include the development of 44 dwelling units throughout the Program site. Based on a similar trip generation as very low density residential uses (9.52 trips per day per unit), this alternative's 44 dwelling units would generate approximately 419 trips per day. According to the Office of Planning and Research, *Technical Advisory on Evaluation Transportation Impacts in CEQA*, prepared in November 2017, the screening threshold for projects to determine if VMT would be considered less than significant is when projects generate or attract fewer than 110 trips per day. Because Alternative 1 could generate up to 419 trips per day, the VMT generated by Alternative 1 would be considered significant. Although substantially less VMT would be generated under Alternative 1 compared to the proposed Program, the implementation of Alternative 1 would still result in significant and unavoidable VMT impacts similar to the proposed Program based on current thresholds. Under Alternative 1, potential impacts related to the design of a roadway facility and provision of emergency access would be less than significant and result in less impacts than the proposed Program. Overall, Alternative 1 would have less transportation impacts compared to the proposed Project.

Utilities, Service Systems and Energy

The proposed Program would increase demand for water supplies, wastewater treatment, landfills and energy resources. The proposed Program would generate additional wastewater and stormwater flows. The proposed Program includes adequate water, wastewater, and drainage systems to serve the proposed uses within the Program site. Therefore, less than significant impacts related to the provision of additional water, wastewater and drainage systems would occur. The proposed Program would result in the demand for groundwater withdrawal of 1,107 acre-feet per year (AFY) and a demand of 154 AFY for recycled (non-potable) water. Based on the groundwater withdrawal and the groundwater supply that constitutes offsets, there would be sufficient water supplies available to serve the proposed Program in the future. As a result, impacts would be less than significant.

Because the proposed Program includes the construction and operation of a wastewater treatment plant, the Program would be adequately served and would not require the need for an offsite wastewater treatment provider. Impacts to existing wastewater treatment capacity would be less than significant. Based on existing landfill capacities that would serve the proposed Program as well as compliance with existing federal, State and local solid waste management and reduction statutes and regulations related to solid waste, the proposed Program would result in a less than significant impact to solid waste infrastructure and existing regulations regarding solid waste disposal.

During operation of the proposed Program, energy would be consumed for multiple purposes, including but not limited to stationary sources such as HVAC, lighting, EV charging, emergency generators, and energy needed to operate the wastewater treatment plant. Energy would also be consumed during proposed Program operations for water usage, solid waste disposal, and vehicle trips.

Based on the components of the Program, electrical and natural gas use would be within projected supplies and would not result in the wasteful, inefficient, or unnecessary consumption of energy, and the impact would be less than significant. In addition, fuel use associated with the proposed Program would comply with required federal and State standards and would not conflict with State, regional or local goals. Impacts related to fuel use would be less than significant.

Under Alternative 1, substantially less development would occur within the Program site. Each of the residential parcels (36-acre parcels) would provide for their own water (groundwater wells) and sewage disposal (i.e., leach fields) and would not require offsite facilities. The residential uses would generate solid waste that would be contributed to existing landfills. Furthermore, Alternative 1 would increase the use of energy. Because substantially less development would occur under Alternative 1, less than significant impacts on existing utility facilities, landfill capacities and energy would occur compared to the proposed Program.

Conclusion

Alternative 1, No Program/Development in Accordance with Existing Zoning, would allow limited residential development and the continuance of agricultural production. Implementation of Alternative 1 would result in less environmental effects compared to the proposed Program. Although fewer environmental effects would occur, Alternative 1 would not meet any of the Program objectives.

5.5 Environmental Analysis of the Increased Employment (Alternative 2)

Aesthetics

Under Alternative 2, development would occur throughout the 792-acre Program site similar to the proposed Program. This alternative would transform the visual setting in the Program area from an agricultural setting to an urban setting similar to the proposed Program. Alternative 2 would include approximately 3 percent less residential units, but substantially more mixed use

commercial (approximately 580,000 square feet) more square feet than the proposed Program. Although a greater amount of non-residential square footage would be constructed under this alternative, the same less than significant impacts from a scenic vista, on scenic resources and on resources within a designated State Scenic Highway would occur as with the proposed Program. The transformation of the site to an urban setting under Alternative 2 would result in a greater increase in development compared to the proposed Program. Therefore, this increased development would result in a slightly greater change to the visual characteristics of the Program area and greater potential increases in light and glare compared to the proposed Program. The substantial change to the existing rural setting under Alternative 2 would result in a significant and unavoidable impact and would result in a slightly greater impact compared to the proposed Program. The increase in lighting under this alternative compared to the proposed Program would be significant and slightly greater than under the proposed Program. Lighting impacts would be reduced with the Program mitigation measures including low intensity lighting systems and shields; however, impacts would remain significant and unavoidable.

Agricultural Resources

Under Alternative 2, development would occur throughout the 792-acre Program site similar to the proposed Program. Alternative 2 would not retain any of the agricultural resources onsite and therefore, this alternative would result in the same significant and unavoidable impacts on agricultural resources as the proposed Program.

Air Quality

Under Alternative 2, development would occur throughout the 792-acre Program site similar to the proposed Program. Because more development is proposed under this alternative, a greater amount of construction emissions would occur. Although a greater amount of construction emissions would occur compared to the proposed Program, Mitigation Measures AQ-1 through AQ-4 and GHG-1 could reduce potential impacts to less than significant. Development of Alternative 2 would result in approximately 3 percent less residential units; however, substantially more employment uses would be implemented which would result in an approximately 50 percent increase in the number of average daily trips throughout the Program site and substantially increase operational emissions. This increase in average daily trips could be reduced with the implementation of Mitigation Measures AQ-3 and GHG-1; however, the operational emissions would remain significant and unavoidable. The increased amount of construction under Alternative 2 could also result in greater concentrations of TACs during construction activities. With the implementation of Mitigation Measure AQ-1, emissions of TACs would be reduced to less than significant. Finally, Alternative 2 would require the construction and operation of a wastewater treatment facility. With the implementation of Mitigation Measure AQ-5, potential odor impacts under Alternative 2 would be similar to the potential odor impacts under the proposed Program and would be reduced to less than significant.

Biological Resources

With the implementation of Alternative 2, the same amount of land would be graded as the proposed Program. Although more development would occur under Alternative 2 compared to

the proposed Program, the same potential impacts on special status species could occur. Impacts under Alternative 2 could be significant; however, with the implementation of Mitigation Measures BIO-1 and BIO-2, potential impacts would be reduced to less than significant. In addition, potential impacts on nesting birds could be significant, but with the implementation of Mitigation Measure BIO-3, potential impacts to nesting birds would be reduced to less than significant. Similar to the proposed Program, less than significant impacts to all other biological resources would occur. Alternative 2 would result in the same potential impacts on biological resources as the proposed Program.

Cultural Resources

Under Alternative 2, the same amount of land would be graded as the proposed Program. Impacts to historical resources would result in similar impacts compared to the proposed Program. This alternative could implement Mitigation Measure CUL-1; however, impacts would remain significant and unavoidable. Impacts to potential historic resources would be the same under Alternative 2 as with the proposed Program.

Alternative 2 could result in significant impacts to archaeological and paleontological resources during grading activities. Implementation of Mitigation Measures CUL-5 through CUL-9 for archaeological resources and CUL-16 through CUL-21 for paleontological resources would reduce impacts to less than significant. Impacts to human remains and tribal cultural resources under Alternative 2 would be less than significant. Overall, the implementation of Alternative 2 would result in the same potential impacts to cultural resources compared to the proposed Program.

Geology, Soils and Seismicity

Under Alternative 2, substantially more non-residential development would occur compared to the proposed Program. Because more development would occur under Alternative 2, potentially greater, although less than significant, impacts related to seismic ground shaking, ground failure such as liquefaction, soil erosion or topsoil loss, unstable geologic location, or expansive soils would occur compared to the proposed Program.

Greenhouse Gas Emissions

Under Alternative 2, substantially more GHG emissions would be generated compared to the proposed Program because Alternative 2 would result in approximately 50 percent more daily vehicular trips. With a substantial increase in GHG emissions, this alternative would not meet California's 2030 and 2050 goals. Therefore, implementation of the Alternative 2 would result in significant GHG impacts. Implementation of Mitigation Measures GHG-1 and GHG-2 could reduce GHG impacts; however, the impacts would remain significant and unavoidable. Overall, Alternative 2 would result in greater GHG impacts compared to the proposed Program.

Hazards and Hazardous Materials

Under Alternative 2, substantially more non-residential development would occur compared to the proposed Program. Because more development would occur under Alternative 2, potentially greater, although less than significant, impacts related the routine use, accident conditions,

schools, hazardous materials site listing, airports, emergency plans, and wildland fires would occur compared to the proposed Program. Overall, Alternative 2 would have greater impacts related to hazards and hazardous materials when compared to the proposed Program.

Hydrology and Water Quality

Alternative 2 assumes substantially more non-residential development would occur compared to the proposed Program. Because more development would occur under Alternative 2, greater, although less than significant, impacts on water quality standards and waste discharge requirements, groundwater supplies and recharge, drainage patterns, stormwater drainage systems, degradation of water quality, and conflicts with a water control plan or sustainable groundwater management plan would occur. Overall, the implementation of Alternative 2 would result in greater hydrology and water quality impacts compared to the proposed Program.

Similar to the proposed Project, implementation of Alternative 2 would result in no impacts regarding floods, flood hazards, seiche, tsunami, or mudflow.

Land Use and Planning

Implementation of Alternative 2 would result in more development compared to the proposed Program. Although more development would occur under Alternative 2, this alternative would result in no impacts related to physically dividing existing established communities. This impact would be the same as under the proposed Program. Alternative 2 would also result in less than significant land use impacts related to the RTP/SCS, the goals and polices of the County's General Plan, and the Madera County Zoning Code. Although less than significant land use impacts would occur under Alternative 2, these impacts would be greater compared to the proposed Program.

Noise and Vibration

Implementation of Alternative 2 would result in more development compared to the proposed Program. Construction activities associated with Alternative 2 would result in more construction activities that could expose existing residents to significant construction noise levels. With the implementation of Mitigation Measures N-1 and N-2, potential construction noise levels would be reduced to less than significant. Because fewer residential uses would be constructed under Alternative 2 compared to the proposed Program, less noise levels from operations of the railway could expose proposed residential uses compared to the proposed Program. Although less impacts could result, railway noise impacts could still be significant under Alternative 2, thus requiring the implementation of Mitigation Measure N-3 to reduce potential noise impacts to less than significant. In addition, Alternative 2 would result in substantially more long-term operational traffic volumes and result in greater significant and unavoidable traffic noise impacts along roadways in the vicinity of the Program site compared to the proposed Program. Finally, vibration levels associated with Alternative 2 construction activities could result in significant vibration levels; however, with the implementation of Mitigation Measure N-4, construction vibration impacts would be less than significant. Overall, Alternative 2 would result in greater construction

noise impacts, potentially less railway noise impacts, greater long-term roadway noise increases, and greater construction vibration impacts compared to the proposed Program.

Population and Housing

With the development of Alternative 2, approximately three percent less residential units and population would occur compared to the proposed Program. However, this alternative would substantially increase employment growth compared to the proposed Program. This alternative is not expected to induce substantial unplanned growth due to the substantial increase in employment growth, and therefore, potential growth impacts would be less than significant. However, in comparison to the proposed Program, this alternative would result in greater potential growth impacts.

Public Services

Implementation of Alternative 2 would result in approximately three percent less residents, but substantially more employees compared to the proposed Program. Because the provision of both police and fire services are generally based on residential population within Madera County, the reduction in residential population under Alternative 2 would result in less police and fire impacts compared to the proposed Program. Although less impacts would occur, Alternative 2 would still result in potential significant and unavoidable impacts associated with the provision of police and fire facilities. In addition, with a reduction of residential population, Alternative 2 would result in a reduction in the need for school facilities compared to the proposed Program. In addition, because this alternative as well as the proposed Program would provide adequate parks to future residents, no additional park facilities would be required, and therefore, the same less than significant impacts related to park facilities would occur. Finally, the implementation of Alternative 2 would decrease the need for additional library space at an existing library or a new library facility. However, under both Alternative 2 and the proposed Program, construction of a future library facility could result in significant library facility impacts that would be considered unavoidable because specific measures to reduce potential impact are not known at this time. Because less residential population would occur under this alternative compared to the proposed Program, this alternative would result in less impacts associated with the provision of a library facility compared to the proposed Program.

Recreation

Under Alternative 2, approximately three percent less residents, but substantially more employees compared to the proposed Program would be provided. Because recreational facilities are primarily used by the residential population, the reduction of residents under this alternative would result in less impacts to recreational facilities. The impacts under this alternative would be less than significant. Due to fewer residents under Alternative 2 compared to the proposed Program, less impacts on recreational facilities would occur under Alternative 2 compared to the proposed Program. In addition, as with the proposed Program, the implementation of Alternative 2 would not require the construction of new recreational facilities.

Transportation and Traffic

Implementation of Alternative 2 would be similarly consistent with applicable transportation plans and policies as the proposed Program. Alternative 2 would result in substantially more development compared to the proposed Program and result in approximately 50 percent more average daily trips than the proposed Program. With the substantial increase in trips, Alternative 2 would generate substantially more VMT. Although this alternative would result in significant and unavoidable VMT impacts similar to the proposed Program, this alternative would result in greater VMT impacts compared to the proposed Program. Under Alternative 2, potential impacts related to the design of a roadway facility and provision of emergency access would be less than significant, and would result in the same impacts as the proposed Program. Overall, Alternative 2 would have greater transportation impacts compared to the proposed Project.

Utilities, Service Systems and Energy

Under Alternative 2, more development would occur within the Program site compared to the proposed Program. As with the proposed Program, Alternative 2 would include adequate water, wastewater, and drainage systems to serve the proposed uses within the Program site. Therefore, less than significant impacts related to the provision of additional water, wastewater and drainage systems would occur. Alternative 2 would result in the demand for groundwater withdrawal and a demand for recycled (non-potable) water. Based on similar water facilities as the proposed Program, there would be sufficient water supplies available to serve Alternative 2 uses in the future. As a result, impacts would be less than significant, but expected to result in potentially greater impacts than the proposed Program.

Alternative 2 would also include a wastewater treatment plant to serve the proposed uses. No additional treatment capacity would be required and less than significant impacts on existing wastewater facilities would occur. In addition, existing landfill capacities that would serve Alternative 2 would comply with existing federal, State and local solid waste management and reduction statutes and regulations related to solid waste, and therefore, would result in a less than significant impact to solid waste infrastructure and existing regulations regarding solid waste disposal.

During operation of Alternative 2, energy would be consumed for multiple purposes, including but not limited to stationary sources such as HVAC, lighting, EV charging, emergency generators, and energy needed to operate the wastewater treatment plant. Energy would also be consumed during Alternative 2 operations for water usage, solid waste disposal, and vehicle trips.

Based on the components of this alternative which are similar to the proposed Program, electrical and natural gas use would be within projected supplies and would not result in the wasteful, inefficient, or unnecessary consumption of energy similar to the proposed Program. Alternative 2's energy impact would be less than significant. In addition, fuel use associated with Alternative 2 would comply with required federal and State standards and would not conflict with State, regional or local goals similar to the proposed Program. Impacts related to fuel use would be less than significant similar to the proposed Program.

Conclusion

Under Alternative 2, Increased Employment, less impacts related to railway noise, public services and recreation would occur compared to the proposed Program. Greater impacts associated with aesthetics, air quality, geology and soils, greenhouse gas emissions, hazards and hazardous materials, hydrology and water quality, land use and planning, roadway noise, construction noise, vibration, population growth, transportation, and utilities, service systems and energy would occur with Alternative 2 compared to the proposed Program. The same impacts related to agricultural resources, biological resources and cultural resources would occur with this alternative compared to the proposed Program. Overall, greater environmental impacts would occur with this alternative compared to the proposed Program. In addition, this alternative would meet all of the Program objectives.

5.6 Environmental Analysis of the Increased Active Adult Community (Alternative 3)

Aesthetics

Under Alternative 3, development would occur throughout the 792-acre Program site similar to the proposed Program. This alternative would transform the visual setting in the Program area from an agricultural setting to an urban setting similar to the proposed Program. Alternative 3 would include approximately 1.8 percent more residential units approximately 23 percent more non-residential square feet and approximately 20 percent more employees than the proposed Program. Although a greater amount of development would occur under this alternative, the same less than significant impacts from a scenic vista, on scenic resources and on resources within a designated State Scenic Highway would occur as with the proposed Program. The transformation of the site to an urban setting under Alternative 3 would result in a greater increase in development compared to the proposed Program. Therefore, this increase in development would result in a greater change to the visual characteristics of the Program area and greater potential increases in light and glare compared to the proposed Program. The substantial change to the existing rural setting under Alternative 3 would result in a significant and unavoidable impact and would result in a greater impact compared to the proposed Program. The increase in lighting under this alternative compared to the proposed Program would be significant and slightly greater than under the proposed Program. Lighting impacts would be reduced with the Program mitigation measures including low intensity lighting systems and shields; however, impacts would remain significant and unavoidable.

Agricultural Resources

Under Alternative 3, development would occur throughout the 792-acre Program site similar to the proposed Program. Alternative 3 would not retain any of the agricultural resources onsite and therefore, this alternative would result in the same significant and unavoidable impacts on agricultural resources as the proposed Program.

Air Quality

Under Alternative 3, development would occur throughout the 792-acre Program site similar to the proposed Program. Because this alternative could result in more development compared to the proposed Program, more construction emissions would occur. This alternative would result in significant air emission impacts prior to the implementation of mitigation measures. With the implementation of Mitigation Measures AQ-1 through AQ-4 and GHG-1, construction emissions could be reduced to less than significant. Alternative 3 would result in approximately 4 percent less average daily trips because a greater percentage of residents within the Program would be within the age-restricted senior community. These senior residents are assumed to drive less per unit compared to non-age restricted units. With less average daily trips, Alternative 3 would result in less operational emissions compared to the operational emissions associated with the proposed Program. Although less operational emissions would be generated, the implementation of Alternative 3 would result in significant operational emissions of criteria pollutants. These operational emissions could be reduced with the implementation of Mitigation Measures AQ-3 and GHG-1; however, the operational emissions would remain significant and unavoidable. Because construction emissions would be greater compared to the proposed Program, Alternative 3 construction emissions would result in significant concentrations of TAC. With the implementation of Mitigation Measure AQ-1, emissions of TACs would be reduced to less than significant. Finally, Alternative 3 would require the construction and operation of a wastewater treatment facility. With the implementation of Mitigation Measure AQ-5, potential odor impacts under Alternative 3 would be similar to the potential odor impacts under the proposed Program and would be reduced to less than significant. Overall, Alternative 3 would result in less air quality impacts compared to the proposed Program.

Biological Resources

With the implementation of Alternative 3, the same amount of land would be graded as the proposed Program. Although more development would occur under Alternative 3 compared to the proposed Program, the same potential impacts on special status species could occur. Impacts under Alternative 3 could be significant; however, with the implementation of Mitigation Measures BIO-1 and BIO-2, potential impacts would be reduced to less than significant. In addition, potential impacts on nesting birds could be significant, but with the implementation of Mitigation Measure BIO-3, potential impacts to nesting birds would be reduced to less than significant. Similar to the proposed Program, less than significant impacts to all other biological resources would occur. Alternative 3 would result in the same potential impacts on biological resources as the proposed Program.

Cultural Resources

Under Alternative 3, the same amount of land would be graded as the proposed Program. Impacts to historical resources would be similarly impacts compared to the proposed Program. This alternative could implement Mitigation Measure CUL-1; however, impacts would remain significant and unavoidable. Impacts to potential historic resources would be the same under Alternative 3 as with the proposed Program.

Alternative 3 could result in significant impacts to archaeological and paleontological resources during grading activities. Implementation of Mitigation Measures CUL-5 through CUL-9 for archaeological resources and CUL-16 through CUL-21 for paleontological resources would reduce impacts to less than significant. Impacts to human remains and tribal cultural resources under Alternative 3 would be less than significant. Overall, the implementation of Alternative 3 would result in the same potential impacts to cultural resources compared to the proposed Program.

Geology, Soils and Seismicity

Under Alternative 3, more development within the Program site would occur compared to the proposed Program. Because more development would occur under Alternative 3, potentially more, although less than significant, impacts related to seismic ground shaking, ground failure such as liquefaction, soil erosion or topsoil loss, unstable geologic location, or expansive soils would occur compared to the proposed Program.

Greenhouse Gas Emissions

Under Alternative 3, more development would occur compared to the proposed Project, and the majority of GHG emissions occur from mobile (vehicular) sources. Less GHG emissions would be generated compared to the proposed Program because Alternative 3 would result in approximately 4 percent fewer daily vehicular trips. Fewer daily trips would occur because a greater percentage of the residential units would be within an age-restricted community for seniors. Seniors are assumed to generate fewer trips compared to residents within non-age restricted units. Although less GHG emissions would be generated, this alternative is not expected to meet California's 2030 and 2050 goals. Therefore, implementation of the Alternative 3 would result in significant GHG impacts. Implementation of Mitigation Measures GHG-1 and GHG-2 could reduce GHG impacts; however, the impacts would remain significant and unavoidable. Overall, Alternative 3 would result in less GHG impacts compared to the proposed Program.

Hazards and Hazardous Materials

Under Alternative 3, more development within the Program site would occur compared to the proposed Program. Because more development would occur under Alternative 3, potentially greater, although less than significant, impacts related the routine use, accident conditions, schools, hazardous materials site listing, airports, emergency plans, and wildland fires would occur compared to the proposed Program. Overall, Alternative 3 would have greater impacts related to hazards and hazardous materials when compared to the proposed Program.

Hydrology and Water Quality

Alternative 3 assumes more development would occur compared to the proposed Program. Because more development would occur under Alternative 3, greater, although less than significant, impacts on water quality standards and waste discharge requirements, groundwater supplies and recharge, drainage patterns, stormwater drainage systems, degradation of water quality, and conflicts with a water control plan or sustainable groundwater management plan would occur. Overall, the implementation of Alternative 3 would result in greater hydrology and water quality impacts compared to the proposed Program.

Similar to the proposed Project, implementation of Alternative 3 would result in no impacts regarding floods, flood hazards, seiche, tsunami, or mudflow.

Land Use and Planning

Implementation of Alternative 3 would result in more development compared to the proposed Program. Development under Alternative 3 would result in no impacts related to physically dividing existing established communities. This impact would be the same as under the proposed Program. Alternative 3 would also result in less than significant land use impacts related to the RTP/SCS, the goals and polices of the County's General Plan, and the Madera County Zoning Code. Less than significant land use impacts would occur under Alternative 3, and these impacts would be the same compared to the proposed Program.

Noise and Vibration

Implementation of Alternative 3 would result in more development compared to the proposed Program. Construction activities associated with Alternative 3 would result in more construction activities that could expose existing residents to significant construction noise levels. With the implementation of Mitigation Measures N-1 and N-2, potential construction noise levels would be reduced to less than significant. Because more residential uses would be constructed under Alternative 3 compared to the proposed Program, greater potential noise levels from operations of the railway could expose proposed residential uses compared to the proposed Program. Although greater impacts could result, potential significant railway noise impacts could be reduced to less than significant with the implementation of Mitigation Measure N-3. In addition, Alternative 3 would result in less long-term operational traffic volumes and result in less significant and unavoidable traffic noise impacts along roadways in the vicinity of the Program site compared to the proposed Program. Finally, vibration levels associated with Alternative 3 construction activities could result in significant vibration levels; however, with the implementation of Mitigation Measure N-4, construction vibration impacts would be less than significant. Overall, Alternative 3 would result in more construction noise impacts, potentially greater railway noise impacts, less long-term roadway noise increases, and greater construction vibration impacts compared to the proposed Program.

Population and Housing

With the development of Alternative 3, approximately 1.8 percent more residential units and approximately 11 percent less population would occur compared to the proposed Program because a greater amount of residential units is proposed for seniors compared to the Program. This alternative would increase the number of employees within the Program site by approximately 20 percent compared to the proposed Program. With a decrease in residential population and increase in employment population, this alternative is not expected to induce substantial unplanned growth. Therefore, potential growth impacts would be less than significant. In comparison to the proposed Program, this alternative is expected to result in the same potential growth impacts.

Public Services

Implementation of Alternative 3 would result in approximately 11 percent less residents, but approximately 20 percent more employees compared to the proposed Program. Because the provision of both police and fire services are generally based on residential population within Madera County, the reduction in residential population under Alternative 3 would result in less police and fire impacts compared to the proposed Program. Although less impacts would occur, Alternative 3 would still result in potential significant and unavoidable impacts associated with the provision of police and fire facilities. In addition, with a reduction of residential population as well as an increase in active adult (senior) residents (which tend to have fewer persons per household and no school age children), Alternative 3 would result in a reduction in the need for school facilities compared to the proposed Program. In addition, because this alternative as well as the proposed Program would provide adequate parks to future residents, no additional park facilities would be required, and therefore, the same less than significant impacts related to park facilities would occur. Finally, the implementation of Alternative 3 would decrease the need for additional library space at an existing library or a new library facility because less residential population would occur. Under both Alternative 3 and the proposed Program, construction of a future facility could result in significant library facility impacts that would be considered unavoidable because specific measures to reduce potential impact are not known at this time. Because less residential population would occur under this alternative compared to the proposed Program, this alternative would result in less impacts associated with the provision of a library facility compared to the proposed Program.

Recreation

Under Alternative 3, approximately 11 percent less residents, but 20 percent more employees compared to the proposed Program would be provided. Because recreational facilities are primarily used by the residential population, the reduction of residents under this alternative would result in less impacts to recreational facilities. The impacts under this alternative would be less than significant. Due to fewer residents under Alternative 3 compared to the proposed Program, less impacts on recreational facilities would occur under Alternative 3 compared to the proposed Program. In addition, as with the proposed Program, the implementation of Alternative 3 would not require the construction of new recreational facilities.

Transportation and Traffic

Implementation of Alternative 3 would be similarly consistent with applicable transportation plans and policies as the proposed Program. Alternative 3 would result in more development compared to the proposed Program, but due to a greater percentage of age-restricted (senior) residents approximately four percent less average daily trips than the proposed Program. With less overall trips and a greater percentage of local-serving commercial use, Alternative 3 would generate less VMT. Although this alternative would result in significant and unavoidable VMT impacts similar to the proposed Program, this alternative would result in less VMT impacts compared to the proposed Program. Under Alternative 3, potential impacts related to the design of a roadway facility and provision of emergency access would be less than significant, and

would result in the same impacts as the proposed Program. Overall, Alternative 3 would have less transportation impacts compared to the proposed Project.

Utilities, Service Systems and Energy

Under Alternative 3, more development would occur within the Program site. As with the proposed Program, Alternative 3 would include adequate water, wastewater, and drainage systems to serve the proposed uses within the Program site. Therefore, less than significant impacts related to the provision of additional water, wastewater and drainage systems would occur. Alternative 3 would result in the demand for groundwater withdrawal and a demand for recycled (non-potable) water. Based on similar water facilities as the proposed Program, there would be sufficient water supplies available to serve Alternative 3 uses in the future. As a result, impacts would be less than significant, and expected to result in potentially greater impacts than the proposed Program.

Alternative 3 would also include a wastewater treatment plant to serve the proposed uses. No additional treatment capacity would be required and less than significant impacts on existing wastewater facilities would occur. In addition, existing landfill capacities that would serve Alternative 3 would comply with existing federal, State and local solid waste management and reduction statutes and regulations related to solid waste, and therefore, would result in a less than significant impact to solid waste infrastructure and existing regulations regarding solid waste disposal.

During operation of Alternative 3, energy would be consumed for multiple purposes, including but not limited to stationary sources such as HVAC, lighting, EV charging, emergency generators, and energy needed to operate the wastewater treatment plant. Energy would also be consumed during Alternative 3 operations for water usage, solid waste disposal, and vehicle trips.

Based on the components of this alternative which are similar to the proposed Program, electrical and natural gas use would be within projected supplies and would not result in the wasteful, inefficient, or unnecessary consumption of energy similar to the proposed Program. Alternative 3's energy impact would be less than significant. In addition, fuel use associated with Alternative 3 would comply with required federal and State standards and would not conflict with State, regional or local goals similar to the proposed Program. Impacts related to fuel use would be less than significant similar to the proposed Program. Overall, energy impacts associated with this alternative would be less than the proposed Program.

Conclusion

Alternative 3, Increased Active Adult Community, would result in less impacts related to air quality, greenhouse gas emissions, public services, recreation, roadway noise, transportation, and energy compared to the proposed Program. Greater impacts related to aesthetics, geology and soils, hazards and hazardous materials, hydrology and water quality, construction noise/ vibration, and utilities, service systems and energy would occur compared to the proposed Program. The same impacts related to agricultural resources, biological resources, cultural resources, land use and planning, and population growth would occur compared to the proposed

Program. Overall, Alternative 3 would result in less environmental impacts compared to the proposed Program. In addition, this alternative would meet all of the Program objectives.

5.7 Environmental Superior Alternative

As required by CEQA Guidelines Section 15126.6, one of the alternatives must be identified as an Environmental Superior Alternative. The Environmentally Superior Alternative is the one that would result in the fewest or least significant environmental impacts. If the Environmental Superior Alternative is the No Project Alternative (No Project/Development in Accordance with Existing Zoning), which is the case with the conclusions in this alternatives analysis, then an Environmentally Superior Alternative must be selected from the remaining alternatives.

Alternative 3, Increased Active Adult Community, would result in less environmental impacts compared to the impacts resulting from the implementation of the proposed Program and implementation of Alternative 2, Increased Employment. Alternative 3 would reduce the degree of significant and unavoidable air quality, greenhouse gas emissions, and transportation (VMT) impacts as compared with the implementation of the proposed Program; however, would remain significant and unavoidable under this alternative. Alternative 3 is considered the environmentally superior alternative and as shown in Table 5-1 above, Alternative 3 would be able to meet each of the Program objectives.

CHAPTER 6
Report Preparation

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